

22 May 2012

Mr. Chris Seney  
Nursery Products, LLC  
12277 Apple Valley Road, Suite 131  
Apple Valley, California 92308

**Subject: Monitor Well Installation Report  
Nursery Products Hawes Composting Facility  
San Bernardino County, California**

Dear Mr. Seney:

This monitor well installation report presents a summary of the activities conducted to install three groundwater monitor wells (designated MW-1, -2, and -3) at the Nursery Products LLC, Hawes Composting Facility. The facility is located approximately 1.2 miles south and west of Highway 58 off of Helendale Road in San Bernardino County, California (Figure 1). The facility is located on Assessor's Parcel No. 0492-021-24-0000 and has a WDID No. 6B3609903006. The groundwater monitoring well locations are presented on Figure 2.

This report was prepared to satisfy the requirements of Section V.D of the Lahontan Regional Water Quality Control Board Order No. R6V-2010-0010 (Board Order) documenting the installation of the groundwater monitoring system. Monitor well installation activities were conducted in general accordance with the California State Department of Water Resources (DWR) Well Standards for monitoring wells (DWR Bulletin Nos. 74-81 and 74-90) and the site Monitoring and Reporting Plan & Sampling and Analysis Plan (MRPSAP).

#### Pre Field Activities

Prior to mobilizing to the field, Geosyntec personnel contacted Underground Services Alert (Dig Alert) to clear subsurface utilities in the vicinity of the proposed boring locations, and prepared a site-specific health and safety plan in accordance with Occupational Safety and Health Administration (OSHA) requirements. Utility companies notified by Dig Alert identified no underground utilities in the vicinity of the borings.

### Summary of Field Activities

Field work to install the groundwater monitor well network commenced on 23 April 2012. The drilling was performed by Cascade Drilling, L.P. of La Habra, California using air-rotary casing hammer (ARCH) and mud-rotary drilling methods. Due to an assumed north-northeasterly groundwater flow direction, the boring locations for MW-2 and -3 were relocated to the east of their original positions to allow for more variability in the groundwater flow direction over time.

The borings for MW-1 and MW-2 were started with air rotary drilling methods. Drilling foam was used to stabilize the borehole of MW-1 and MW-2; a material safety data sheet (MSDS) for the drilling foam is included in Attachment 2. Due to difficult drilling conditions at depth, the boring for MW-2 was converted to mud rotary drilling methods, and the boring for MW-3 was advanced entirely with mud rotary drilling methods after driving casing to a depth of approximately 20 feet below ground surface (ft bgs). The ARCH portions of the borings were advanced using steel casing with a diameter of 9 5/8-inches and mud rotary portions of the borings were advanced using 8.5-inch diameter tooling.

The soil stratigraphy encountered and well construction details are presented on the boring and well construction logs in Attachment 1. A summary of well construction details is also provided in Table 1. The soil cuttings from the borings were logged by a Geosyntec geologist working under the direction of a California-licensed Professional Geologist. The total depths for the borings ranged from 404 ft bgs (MW-2) to 407 ft bgs (MW-3). Soil borings were converted to monitoring wells by installing 4-inch diameter, Schedule 80 polyvinyl chloride (PVC) well casing with 25 feet of 0.020-inch factory-slotted well screen and a threaded cap at the bottom of each well. Stainless steel centralizers were placed at the top and bottom of the well screen and at 30 foot intervals thereafter. After casing installation, a filter pack consisting of #3 Monterey Sand was installed and surged to settle the filter pack material. After surging, the remaining filter pack was installed up to a height of approximately 3 to 7 feet above the top of the screen prior to installation of the transition seal, which consisted of 3/4-inch bentonite chips, placed up to approximately 10 to 17 feet above top of the filter pack. MW-2 includes a longer transition seal. While sounding the filter pack depth, the measuring tape broke and was unable to be retrieved from the annular space outside of the well casing in MW-2. Additional sealing materials were placed to encapsulate the measuring tape. The transition seals were hydrated with formational water and allowed to stand for at least 30 minutes prior to the start of grouting. A high-solids bentonite grout seal was thoroughly mixed and placed in the annular space from the top of the transition seal to an approximate depth of 5 ft bgs in all wells. Excluding concrete, all annular well materials were tremied into place. The surface completion consisted of 5-feet of concrete

from the top of the bentonite grout seal to the surface, and each well was housed in 8-inch diameter monument style vaults set in a 3-foot by 3-foot concrete pad.

### Well Development

Well development was performed from 10 May to 17 May 2012 in general accordance with the MRPSAP protocols. Development of Monitor Wells MW-2 and -3 included placement of NuWell 220 dispersant polymer (NSF-approved for potable water wells) prior to development to facilitate removal of the drilling mud. The MSDS for the drilling mud dispersant is provided in Attachment 2. Copies of the well development logs are provided in Attachment 3.

### Investigative Derived Waste

Soil cuttings, drilling mud, and wash water derived from well installation activities were placed within temporary soil berms on plastic sheeting in proximity to the boring locations. At the completion of the well installation activities, a sample from the soil stockpiles from each location were combined for composite analysis of Total Petroleum Hydrocarbons (TPH) by Environmental Protection Agency (EPA) Method 8015M, Volatile Organic Compounds (VOCs) by EPA Method 8260B, and Title 22 Metals by EPA Method 6010B. A summary of these analytical results is provided in Table 2, and a copy of the laboratory certificate of analysis is provided in Attachment 4. Based on the analytical data, no detectable concentrations of TPH or VOCs were present in the soil stockpiles. Additionally, the metals parameters analyzed were within range of the concentrations observed during the background soil sampling activities for the compost pad, as reported in the MRPSAP [Nursery Products, 2012]. Therefore, the materials in these stockpiles will be utilized for ongoing earthwork activities at the site.

Water derived from well development activities was sprayed within the facility as dust control. Groundwater at the site was sampled and characterized in 2009; the results of the testing are presented in Attachment D of the Board Order. Data collected during routine groundwater sampling event will further characterize groundwater at the site.

### Monitor Well Surveying

On 17 May 2012, a California-licensed Surveyor from AEI CASC Consulting of Colton, California established horizontal and vertical coordinates for the ground surface the top of well casing for each well, with horizontal coordinates reported in North American Datum 1983 (NAD 83) and vertical elevation in National Geodetic Vertical Datum of 1988 (NGVD 88).


### Monitor Well Sampling

Dedicated low flow pumps were installed in the three groundwater monitor wells to facilitate routine sampling. The first sampling event for the groundwater monitor well network is scheduled for 24 May 2012, and analytical results will be provided in the first quarterly groundwater monitoring report.

### Closure

If you have any questions or require additional information regarding the subject monitor well installation, please contact the undersigned at (858) 674-6559.

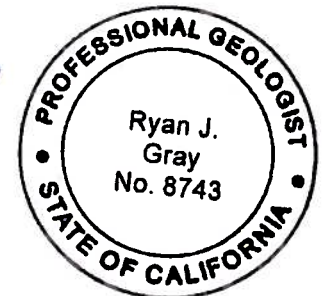
Sincerely,

  
Jennifer L. Nevius, R.C.E. 64938  
Project Engineer





Ryan J. Gray, P.G. 8743  
Project Geologist



### Attachments

- Table 1 – Summary of Monitoring Well Construction Details
- Table 2 - Summary of Soil Cuttings Stockpile Analytical Results
- Figure 1 – Vicinity Map
- Figure 2 – Groundwater Monitor Well Location Plan
- Attachment 1 – Boring Logs and Well Construction Diagrams
- Attachment 2 – Well Construction Product Information
- Attachment 3 – Well Development Forms
- Attachment 4 – Laboratory Certificate of Analysis

### References

Nursery Products, 2012. *Monitoring and Reporting Plan & Sampling and Analysis Plan (MRPSAP)*, dated May 2012.

# Tables

**Table 1**  
**Summary of Monitoring Well Construction Details**  
**Nursery Products Hawes Composting Facility**  
**San Bernardino County, California**

Monitor Well	Latitude	Longitude	Top of Concrete Elevation (ft msl)	Top of Well Casing Elevation (ft msl)	Screen Interval (ft bgs)	Filter Pack Interval (ft bgs)	Total Boring Depth (ft bgs)	Screen Length (ft)
MW-1	34°54'28.89241"	117°21'01.47236"	2,330.71	2,332.99	376-401	369-403	405	25
MW-2	34°54'55.08775"	117°20'58.60005"	2,316.18	2,318.91	375-400	372-407	407	25
MW-3	34°54'55.19388"	117°21'05.72899"	2,313.69	2,316.61	375-400	368-404	404	25

Notes:

ft – Feet

ft msl – Feet above Mean Sea Level

ft bgs – Feet below ground surface

Horizontal datum – NAD 83 Zone 5

Vertical datum – NAVD 88

**Table 2**  
**Summary of Soil Cuttings Stockpile Analytical Data**  
**Nursery Products Hawes Composting Facility**  
**San Bernardino County, California**

Parameter	Units	RL	Results
Antimony	mg/kg	0.750	ND
Arsenic	mg/kg	0.750	3.06
Barium	mg/kg	0.500	50.1
Beryllium	mg/kg	0.250	0.284
Cadmium	mg/kg	0.500	ND
Chromium	mg/kg	0.250	5.60
Cobalt	mg/kg	0.250	3.08
Copper	mg/kg	0.500	6.87
Lead	mg/kg	0.500	3.18
Mercury	mg/kg	0.0835	ND
Molybdenum	mg/kg	0.250	ND
Nickel	mg/kg	0.250	4.32
Selenium	mg/kg	0.750	ND
Silver	mg/kg	0.250	ND
Thallium	mg/kg	0.750	ND
Vanadium	mg/kg	0.250	12.4
Zinc	mg/kg	1.00	17.1
TPH	mg/kg	Various	ND
VOCs	µg/kg	Various	ND

Notes:

