

August 18, 2014

Mr. Joe Westersund
Oregon Department of Environmental Quality
811 SW 6th Avenue
Portland, Oregon 97204

**Re: Remedial Action Completion Report
Former Progress Dry Cleaners, ECSI No. 3798
8602 SW Hall Boulevard
Beaverton, Oregon
15656-01/Task 5**

Dear Mr. Westersund:

This letter presents the activities conducted as part of the March 2014 Remedial Action (RA) activities at the former Progress Dry Cleaners site in Beaverton, Oregon (Figure 1). Three ambient air sampling events were completed following RA activities, the results of these sampling events are discussed below and presented in Table 1. This letter was prepared for the Oregon Department of Environmental Quality (DEQ) under Task 5 of Task Order 22-13-16.

Background

This section presents a brief description of the site and history. For additional information, including previous environmental activities, please refer to the *IRM Work Plan* (Hart Crowser 2007).

The project site, the former Progress Dry Cleaners, is located at 8602 SW Hall Boulevard in Beaverton, Oregon (Figure 1). The former dry cleaner occupied a tenant space at the west end of a strip mall, as shown on Figure 2. The former Progress Dry Cleaners opened in 1963, and operated continuously until early 2007. PCE releases to soil below the building appear to have likely occurred as drips or spills to the concrete floor from a reclaimer formerly located along the west wall of the cleaners, and possible disposal to drains or vent pipe connections along the western wall.

Previous environmental activities have detected chlorinated volatile organic compounds (VOCs) in soil and groundwater beneath and downgradient of the building formerly occupied by Progress Dry Cleaners. VOC contamination consists of tetrachloroethene (PCE) and its degradation products: trichloroethene (TCE), *cis*-1,2-dichloroethene (*cis*-1,2-DCE), *trans*-1,2-dichloroethene (*trans*-1,2-DCE), 1,1-dichloroethene (1,1-DCE), and vinyl chloride (VC). Data indicate that historical releases resulted in soil contamination beneath the building slab, which then acted as a source of shallow groundwater and indoor air contamination.



In 2007, Hart Crowser completed Interim Removal Measures (IRM) to address contamination and vapor intrusion concerns. A portion of the existing concrete slab was removed with the soil underneath excavated and disposed of. The excavation was backfilled and an active, sub-slab venting system was installed prior to re-pouring of the concrete floor slab. A fan installed as part of the vent system draws VOCs from below the floor slab to the outside atmosphere; this system, when on, is successful in mitigating vapor intrusion to DEQ acceptable risk levels.

Currently, the facility is inactive, and all equipment has been removed from the building. Neighboring businesses are still in operation. The adjacent business to the east is a toner cartridge refiller. A sports bar is in a separate building approximately 40 feet to the north from the dry cleaners space.

RA Activities

The purpose of the RA was to install an additional vapor barrier and determine whether, with that new vapor barrier in place, the active sub-slab venting system could be turned off. The scope of work for the RA activities consisted of the following tasks:

- Cleaning and sealing gaps in the existing concrete slab;
- Installing a 30-mil thick polyvinyl chloride (PVC) vapor barrier fabric over most of the existing floor space;
- Pouring a 2-inch thick continuous concrete slab over the vapor barrier;
- Providing ramp access to the front and back doors from the existing grade to the two inch lift; and
- Completing three rounds of air sampling to measure the effectiveness of the new vapor barrier.

In March 2014, RA activities were performed at the site. D and S Concrete Construction, Inc. (D and S) of Dayton, Oregon, performed the RA activities under subcontract to Hart Crowser. A representative of Hart Crowser was present to observe and document these activities. Photographs of RA activities are included in Attachment A.

Vapor Barrier Installation

The vapor barrier coverage area consists of approximately 1,250 square feet as shown on Figure 2. The vapor barrier covers most of the retail floor space with exception of the entrances at the front and back of the retail space. The surface of the existing concrete slab was thoroughly cleaned prior to vapor barrier installation. Various gaps present in the floor along the edges of the retail space and around the existing concrete patch (from 2007 IRM activities) were filled using concrete sealing epoxy.



On March 12, 2014, a 30-mil PVC liner was installed directly over the concrete floor. D and S ordered the liner from Cascade Concrete Accessories of Hillsboro, Oregon, using the overall dimensions of the retail space. The liner arrived in one piece, with seams that were sealed by Cascade Concrete Accessories prior to delivery. The seams were inspected by Hart Crowser upon arrival to the site. The material specification sheet and QA review of the liner are included in the material data sheets provided in Attachment B.

The liner was rolled out, laid flat, and adjusted to cover the entire retail space. Excess material was cut to fit as specified in our RA Work Plan dated January 17, 2014 (Hart Crowser 2014). The western, southern, and northern extents of the liner were extended up the base of the wall approximately 1.5 inches where it was sealed using a bead of epoxy. Similarly, the liner was sealed to the floor along the eastern boundary and where the concrete slab did not rest against a wall.

An electrical conduit and a roof drain pipe protrude from the concrete floor along the west wall of the site. The vapor barrier was sealed around these pipes using excess PVC liner material and additional sealing epoxy. The hole was cut in the PVC vapor barrier material so the liner could lay flat around each pipe. The base of each pipe was sealed to the liner using sealing epoxy. An additional piece of PVC liner was cut to wrap around the pipe and overlap the liner across the floor. The overlapping liner was sealed at all overlapping edges and around the pipe.

A 10-oz non-woven geotextile fabric was placed over the PVC liner to protect the liner from damage while pouring the concrete slab. The fabric was rolled out and adjusted similar to the PVC liner. As the fabric is not intended to create a seal from the subsurface, no sealant was used.

Concrete Slab

On March 13, 2014, a two inch thick concrete slab was poured directly over the PVC liner and geotextile fabric. The appropriate mix and moisture content of the concrete to minimize cracking was determined by the construction contractor and approved by Hart Crowser. Welded wire sheets were not used to reinforce the concrete slab as proposed in the Work Plan (Hart Crowser 2014). As described by D and S, and later confirmed by others, wire sheets do not work well within thin slabs (i.e., 2 inches thick). Instead the concrete mix was infused with fiberglass fibers to minimize cracking. This method is typically used by concrete contractors for thin slabs where minimizing cracks is a priority. Using a wire mesh would have created a greater chance of puncturing the vapor barrier during installation. The concrete and fiberglass fiber specifications are included in Attachment B.

Concrete arrived at the site pre-mixed and was transferred from a concrete truck to a concrete pump basin and pumped through a hose from the rear entrance of the site. A crew worked from the front to the back of the retail space to pour a single continuous slab. The concrete was poured in approximately one hour, then worked and reworked until smooth over several hours.



To aid in minimizing the appearance of cracks, expansion joints were saw cut into the slab once it had cured for 24-hours. The cuts are up to $\frac{1}{4}$ inch deep and do not penetrate the slab. A single cut was placed in the center of the slab in the north-south direction. Two cuts were placed in the east-west direction evenly spaced apart. The joints are located at least 2 feet from the excavation boundary created during IRM activities. Once the concrete had cured over approximately a week, caution tape was placed along the top of the vertical edges of the slab not against a wall to delineate the 2-inch drop.

Access Ramp

Access ramps were constructed at the front and rear entrances to the retail space. The ramp locations are shown on Figure 2 and representative photographs are included in Attachment A. The ramps are made of concrete and were poured as part of the continuous slab described above. The existing concrete surface under the toe of each ramp was chipped away approximately 2-inches deep so that the ramp slab, once poured, would continue to be at least 2-inches thick as it tapered down towards the entrance (Photograph 4). The ramps comply with regulations set forth by the Americans with Disabilities Act (for the two-inch lift, ramps have a 24-inch run). The ramps begin and end flush with the adjacent grades and are texture finished for traction.

Ambient Air Sampling

In preparation of indoor ambient air sampling, the active sub-slab vent fan and HVAC systems were shut off upon completion of the vapor barrier. The sub-slab fan was shut off on the afternoon of March 14, 2014. The former Progress Dry Cleaner HVAC system remained in operation until March 21, 2014, to circulate air and remove moisture while the concrete slab cured. The HVAC system in the neighboring retail space was not regulated in preparation for or during ambient air sampling. The first sampling event occurred on April 21, 2014, 31 days after the HVAC system was shut off. The second sampling event occurred 30 days later on May 21, 2014. Following the second sampling event, on June 5, 2014, power was restored to the sub-slab fan and the HVAC system. The third sampling event occurred on July 7, 2014, approximately 30 days after the fan and HVAC system were turned on.

Ambient air sampling occurred on April 21, May 21, and July 7, 2014. During each sampling event, four air samples were collected over an 8-hour period (during normal business hours) using laboratory-supplied Summa canisters and flow controllers. Samples A-1 and A-2 were collected from within the former Progress Cleaners. Sample A-3 was collected from the neighboring retail space (ink and toner refiller) and a background sample, A-4, was collected from outside the building, approximately 50 feet to the west. Results from these sampling events are described below.



Chemical Analyses, Results, and Risk Screening

The analytical program for the RA was based on the chemical results of previous investigations. Compounds of potential concern (COPCs) at this site include PCE, TCE, *trans*-1,2-DCE, *cis*-1,2-DCE, 1,1-DCE, and VC. As such, the analytical program focused on these COPCs. The four ambient air samples collected during each sampling event were analyzed for chlorinated VOCs by EPA Method TO-15. Results from these chemical analyses are presented in Table 1. Analytical reports are included in Attachment C.

Sampling Results

April 2014. PCE and *cis*-1,2-DCE were detected in A-1 at concentrations of 8.8 and 1.1 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$), respectively. In A-2, PCE and *cis*-1,2-DCE were detected at concentrations of 9.5 and 1.4 $\mu\text{g}/\text{m}^3$, respectively. No other COPCs were detected from within the former Progress Dry Cleaners. In sample A-3, located within the neighboring retail space, PCE, TCE, and *cis*-1,2-DCE were detected at concentrations of 8.1, 1.4, and 1.5 $\mu\text{g}/\text{m}^3$, respectively. No COPCs were detected in the background sample, A-4.

May 2014. PCE, TCE, and *cis*-1,2-DCE were detected in A-1 at concentrations of 51, 9.1, and 9.5 $\mu\text{g}/\text{m}^3$, respectively. In A-2, PCE, TCE, and *cis*-1,2-DCE were detected at concentrations of 40, 7.5, and 7.1 $\mu\text{g}/\text{m}^3$, respectively. PCE, TCE, and *cis*-1,2-DCE were also detected in A-3 at concentrations of 12, 3.3, 2.3 $\mu\text{g}/\text{m}^3$, respectively. No COPCs were detected in the background sample, A-4.

July 2014. PCE was detected in A-1 and A-2 at concentrations of 34 and 25 $\mu\text{g}/\text{m}^3$, respectively. No other COPCs were detected from within the former Progress Cleaners. PCE was also detected in A-3 at a concentration of 2.3 $\mu\text{g}/\text{m}^3$. No COPCs were detected in the background sample, A-4.