RL – Laboratory Reporting Limit

mg/kg - milligrams per kilogram

µg/kg – micrograms per kilogram

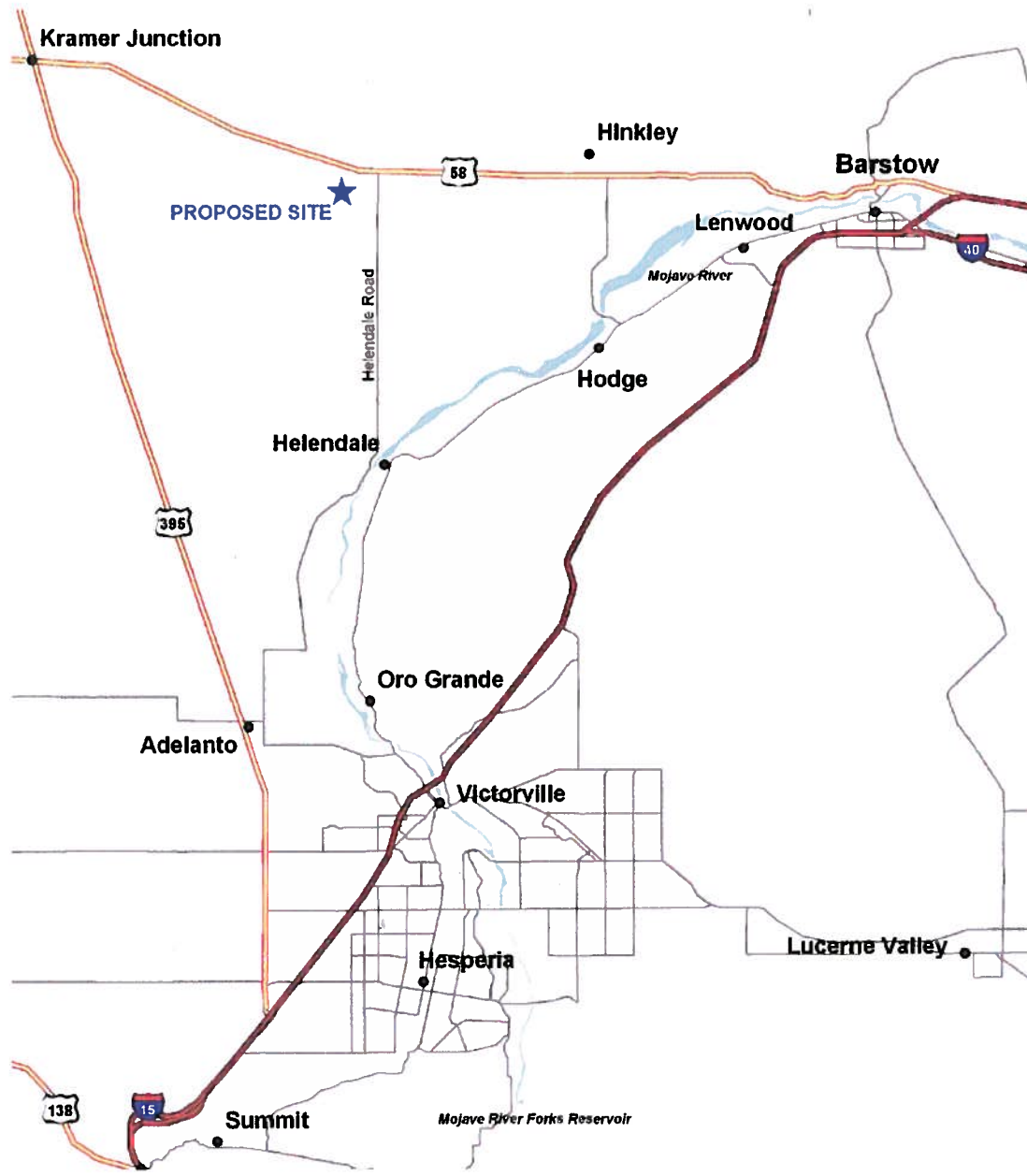
TPH – Total Petroleum Hydrocarbons

VOCs – Volatile Organic Compounds

ND – Not detected at concentrations greater than or equal to the RL

# Figures

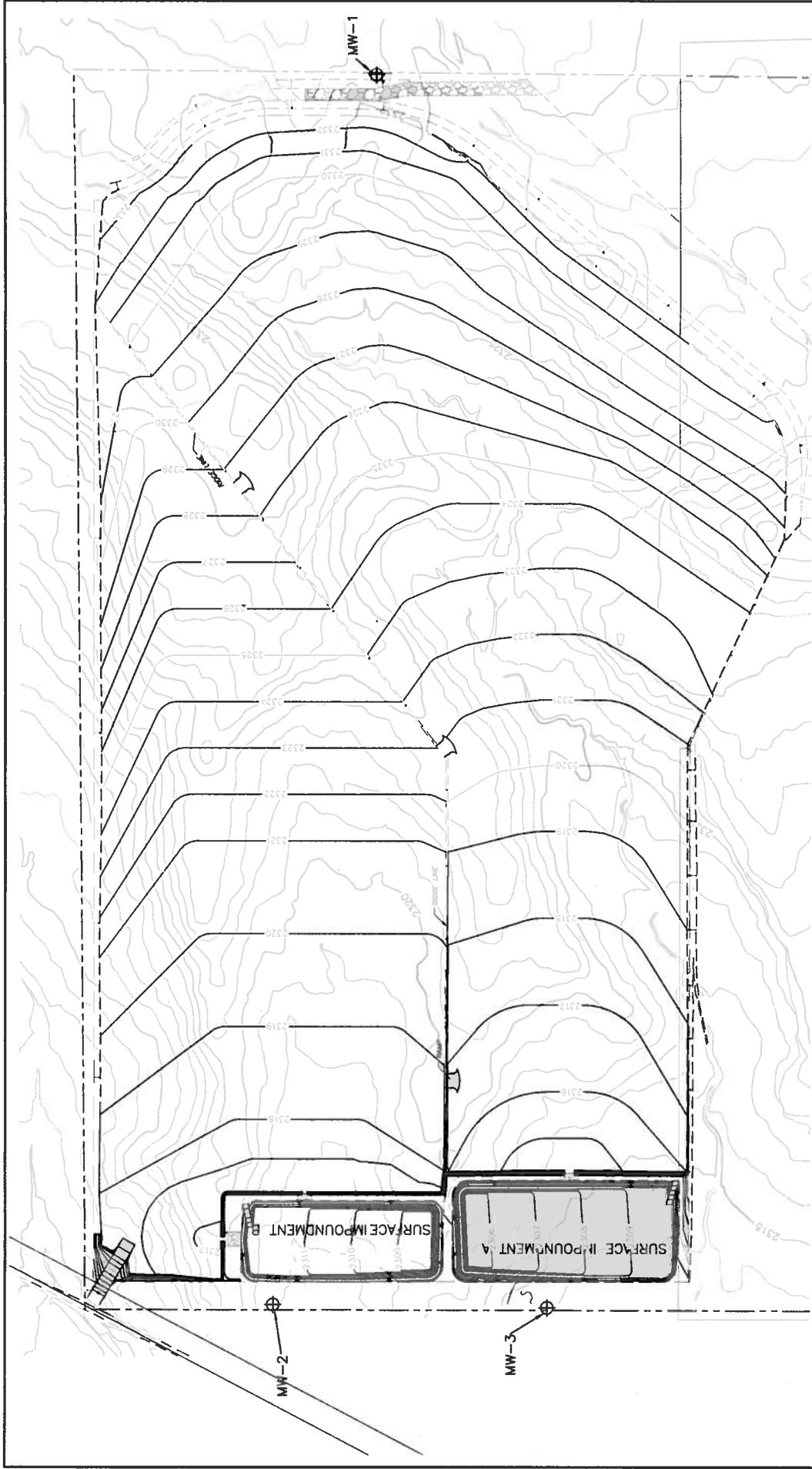




P:\PRJ\SDCADD\CADD\SC0554\_HAWES\_COMPOSING FACILITY\SC0554-04\FIGURES\FIGURE 1 - VICINITY MAP.DWG - DRAWN BY: MCARLSON

NOT TO SCALE

VICINITY MAP HAWES COMPOSTING FACILITY SAN BERNARDINO, CA		
<b>Geosyntec</b> consultants	DATE: MAY 2012	FIGURE 1
	PROJECT NO. SC0554	



**GROUNDWATER MONITORING WELL LOCATION PLAN**  
 HAWES COMPOSTING FACILITY  
 SAN BERNARDINO COUNTY, CA

**Geosyntec**  
 consultants

DATE	MAY 2012
PROJECT NO	SC0554
FIGURE	
<b>2</b>	

**LEGEND**

⊕ GROUNDWATER MONITORING WELL

REFERENCES:

1. DESIGN PLAN GRADES BY AEI CASC PRESENTED IN GEOSYNTEC, 2011.
2. MONITORING WELL LOCATIONS BY AEI CASC, 2012

**Attachment 1**  
**Boring Logs and Well Construction Diagrams**

**KEY SHEET - CLASSIFICATIONS AND SYMBOLS**

GS FORM  
KEY 09/99

**EMPIRICAL CORRELATIONS WITH STANDARD PENETRATION RESISTANCE N VALUES \***

	N VALUE * (BLOWS/FT)	CONSISTENCY	UNCONFINED COMPRESSIVE STRENGTH (TONS/SQ FT)		N VALUE * (BLOWS/FT)	RELATIVE DENSITY
<b>FINE GRAINED SOILS</b>	0 - 2	VERY SOFT	<0.25	<b>COARSE GRAINED SOILS</b>	0 - 4	VERY LOOSE
	3 - 4	SOFT	0.25 - 0.50		5 - 10	LOOSE
	5 - 8	FIRM	0.50 - 1.00		11 - 30	MEDIUM DENSE
	9 - 15	STIFF	1.00 - 2.00		31 - 50	DENSE
	16 - 30	VERY STIFF	2.00 - 4.00		>50	VERY DENSE
	31 - 50	HARD	>4.00			
	>50	VERY HARD				

\* ASTM D 1586, NUMBER OF BLOWS OF 140 POUND HAMMER FALLING 30 INCHES TO DRIVE A 2 IN. O.D., 1.4 IN. I.D. SAMPLER ONE FOOT

**UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART**

MAJOR DIVISIONS		SYMBOLS	DESCRIPTIONS
<b>COARSE GRAINED SOILS</b>	<b>GRAVEL AND GRAVELLY SOILS</b>	CLEAN GRAVELS	GW WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
		LITTLE OR NO FINES	GP POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES	GM SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO.4 SIEVE	APPRECIABLE AMOUNT OF FINES	GC CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
	<b>SAND AND SANDY SOILS</b>	CLEAN SANDS	SW WELL GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		LITTLE OR NO FINES	SP POORLY GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
SANDS WITH FINES		SM SILTY SANDS, SAND-SILT MIXTURES	
MORE THAN 50% OF MATERIAL COARSER THAN NO. 200 SIEVE SIZE	APPRECIABLE AMOUNT OF FINES	SC CLAYEY SANDS, SAND-CLAY MIXTURES	
<b>FINE GRAINED SOILS</b>	<b>SILTS AND CLAYS</b>	Liquid Limit LESS THAN 50	ML INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
			CL INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
			OL ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	<b>SILTS AND CLAYS</b>	Liquid Limit GREATER THAN 50	MH INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILT
			CH INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
<b>HIGHLY ORGANIC SOILS</b>		PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENT

NOTE: DUAL SYMBOLS USED FOR BORDERLINE CLASSIFICATIONS

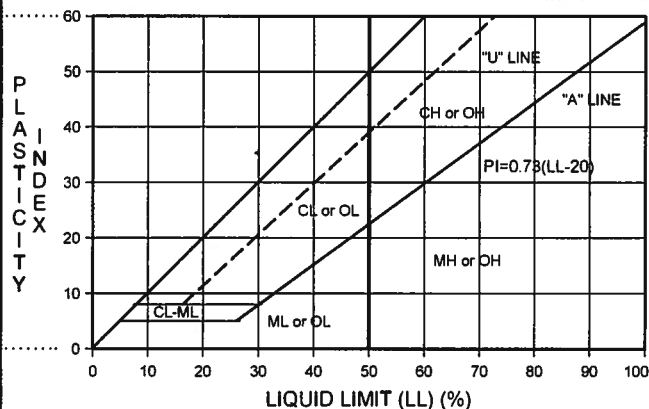
**PARTICLE SIZE IDENTIFICATION**

BOULDERS	>300 mm
COBBLES	75 - 300 mm
GRAVEL: COARSE	19.0 - 75 mm
GRAVEL: FINE	4.75 - 19 mm
SAND: COARSE	2.00 - 4.75 mm
SAND: MEDIUM	0.425 - 2.00 mm
SAND: FINE	0.075 - 0.425 mm
SILT	0.075 - 0.002 mm
CLAY	<0.002 mm

WELL GRADED - HAVING WIDE RANGE OF GRAIN SIZES AND APPRECIABLE AMOUNTS OF ALL INTERMEDIATE PARTICLE SIZES

POORLY GRADED - PREDOMINANTLY ONE GRAIN SIZE, OR HAVING A RANGE OF SIZES WITH SOME INTERMEDIATE SIZES MISSING

**PLASTICITY CHART**



**OTHER MATERIAL SYMBOLS**

Siltstone	Sand
Sandstone	Silt
Siltstone/Claystone	Silty Sand
Claystone	Alluvium
Shale	Artificial Fill
Siltstone/Sandstone	Debris Fill
Conglomerate	Asphalt
Granitic	Cement

**WELL SYMBOLS**

HYDRATED GRANULAR BENTONITE
BENTONITE
CEMENT
GROUT
FILTER PACK
CONCRETE
NATIVE/SLOUGH
CENTRALIZER

**SAMPLER AND OTHER SYMBOLS**

BULK SAMPLE	Water Level at Time Drilling, or as Shown
California Sample	Static Water Level
GRAB SAMPLE	MSL: Mean Sea Level
HAND AUGER	AGS: Above Ground Surface
Standard Penetration Test	BGS: Below Land Surface
GROUNDWATER SAMPLE	BTOC: Below Top of Casing
	HSA: Hollow Stem Auger

GS FORM  
CORE3 10/00

**BOREHOLE LOG**

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	WELL LOG	Well Construction Material	COMMENTS
5	Aluvium Moist, yellowish brown (10YR 5/4), clayey fine to medium sand with fine to medium gravel [SC]				
10	Moist, pale brown (10YR 6/3), fine sand with silt and fine to medium gravel [SP-SM]				
25	Sand becomes medium to coarse				
35	Sand becomes fine to medium, with trace gravel				
50	Moist, dark yellowish brown (10YR 4/4) sandy clay to clayey fine sand with gravel [CL/SC]				
70	Moist, dark yellowish brown (10YR 4/4) poorly graded sand with silt and fine gravel [SP-SM]				
75					

Surface completion 8" dia. above grade steel monument in 3' x 3' concrete pad  
2.1 cubic feet concrete

263.9 cubic feet high-solids bentonite grout

BORING LOG W/ WELL (NEVIUS) SC0554.GPJ GEOSNTEC.GDT 5/22/12

**CONTRACTOR** Cascade Drilling, L.P.      **LATITUDE** 34.9080260  
**EQUIPMENT** Atlas Rig                      **LONGITUDE** -117.3604090  
**DRILL MTHD** ARCH                          **ANGLE** Vertical  
**DIAMETER** 9 5/8                              **BEARING** -----  
**LOGGER** R. Gray      **REVIEWER** J. Nevius      **PRINTED** May 22, 2012

**REMARKS:** Centralizers placed at bottom and top of screen and every 30' thereafter.  
  
**COORDINATE SYSTEM:**  
 SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM  
CORE3 10/00

**BOREHOLE LOG**

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	WELL LOG	Well Construction Material	COMMENTS
80	Trace gravel				
85					
90	Moist, brown (7.5YR 5/4), sandy lean clay to clayey fine sand [CL/SC]				
95					
100	Moist, brown (7.5YR 5/4), clayey fine sand [SC]				
105					
110					
115					
120					
125					
130	Moist, brown (7.5YR 5/4), sandy lean clay to clayey medium to coarse grained sand [CL/SC]				
135					
140					
145	Increased coarse sand and gravel				
150					

BORING LOG W/ WELL (NEVIUS) SC0564 GPJ GEOSYNTEC.GDT. 5/22/12

CONTRACTOR Cascade Drilling, L.P. LATITUDE 34.9080260  
EQUIPMENT Atlas Rig LONGITUDE -117.3504090  
DRILL MTHD ARCH ANGLE Vertical  
DIAMETER 9 5/8 BEARING -----  
LOGGER R. Gray REVIEWER J. Nevius PRINTED May 22, 2012

REMARKS: Centralizers placed at bottom and top of screen and every 30' thereafter.

COORDINATE SYSTEM:  
SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM  
CORE3 10/00

**BOREHOLE LOG**

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	WELL LOG	Well Construction Material	COMMENTS
155					Poor return
160					
165	Moist, dark yellowish brown (10YR 4/4) sandy lean clay [CL]				
170	Moist, dark yellowish brown (10YR 4/4), clayey medium to coarse grained sand, with fine to medium gravels [SC]				
175					
180					
185					
190					
195					
200					Poor recovery
205					
210					
215					
220	Moist, dark yellowish brown (10YR 4/4) sandy lean clay to clayey sand with fine gravels [CL/SC]				
225					

BORING LOG W/ WELL (NEVIUS) SC0554 GPJ GEOSYNTEC.GDT 5/22/12

CONTRACTOR Cascade Drilling, L.P. LATITUDE 34.9080260  
EQUIPMENT Atlas Rig LONGITUDE -117.3504090  
DRILL MTHD ARCH ANGLE Vertical  
DIAMETER 9 5/8 BEARING -----  
LOGGER R. Gray REVIEWER J. Nevius PRINTED May 22, 2012

REMARKS: Centralizers placed at bottom and top of screen and every 30' thereafter.

COORDINATE SYSTEM:  
SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM  
CORE3 10/00

**BOREHOLE LOG**

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	WELL LOG	Well Construction Material	COMMENTS
230					
235	Moist, dark yellowish brown (10YR 4/4), silty medium to coarse poorly graded sand with fine gravel [SM]	[Symbolic Log Pattern]	[Well Log Pattern]		
245	3' lense with abundant cobbles and coarse gravel	[Symbolic Log Pattern]	[Well Log Pattern]		
265	Moist, brown (7.5YR 4/3), clayey medium to coarse poorly graded sand [SC]	[Symbolic Log Pattern]	[Well Log Pattern]		
275	Becomes brown (7.5YR 5/4)	[Symbolic Log Pattern]	[Well Log Pattern]		
280					
285					
290					
295					
300					

BORING LOG W/ WELL (NEVIUS) SC0664.GPJ GEOSNTEC.GDT 5/22/12

CONTRACTOR Cascade Drilling, L.P. LATITUDE 34.9080260  
EQUIPMENT Atlas Rig LONGITUDE -117.3504090  
DRILL MTHD ARCH ANGLE Vertical  
DIAMETER 9 5/8 BEARING -----  
LOGGER R. Gray REVIEWER J. Nevius PRINTED May 22, 2012

REMARKS: Centralizers placed at bottom and top of screen and every 30' thereafter.

COORDINATE SYSTEM:  
SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS



GS FORM  
CORE3 10/00

**BOREHOLE LOG**

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	WELL LOG	Well Construction Material	COMMENTS
305	Becomes light brown (7.5YR 6/4), with fine to coarse gravel				
310					
315					
320					Poor return
325					
330	Becomes brown (7.5YR 5/4), with few cobbles				
335	Moist, brown (7.5YR 5/4), poorly graded fine sand with silt [SP-SM]				
340	Moist, brown (7.5YR 4/3), fine to medium grained, poorly graded clayey sand with fine to coarse gravels [SP-SC]				▽
345					
350	Increased gravel and cobbles				
355					
360				1.9 cubic feet Hydratech Wyo Ben medium bentonite chips	Poor return
365					
370	Wet, dark yellowish brown (10YR 4/4), sandy lean clay to clayey medium to coarse sand [CL/SC]				
375				22.3 cubic feet Lapis Lustre #3 sand	

BORING LOG W/WELL (NEVIUS) SC0554.GPJ GEOSNTEC.GDT 5/22/12

**CONTRACTOR** Cascade Drilling, L.P.      **LATITUDE** 34.9080260  
**EQUIPMENT** Atlas Rig      **LONGITUDE** -117.3604090  
**DRILL MTHD** ARCH      **ANGLE** Vertical  
**DIAMETER** 9 5/8      **BEARING** -----  
**LOGGER** R. Gray      **REVIEWER** J. Nevius      **PRINTED** May 22, 2012

**REMARKS:** Centralizers placed at bottom and top of screen and every 30' thereafter.

**COORDINATE SYSTEM:**  
SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM  
CORE3 10/00

**BOREHOLE LOG**

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	WELL LOG	Well Construction Material	COMMENTS
380	Wet, light brown (7.5YR 6/3), medium to coarse, poorly graded sand with clay [SP-SC]			4' Schedule 80 PVC with 0.020" screen	
385					
390	2' lense of lean clay				
395					
400					
405	End of boring. Total Depth: 405 ft bgs.			Slough	

BORING LOG MW-1 (NEVIUS) SC0654.GPJ GEOSYNTEC.GDT 5/22/12

CONTRACTOR Cascade Drilling, L.P. LATITUDE 34.9080260  
EQUIPMENT Atlas Rig LONGITUDE -117.3604090  
DRILL MTHD ARCH ANGLE Vertical  
DIAMETER 9 5/8 BEARING -----  
LOGGER R. Gray REVIEWER J. Nevius PRINTED May 22, 2012

REMARKS: Centralizers placed at bottom and top of screen and every 30' thereafter.

COORDINATE SYSTEM:  
SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM  
CORE3 10/00

**BOREHOLE LOG**

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	WELL LOG	Well Construction Material	COMMENTS
5	<u>Alluvium</u> Moist, light brown (7.5YR 6/4), poorly graded, fine grained, silty sand with trace gravel [SM]			Surface completion: 6" dia. above grade steel monument in 3' x 3' concrete pad 2.1 cubic feet concrete	
25	Increase in silt content Moist, pale brown (10YR 6/3), fine to medium grained sand with silt and trace clay [SP-SM]			146.2 cubic feet high-solids bentonite grout	
40	Trace gravel				

BORING LOG W/MELL (NEVIUS) SC0554.GPJ\_GEOSNTEC.GDT 5/22/12

CONTRACTOR Cascade Drilling, L.P. LATITUDE 34.9163020  
EQUIPMENT Atlas Rig LONGITUDE -117.3496110  
DRILL MTHD ARCH/Mud Rotary ANGLE Vertical  
DIAMETER 9 5/8 BEARING -----  
LOGGER N. Godinez REVIEWER J. Nevius PRINTED May 22, 2012

REMARKS: Centralizers placed at bottom and top of screen and every 30' thereafter.  
COORDINATE SYSTEM:  
SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM  
CORE3 10/00

**BOREHOLE LOG**

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	WELL LOG	Well Construction Material	COMMENTS
80	Becomes medium to coarse sand, poorly graded	[Symbolic Log Pattern]	[Well Log Pattern]		
90	Moist, light brown (7.5YR 6/4), sandy clay to clayey sand [CL/SC]	[Symbolic Log Pattern]	[Well Log Pattern]		
110	Moist, light brown (7.5YR 6/4), fine to medium grained silty sand [SM]	[Symbolic Log Pattern]	[Well Log Pattern]		
130	Becomes reddish brown (2.5YR 4/4) Becomes coarse grained silty sand	[Symbolic Log Pattern]	[Well Log Pattern]		
145	Moist, reddish brown (5YR 5/3), silty to clayey medium sand with trace gravel [SC-SM]	[Symbolic Log Pattern]	[Well Log Pattern]		

BORING LOG W/MELL (NEVIUS) SC0554.GPJ\_GEOSNTEC.GDT 5/22/12

CONTRACTOR Cascade Drilling, L.P. LATITUDE 34.9163020  
EQUIPMENT Atlas Rig LONGITUDE -117.3496110  
DRILL MTHD ARCH/Mud Rotary ANGLE Vertical  
DIAMETER 9 5/8 BEARING -----  
LOGGER N. Godinez REVIEWER J. Nevius PRINTED May 22, 2012

REMARKS: Centralizers placed at bottom and top of screen and every 30' thereafter.

COORDINATE SYSTEM:  
SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM  
CORE3 10/00

**BOREHOLE LOG**

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	WELL LOG	Well Construction Material	COMMENTS
155					
160					
165					
170	Moist, pale brown (10YR 6/3), fine grained sand with silt [SP-SM]				
175					
180					
185	Appearance of fine to medium gravel				
190	Moist, reddish brown (5YR 5/3), poorly graded clayey to silty sand [SC-SM]				
195					
200					
205	Trace medium gravel				
210	Moist, light brown (7.5YR 6/4), poorly graded silty sand with trace clay [SM]				
215					
220	Moist, light brown (7.5YR 6/4), silty to clayey, medium to coarse sand with trace gravel [SM-SC]				
225					

BORING LOG W/ WELL (NEVIUS) SC0554.GPJ - GEOSNTEC.GDT 5/22/12

**CONTRACTOR** Cascade Drilling, L.P.      **LATITUDE** 34.9153020  
**EQUIPMENT** Atlas Rig      **LONGITUDE** -117.3496110  
**DRILL MTHD** ARCH/Mud Rotary      **ANGLE** Vertical  
**DIAMETER** 9 6/8      **BEARING** -----  
**LOGGER** N. Godinez      **REVIEWER** J. Nevius      **PRINTED** May 22, 2012

**REMARKS:** Centralizers placed at bottom and top of screen and every 30' thereafter.

**COORDINATE SYSTEM:**  
SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM  
CORE3 10/00

**BOREHOLE LOG**

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	WELL LOG	Well Construction Material	COMMENTS
230					
235					
240					
245					
250	Trace gravel				
255					
260					
265					
270					
275					
280	Fine to medium cobbles and gravel				
285	Moist, light reddish brown (2.5YR 6/3) clayey fine sand with trace gravel [SC]				
290					
295	Moist, light brown (7.5YR 6/4), silty to clayey medium grained sand [SM-SC]				
300					

BORING LOG MWELL (NEVIUS) SC0554.GPJ GEOSNTEC.GDT 5/22/12

CONTRACTOR Cascade Drilling, L.P. LATITUDE 34.9153020  
EQUIPMENT Atlas Rig LONGITUDE -117.3496110  
DRILL MTHD ARCH/Mud Rotary ANGLE Vertical  
DIAMETER 9 5/8 BEARING -----  
LOGGER N. Godinez REVIEWER J. Nevius PRINTED May 22, 2012

REMARKS: Centralizers placed at bottom and top of screen and every 30' thereafter.

COORDINATE SYSTEM:  
SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM  
CORE3 10/00

**BOREHOLE LOG**

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	WELL LOG	Well Construction Material	COMMENTS
305					
310	Moist, light brown (7.5YR 6/4), clayey fine to medium sand [SC]				
315					
320					
325					
330					
335					
340	Moist, pale brown (10YR 6/3), poorly graded coarse sand with trace gravel [SP]				
345	Moist, reddish brown (2.5YR 4/4), sandy clay [CL]				
350					
355	Moist, pale brown (10YR 6/3), poorly graded coarse sand with gravel [SP]				
360	Moist, reddish brown (2.5YR 4/4), clayey sand with trace gravel [SC]			7.1 cubic feet hydrated Wyo-Ben medium bentonite chips	
365	Wet, light brown (7.5YR 6/4) poorly graded sand with clay [SP-SC]				
370					
375					

BORING LOG W/WELL (NEVIUS) SC0654.GPJ GEOSNTEC.GDT 5/22/12

CONTRACTOR Cascade Drilling, L.P. LATITUDE 34.9163020  
EQUIPMENT Atlas Rig LONGITUDE -117.3496110  
DRILL MTHD ARCH/Mud Rotary ANGLE Vertical  
DIAMETER 9 5/8 BEARING -----  
LOGGER N. Godinez REVIEWER J. Nevius PRINTED May 22, 2012

REMARKS: Centralizers placed at bottom and top of screen and every 30' thereafter.

COORDINATE SYSTEM:  
SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM:  
CORE3 10/00

**BOREHOLE LOG**

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	WELL LOG	Well Construction Material	COMMENTS
380				4" Schedule 80 PVC with 0.020" screen	
385				14.8 cubic feet Lapis Lustre #3 sand	
390					
395					
400					
405					
	End of boring. Total Depth: 407 ft bgs.				

BORING LOG W/MELL (NEVIUS) SC0554.GPJ GEOSYNTEC.GDT 5/22/12

CONTRACTOR Cascade Drilling, L.P. LATITUDE 34.9163020  
EQUIPMENT Atlas Rig LONGITUDE -117.3496110  
DRILL MTHD ARCH/Mud Rotary ANGLE Vertical  
DIAMETER 9 5/8 BEARING -----  
LOGGER N. Godinez REVIEWER J. Nevius PRINTED May 22, 2012

REMARKS: Centralizers placed at bottom and top of screen and every 30' thereafter.

COORDINATE SYSTEM:  
SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS



GS FORM  
CORE3 10/00

**BOREHOLE LOG**

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	WELL LOG	Well Construction Material	COMMENTS
5	Alluvium Moist, light brown (7.5YR 6/4), fine grained silty sand with trace clay and fine gravel [SM]			Surface completion: 8" dia. above grade steel monument in 3' x 3' concrete pad 2.1 cubic feet concrete	9 5/8" casing driven to 20' bgs
25	Moist, brown (7.5YR 4/4), medium to coarse sand with silt [SP-SM]				
35	Sand becomes fine grained				
45				100.6 cubic feet high-solids bentonite grout	
55	Moist, brown (7.5YR 4/4), silty fine grained sand [SM]				
60					
65					
70					
75					

BORING LOG W/WELL (NEVIUS) SC0554.GPJ GEOSNTEC.GDT 5/22/12

CONTRACTOR Cascade Drilling, L.P.      LATITUDE 34.9153310  
EQUIPMENT Atlas Rig                      LONGITUDE -117.3515910  
DRILL MTHD Air Rotary/Mud Rotary      ANGLE Vertical  
DIAMETER 9 5/8 / 8.5                      BEARING -----  
LOGGER N. Godínez      REVIEWER J. Nevius      PRINTED May 22, 2012

REMARKS: Centralizers placed at bottom and top of screen and every 30' thereafter.