Risk Screening

As a direct measurement to assess risks to human health, ambient air samples were collected from within the former Progress Dry Cleaners and the neighboring retail space. Background samples were collected for reference. Chemical data were screened against DEQ's risk-based concentrations (RBCs) (DEQ 2012) for inhalation of ambient air by occupational receptors. No COPCs were detected above applicable RBCs in April 2014; however, in May 2014, PCE and TCE were detected above RBCs for occupational workers. PCE and TCE RBCs were exceeded within the former Progress Cleaner retail space and the TCE RBC was exceeded within the neighboring property. The May 2014 sample was collected approximately 60 days after the sub-slab vent and HVAC fans were turned off. Upon receiving the results of the May 2014 sampling event, the sub-slab and HVAC fans were turned back on. The July 2014 sampling event was completed approximately 30 days after the fans were turned back on. No COPCs were detected above applicable RBCs during the July 2014 sampling event. Chemical data and applicable RBCs are listed in Table 1.



Conclusions and Recommendations

RA activities were completed to seal gaps present in the concrete floor of the former Progress Cleaners site and to attempt to mitigate vapors while not operating the sub-slab vent and HVAC fans. The gaps were sealed using a concrete epoxy sealant, and a continuous vapor barrier was installed within the former Progress Cleaner retail space.

Ambient air data indicates that installation of the vapor barrier was not enough to mitigate vapors if the sub-slab vent and HVAC fans are turned off. By shutting off all ventilation in the former Progress Cleaners building, we allowed vapors to accumulate in the stagnant building and create a “worst case” scenario for vapor exposure. Vapor concentrations remained below applicable RBCs following the first round of air sampling, but by the second round of air sampling, PCE and TCE vapors had accumulated to above acceptable concentrations. Once the fans were turned back on, concentrations receded to below applicable RBCs. Based on these results, the active sub-slab venting fan is required to maintain chlorinated VOC vapor concentrations below DEQ RBCs for occupational receptors.

Furthermore, vapor concentrations observed within the neighboring retail space were similar to those seen in the former Progress Cleaner retail space suggesting that there may be an additional source for observed vapors or an additional preferential pathway for observed vapors (i.e., not through the former Progress Cleaners slab). While in operation, the sub-slab fan is effective in mitigating vapors in the neighboring retail space. If the sub-slab fan were to be turned off, occupational workers in the neighboring retail space may be periodically exposed to chlorinated vapor concentrations above acceptable levels.

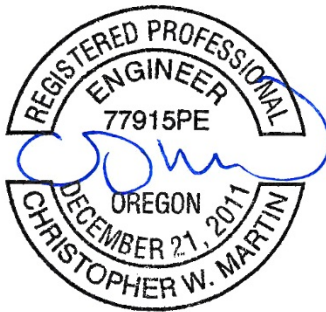
Narrow cracks have formed within the 2-inch thick concrete slab originating at the corners of the access ramps (Photograph 14, Appendix A). It was understood during planning and implementation of the RA activities that all cracks could not be avoided since the slab is relatively thin and because it was poured over a non-breathable surface (the vapor barrier) such that the concrete could not cure from both top and bottom. The formation of cracks were minimized by using an optimum concrete mixture, a fiberglass bonding agent, and slow curing process. No guarantees were given or offered by Hart Crowser or our subcontractor to complete the slab with absolutely no cracks. These cracks are cosmetic and do not harm the effectiveness of the vapor barrier.



If you should have any comments or questions regarding the findings and conclusions of this report, please contact us at 503-620-7284.

Sincerely,

HART CROWSER, INC.



RENEWAL DATE: 12/31/2014.

CHRISTOPHER W. MARTIN, PE
Task Order Manager

RICHARD D. ERNST, RG
Program Manager

References

DEQ 2012. *Risk-Based Concentrations for Individual Chemicals*. June 7, 2012.

Hart Crowser 2007. *Former Progress Dry Cleaners IRM Work Plan*. August 24, 2007.

Hart Crowser 2014. *Former Progress Dry Cleaners RA Work Plan*. January 17, 2014.

Attachments:

Table 1 – Chemical Analysis Results

Figure 1 – Site Location Map

Figure 2 – Site Plan

Attachment A – Photograph Log

Attachment B – RA Material Documentation

Attachment C – Analytical Laboratory Reports

cc: Steve Campbell, DEQ

**Table 1 - Chemical Analysis Results
Former Progress Dry Cleaners
Beaverton, Oregon**

Sampling Location	Sampling Date	Sample Type	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	1,1-DCE	Vinyl Chloride
Progress Cleaner			Concentrations in micrograms per cubic meter ($\mu\text{g}/\text{m}^3$)					
A-1	21-Apr-14	8-hour	8.8	<1.1	1.1	<0.79	<0.79	<0.51
	21-May-14	8-hour	51	9.1	9.5	<0.79	<0.79	<0.51
	7-Jul-14	8-hour	34	<1.1	<0.79	<0.79	<0.79	<0.51
A-2	21-Apr-14	8-hour	9.5	<1.1	1.4	<0.79	<0.79	<0.51
	21-May-14	8-hour	40	7.5	7.1	<0.79	<0.79	<0.51
	7-Jul-14	8-hour	25	<1.1	<0.79	<0.79	<0.79	<0.51
Neighbor A-3	21-Apr-14	8-hour	8.1	1.4	1.5	<0.79	<0.79	<0.51
	21-May-14	8-hour	12	3.3	2.3	<0.79	<0.79	<0.51
	7-Jul-14	8-hour	2.3	<1.1	<0.79	<0.79	<0.79	<0.51
Background A-4	21-Apr-14	8-hour	<1.4	<1.1	<0.79	<0.79	<0.79	<0.51
	21-May-14	8-hour	<1.4	<1.1	<0.79	<0.79	<0.79	<0.51
	7-Jul-14	8-hour	<1.4	<1.1	<0.79	<0.79	<0.79	<0.51
RBCs - Air Inhalation Pathway								
Occupational Receptor			47	3.0	>Pv	260	880	2.8

Notes:

8-hour = 8 hour time-weighted average (TWA) sample.

< = Analyte not detected at or above the indicated reporting limit.

PCE = tetrachloroethene.

TCE = trichloroethene.

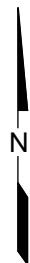
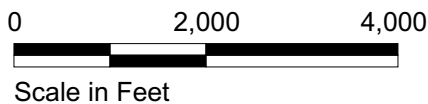
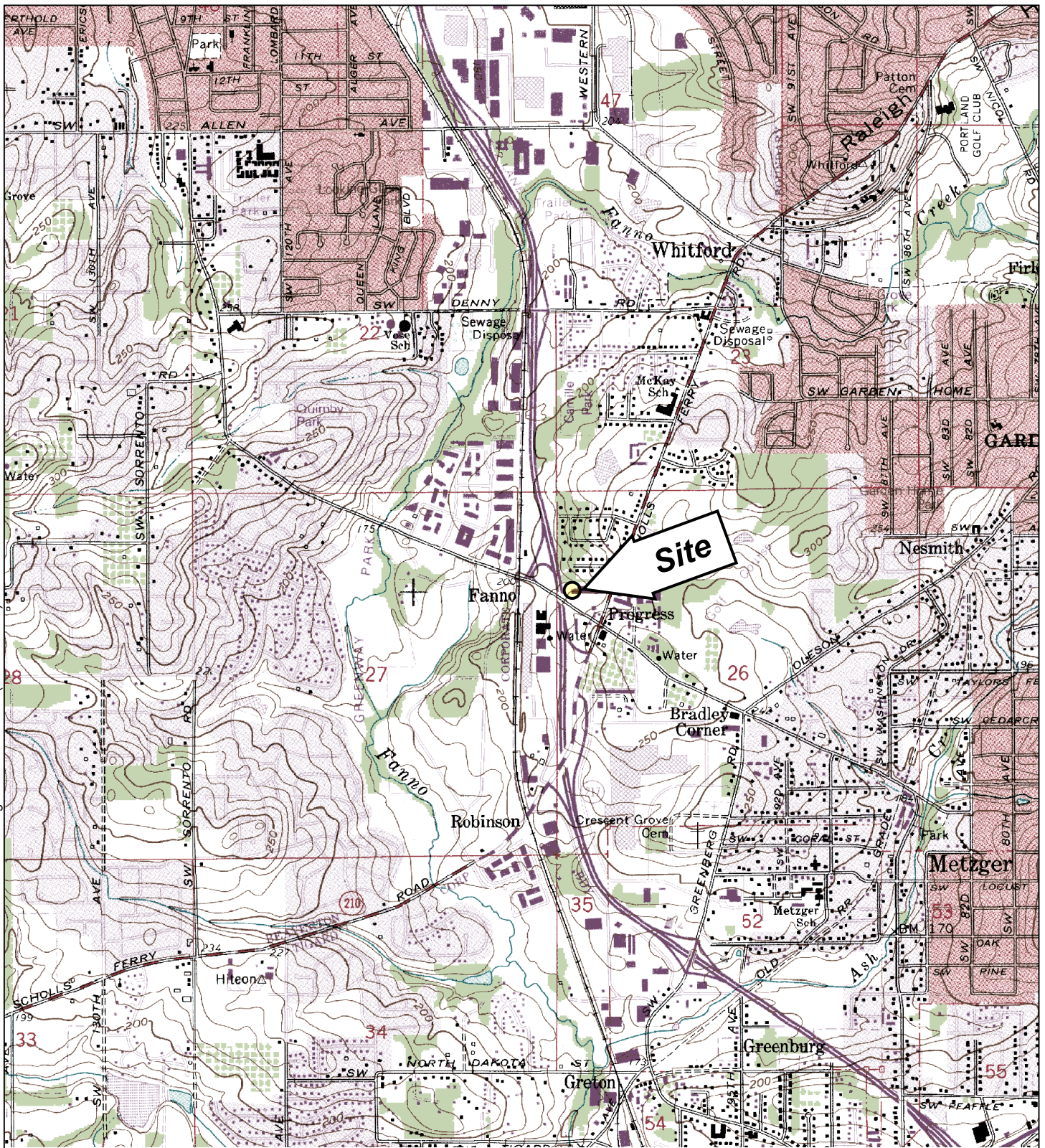
DCE = dichloroethene.

Risk-Based Concentrations (RBCs) from Risk-Based Concentrations for Individual Chemicals (DEQ, Rev. June 7, 2012).


>Pv = RBC exceeds the vapor pressure of the pure chemical. This constituent cannot create an unacceptable risk for this pathway.