COORDINATE SYSTEM:  
SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM  
CORE3 10/00

**BOREHOLE LOG**

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	WELL LOG	Well Construction Material	COMMENTS
80	Moist, brown (7.5YR 4/4), silty medium to coarse sand with clay [SM]	[Symbolic Log Pattern]	[Well Log Pattern]		
85					
90					
95					
100					
105					
110					
115					
120					
125	Moist, brown (7.5YR 4/4), clayey fine to medium sand [SC]	[Symbolic Log Pattern]	[Well Log Pattern]		
130					
135					
140					
145	Moist, reddish brown (5YR 4/3), sandy lean clay to clayey medium to coarse sand, trace gravel [CL/SC]	[Symbolic Log Pattern]	[Well Log Pattern]		
150					

BORING LOG WWELL (NEVIUS) SC0654.GPJ GEOSNTEC.GDT 5/22/12

CONTRACTOR Cascade Drilling, L.P. LATITUDE 34.9153310  
EQUIPMENT Atlas Rig LONGITUDE -117.3515910  
DRILL MTHD Air Rotary/Mud Rotary ANGLE Vertical  
DIAMETER 9 5/8 / 8.5 BEARING -----  
LOGGER N. Godinez REVIEWER J. Nevius PRINTED May 22, 2012

REMARKS: Centralizers placed at bottom and top of screen and every 30' thereafter.

COORDINATE SYSTEM:  
SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS



10875 Rancho Bernardo Rd, Suite 200  
 San Diego, CA 92127  
 Tel: (858) 674-6559  
 Fax: (858) 674-6586

**BORING MW-3** SHEET 3 OF 6  
 START DATE May 5, 2012 Elevation 2316.61 FT. MSL  
 FINISH DATE May 6, 2012  
 PROJECT Hawes Composting Facility  
 LOCATION San Bernardino County, California  
 PROJECT NUMBER SC0654

GS FORM  
 CORE3 10/00

**BOREHOLE LOG**

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	WELL LOG	Well Construction Material	COMMENTS
155					
160					
165					
170					
175					
180					
185					
190	Increased gravel				
195					
200					
205					
210					
215					
220	Moist, brown (7.5YR 4/4), silty medium to coarse sand with gravel [SM]				
225					

BORING LOG W/WELL (NEVIUS) SC0654 GPJ GEOSYNTEC.GDT 5/22/12

CONTRACTOR Cascade Drilling, L.P. LATITUDE 34.9153310  
 EQUIPMENT Atlas Rig LONGITUDE -117.3515910  
 DRILL MTHD Air Rotary/Mud Rotary ANGLE Vertical  
 DIAMETER 9 5/8 / 8.5 BEARING -----  
 LOGGER N. Godínez REVIEWER J. Nevius PRINTED May 22, 2012

REMARKS: Centralizers placed at bottom and top of screen and every 30' thereafter.

COORDINATE SYSTEM:  
 SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM:  
CORE3 10/00

**BOREHOLE LOG**

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	WELL LOG	Well Construction Material	COMMENTS
230	Increased gravel	[Symbolic Log Pattern]	[Well Log Pattern]		
235					
240	Moist, brown (7.5YR 4/4), silty to clayey medium to coarse sand with trace gravel [SM-SC]	[Symbolic Log Pattern]	[Well Log Pattern]		
245					
250					
255					
260					
265					
270					
275	Increased gravel	[Symbolic Log Pattern]	[Well Log Pattern]		
280					
285					
290					
295					
300					

BORING LOG W/ WELL (NEVIUS) SC0554.GPJ\_GEOSNTEC.GDT 5/22/12

CONTRACTOR **Cascade Drilling, L.P.** LATITUDE **34.9163310**  
EQUIPMENT **Atlas Rig** LONGITUDE **-117.3615910**  
DRILL MTHD **Air Rotary/Mud Rotary** ANGLE **Vertical**  
DIAMETER **9 5/8 / 8.5** BEARING **-----**  
LOGGER **N. Godinez** REVIEWER **J. Nevius** PRINTED **May 22, 2012**

REMARKS: Centralizers placed at bottom and top of screen and every 30' thereafter.

COORDINATE SYSTEM:  
SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM  
CORE3 10/00

**BOREHOLE LOG**

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	WELL LOG	Well Construction Material	COMMENTS
305					
310					
315					
320	Gravel becomes medium to coarse				
325					
330					
335					
340					
345					
350					
355					
360	Wet, brown (7.5YR 4/3), fine grained, sandy lean clay [CL] Wet, brown (7.5YR 4/4), clayey to silty sand [SC-SM]			3.1 cubic feet of hydrated Wyo-Ben medium bentonite chips	
365	Wet, brown (7.5YR 4/3), poorly graded medium sand with clay [SP-SC]				
370				11.4 cubic feet Lapis Lustre #3 sand	
375					

BORING LOG W/ WELL (NEVIUS) SC0564.GPJ GEOSYNTEC.GDT 5/22/12


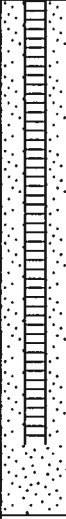
**CONTRACTOR** Cascade Drilling, L.P. **LATITUDE** 34.9153310  
**EQUIPMENT** Atlas Rig **LONGITUDE** -117.3516910  
**DRILL MTHD** Air Rotary/Mud Rotary **ANGLE** Vertical  
**DIAMETER** 9 5/8 / 8.5 **BEARING** -----  
**LOGGER** N. Godinez **REVIEWER** J. Nevius **PRINTED** May 22, 2012

**REMARKS:** Centralizers placed at bottom and top of screen and every 30' thereafter.

**COORDINATE SYSTEM:**  
SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

GS FORM  
CORE3 10/00

**BOREHOLE LOG**

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	WELL LOG	Well Construction Material	COMMENTS
380  385  390  395  400	Appearance of cobbles			4" Schedule 80 PVC with 0.020" screen	
	End of boring. Total Depth: 404 ft bgs.				

BORING LOG W/MELL (NEVIUS) SC0654.GPJ\_GEOSNTEC.GDT 5/22/12

**CONTRACTOR** Cascade Drilling, L.P.      **LATITUDE** 34.9163310  
**EQUIPMENT** Atlas Rig      **LONGITUDE** -117.3616910  
**DRILL MTHD** Air Rotary/Mud Rotary      **ANGLE** Vertical  
**DIAMETER** 9 5/8 / 8.5      **BEARING** -----  
**LOGGER** N. Godínez      **REVIEWER** J. Nevius      **PRINTED** May 22, 2012

**REMARKS:** Centralizers placed at bottom and top of screen and every 30' thereafter.  
  
**COORDINATE SYSTEM:**  
 SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

**Attachment 2**  
**Well Construction Product Information**

## MATERIAL SAFETY DATA SHEET

Product Trade Name: **QUIK-FOAM®**

Revision Date: 03-Jan-2008

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: QUIK-FOAM®

Synonyms: None

Chemical Family: Blend

Application: Foaming Agent

Manufacturer/Supplier: Baroid Fluid Services  
Product Service Line of Halliburton  
P.O. Box 1675  
Houston, TX 77251  
Telephone: (281) 871-4000  
Emergency Telephone: (281) 575-5000

Prepared By: Chemical Compliance  
Telephone: 1-580-251-4335  
e-mail: fdunexchem@halliburton.com

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE	CAS Number	PERCENT	ACGIH TLV-TWA	OSHA PEL-TWA
Ethanol	64-17-5	5 - 10%	1000 ppm	1000 ppm
Isopropanol	67-63-0	5 - 10%	200 ppm	400 ppm

### 3. HAZARDS IDENTIFICATION

**Hazard Overview** May cause eye, skin, and respiratory irritation. May cause headache, dizziness, and other central nervous system effects. May be absorbed through the skin. May be harmful if swallowed. Repeated overexposure may cause liver and kidney effects. Flammable.

### 4. FIRST AID MEASURES

**Inhalation** If inhaled, remove to fresh air. If not breathing give artificial respiration, preferably mouth-to-mouth. If breathing is difficult give oxygen. Get medical attention.

**Skin** In case of contact, immediately flush skin with plenty of soap and water for at least 15 minutes. Get medical attention. Remove contaminated clothing and launder before reuse.

**Eyes** In case of contact, or suspected contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention immediately after flushing.

**Ingestion** Do not induce vomiting. Slowly dilute with 1-2 glasses of water or milk and seek medical attention. Never give anything by mouth to an unconscious person.



**5. FIRE FIGHTING MEASURES**

Flash Point/Range (F):	74
Flash Point/Range (C):	23
Flash Point Method:	PMCC
Autoignition Temperature (F):	750
Autoignition Temperature (C):	398
Flammability Limits in Air - Lower (%):	2
Flammability Limits in Air - Upper (%):	12

**Fire Extinguishing Media** Water fog, carbon dioxide, foam, dry chemical.

**Special Exposure Hazards** May be ignited by heat, sparks or flames. Use water spray to cool fire exposed surfaces. Closed containers may explode in fire. Decomposition in fire may produce toxic gases.

**Special Protective Equipment for Fire-Fighters** Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

**NFPA Ratings:** Health 1, Flammability 3, Reactivity 0  
**HMIS Ratings:** Flammability 3, Reactivity 0, Health 1

**6. ACCIDENTAL RELEASE MEASURES**

**Personal Precautionary Measures** Use appropriate protective equipment.

**Environmental Precautionary Measures** Prevent from entering sewers, waterways, or low areas.

**Procedure for Cleaning / Absorption** Isolate spill and stop leak where safe. Remove ignition sources and work with non-sparking tools. Contain spill with sand or other inert materials. Scoop up and remove.

**7. HANDLING AND STORAGE**

**Handling Precautions** Avoid contact with eyes, skin, or clothing. Avoid breathing vapors. Wash hands after use. Launder contaminated clothing before reuse. Ground and bond containers when transferring from one container to another.

**Storage Information** Store away from oxidizers. Keep from heat, sparks, and open flames. Keep container closed when not in use. Product has a shelf life of 24 months.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**Engineering Controls** Use in a well ventilated area. Local exhaust ventilation should be used in areas without good cross ventilation.

**Respiratory Protection** Organic vapor respirator.

**Hand Protection** Impervious rubber gloves.

**Skin Protection** Rubber apron.

**Eye Protection** Chemical goggles; also wear a face shield if splashing hazard exists.

**Other Precautions** Eyewash fountains and safety showers must be easily accessible.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Color:	Light yellow
Odor:	Alcohol
pH:	7.3-7.8
Specific Gravity @ 20 C (Water=1):	1.02
Density @ 20 C (lbs./gallon):	8.52
Bulk Density @ 20 C (lbs/ft <sup>3</sup> ):	Not Determined
Boiling Point/Range (F):	Not Determined
Boiling Point/Range (C):	Not Determined
Freezing Point/Range (F):	Not Determined
Freezing Point/Range (C):	Not Determined
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air=1):	Not Determined
Percent Volatiles:	Not Determined
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	Soluble
Solubility in Solvents (g/100ml):	Not Determined
VOCs (lbs./gallon):	Not Determined
Viscosity, Dynamic @ 20 C (centipoise):	192
Viscosity, Kinematic @ 20 C (centistokes):	Not Determined
Partition Coefficient/n-Octanol/Water:	Not Determined
Molecular Weight (g/mole):	Not Determined

## 10. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	Keep away from heat, sparks and flame.
Incompatibility (Materials to Avoid)	Strong oxidizers. Strong alkalis.
Hazardous Decomposition Products	Oxides of sulfur. Oxides of nitrogen. Ammonia. Carbon monoxide and carbon dioxide.
Additional Guidelines	Not Applicable

## 11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure	Eye or skin contact, inhalation.
Inhalation	May cause respiratory irritation. May cause central nervous system depression including headache, dizziness, drowsiness, incoordination, slowed reaction time, slurred speech, giddiness and unconsciousness.
Skin Contact	May cause skin irritation. May be absorbed through the skin and produce effects similar to those caused by inhalation and/or ingestion.
Eye Contact	May cause eye irritation.
Ingestion	Irritation of the mouth, throat, and stomach. May cause central nervous system depression including headache, dizziness, drowsiness, muscular weakness, incoordination, slowed reaction time, fatigue blurred vision, slurred speech, giddiness, tremors and convulsions. May cause kidney damage.

**Aggravated Medical Conditions** None known.  
**Chronic Effects/Carcinogenicity** Repeated overexposure may cause liver and kidney effects.  
**Other Information** None known.

#### **Toxicity Tests**

**Oral Toxicity:** LD50: 5840 mg/kg (Rat)  
**Dermal Toxicity:** Not determined  
**Inhalation Toxicity:** Not determined  
**Primary Irritation Effect:** Not determined  
**Carcinogenicity** Not determined  
**Genotoxicity:** Not determined  
**Reproductive / Developmental Toxicity:** Not determined

### **12. ECOLOGICAL INFORMATION**

**Mobility (Water/Soil/Air)** Not determined  
**Persistence/Degradability** Not determined  
**Bio-accumulation** Not Determined

#### **Ecotoxicological Information**

**Acute Fish Toxicity:** Not determined  
**Acute Crustaceans Toxicity:** Not determined  
**Acute Algae Toxicity:** Not determined

**Chemical Fate Information** Not determined  
**Other Information** Not applicable

### **13. DISPOSAL CONSIDERATIONS**

**Disposal Method** Disposal should be made in accordance with federal, state, and local regulations.  
**Contaminated Packaging** Follow all applicable national or local regulations.

### **14. TRANSPORT INFORMATION**

#### **Land Transportation**

##### **DOT**

Flammable Liquid, N.O.S., 3, UN1993, III, (23.3 C)  
(Contains Ethanol, Isopropanol)

NAERG 128

Not Restricted when shipped in containers less than 119 gallons as authorized by 49 CFR 173.150(e)(1) and 49 CFR 173.150(f)(2).

**DOT BULK**

**Canadian TDG**

Flammable Liquid, N.O.S.(Contains Ethanol, Isopropanol), 3, UN1993, III, (23.3 C)

**ADR**

UN1993,Flammable Liquid, N.O.S.(Contains Ethanol, Isopropanol), 3, III

**Air Transportation****ICAO/IATA**

UN1993,Flammable Liquid, N.O.S., 3, III  
(Contains Ethanol, Isopropanol Solution)

**Sea Transportation****IMDG**

UN1993,Flammable Liquid, N.O.S.(Contains Ethanol, Isopropanol), 3, III, (23.3 C)  
EmS F-E, S-E

**Other Shipping Information**

Labels: Flammable Liquid

<b>15. REGULATORY INFORMATION</b>
-----------------------------------

**US Regulations**

<b>US TSCA Inventory</b>	All components listed on inventory.
<b>EPA SARA Title III Extremely Hazardous Substances</b>	Not applicable
<b>EPA SARA (311,312) Hazard Class</b>	Acute Health Hazard Chronic Health Hazard Fire Hazard
<b>EPA SARA (313) Chemicals</b>	This product contains toxic chemical(s) listed below which is(are) subject to the reporting requirements of Section 313 of Title III of SARA and 40 CFR Part 372: Isopropanol//67-63-0
<b>EPA CERCLA/Superfund Reportable Spill Quantity</b>	Not applicable.
<b>EPA RCRA Hazardous Waste Classification</b>	If product becomes a waste, it does meet the criteria of a hazardous waste as defined by the US EPA, because of:  Ignitability D001
<b>California Proposition 65</b>	All components listed do not apply to the California Proposition 65 Regulation.
<b>MA Right-to-Know Law</b>	One or more components listed.
<b>NJ Right-to-Know Law</b>	One or more components listed.
<b>PA Right-to-Know Law</b>	One or more components listed.

**Canadian Regulations**

<b>Canadian DSL Inventory</b>	All components listed on inventory.
<b>WHMIS Hazard Class</b>	B2 Flammable Liquids D2B Toxic Materials

## 16. OTHER INFORMATION

The following sections have been revised since the last issue of this MSDS

Not applicable

### **Additional Information**

For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Material Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580-251-4335.

### **Disclaimer Statement**

This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

**\*\*\*END OF MSDS\*\*\***

# JOHNSON SCREENS

A Weatherford Company

## Material Safety Data Sheet

### SECTION 1 - CHEMICAL PRODUCT AND COMPANY INFORMATION

**Product Name:** NW-220

**Part Number:** **Chemical Family:** Aqueous solution of polyelectrolytes

**Manufacturer's Name:** Johnson Screens /A Weatherford Company

**Address:** P.O. Box 64118 – St. Paul, MN 55164

**Product/Technical Information Phone Number:** 651-636-3900

**Medical/Handling Emergency Phone Number:** CHEMTREC 1-800-424-9300

**Transportation Emergency Phone Number:** CHEMTREC 1-800-424-9300

**Issue Date:** 12/09/97

**Revision Date/Revision Number:** 01/20/2012 /07

### SECTION 2 – COMPOSITION INFORMATION

\*\*\*\*\*

No constituents of the formulae are listed or considered hazardous under 29CFR 1910.1200

All components are listed under TSCA

### SECTION 3 - HAZARDS IDENTIFICATION

\*\*\*\*\*

**Appearance & Odor:** Clear amber liquid

**Emergency Overview:** In general, product is non-hazardous to a persons health

**Fire & Explosion Hazards:** Should not be stored with oxidizing agents

**Primary Route(s) of Exposure:** Skin, eyes, and ingestion

**Inhalation – Acute Effects:** Does not apply

**Skin Contact – Acute Effects:** Does not usually cause skin irritation

**Eye Contact – Acute Effects:** May cause eye irritation

**Ingestion – Acute Effects:** May cause nausea and vomiting

**SECTION 4 - FIRST AID MEASURES**

\*\*\*\*\*

**Inhalation First Aid:** Remove affected person from area to fresh air and provide oxygen if breathing is difficult. Give artificial respiration ONLY if breathing has stopped and give CPR ONLY if there is no breathing and no pulse. Obtain medical attention.

**Skin Contact First Aid:** Immediately remove clothing from affected area and wash skin for 15 minutes with flowing water and soap. Clothing should be discarded or washed before reuse. Obtain medical assistance if irritation develops.

**Eye Contact First Aid:** Immediately irrigate eyes with flowing water continuously for 15 minutes while holding eyes open. Contacts should be removed before or during flushing. Obtain medical attention immediately.

**Ingestion First Aid:** If victim is alert and not convulsing, rinse mouth with water and give plenty of water to drink. If spontaneous vomiting occurs, have affected person lean forward with head down to avoid breathing in of vomitus. Rinse mouth again and give more water to drink. Obtain medical attention.

**Medical Conditions Aggravated:** None known

**Note to Physician:** Product is not known to interfere with any organ functions

**SECTION 5 - FIRE FIGHTING MEASURES**

\*\*\*\*\*

**Flash Point/Method:** None

**Auto Ignition Temperature:** Unknown

**Upper/Lower Explosion Limits:** None

**Extinguishing Media:** That which is appropriate for surrounding fire

**Fire Fighting Procedures:** Wear self-contained breathing apparatus. Carbon monoxide and/or carbon dioxide may be released in a fire.

**Fire & Explosion Hazards:** None

**Hazardous Products of Decomposition and/or Combustion:** Carbon monoxide, carbon dioxide

**NFPA Ratings:**

HEALTH	FLAMMABILITY	REACTIVITY	OTHER
1	0	0	None

### SECTION 6 – ACCIDENTAL RELEASE MEASURES

\*\*\*\*\*

Keep spectators away. Product is a neutral material not considered hazardous. Contain spill with inert material (eg. sand, earth, absorbable material). Transfer diking material to suitable container for recovery or disposal. Material may be diluted and rinsed down a sanitary sewer system to a municipal wastewater plant. No expected overload of plant facility or upset of pH is expected in quantities less than 1,000 gallons.

All disposal methods must be in compliance with all Federal, State, Local, and Provincial laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator.

### SECTION 7 – HANDLING AND STORAGE

\*\*\*\*\*

**Handling:** The product is not considered dangerous and requires no special handling

**Storage:** Avoid contact with strong acids or alkaline-based products

**General Comments:** None

### SECTION 8 – PERSONAL PROTECTION/EXPOSURE CONTROL

\*\*\*\*\*

**Respiratory Protection:** Protection meeting OSHA 1910.134 and ANSI Z88.2 requirements should be followed whenever workplace conditions warrant a respirator's use.