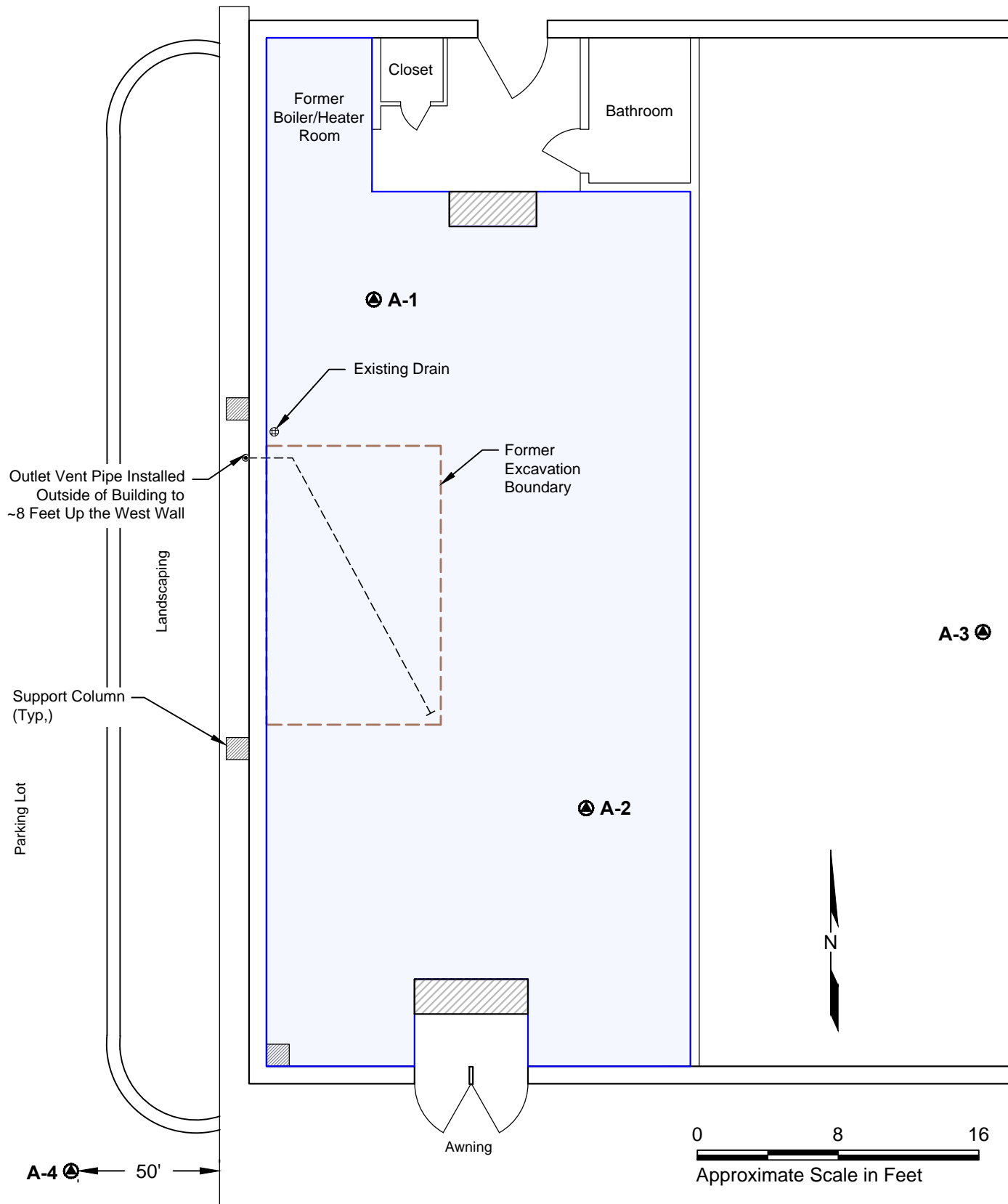
Ambient air detections are shown in **bold** type.

Ambient air concentrations exceeding the occupational RBCs for the air inhalation pathway are shown as shaded cells.





Source: Base map prepared from the USGS 7.5-minute quadrangle of Beaverton, Oregon, photorevised 1984.


Former Progress Dry Cleaners 8602 SW Hall Boulevard, Beaverton, Oregon	
Site Location Map	
15656-01/Task 5	6/14
	Figure 1



A-4 50'

0 8 16
Approximate Scale in Feet

- A-1 ④ Ambient Air Sample Name and Approximate Location
-  Ramp (Gradient of 1"/12")
-  Vapor Barrier Boundary

Former Progress Dry Cleaners 8602 SW Hall Boulevard, Beaverton, Oregon	
Site Plan	
15656-01/Task 5	6/14
 HARTCROWSER	Figure 2

Source: On site reconnaissance by Hart Crowser personnel.

ATTACHMENT A
Photograph Log



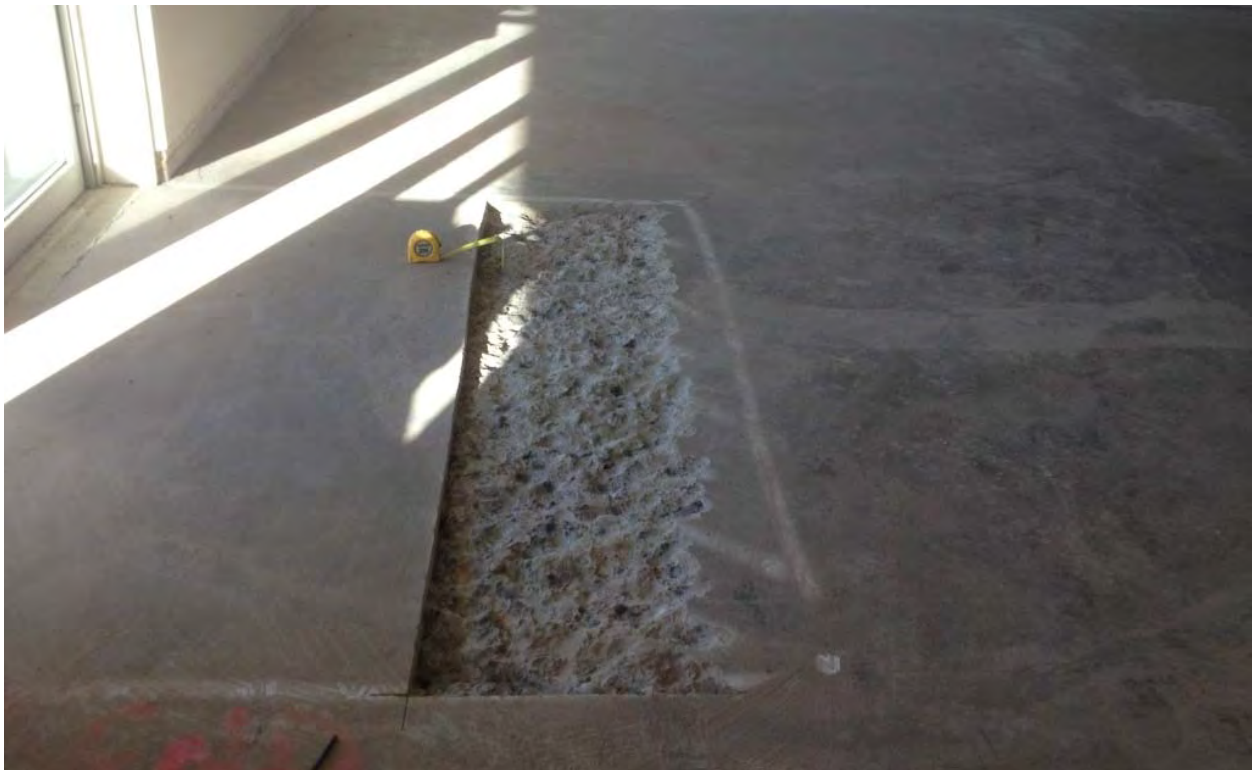
Photograph 1 – Storefront of former Progress Dry Cleaners (with Cricket Wireless sign).



Photograph 2 – Cleaned and sealed cracks around the 2007 IRM excavation.



Photograph 3 – Two inches above the existing slab is marked by the red line. The PVC liner is ready to be installed with the edge of the concrete slab sealed as well as on the wall where the PVC liner will rest.



Photograph 4 – The base of access ramps were chipped away prior to pouring the new slab. This was done to prevent chipping at the toe of the access ramp.



Photograph 5 – PVC liner is laid out in one piece, the crew is adjusting the liner and will cut the sections that do not require the vapor barrier.



Photograph 6 – Protective geotextile fabric being placed over the PVC liner.



Photograph 7 – Concrete was poured from the truck to a concrete pump.



Photograph 8 – Beginning of concrete placement.



Photograph 9 – Concrete slab progress. Photograph shows an access ramp beginning to take shape.



Photograph 10 – Concrete was smoothed as the crew worked towards the back of the retail space.



Photograph 11 – The concrete was worked multiple times until smooth.



Photograph 12 – One of the access ramps after the formwork was removed. Note the ramp is textured while the top of the slab is smooth.



Photograph 13 – Access ramp after curing with caution tape marking trip hazards.



Photograph 14 – As the concrete continued to cure, small cracks formed originating at the corners of the access ramp. These cracks are cosmetic only and do not affect the vapor barrier below.



Photograph 15 – Indoor ambient air sampling within the former Progress Dry Cleaners.



Photograph 16 – Indoor ambient air sample in the neighboring retail space collected during business hours.

ATTACHMENT B
RA Material Documentation

Nan Ya Plastics Corporation, America
Certificate of Analysis

Customer Name	ROC CA02		Product Code	PPTX	Product Order Number	FJ50035-2		
Specification	Thickness (mm) .762					Testing Relative Humidity / Temp. 50% 24C		
	Width (in) 85							
PHR	50							
Specific Gravity	1.27					Standards Required	Test Method Referred To	
Color #	079							
Emboss #	002/002							
Roll #	1	5	10	15	20			
Real Thickness (ga)	30.23	30.5	30.78	30.23	30.2	28.5 MIN 31.5 MAX	ASTM D5199	
100 % MOD lb/in width	MD	37.12	36.52	35.55	36	35.5	30 MIN	ASTM D882A
	CD	34.4	33.9	34.98	34.78	34	30 MIN	
Tensile Strength lb/in width	MD	81.12	80.33	80.12	79.8	80	73 MIN	ASTM D882A
	CD	75.5	74.45	76.5	75.85	77.45	73 MIN	
Elongation %	MD	402	412	402	411	406	380 MIN	ASTM D882A
	CD	432	444	446	431	455	380 MN	
Tear Strength lb	MD	19.12	19.2	19.5	19.05	19.2	8 MIN	ASTM D1004
	CD	18.3	18.88	18.12	18.66	18.45	8 MIN	
Cold Crack	PASS		PASS	PASS	PASS	PASS	-29C	ASTM D1790
Shrinkage %	MD	-2.3	-2.5	-2.28	-2.33	-2.12	-3.0 MAX	ASTM D1204
Volatility Loss %	-0.6		-0.61	-0.63	-0.61	-0.6	-.7 MAX	ASTM D1203A
Water Extraction %	-0.07		-0.07	-0.05	-0.06	-0.06	-.15 MAX	ASTM D 1239
Hydrostatic Resistance lb/sq. in	PASS		PASS	PASS	PASS	PASS	100 MIN	ASTM D751A
Soil Burial % Change Max. in Original Value	PASS		PASS	PASS	PASS	PASS	Formulation used Previously tested Satisfactorily ASTM D.G160	
Technical Dept. Opinion	Molecular weight meet ASTM 7176 minmum of 400 - pass							

Tested by lejdia

APPROVED
BY george

Testing Date : 5/8/2009

May 22, 2013

GeoTK, LLC
2313 East Second Street
Vancouver, WA 98661

Re: Order # 10033405
P.O. # 1453

Dear Sir or Madam:

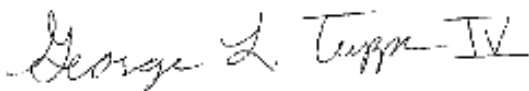
This letter is to certify that Style **250EX**, a nonwoven polypropylene fabric supplied by Thrace-LINQ, Inc., meets the fabric properties listed below:

<i>PROPERTY</i>	<i>TEST PROCEDURE</i>	<i>METRIC</i>		<i>ENGLISH</i>	
		MARV		MARV	
Grab Tensile Strength	ASTM D-4632	1201	N	270	lbs
Grab Elongation	ASTM D-4632	50	%	50	%
Trapezoid Tear	ASTM D-4533	445	N	100	lbs
Puncture (CBR)	ASTM D-6241	3225	N	725	lbs
Permittivity	ASTM D-4491	1.2	sec ⁻¹	1.2	sec ⁻¹
A.O.S.	ASTM D-4751	0.15	mm	100	U.S. Sieve
UV Stability (500 hrs)	ASTM D-4355	70	%	70	%
Water Flow Rate	ASTM D-4491	3463	lpm/m ²	85	gpm/ft ²

MARV: Minimum Average Roll Value

Apparent Opening Size (AOS) properties are Maximum Average Roll Values

Sincerely,



George Tupper
Technical Engineer

Updated on November 7, 2012

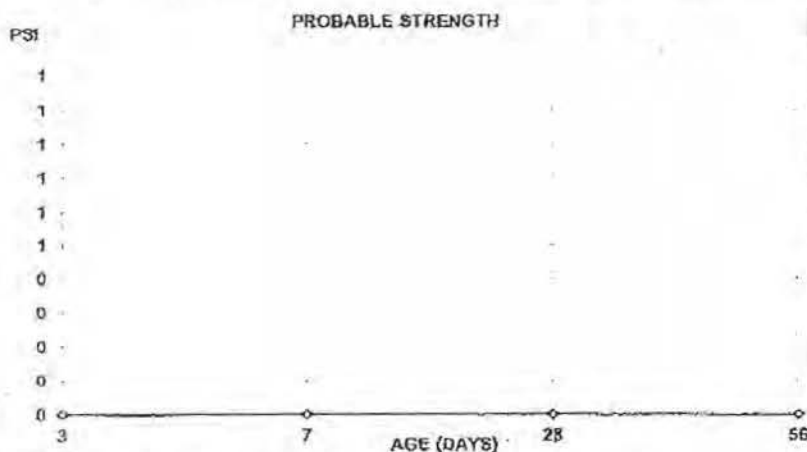
VIESKO QUALITY CONCRETE

CONTRACTOR: **D & S Concrete Construction**
 PROJECT: **Dry Cleaner, Beaverton, OR**
 MIX DESCRIPTION: **564 LBS. CEMENTITIOUS** 3500 PSI - max w/c .45
 w/HRWR 6+-1" slump -
 w/FM150 Fibermesh
 STRENGTH: **na PSI @ 28 Days**

March 10, 2014

MIX # **PB4011G**
4000 PSI

SPEC. GRAV.	MIX INGREDIENTS	SOLID VOL.(CF)	SSD WTS/CYD	NON AIR-ENTRAINED	
3.15	CEMENT	2.87	564 LBS.	EST. WT. OF 6"X12" TEST CYL.	28.81 LBS.
2.23				EST. WT. OF 4"X8" TEST CYL.	8.54 LBS.
2.20	WATER (WT.)	4.07	254.1 LBS.	WATER/CEMENTITIOUS RATIO 0.450	
1.00				WATER (GALS.)	30.5 GALS
	1.5% AIR PERCENTAGE	0.41			
2.60	3/4" COARSE AGG. (1)		LBS.	AGG. (1) /TTL.C.A PERCENTAGE	%
2.59	3/8" COARSE AGG. (2)	9.16	1,480 LBS.	AGG. (2) /TTL.C.A PERCENTAGE	100.0 %
2.63	3/4C COARSE AGG. (3)		LBS.	AGG. (3) /TTL.C.A PERCENTAGE	%
2.54	FINE AGGREGATE	10.60	1,680 LBS.	SAND /TTL AGG. PERCENTAGE	53.6 %
	VMA		OZ.	OZ./CWT. CEMENTITIOUS	
	200 N		OZ.	OZ./CWT. CEMENTITIOUS	
	Glenlum3030		45 OZ.	OZ./CWT. CEMENTITIOUS	8.00
	NC534		OZ.	OZ./CWT. CEMENTITIOUS	
	Delvo		OZ.	OZ./CWT. CEMENTITIOUS	
	MBAE90		OZ.	OZ./CWT. CEMENTITIOUS	
	YIELD	27.10	3,978 LBS.	WEIGHT PER CUBIC FOOT	146.8 LBS.



DESIGN MEETS FOLLOWING ASTM CATEGORIES WHEN PERTINENT.

- ASTM C-94 READY-MIXED CONCRETE
- ASTM C-150 CEMENT
- ASTM C-618 FLY ASH
- ASTM C-32 CONCRETE AGGREGATES
- ASTM C-494 ADMIXTURES

TYPES C-494 CLASSIFICATIONS:

- ASTM C-494 TYPE A
POLYHEED, POZZOLITH 200-N, 322-N
- ASTM C-494 TYPE C & E
POZZITEC 20, NC 534 (NON-CHLORIDE)
- ASTM C-484 TYPE D
POZZOLITH 100-XR, POZZOLITH 300-R
- ASTM C-494 TYPE F
RHEOBUILD, POLYHEED, POZZOLITH 440-N
- ASTM C-260
MICRO-AIR, MB AE-90

PERTINENT ASTM TEST PROCEDURES:

- SAMPLING CONCRETE ASTM C 172-99 Standard Method of Sampling Freshly Mixed Concrete
- SLUMP TEST ASTM C 143-90a Standard Test Method for Slump of Portland Cement Concrete
- FIELD AIR TEST ASTM C 231-97 Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
- FIELD TEST CYLINDERS ASTM C 31-95 Standard Method of Making and Curing Concrete Test Specimens in the Field
- UNIT WEIGHT (YIELD) ASTM C 138-92 Standard Test Method for Unit Weight, Yield and Air Content of Concrete

STRENGTH & PROPORTIONS PROBABLE (RESULTS MUST BE VERIFIED BY LOCAL TESTING LAB)

PB4011G
3/10/2014

CONCRETE BREAK HISTORY

MIX ID# PB4011G

Sample	7-Day	28-Day	Lab
1	3660	4610	PSI
2	3730	4470	PSI
3	3970	4900	PSI
4	4270	5350	PSI
5	3550	4380	PSI
6	4030	4890	PSI
7	4080	5000	PSI
8	3880	4540	PSI
9	3820	4880	PSI
10	3940	4690	PSI
11	3880	4820	PSI
12	4440	5520	PSI
13	4000	5150	PSI
14	3390	4540	PSI
15	3710	4610	PSI
16	3540	4590	PSI
17	3570	4640	PSI
18	3790	4660	PSI
19	3550	4620	PSI
20	3650	4840	PSI
21	3410	4510	PSI
22	3990	4990	PSI
23	4390	5400	PSI
24	3530	4580	PSI
25	3690	4810	PSI
26	3490	4410	PSI
27	3530	4540	PSI
28	3470	4400	PSI
29	3240	4120	PSI
30	3180	4410	PSI
31	3320	4180	PSI

7-Day Average 3733
28-Day Average 4711
Standard Deviation 332

FIBERMESH® 150

PRODUCT USE

MIXING DESIGNS AND PROCEDURES: Fibermesh® 150 micro-reinforcing is a mechanical, not chemical, process. The addition of Fibermesh 150 multifilament fibers do not require any additional water or other mix design changes at normal rates. Fibermesh 150 fibers are added to the mixer before, during or after batching the other concrete materials. Mixing time and speed are specified in ASTM C 94.

FINISHING: Fibermesh 150 micro-reinforced concrete can be finished by any finishing technique. Exposed aggregate, broomed and tined surfaces are no problem.

APPLICATION RATE: The application rate for Fibermesh 150 fibers is 1.0 to 1.5 lbs per cubic yard (.60 to .90 kg per cubic meter). Note: .75 lbs per cubic yard (.44 kg per cubic meter) may be acceptable based on local building codes.

GUIDELINES

Fibermesh 150 fibers should not be used to replace structural, load-bearing reinforcement. Fibermesh 150 fibers should not be used as a means of using thinner concrete sections than original design. Fibermesh 150 fibers should not be used to increase joint spacing past those dimensions suggested by PCA and ACI industry standard guidelines.

COMPATIBILITY

Fibermesh 150 fibers are compatible with all concrete admixtures and performance enhancing chemicals, but require no admixtures to work.

PACKAGING

Fibermesh 150 fibers are available in a variety of packaging options. Special packaging is available for full truckload addition. Fibermesh 150 fibers are packaged, packed into cartons, shrink-wrapped and palletized for protection during shipping.

TECHNICAL SERVICES

Trained Propex Concrete Systems specialists are available worldwide to assist and advise in specifications and field service. Propex Concrete Systems representatives do not engage in the practice of engineering or supervision of projects and are available solely for service and support of our customers.

REFERENCE DOCUMENTS

- ASTM C 94/C 94M Standard Specification for Ready-Mixed Concrete.
- ASTM C 1116/C 1116M Standard Specification for Fiber-Reinforced Concrete.
- ASTM C 1399 Standard Test Method for Obtaining Average Residual-Strength of Fiber-Reinforced Concrete.
- ASTM C 1436 Standard Specification for Materials for Shotcrete.
- ASTM C 1609/C 1609M Standard Test Method for Flexural Performance of Fiber-Reinforced Concrete (Using Beam With Third-Point Loading). Replaces ASTM C 1018.
- ACI 304 Guide for Measuring, Mixing, Transporting and Placing Concrete.
- ACI 506 Guide for Shotcrete.
- International Code Council (ICC) NER-414 Evaluation Report.



UL® Classified: Type Fibermesh 150. For use as an alternate or in addition to the welded wire fabric used in Floor-Ceiling D700, D800, D900 Series Designs. Fibers may also be used in Floor-Ceiling Design Nos. G229, G243, G256, G514. Fiber added to concrete mix at a rate of 1.0 lb of fiber for each cubic yard of concrete.

SPECIFICATION CLAUSE

Use Fibermesh 150 only 100 percent virgin polypropylene multifilament fibers containing no reprocessed olefin materials and specifically engineered and manufactured in an ISO 9001:2000 certified facility for use as concrete secondary reinforcement. Application per cubic yard shall equal a minimum of 1.0 lb/yd³ (.60 kg/m³). Fibers are for the control of cracking due to plastic shrinkage, plastic settlement and thermal expansion/contraction, lowered permeability, increased impact, abrasion and shatter resistance. Fiber manufacturer shall document evidence of ten year satisfactory performance history, ISO 9001:2000 certification of manufacturing facility, compliance with applicable building codes and ASTM C 1116/C 1116M, Type III fiber reinforced concrete. Fibrous concrete reinforcement shall be manufactured by Propex Concrete Systems, 6025 Lee Highway, Suite 425, PO Box 22788, Chattanooga, TN 37422, USA, tel: 423 892 8080, fax: 423 892 0157, web site: fibermesh.com.