**Skin Protection:** Wear neoprene gloves or approved chemical protective gloves for use in acid material

**Eye Protection:** Wear chemical splash goggles (ANSI Z781) or approved equivalent

**Ventilation Protection:** No special equipment

**Other Protection:** Safety showers, with quick opening valves which stay open, and eye wash fountains, or other means of washing the eyes with a gentle flow of cool to tepid tap water should be readily available in all areas where this material is handled or stored. Water should be supplied through insulated and heat-traced lines to prevent freeze-ups in cold weather.

**Exposure Limits:**

OSHA	ACGIH	NIOSH	SUPPLIER
None	None	None	None



### SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

\*\*\*\*\*

**Appearance & Odor:** Clear amber liquid  
**Vapor Pressure:** Vapor is water  
**Boiling Point:** 243°F.  
**Specific Gravity:** 1.27  
**Volatile Percentage:** 34%  
**Flash Point/method:** None  
**Upper/Lower Explosion Limits:** None

**Vapor Density:** 1.0 (Vapor is water)  
**Melting Point:** N/A  
**Solubility in Water:** Complete  
**pH:** 7.0  
**Auto Ignition Temperature:** Unknown  
**Other:**

### SECTION 10 - STABILITY AND REACTIVITY

\*\*\*\*\*

**Stability:** Stable  
**Incompatibilities:** Oxidizing agents such as nitric acid, cyanide, sulfides

**Polymerization:** No  
**Decomposition:** Carbon monoxide, carbon dioxide  
**Conditions to Avoid:** Contact with oxidizing agents

### SECTION 11 - TOXICOLOGICAL INFORMATION

\*\*\*\*\*

**Inhalation – Acute:** N/D  
**Inhalation – Chronic:** N/D  
**Skin Contact – Acute:** Dermal LD<sub>50</sub> Rabbits > 3000 mg/kg  
**Skin Contact – Chronic:** Skin irritation rabbits (Draize score 1.6/8)  
**Eye Contact – Acute:** Minimal Rabbits (Draize score 2.7/110)  
**Ingestion – Acute:** Oral LD<sub>50</sub> (Rats) 15,000 mg/kg  
**Ingestion – Chronic:** N/D  
**Carcinogenicity/Mutagenicity:** None /Ames Test was negative  
**Reproductive Effects:** None known  
**Neurotoxicity:** None  
**Other Effects:** No observable affects in long term feeding studies  
**Target Organs:** None

### SECTION 12 – ECOLOGICAL INFORMATION

\*\*\*\*\*

Fish toxicity is extremely limited: Bluegill, LC<sub>50</sub> 96H: > 5000 ppm. Rainbow Trout LC<sub>50</sub> 96H: > 5000 ppm. Invertebrate Toxicity: Daphnia Magna, IC<sub>50</sub> 48H: > 2000 ppm and Brown Shrimp, LC<sub>50</sub> 96H: > 20,000 ppm.

### SECTION 13 – DISPOSAL CONSIDERATIONS

\*\*\*\*\*

Product is biodegradable, no discharge limitations are required.

Material that cannot be used or chemically reprocessed and empty containers should be disposed of in accordance with all applicable regulations. Product containers should be thoroughly emptied before disposal. Generators of waste material are required to evaluate all waste for compliance with RCRA and any local disposal procedures and regulations. NOTE: State and local regulations may be more stringent than federal regulations.

### SECTION 14 – TRANSPORTATION INFORMATION

-----

**DOT Shipping Description:** Not regulated as a hazardous material by the U.S. Department of Transportation (DOT) 49CFR 172.101 Hazardous Materials Table

U.S. Custom Harmonization #: 3402.90

**Canadian TDG:**

Hazard Class: Non-Hazardous

Label Requirements: None Required

Reportable Quantity: None

### SECTION 15 – REGULATORY INFORMATION

-----

NSF certified for use in well development and rehabilitation

RCRA Status: Not a hazardous waste under RCRA 40CFR 261. No reportable quantities.

SARA/TITLE III – CERCLA List: This product does not contain a “CERCLA” listed hazardous substance for emergency release notification under Sec. 304 (40CFR 302).

SARA/TITLE III – Toxic Chemicals List: This product does not contain a toxic chemical for routine annual (Toxic Chemical Release Reporting” under Sec. 313 (40CFR 372).

TSCA Inventory Status: Chemical components listed on TSCA Inventory.

California Proposition 65: This product does not contain any chemicals currently on the California list of known carcinogens and reproductive toxins.

Canadian WHMIS Classification: This product does not contain any hazardous materials under CPR and this MSDS discloses all information elements required by the CPR.

**SECTION 16 – OTHER INFORMATION**

---

**Disclaimer:** The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of this data or the results to be obtained from the user thereof. It is the buyer's responsibility to ensure that its activities comply with federal, state, provincial and local laws.

**Created by:** Ida Goldstein



## NSF Product and Service Listings

These NSF Official Listings are current as of **Thursday, May 10, 2012** at 12:15 a.m. Eastern Time. Please [contact NSF International](#) to confirm the status of any Listing, report errors, or make suggestions.

Alert: NSF is concerned about fraudulent downloading and manipulation of website text. Always confirm this information by clicking on the below link for the most accurate information:

<http://www.nsf.org/Certified/PwsChemicals/Listings.asp?Company=54350&Standard=060&>

---

## NSF/ANSI STANDARD 60 Drinking Water Treatment Chemicals - Health Effects

---

### Johnson Screens, Inc.

1950 Old Highway 8  
New Brighton, MN 55112  
United States  
800-833-9473  
612-636-3900

[Visit this company's website](#)

**Facility : # 2 USA**

#### Miscellaneous Water Supply Products

<i>Trade Designation</i>	<i>Product Function</i>	<i>Max Use</i>
Chlorine Booster[2] [4]	Pipe Cleaning Aid	NA
	Well Cleaning Aid	
NW-110[3]	Well Cleaning Aid	NA
	Well Rehabilitation Aid	
NW-220[2]	Well Rehabilitation Aid	NA
	Other	
NW-310[1] [2] [8]	Well Cleaning Aid	NA
NW-310[1] [2] [8]	Pipe Cleaning Aid	NA
NW-400[7]	Well Cleaning Aid	NA
	Pipe Cleaning Aid	
NW-410[2] [4]	Pipe Cleaning Aid	NA
	Well Cleaning Aid	
Passivator Rinse[6]	Other	NA
Steel Brite[5]	Other	NA
	Pipe Cleaning Aid	
Steel Brite II[5]	Other	NA
	Pipe Cleaning Aid	
Well Acid[3]	Well Cleaning Aid	NA
	Well Rehabilitation Aid	

Well Cleaner[1] [2] [8]

Pipe Cleaning Aid  
Well Cleaning Aid

NA

- [1] NW-310 and Well Cleaner are also used as filter cleaning aids.
- [2] These products are designed to be flushed out prior to using the system for drinking water. The system is to be properly flushed and drained following the manufacturer's use instructions.
- [3] These products are designed to be flushed out prior to using the system for drinking water. The well is to be properly flushed and drained before being placed in service, according to the manufacturer's use instructions.
- [4] This product has been Certified for use as a well cleaning aid only when used in conjunction with sodium or calcium hypochlorite.
- [5] Certified for use as a pipe cleaning aid and surface area cleaner. This product is designed to be flushed out prior to using the system for drinking water.
- [6] This product is Certified for use in conjunction with Steel Brite and Steel Brite II. It is designed to be flushed out prior to using the system for drinking water.
- [7] This product may be used at 0.5% provided the equipment is disconnected from the system before treatment and flushed until the pH returns to normal.
- [8] This product may be used at 5% provided the equipment is disconnected from the system before treatment and flushed until the pH returns to normal.

---

Number of matching Manufacturers is 1  
Number of matching Products is 12  
Processing time was 0 seconds

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**Attachment 3**  
**Well Development Forms**

## WELL DEVELOPMENT LOG

Project Name: Hawes Composting Site.  
 Project Number: SC0554  
 Site: Barstow, CA

Date: 5/10/12  
 Weather: Sunny 90  
 Sample Collected by: Adnaes

### Well Data

Well I.D.: MW-1  
 Well Diameter (in.): 4"

Depth to Surface Water (ft): 328.20  
 Well Depth (ft): 404.45 (approx)

### Well Purging

Method/Equipment: 4" Surge Block. 2" Bailer  
 pH/Cond/turb meter ID #: YSI 556  
 Water Column Length (ft): \_\_\_\_\_

Volume of Water in Well (gal): \_\_\_\_\_  
 Depth of Pump (ft): 381.00  
 Total Volume Purged (gal): 30

Time	Volume Purged	% Fines	pH (pH units)	Cond. (µS/cm)	Turbidity (NTU)	Temp (°C)	Comments
0935	Begin	Surging	from	376	to	401'	
1005	Stop	Surging	from	376	to	401'	
1035	Begin	Bailing			1000+	17	Fines. 15 gallons
1115	20	17.	-	-	1000+	-	Stop bailing. Set-up pump. 15 gallons.
3" Pump does not work. 4" pump ordered. Be here Monday.							

Purge Water Disposal: \_\_\_\_\_

Comments: See DFR. 3" <sup>Sub</sup> Pump used.

Field Personnel Signature: \_\_\_\_\_

## WELL DEVELOPMENT LOG

Project Name: Hawes Composting Site  
Project Number: SC 0554  
Site: Barstow, CA

Date: 5/10/12  
Weather: Sunny 90  
Sample Collected by: Aadnes

Well Data  
Well I.D.: MW-3  
Well Diameter (in.): 4"

Depth to Surface Water (ft): Initial 66.85  
Well Depth (ft): 400.17

### Well Purging

Method/Equipment: 4' Surge Block, 2' bailer, 45mb Volume of Water in Well (gal): \_\_\_\_\_  
pH/Cond/turb meter ID #: YSI 556 Depth of Pump (ft): \_\_\_\_\_  
Water Column Length (ft): \_\_\_\_\_ Total Volume Purged (gal): \_\_\_\_\_

Time	Volume Purged	% Fines	pH (pH units)	Cond. (µS/cm)	Turbidity (NTU)	Temp (°C)	Comments
1645	Begin Bailing						drilling Mud. DTW=66.85. 1000+ NTU.
1754	Stop Bailing						drilling Mud. DTW=250.12 1000+ NTU (Bailed) 100 gallons.
1800:	Add						1 L. of Dispersion Agent to well
	and begin						Surging.
1815:	Stop						Surging.
5/11/12 0630	DTW=249.10						Begin Bailing. 1000+ NTU
0800	Stop Bailing						Begin Surging. Bailed 55 gallons.
0825	Stop Surging						Begin bailing. Surge Block caught in mud.
0840:	Stop Bailing						and begin surging. Bailed 55 gallons
0911:	Stop Surging						and begin bailing.
0930:	Stop bailing						and begin surging. Bailed 40 gallons
0947:	Stop surging						and begin swabbing screen.
1003:	Stop swabbing						and begin surging.
1015:	Stop surging						and begin bailing. Less mud on surge block.
1104:	Stop bailing						and let well recharge. DTW=317.20 Bailed 50 gallons
1158:	Begin						Surging
1206	Stop						Surging. Surge Block is clean! Begin bailing.