PROPEX | THE ADVANTAGE CREATORS™
CONCRETE SYSTEMS

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www.fibermesh.com

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CS 509
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10/07

FIBERMESH® 150

PRODUCT DATA SHEET

FIBERMESH® 150 SYNTHETIC FIBER

Fibermesh 150, formerly Stealth® e3®, micro-reinforcement system for concrete—100 percent virgin homopolymer polypropylene multifilament fibers containing no reprocessed olefin materials. Specifically engineered and manufactured in an ISO 9001:2000 certified facility for use as concrete reinforcement at an application rate of 1.0 to 1.5 lbs per cubic yard (.60 to .90 kg per cubic meter). UL Classified. Complies with National Building Codes and ASTM C 1116/C 1116M, Type III fiber reinforced concrete.

ADVANTAGES

Non-magnetic • Rustproof • Alkali proof • Requires no minimum amount of concrete cover • Is always positioned in compliance with codes • Safe and easy to use • Saves time and hassle.

FEATURES & BENEFITS

- Inhibits and controls the formation of intrinsic cracking in concrete
- Reinforces against impact forces
- Reinforces against abrasion
- Reinforces against the effect of shattering forces
- Reinforces against water migration
- Provides improved durability
- Reduces plastic shrinkage and settlement cracking
- Alternate system to traditional reinforcement when used for secondary (crack control) reinforcing in concrete

PRIMARY APPLICATIONS

Applicable to all types of concrete which demonstrate a need for resistance to intrinsic cracking and improved water tightness and an aesthetic finish.

- Slabs-on-ground
- Stucco
- Slope paving
- Sidewalks
- Curbs
- Exposed aggregate
- Driveways
- Overlays & toppings

CHEMICAL AND PHYSICAL PROPERTIES

Absorption	Nil	Melt Point	324°F (162°C)
Specific Gravity	0.91	Ignition Point	1100°F (593°C)
Fiber Length*	Graded	Thermal Conductivity	Low
Electrical Conductivity	Low	Alkali Resistance	Alkali Proof
Acid & Salt Resistance	High		

*Also available in single cut lengths

- Reduced plastic shrinkage cracking
- Improved impact, shatter and abrasion resistance
- Reduced water migration and damage from freeze/thaw
- Improved durability
- Areas requiring non-metallic materials
- Concrete that needs an architectural finish

- Crack control from external stresses
- Increasing joint spacing beyond ACI and PCA guidelines
- Decreasing thickness of slabs
- Replacing any moment or structural steel

PROPEX | THE ADVANTAGE CREATORS.®

CONCRETE SYSTEMS

ATTACHMENT C
Analytical Laboratory Reports



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Joe Westersund (ODEQ) / Chris Martin
Oregon Dept. of Env. Quality - ODEQ
2020 SW 4th, Suite 400
Portland, OR 97201

Report Summary

Monday April 28, 2014

Report Number: L695340


Samples Received: 04/24/14

Client Project: 15656-01/TASK 4

Description: DEQ - Progress Cleaners

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:


Jared Willis, ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,
FL - E87487, GA - 923, IN - C-IN-01, KY - 90010, KYUST - 0016,
NC - ENV375/DW21704/BIO041, ND - R-140, NJ - TN002, NJ NELAP - TN002,
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,
TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364, EPA - TN002

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

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REPORT OF ANALYSIS

Joe Westersund (ODEQ) / Chris Marti
 Oregon Dept. of Env. Quality - ODEQ
 2020 SW 4th, Suite 400
 Portland, OR 97201

April 28, 2014

Date Received : April 24, 2014
 Description : ODEQ - Progress Cleaners

ESC Sample # : L695340-01

Sample ID : A-1

Site ID :

Collected By : Jason R. Miles
 Collection Date : 04/21/14 10:07

Project # : 15656-01/TASK 4

Parameter	Cas#	Mol Wght	RDL1	RDL2	ppbv	ug/m3	Method	Date	Dil.
Volatile Organics									
1,1-Dichloroethene	75-35-4	96.9	0.200	0.790	< 0.20	< 0.79	TO-15	04/25/14	1
cis-1,2-Dichloroethene	156-59-2	96.9	0.200	0.790	0.28	1.1	TO-15	04/25/14	1
trans-1,2-Dichloroethene	156-60-5	96.9	0.200	0.790	< 0.20	< 0.79	TO-15	04/25/14	1
Tetrachloroethylene	127-18-4	166	0.200	1.40	1.3	8.8	TO-15	04/25/14	1
Trichloroethylene	79-01-6	131	0.200	1.10	< 0.20	< 1.1	TO-15	04/25/14	1
Vinyl chloride	75-01-4	62.5	0.200	0.510	< 0.20	< 0.51	TO-15	04/25/14	1
1,4-Bromofluorobenzene	460-00-4				98	% Rec.	TO-15	04/25/14	1

RDL1 = ppbv , RDL2 = ug/m3

Note:

Units are based on (STP) - Standard Temperature and Pressure

The reported analytical results relate only to the sample submitted.

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REPORT OF ANALYSIS

Joe Westersund (ODEQ) / Chris Marti
 Oregon Dept. of Env. Quality - ODEQ
 2020 SW 4th, Suite 400
 Portland, OR 97201

April 28, 2014

Date Received : April 24, 2014
 Description : ODEQ - Progress Cleaners

ESC Sample # : L695340-02

Sample ID : A-2

Site ID :

Collected By : Jason R. Miles
 Collection Date : 04/21/14 10:09

Project # : 15656-01/TASK 4

Parameter	Cas#	Mol Wght	RDL1	RDL2	ppbv	ug/m3	Method	Date	Dil.
Volatile Organics									
1,1-Dichloroethene	75-35-4	96.9	0.200	0.790	< 0.20	< 0.79	TO-15	04/25/14	1
cis-1,2-Dichloroethene	156-59-2	96.9	0.200	0.790	0.35	1.4	TO-15	04/25/14	1
trans-1,2-Dichloroethene	156-60-5	96.9	0.200	0.790	< 0.20	< 0.79	TO-15	04/25/14	1
Tetrachloroethylene	127-18-4	166	0.200	1.40	1.4	9.5	TO-15	04/25/14	1
Trichloroethylene	79-01-6	131	0.200	1.10	< 0.20	< 1.1	TO-15	04/25/14	1
Vinyl chloride	75-01-4	62.5	0.200	0.510	< 0.20	< 0.51	TO-15	04/25/14	1
1,4-Bromofluorobenzene	460-00-4				100	% Rec.	TO-15	04/25/14	1

RDL1 = ppbv , RDL2 = ug/m3

Note:

Units are based on (STP) - Standard Temperature and Pressure

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Joe Westersund (ODEQ) / Chris Marti
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 2020 SW 4th, Suite 400
 Portland, OR 97201

April 28, 2014

Date Received : April 24, 2014
 Description : ODEQ - Progress Cleaners

ESC Sample # : L695340-03

Sample ID : A-3

Site ID :

Collected By : Jason R. Miles
 Collection Date : 04/21/14 10:13

Project # : 15656-01/TASK 4

Parameter	Cas#	Mol Wght	RDL1	RDL2	ppbv	ug/m3	Method	Date	Dil.
Volatile Organics									
1,1-Dichloroethene	75-35-4	96.9	0.200	0.790	< 0.20	< 0.79	TO-15	04/25/14	1
cis-1,2-Dichloroethene	156-59-2	96.9	0.200	0.790	0.39	1.5	TO-15	04/25/14	1
trans-1,2-Dichloroethene	156-60-5	96.9	0.200	0.790	< 0.20	< 0.79	TO-15	04/25/14	1
Tetrachloroethylene	127-18-4	166	0.200	1.40	1.2	8.1	TO-15	04/25/14	1
Trichloroethylene	79-01-6	131	0.200	1.10	0.27	1.4	TO-15	04/25/14	1
Vinyl chloride	75-01-4	62.5	0.200	0.510	< 0.20	< 0.51	TO-15	04/25/14	1
1,4-Bromofluorobenzene	460-00-4				109	% Rec.	TO-15	04/25/14	1

RDL1 = ppbv , RDL2 = ug/m3

Note:

Units are based on (STP) - Standard Temperature and Pressure

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REPORT OF ANALYSIS

Joe Westersund (ODEQ) / Chris Marti
 Oregon Dept. of Env. Quality - ODEQ
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 Portland, OR 97201

April 28, 2014

Date Received : April 24, 2014
 Description : ODEQ - Progress Cleaners

ESC Sample # : L695340-04

Sample ID : A-4

Site ID :

Collected By : Jason R. Miles
 Collection Date : 04/21/14 10:18

Project # : 15656-01/TASK 4

Parameter	Cas#	Mol Wght	RDL1	RDL2	ppbv	ug/m3	Method	Date	Dil.
Volatile Organics									
1,1-Dichloroethene	75-35-4	96.9	0.200	0.790	< 0.20	< 0.79	TO-15	04/25/14	1
cis-1,2-Dichloroethene	156-59-2	96.9	0.200	0.790	< 0.20	< 0.79	TO-15	04/25/14	1
trans-1,2-Dichloroethene	156-60-5	96.9	0.200	0.790	< 0.20	< 0.79	TO-15	04/25/14	1
Tetrachloroethylene	127-18-4	166	0.200	1.40	< 0.20	< 1.4	TO-15	04/25/14	1
Trichloroethylene	79-01-6	131	0.200	1.10	< 0.20	< 1.1	TO-15	04/25/14	1
Vinyl chloride	75-01-4	62.5	0.200	0.510	< 0.20	< 0.51	TO-15	04/25/14	1
1,4-Bromofluorobenzene	460-00-4				101	% Rec.	TO-15	04/25/14	1

RDL1 = ppbv , RDL2 = ug/m3

Note:

Units are based on (STP) - Standard Temperature and Pressure

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Portland, OR 97201

Quality Assurance Report
 Level II

L695340

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Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
1,1-Dichloroethene	< .2	ppb			WG717793	04/25/14 12:29
cis-1,2-Dichloroethene	< .2	ppb			WG717793	04/25/14 12:29
Tetrachloroethylene	< .2	ppb			WG717793	04/25/14 12:29
trans-1,2-Dichloroethene	< .2	ppb			WG717793	04/25/14 12:29
Trichloroethylene	< .2	ppb			WG717793	04/25/14 12:29
Vinyl chloride	< .2	ppb			WG717793	04/25/14 12:29
1,4-Bromofluorobenzene		% Rec.	105.0	60-140	WG717793	04/25/14 12:29

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
1,1-Dichloroethene	ppb	3.75	3.62	96.6	70-130	WG717793
cis-1,2-Dichloroethene	ppb	3.75	3.52	93.8	70-130	WG717793
Tetrachloroethylene	ppb	3.75	3.31	88.4	70-130	WG717793
trans-1,2-Dichloroethene	ppb	3.75	3.57	95.2	70-130	WG717793
Trichloroethylene	ppb	3.75	3.85	103.	70-130	WG717793
Vinyl chloride	ppb	3.75	3.45	91.9	70-130	WG717793
1,4-Bromofluorobenzene				108.0	60-140	WG717793

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
1,1-Dichloroethene	ppb	3.75	3.62	100.	70-130	3.54	25	WG717793
cis-1,2-Dichloroethene	ppb	3.70	3.52	98.0	70-130	4.95	25	WG717793
Tetrachloroethylene	ppb	3.44	3.31	92.0	70-130	3.61	25	WG717793
trans-1,2-Dichloroethene	ppb	3.74	3.57	100.	70-130	4.69	25	WG717793
Trichloroethylene	ppb	3.95	3.85	105.	70-130	2.54	25	WG717793
Vinyl chloride	ppb	3.64	3.45	97.0	70-130	5.60	25	WG717793
1,4-Bromofluorobenzene				108.0	60-140			WG717793

Batch number /Run number / Sample number cross reference

WG717793: R2909925: L695340-01 02 03 04

* * Calculations are performed prior to rounding of reported values.
 * Performance of this Analyte is outside of established criteria.
 For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



YOUR LAB OF CHOICE

Oregon Dept. of Env. Quality - ODEQ
Joe Westersund (ODEQ) / Chris Martin
2020 SW 4th, Suite 400

Portland, OR 97201

Quality Assurance Report
Level II

L695340

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April 28, 2014

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.

OREGONDEQ State of Oregon Sample Chain of Custody OREGONDEQ

L695340

Agency, Authorized Purchaser or Agent: ODEQ - Oregon Department of Environmental Quality Send Lab Report To: Joe Westersund - ODEQ Address: 811 SW 6th Ave Portland, OR 97204 Tel #: 503-229-6240 E-mail: westersund.joe@deq.state.or.us	Contract Laboratory Name: ESC Lab Sciences Lab Batch #: Invoice To: Delia Chabwick - ODEQ Address: 811 SW 6th Ave Portland, OR 97204 Tel #: 503-229-6140	Lab Selection Criteria: <input type="checkbox"/> Proximity (if TAT < 48 hrs) <input type="checkbox"/> Prior work on same project <input checked="" type="checkbox"/> Cost (for anticipated analyses) <input type="checkbox"/> Other labs disqualified or unable to perform requested services <input type="checkbox"/> Emergency work	Turn Around Time: <input checked="" type="checkbox"/> 10 days (std.) <input type="checkbox"/> 5 days <input type="checkbox"/> 72 hours <input type="checkbox"/> 48 hours <input type="checkbox"/> 24 hours <input type="checkbox"/> Other
---	--	---	--

Project Name: ODEQ - Progress Cleaners Project #: 15656-01/Task 4 Sampler Name: Jason R. Miles				Sample Preservative										Requested Analyses				Comments Can # Flow Cont Initial Pressure Final Pressure											
Sample ID#	Collection Date/Time	Matrix	Number of Containers	VOCs* by EPA TO-15																									
A-1	4-21-14/1007	Air	1	X										225				483				-28.5" Hg				0.0" Hg -01			
A-2	4-21-14/1009	Air	1	X										1450				480				-29.0" Hg				-7.0" Hg -02			
A-3	4-21-14/1013	Air	1	X										1037				482				-28.5" Hg				-8.0" Hg -03			
A-4	4-21-14/1018	Air	1	X										888				473				-29.0" Hg				-8.5" Hg -04			

Notes: * Analyze for PCE, TCE, c-DCE, t-DCE and VC only.
 Please send report to Chris Martin (chris.martin@hartecrouser.com) also. Amb J

Relinquished By: Jason R. Miles Signature: [Signature]	Agency/Agent: Hart Crouser Time & Date: 0745/4-22-14	Received By: Signature:	Agency/Agent: Time & Date: 1000
Relinquished By: Signature:	Agency/Agent: Time & Date:	Received By: [Signature] Signature:	Agency/Agent: Time & Date: 10:00 J 4-24-14

THIS PURCHASE IS SUBMITTED PURSUANT TO STATE OF OREGON SOLICITATION #102-1098-07 AND PRICE AGREEMENT # []. THE PRICE AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S & C'S) CONTAINED IN THE PRICE AGREEMENT ARE HEREBY INCORPORATED BY REFERENCE AND SHALL APPLY TO THIS PURCHASE AND SHALL TAKE PRECEDENCE OVER ALL OTHER CONFLICTING T'S AND C'S, EXPRESS OR IMPLIED.

cont. 4 = sumat
 FC x 4

OK



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Joe Westersund (ODEQ) / Chris Martin
Oregon Dept. of Env. Quality - ODEQ
2020 SW 4th, Suite 400
Portland, OR 97201

Report Summary

Friday May 30, 2014

Report Number: L700947

Samples Received: 05/23/14

Client Project: 15656-01/TASK 4

Description: DEQ - Progress Cleaners

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

Craig Cothron , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,
FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016,
NC - ENV375/DW21704/BIO041, ND - R-140, NJ - TN002, NJ NELAP - TN002,
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,
TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364, EPA - TN002

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REPORT OF ANALYSIS

Joe Westersund (ODEQ) / Chris Marti
 Oregon Dept. of Env. Quality - ODEQ
 2020 SW 4th, Suite 400
 Portland, OR 97201

May 30, 2014

Date Received : May 23, 2014
 Description : ODEQ - Progress Cleaners

ESC Sample # : L700947-01

Sample ID : A-1

Site ID :

Collected By : Jason R. Miles
 Collection Date : 05/21/14 10:08

Project # : 15656-01/TASK 4

Parameter	Cas#	Mol Wght	RDL1	RDL2	ppbv	ug/m3	Method	Date	Dil.
Volatile Organics									
1,1-Dichloroethene	75-35-4	96.9	0.200	0.790	< 0.20	< 0.79	TO-15	05/29/14	1
cis-1,2-Dichloroethene	156-59-2	96.9	0.200	0.790	2.4	9.5	TO-15	05/29/14	1
trans-1,2-Dichloroethene	156-60-5	96.9	0.200	0.790	< 0.20	< 0.79	TO-15	05/29/14	1
Tetrachloroethylene	127-18-4	166	0.200	1.40	7.5	51.	TO-15	05/29/14	1
Trichloroethylene	79-01-6	131	0.200	1.10	1.7	9.1	TO-15	05/29/14	1
Vinyl chloride	75-01-4	62.5	0.200	0.510	< 0.20	< 0.51	TO-15	05/29/14	1
1,4-Bromofluorobenzene	460-00-4				103	% Rec.	TO-15	05/29/14	1

RDL1 = ppbv , RDL2 = ug/m3

Note:

Units are based on (STP) - Standard Temperature and Pressure

The reported analytical results relate only to the sample submitted.

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Reported: 05/30/14 10:54 Printed: 05/30/14 10:54



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REPORT OF ANALYSIS

Joe Westersund (ODEQ) / Chris Marti
 Oregon Dept. of Env. Quality - ODEQ
 2020 SW 4th, Suite 400
 Portland, OR 97201

May 30, 2014

Date Received : May 23, 2014
 Description : ODEQ - Progress Cleaners

ESC Sample # : L700947-02

Sample ID : A-2

Site ID :

Collected By : Jason R. Miles
 Collection Date : 05/21/14 10:09

Project # : 15656-01/TASK 4

Parameter	Cas#	Mol Wght	RDL1	RDL2	ppbv	ug/m3	Method	Date	Dil.
Volatile Organics									
1,1-Dichloroethene	75-35-4	96.9	0.200	0.790	< 0.20	< 0.79	TO-15	05/29/14	1
cis-1,2-Dichloroethene	156-59-2	96.9	0.200	0.790	1.8	7.1	TO-15	05/29/14	1
trans-1,2-Dichloroethene	156-60-5	96.9	0.200	0.790	< 0.20	< 0.79	TO-15	05/29/14	1
Tetrachloroethylene	127-18-4	166	0.200	1.40	5.9	40.	TO-15	05/29/14	1
Trichloroethylene	79-01-6	131	0.200	1.10	1.4	7.5	TO-15	05/29/14	1
Vinyl chloride	75-01-4	62.5	0.200	0.510	< 0.20	< 0.51	TO-15	05/29/14	1
1,4-Bromofluorobenzene	460-00-4				103	% Rec.	TO-15	05/29/14	1

RDL1 = ppbv , RDL2 = ug/m3

Note:

Units are based on (STP) - Standard Temperature and Pressure

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REPORT OF ANALYSIS

Joe Westersund (ODEQ) / Chris Marti
 Oregon Dept. of Env. Quality - ODEQ
 2020 SW 4th, Suite 400
 Portland, OR 97201

May 30, 2014

Date Received : May 23, 2014
 Description : ODEQ - Progress Cleaners

ESC Sample # : L700947-03

Sample ID : A-3

Site ID :

Collected By : Jason R. Miles
 Collection Date : 05/21/14 10:10

Project # : 15656-01/TASK 4

Parameter	Cas#	Mol Wght	RDL1	RDL2	ppbv	ug/m3	Method	Date	Dil.
Volatile Organics									
1,1-Dichloroethene	75-35-4	96.9	0.200	0.790	< 0.20	< 0.79	TO-15	05/30/14	1
cis-1,2-Dichloroethene	156-59-2	96.9	0.200	0.790	0.59	2.3	TO-15	05/30/14	1
trans-1,2-Dichloroethene	156-60-5	96.9	0.200	0.790	< 0.20	< 0.79	TO-15	05/30/14	1
Tetrachloroethylene	127-18-4	166	0.200	1.40	1.7	12.	TO-15	05/30/14	1
Trichloroethylene	79-01-6	131	0.200	1.10	0.61	3.3	TO-15	05/30/14	1
Vinyl chloride	75-01-4	62.5	0.200	0.510	< 0.20	< 0.51	TO-15	05/30/14	1
1,4-Bromofluorobenzene	460-00-4				108	% Rec.	TO-15	05/30/14	1

RDL1 = ppbv , RDL2 = ug/m3

Note:

Units are based on (STP) - Standard Temperature and Pressure

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REPORT OF ANALYSIS

Joe Westersund (ODEQ) / Chris Marti
 Oregon Dept. of Env. Quality - ODEQ
 2020 SW 4th, Suite 400
 Portland, OR 97201

May 30, 2014

Date Received : May 23, 2014
 Description : ODEQ - Progress Cleaners

ESC Sample # : L700947-04

Sample ID : A-4

Site ID :

Collected By : Jason R. Miles
 Collection Date : 05/21/14 10:12

Project # : 15656-01/TASK 4

Parameter	Cas#	Mol Wght	RDL1	RDL2	ppbv	ug/m3	Method	Date	Dil.
Volatile Organics									
1,1-Dichloroethene	75-35-4	96.9	0.200	0.790	< 0.20	< 0.79	TO-15	05/30/14	1
cis-1,2-Dichloroethene	156-59-2	96.9	0.200	0.790	< 0.20	< 0.79	TO-15	05/30/14	1
trans-1,2-Dichloroethene	156-60-5	96.9	0.200	0.790	< 0.20	< 0.79	TO-15	05/30/14	1
Tetrachloroethylene	127-18-4	166	0.200	1.40	< 0.20	< 1.4	TO-15	05/30/14	1
Trichloroethylene	79-01-6	131	0.200	1.10	< 0.20	< 1.1	TO-15	05/30/14	1
Vinyl chloride	75-01-4	62.5	0.200	0.510	< 0.20	< 0.51	TO-15	05/30/14	1
1,4-Bromofluorobenzene	460-00-4				100	% Rec.	TO-15	05/30/14	1

RDL1 = ppbv , RDL2 = ug/m3

Note:

Units are based on (STP) - Standard Temperature and Pressure

The reported analytical results relate only to the sample submitted.

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Reported: 05/30/14 10:54 Printed: 05/30/14 10:54

Summary of Remarks For Samples Printed
05/30/14 at 10:54:53

TSR Signing Reports: 358
R5 - Desired TAT

Clients MUST use the State of Oregon COCs for all work. Create an NCF for any samples received on ESC COCs.

Sample: L700947-01 Account: OREGONDEQ Received: 05/23/14 10:00 Due Date: 06/02/14 00:00 RPT Date: 05/30/14 10:54

Sample: L700947-02 Account: OREGONDEQ Received: 05/23/14 10:00 Due Date: 06/02/14 00:00 RPT Date: 05/30/14 10:54

Sample: L700947-03 Account: OREGONDEQ Received: 05/23/14 10:00 Due Date: 06/02/14 00:00 RPT Date: 05/30/14 10:54

Sample: L700947-04 Account: OREGONDEQ Received: 05/23/14 10:00 Due Date: 06/02/14 00:00 RPT Date: 05/30/14 10:54



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Oregon Dept. of Env. Quality - ODEQ
 Joe Westersund (ODEQ) / Chris Martin
 2020 SW 4th, Suite 400

Portland, OR 97201

Quality Assurance Report
 Level II

L700947

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May 30, 2014

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
1,1-Dichloroethene	< .2	ppb			WG723380	05/28/14 13:41
cis-1,2-Dichloroethene	< .2	ppb			WG723380	05/28/14 13:41
Tetrachloroethylene	< .2	ppb			WG723380	05/28/14 13:41
trans-1,2-Dichloroethene	< .2	ppb			WG723380	05/28/14 13:41
Trichloroethylene	< .2	ppb			WG723380	05/28/14 13:41
Vinyl chloride	< .2	ppb			WG723380	05/28/14 13:41
1,4-Bromofluorobenzene		% Rec.	96.80	60-140	WG723380	05/28/14 13:41

1,1-Dichloroethene	< .2	ppb			WG723575	05/29/14 12:18
cis-1,2-Dichloroethene	< .2	ppb			WG723575	05/29/14 12:18
Tetrachloroethylene	< .2	ppb			WG723575	05/29/14 12:18
trans-1,2-Dichloroethene	< .2	ppb			WG723575	05/29/14 12:18
Trichloroethylene	< .2	ppb			WG723575	05/29/14 12:18
Vinyl chloride	< .2	ppb			WG723575	05/29/14 12:18
1,4-Bromofluorobenzene		% Rec.	96.70	60-140	WG723575	05/29/14 12:18

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
1,1-Dichloroethene	ppb	3.75	3.73	99.4	70-130	WG723380
cis-1,2-Dichloroethene	ppb	3.75	3.73	99.5	70-130	WG723380
Tetrachloroethylene	ppb	3.75	3.67	97.8	70-130	WG723380
trans-1,2-Dichloroethene	ppb	3.75	3.73	99.5	70-130	WG723380
Trichloroethylene	ppb	3.75	3.82	102.	70-130	WG723380
Vinyl chloride	ppb	3.75	3.65	97.2	70-130	WG723380
1,4-Bromofluorobenzene				101.0	60-140	WG723380
1,1-Dichloroethene	ppb	3.75	3.70	98.6	70-130	WG723575
cis-1,2-Dichloroethene	ppb	3.75	3.79	101.	70-130	WG723575
Tetrachloroethylene	ppb	3.75	3.74	99.9	70-130	WG723575
trans-1,2-Dichloroethene	ppb	3.75	3.73	99.6	70-130	WG723575
Trichloroethylene	ppb	3.75	3.93	105.	70-130	WG723575
Vinyl chloride	ppb	3.75	3.86	103.	70-130	WG723575
1,4-Bromofluorobenzene				102.0	60-140	WG723575

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
1,1-Dichloroethene	ppb	3.93	3.73	105.	70-130	5.40	25	WG723380
cis-1,2-Dichloroethene	ppb	3.92	3.73	104.	70-130	4.90	25	WG723380
Tetrachloroethylene	ppb	3.81	3.67	102.	70-130	3.90	25	WG723380
trans-1,2-Dichloroethene	ppb	3.89	3.73	104.	70-130	4.18	25	WG723380
Trichloroethylene	ppb	3.95	3.82	105.	70-130	3.21	25	WG723380
Vinyl chloride	ppb	3.83	3.65	102.	70-130	4.93	25	WG723380
1,4-Bromofluorobenzene				101.0	60-140			WG723380
1,1-Dichloroethene	ppb	3.74	3.70	100.	70-130	1.22	25	WG723575
cis-1,2-Dichloroethene	ppb	3.89	3.79	104.	70-130	2.39	25	WG723575
Tetrachloroethylene	ppb	3.81	3.74	102.	70-130	1.72	25	WG723575
trans-1,2-Dichloroethene	ppb	3.77	3.73	101.	70-130	1.07	25	WG723575
Trichloroethylene	ppb	4.00	3.93	107.	70-130	1.82	25	WG723575
Vinyl chloride	ppb	3.73	3.86	100.	70-130	3.21	25	WG723575
1,4-Bromofluorobenzene				101.0	60-140			WG723575

* Performance of this Analyte is outside of established criteria.
 For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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Oregon Dept. of Env. Quality - ODEQ
Joe Westersund (ODEQ) / Chris Martin
2020 SW 4th, Suite 400

Portland, OR 97201

Quality Assurance Report
Level II

L700947

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May 30, 2014

Batch number /Run number / Sample number cross reference

WG723380: R2930025: L700947-01 02

WG723575: R2930805: L700947-03 04

* * Calculations are performed prior to rounding of reported values.
* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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May 30, 2014

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.

OREGONDEQ State of Oregon Sample Chain of Custody OREGONDEQ

L130

Agency, Authorized Purchaser or Agent: Oregon Department of Environmental Quality Send Lab Report To: Joe Westersund - ODEQ Address: 811 SW 6th Ave Portland, OR 97204 Tel. #: 503-229-6240 E-mail: westersund.joe@dep.state.or.us	Contract Laboratory Name: ESC Lab Sciences	Lab Selection Criteria: <input type="checkbox"/> Proximity (if TAT < 48 hrs) <input type="checkbox"/> Prior work on same project <input checked="" type="checkbox"/> Cost (for anticipated analyses) <input type="checkbox"/> Other labs disqualified or unable to perform requested services <input type="checkbox"/> Emergency work	Turn Around Time: <input checked="" type="checkbox"/> 10 days (std.) <input type="checkbox"/> 5 days <input type="checkbox"/> 72 hours <input type="checkbox"/> 48 hours <input type="checkbox"/> 24 hours <input type="checkbox"/> Other
	Lab Batch #: Invoice To: Delia Chadwick - ODEQ Address: 811 SW 6th Ave Portland, OR 97204 Tel. #: 503-229-6140		

Project Name: ODEQ - Progress Cleaners Project #: 15656-01/Task 4				Sample Preservative												L700947				
Sampler Name: Jason R. Miles				Requested Analyses												Comments (in Hg)				
Sample ID#	Collection Date/Time	Matrix	Number of Containers													Can #	Flow Control	Initial Press	Final Press	
A-1	5-21-14/1008	Air	1	VOCs X by 10-15												974	284	27.5	-7.0	-01
A-2	5-21-14/1009	Air	1													681	143	-28.5	-13.5	-02
A-3	5-21-14/1010	Air	1													1357	483	-29.0	-9.0	-03
A-4	5-21-14/1012	Air	1													212	473	-29.5	0.0	-04

Notes: *Analyze for PCE, TCE, C-DCE, +-DCE and vinyl chloride only.
 Please send report to Chris Martin (chris.martin@hart-crowser.com) also.

Relinquished By: Jason R. Miles	Agency/Agent: Hart Crowser	Received By:	Agency/Agent:
Signature: [Signature]	Time & Date: 0700/5-22-14	Signature:	Time & Date:
Relinquished By:	Agency/Agent:	Received By:	Agency/Agent:
Signature:	Time & Date:	Signature: [Signature]	Time & Date: 10:00 AM

THIS PURCHASE IS SUBMITTED PURSUANT TO STATE OF OREGON SOLICITATION #102-1098-07 AND PRICE AGREEMENT # []. THE PRICE AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S & C'S) CONTAINED IN THE PRICE AGREEMENT ARE HEREBY INCORPORATED BY REFERENCE AND SHALL APPLY TO THIS PURCHASE AND SHALL TAKE PRECEDENCE OVER ALL OTHER CONFLICTING T'S AND C'S, EXPRESS OR IMPLIED.



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Joe Westersund (ODEQ) / Chris Martin
Oregon Dept. of Env. Quality - ODEQ
2020 SW 4th, Suite 400
Portland, OR 97201

Report Summary

Monday July 14, 2014

Report Number: L709020


Samples Received: 07/09/14

Client Project: 15656-01/TASK 4

Description: DEQ - Progress Cleaners

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:


Jared Willis, ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,
FL - E87487, GA - 923, IN - C-IN-01, KY - 90010, KYUST - 0016,
NC - ENV375/DW21704/BIO041, ND - R-140, NJ - TN002, NJ NELAP - TN002,
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,
TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364, EPA - TN002

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REPORT OF ANALYSIS

Joe Westersund (ODEQ) / Chris Marti
 Oregon Dept. of Env. Quality - ODEQ
 2020 SW 4th, Suite 400
 Portland, OR 97201

July 14, 2014

Date Received : July 09, 2014
 Description : ODEQ - Progress Cleaners

ESC Sample # : L709020-01

Sample ID : A-1

Site ID :

Collected By : Jason R. Miles
 Collection Date : 07/07/14 10:01

Project # : 15656-01/TASK 4

Parameter	Cas#	Mol Wght	RDL1	RDL2	ppbv	ug/m3	Method	Date	Dil.
Volatile Organics									
1,1-Dichloroethene	75-35-4	96.9	0.200	0.790	< 0.20	< 0.79	TO-15	07/14/14	1
cis-1,2-Dichloroethene	156-59-2	96.9	0.200	0.790	< 0.20	< 0.79	TO-15	07/14/14	1
trans-1,2-Dichloroethene	156-60-5	96.9	0.200	0.790	< 0.20	< 0.79	TO-15	07/14/14	1
Tetrachloroethylene	127-18-4	166	0.200	1.40	5.0	34.	TO-15	07/14/14	1
Trichloroethylene	79-01-6	131	0.200	1.10	< 0.20	< 1.1	TO-15	07/14/14	1
Vinyl chloride	75-01-4	62.5	0.200	0.510	< 0.20	< 0.51	TO-15	07/14/14	1
1,4-Bromofluorobenzene	460-00-4				100	% Rec.	TO-15	07/14/14	1

RDL1 = ppbv , RDL2 = ug/m3

Note:

Units are based on (STP) - Standard Temperature and Pressure

The reported analytical results relate only to the sample submitted.

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REPORT OF ANALYSIS

Joe Westersund (ODEQ) / Chris Marti
 Oregon Dept. of Env. Quality - ODEQ
 2020 SW 4th, Suite 400
 Portland, OR 97201

July 14, 2014

Date Received : July 09, 2014
 Description : ODEQ - Progress Cleaners

ESC Sample # : L709020-02

Sample ID : A-2

Site ID :

Collected By : Jason R. Miles
 Collection Date : 07/07/14 10:02

Project # : 15656-01/TASK 4

Parameter	Cas#	Mol Wght	RDL1	RDL2	ppbv	ug/m3	Method	Date	Dil.
Volatile Organics									
1,1-Dichloroethene	75-35-4	96.9	0.200	0.790	< 0.20	< 0.79	TO-15	07/14/14	1
cis-1,2-Dichloroethene	156-59-2	96.9	0.200	0.790	< 0.20	< 0.79	TO-15	07/14/14	1
trans-1,2-Dichloroethene	156-60-5	96.9	0.200	0.790	< 0.20	< 0.79	TO-15	07/14/14	1
Tetrachloroethylene	127-18-4	166	0.200	1.40	3.7	25.	TO-15	07/14/14	1
Trichloroethylene	79-01-6	131	0.200	1.10	< 0.20	< 1.1	TO-15	07/14/14	1
Vinyl chloride	75-01-4	62.5	0.200	0.510	< 0.20	< 0.51	TO-15	07/14/14	1
1,4-Bromofluorobenzene	460-00-4				98	% Rec.	TO-15	07/14/14	1

RDL1 = ppbv , RDL2 = ug/m3

Note:

Units are based on (STP) - Standard Temperature and Pressure

The reported analytical results relate only to the sample submitted.

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 Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Joe Westersund (ODEQ) / Chris Marti
 Oregon Dept. of Env. Quality - ODEQ
 2020 SW 4th, Suite 400
 Portland, OR 97201

July 14, 2014

Date Received : July 09, 2014
 Description : ODEQ - Progress Cleaners

ESC Sample # : L709020-03

Sample ID : A-3

Site ID :

Collected By : Jason R. Miles
 Collection Date : 07/07/14 10:04

Project # : 15656-01/TASK 4

Parameter	Cas#	Mol Wght	RDL1	RDL2	ppbv	ug/m3	Method	Date	Dil.
Volatile Organics									
1,1-Dichloroethene	75-35-4	96.9	0.200	0.790	< 0.20	< 0.79	TO-15	07/14/14	1
cis-1,2-Dichloroethene	156-59-2	96.9	0.200	0.790	< 0.20	< 0.79	TO-15	07/14/14	1
trans-1,2-Dichloroethene	156-60-5	96.9	0.200	0.790	< 0.20	< 0.79	TO-15	07/14/14	1
Tetrachloroethylene	127-18-4	166	0.200	1.40	0.34	2.3	TO-15	07/14/14	1
Trichloroethylene	79-01-6	131	0.200	1.10	< 0.20	< 1.1	TO-15	07/14/14	1
Vinyl chloride	75-01-4	62.5	0.200	0.510	< 0.20	< 0.51	TO-15	07/14/14	1
1,4-Bromofluorobenzene	460-00-4				104	% Rec.	TO-15	07/14/14	1

RDL1 = ppbv , RDL2 = ug/m3

Note:

Units are based on (STP) - Standard Temperature and Pressure

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REPORT OF ANALYSIS

Joe Westersund (ODEQ) / Chris Marti
 Oregon Dept. of Env. Quality - ODEQ
 2020 SW 4th, Suite 400
 Portland, OR 97201

July 14, 2014

Date Received : July 09, 2014
 Description : ODEQ - Progress Cleaners

ESC Sample # : L709020-04

Sample ID : A-4

Site ID :

Collected By : Jason R. Miles
 Collection Date : 07/07/14 10:06

Project # : 15656-01/TASK 4

Parameter	Cas#	Mol Wght	RDL1	RDL2	ppbv	ug/m3	Method	Date	Dil.
Volatile Organics									
1,1-Dichloroethene	75-35-4	96.9	0.200	0.790	< 0.20	< 0.79	TO-15	07/14/14	1
cis-1,2-Dichloroethene	156-59-2	96.9	0.200	0.790	< 0.20	< 0.79	TO-15	07/14/14	1
trans-1,2-Dichloroethene	156-60-5	96.9	0.200	0.790	< 0.20	< 0.79	TO-15	07/14/14	1
Tetrachloroethylene	127-18-4	166	0.200	1.40	< 0.20	< 1.4	TO-15	07/14/14	1
Trichloroethylene	79-01-6	131	0.200	1.10	< 0.20	< 1.1	TO-15	07/14/14	1
Vinyl chloride	75-01-4	62.5	0.200	0.510	< 0.20	< 0.51	TO-15	07/14/14	1
1,4-Bromofluorobenzene	460-00-4				96.7	% Rec.	TO-15	07/14/14	1

RDL1 = ppbv , RDL2 = ug/m3

Note:

Units are based on (STP) - Standard Temperature and Pressure

The reported analytical results relate only to the sample submitted.

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Reported: 07/14/14 12:46 Printed: 07/14/14 12:46

Summary of Remarks For Samples Printed
07/14/14 at 12:46:56

TSR Signing Reports: 358
R5 - Desired TAT

Clients MUST use the State of Oregon COCs for all work. Create an NCF for any samples received on ESC COCs.

Sample: L709020-01 Account: OREGONDEQ Received: 07/09/14 09:00 Due Date: 07/16/14 00:00 RPT Date: 07/14/14 12:46

Sample: L709020-02 Account: OREGONDEQ Received: 07/09/14 09:00 Due Date: 07/16/14 00:00 RPT Date: 07/14/14 12:46

Sample: L709020-03 Account: OREGONDEQ Received: 07/09/14 09:00 Due Date: 07/16/14 00:00 RPT Date: 07/14/14 12:46

Sample: L709020-04 Account: OREGONDEQ Received: 07/09/14 09:00 Due Date: 07/16/14 00:00 RPT Date: 07/14/14 12:46



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Oregon Dept. of Env. Quality - ODEQ
 Joe Westersund (ODEQ) / Chris Martin
 2020 SW 4th, Suite 400

Portland, OR 97201

Quality Assurance Report
 Level II

L709020

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July 14, 2014

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
1,1-Dichloroethene	< .2	ppb			WG731481	07/13/14 17:09
cis-1,2-Dichloroethene	< .2	ppb			WG731481	07/13/14 17:09
Tetrachloroethylene	< .2	ppb			WG731481	07/13/14 17:09
trans-1,2-Dichloroethene	< .2	ppb			WG731481	07/13/14 17:09
Trichloroethylene	< .2	ppb			WG731481	07/13/14 17:09
Vinyl chloride	< .2	ppb			WG731481	07/13/14 17:09
1,4-Bromofluorobenzene		% Rec.	95.80	60-140	WG731481	07/13/14 17:09

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
1,1-Dichloroethene	ppb	3.75	3.24	86.4	70-130	WG731481
cis-1,2-Dichloroethene	ppb	3.75	3.28	87.3	70-130	WG731481
Tetrachloroethylene	ppb	3.75	3.69	98.5	70-130	WG731481
trans-1,2-Dichloroethene	ppb	3.75	3.21	85.6	70-130	WG731481
Trichloroethylene	ppb	3.75	3.39	90.4	70-130	WG731481
Vinyl chloride	ppb	3.75	3.68	98.1	70-130	WG731481
1,4-Bromofluorobenzene				98.20	60-140	WG731481

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
1,1-Dichloroethene	ppb	3.21	3.24	86.0	70-130	0.860	25	WG731481
cis-1,2-Dichloroethene	ppb	3.23	3.28	86.0	70-130	1.52	25	WG731481
Tetrachloroethylene	ppb	3.64	3.69	97.0	70-130	1.52	25	WG731481
trans-1,2-Dichloroethene	ppb	3.24	3.21	86.0	70-130	0.990	25	WG731481
Trichloroethylene	ppb	3.47	3.39	92.0	70-130	2.23	25	WG731481
Vinyl chloride	ppb	3.67	3.68	98.0	70-130	0.290	25	WG731481
1,4-Bromofluorobenzene				97.50	60-140			WG731481

Batch number /Run number / Sample number cross reference

WG731481: R2961086: L709020-01 02 03 04

* * Calculations are performed prior to rounding of reported values.
 * Performance of this Analyte is outside of established criteria.
 For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



YOUR LAB OF CHOICE

Oregon Dept. of Env. Quality - ODEQ
Joe Westersund (ODEQ) / Chris Martin
2020 SW 4th, Suite 400

Portland, OR 97201

Quality Assurance Report
Level II

L709020

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July 14, 2014

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.

OREGONDEQ State of Oregon Sample Chain of Custody OREGONDEQ

Agency, Authorized Purchaser or Agent: ODEQ <i>Oregon Department of Environmental Quality</i> Send Lab Report To: Joe Westersund - ODEQ Address: 811 SW 6th Ave Portland, OR 97204 Tel. #: 503-229-6240 E-mail: westersund.joe@dep.state.or.us	Contract Laboratory Name: ESC Lab Sciences Lab Batch #: Invoice To: Delia Chadwick - ODEQ Address: 811 SW 6th Ave Portland, OR 97204 Tel. #: 503-229-6140	Lab Selection Criteria: <input type="checkbox"/> Proximity (if TAT < 48 hrs) <input type="checkbox"/> Prior work on same project <input checked="" type="checkbox"/> Cost (for anticipated analyses) <input type="checkbox"/> Other labs disqualified or unable to perform requested services <input type="checkbox"/> Emergency work	Turn Around Time: <input checked="" type="checkbox"/> 10 days (std.) <input type="checkbox"/> 5 days <input type="checkbox"/> 72 hours <input type="checkbox"/> 48 hours <input type="checkbox"/> 24 hours <input type="checkbox"/> Other
--	--	---	--

Project Name: ODEQ - Progress Cleaners Project #: 15656-01/Task 4 Sampler Name: Jason R. Miles	Sample Preservative N/A	L769020
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Sample ID#	Collection Date/Time	Matrix	Number of Containers	VOCs 6 EPA TO-15	Requested Analyses										Comments				
					Can #	Flow Cont	Initial Pressure	Final Pressure											
A-1	7-7-14/1001	Air	1	X											01	1126	316	-30.0"Hg	-8.0"Hg
A-2	7-7-14/1002	Air	1	X											02	1438	136	-29.0"Hg	-5.0"Hg
A-3	7-7-14/1004	Air	1	X											03	975	319	-30.4"Hg	-8.5"Hg
A-4	7-7-14/1006	Air	1	X											04	497	469	-29.0"Hg	-7.5"Hg

Notes: * Analyze for PCE, TCE, C-DCE, t-DCE and VC only.
 105124268712 4 summa 4FC

Relinquished By: Jason R. Miles Signature: <i>[Signature]</i>	Agency/Agent: Hart Clausen Time & Date: 1750/7-7-14	Received By: <i>[Signature]</i> Signature: <i>[Signature]</i>	Agency/Agent: <i>[Signature]</i> Time & Date: 0900
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THIS PURCHASE IS SUBMITTED PURSUANT TO STATE OF OREGON SOLICITATION #102-1098-07 AND PRICE AGREEMENT # 1. THE PRICE AGREEMENT INCLUDING CONTRACT TERMS AND CONDITIONS AND SPECIAL CONTRACT TERMS AND CONDITIONS (T'S & C'S) CONTAINED IN THE PRICE AGREEMENT ARE HEREBY INCORPORATED BY REFERENCE AND SHALL APPLY TO THIS PURCHASE AND SHALL TAKE PRECEDENCE OVER ALL OTHER CONFLICTING T'S AND C'S, EXPRESS OR IMPLIED.