5/11/12

7

DTW @ 1140  
362.31

Purge Water Disposal: Toks on site

Comments: \_\_\_\_\_

Field Personnel Signature: [Signature]



**WELL DEVELOPMENT LOG**

Project Name: Hawes Composting Site      Date: 5/11/12  
 Project Number: S10554      Weather: Sunny 90  
 Site: Barstow, CA      Sample Collected by: Aches

**Well Data**  
 Well I.D.: MW-3      Depth to Surface Water (ft): 317.00  
 Well Diameter (in.): 4"      Well Depth (ft): 400.17

**Well Purging**  
 Method/Equipment: 4" Surge, 2" bailer, 4" swab      Volume of Water in Well (gal):           
 pH/Cond/turb meter ID #: YSI 556      Depth of Pump (ft):           
 Water Column Length (ft):               Total Volume Purged (gal): 345 gallons.

Time		Volume Purged	pH (pH units)	Cond. (µS/cm)	Turbidity (NTU)	Temp (°C)	Comments
Start	Stop						
1240:	Water beginning to clear up.						DTW = 350.11
1315:	Complete bubbling - water recharged rather quickly - well ready for pump.						to DTW = 317.00 Bailed 45 gallons.

Purge Water Disposal: Takes on site.

Comments: \_\_\_\_\_

Field Personnel Signature:  \_\_\_\_\_

P112

**WELL DEVELOPMENT LOG**

Project Name: HAWES  
Project Number: \_\_\_\_\_  
Site: HAWES COMPOSTING FACILITY

Date: 5/14/12 @ 5:05 PM  
Weather: SUNNY  
Sample Collected by: NA

Well Data  
Well I.D.: MW-1  
Well Diameter (in.): 4"

Depth to Surface Water (ft): 328.61  
Well Depth (ft): 404.45

**Well Purging**

Method/Equipment: 3" GROUNDWATER PUMP  
pH/Cond/turb meter ID #: YS1556 HACH 2100  
Water Column Length (ft): 404.45 - 328.61  
= 75.84

Volume of Water in Well (gal): 75.84 - 0.65 = 49.2  
Depth of Pump (ft): 402  
Total Volume Purged (gal): 285 +

5/14/12



Time	Volume Purged	% Fines	pH (pH units)	Cond. (µS/cm)	Turbidity (NTU)	Temp (°C)	Comments
11:58	15	-	7.28	1445	160	21.35	@ 1.85 GPM
12:03	17	-	7.45	1416	102	21.21	@ 1.81 GPM
12:08	28.66	-	7.63	1401	84.6	21.20	@ 1.68 GPM
12:13	37.40	-	7.68	1421	49.9	21.35	@ 1.64 GPM
12:18	45.14	-	7.75	1464	36.9	22.50	@ 1.68 GPM
12:23	53.74	-	7.80	1484	25.2	22.98	@ 1.60 GPM
12:28	61.13	-	7.83	1492	19.2	23.32	@ 1.64 GPM
12:32	68.00	-	7.86	1504	15.7	23.44	@ 1.64 GPM
12:37	75.84	-	7.93	1525	6.11	23.46	@ 1.61 GPM
12:42	83.74	-	7.97	1523	>	23.52	@ 1.56 GPM
12:47	91.68	-	7.98	1498	>	23.60	@ 1.56 GPM
12:52	99.23	-	7.99	1463	>	23.74	@ 1.54 GPM
12:55	104.30	-	7.99	1453	>	23.80	@ 1.54 GPM
13:00	111.81	-	7.99	1432	>	23.65	@ 1.53 GPM
13:05	119.90	-	8.00	1418	>	23.77	@ 1.49 GPM
13:10	126.30	-	8.00	1402	>	23.70	@ 1.66 GPM
13:15	136.27	-	8.00	1378	>	23.68	@ 1.58 GPM
13:20	143.44	-	8.00	1332	7	23.77	@ 1.54 GPM

FLOW CELL  
(500 ml)  
100 ml/min

Purge Water Disposal: CONTAINERIZE / DUST CONTROL

Comments: > 1000 NPL

Field Personnel Signature: [Signature]

**WELL DEVELOPMENT LOG**

Project Name: HAWES  
 Project Number: 500554  
 Site: HAWES COMPOSTING FACILITY

Date: 5/14/12 & 5/15/12  
 Weather: Sunny  
 Sample Collected by: NA

**Well Data**

Well I.D.: MW-1  
 Well Diameter (in.): 4"

Depth to Surface Water (ft): 328.61  
 Well Depth (ft): 404.5

**Well Purging**

Method/Equipment: Pump 3" Groundros  
 pH/Cond/turb meter ID #: V51 556 117102905  
 Water Column Length (ft): 404.45 - 328.61

Volume of Water in Well (gal): 75.84 x 0.65 = 49.2  
 Depth of Pump (ft): 402  
 Total Volume Purged (gal): 285 +

75.84 ± 0.1 ± 3% ± 10%

5/14/12



5/15/12



Time	Volume Purged	% Fines	pH (pH units)	Cond. (µS/cm)	Turbidity (NTU)	Temp (°C)	Comments
13:28	155.63	-	8.00	1305	>	23.62	
13:35	166.88	-	7.99	1294	>	23.67	
13:37	PUMP OFF		DIY.				
			TOTAL	(73 GALLONS)			13:37
7:13	187.25	-	7.54	1146	>	19.70	1.5 GPM
7:18	192.14	-	7.67	1159	>	20.16	1.25 GPM
7:23	200	-	7.80	1165	550	20.37	1.86 GPM
7:28	210.61	-	7.88	1171	530	21.09	1.71 GPM
7:32	217.91	-	7.90	1194	431	22.06	1.71 GPM
7:37	224.68	-	7.92	1193	349	22.10	1.69 GPM
7:42	234.38	-	7.96	1198	195	22.39	1.61 GPM
7:47	243.21	-	7.99	1228	715	22.55	1.56 GPM
7:52	248.93	-	7.99	1262	>	22.56	1.54 GPM
7:57	256.00	-	8.01	1257	>	22.61	1.53 GPM
8:02	264.77	-	8.00	1249	>	22.74	1.51 GPM
		285	GALLONS TOTAL				

FLOW CELL  
 (500ml)  
 100ml/min

Purge Water Disposal: CONTAINERS / DIRT CONTAINER

Comments: \_\_\_\_\_

Field Personnel Signature: \_\_\_\_\_

WELL DEVELOPMENT LOG

Project Name: HAWES  
Project Number: SC0554  
Site: HAWES COMPOSTING FACILITY

Date: 5/16/12  
Weather: SUNNY  
Sample Collected by: NA

Well Data  
Well I.D.: MW 2  
Well Diameter (in.): 4"

Depth to Surface Water (ft): 319.15  
Well Depth (ft): 403.50

Well Purging SURGE BLOW-BAUER

Method/Equipment: 3" GARDNER Volume of Water in Well (gal): 84.35 x 0.65 = 54.8

pH/Cond/turb meter ID #: YS1556 HANNA 2100 Depth of Pump (ft): 401

Water Column Length (ft): 403.50 - 317.15 = 84.35 Total Volume Purged (gal): 150 + 150 (SURGE BAIL ON 5/15/12) = 300

Time	Volume Purged	% Fines	pH (pH units)	Cond. (µS/cm)	Turbidity (NTU)	Temp (°C)	Comments
5/16/12 9:13	17.28	-	8.26	2452	7	20.56	6.80 GPM
9:18	22.77	-	8.33	2749	7	20.50	6.39 GPM
9:23	30.41	-	8.37	2995	7	20.67	6.31 GPM
9:24					32		CALLONS + ~49 GALLONS IN DEEP PITS
11:17	39		8.27	1947	>	21.63	
11:27	46	-	8.31	2162	>	21.19	
11:36	53	-	8.33	2324	>	21.08	
11:45	60	-	8.41	2404	>	20.66	DW 396'
11:59	63	-	8.37	2288	>	21.21	
12:10	66	-	8.34	2019	>	20.84	
12:17	68	-	8.30	2114	>	21.08	DW 400'
					68		CALLONS
5/17/12 7:30	73	-	7.55	1722	150	18.64	
7:35	78	-	7.56	1733	96.2	18.59	
7:39	83	-	7.78	1708	81.2	18.99	
7:42	88	-	7.89	1682	44.9	18.55	
7:45	93	-	7.92	1681	32.2	18.85	
7:49	98	-	7.98	1686	64.0	19.01	✓

FLOW CELL (500ml)  
100ml/min  
↓  
GALLONS IN DEEP PITS

Purge Water Disposal: CONTAINERIZE / SPRAY OR AS BEST CONTROL

Comments: START PUMPING 9:03  
71000 NTU

Field Personnel Signature: [Signature]

**WELL DEVELOPMENT LOG**

Project Name: HAWES  
Project Number: 500554  
Site: HAWES

Date: 5/16/12  
Weather: SUNNY  
Sample Collected by: D.S

**Well Data**

Well I.D.: MW-2  
Well Diameter (in.): 4"

Depth to Surface Water (ft): 319.15  
Well Depth (ft): 403.50

**Well Purging**

Method/Equipment: BAILOR  
pH/Cond/turb meter ID #: YSI-856/MCA 2100  
Water Column Length (ft): 403.50 - 319.15  
84.35

Volume of Water in Well (gal): 84.35 x 0.65 = 54.8  
Depth of Pump (ft): ---  
Total Volume Purged (gal): ---

5/16/12

Time	Volume Purged	% Fines	pH (pH units)	Cond. (µS/cm)	Turbidity (NTU)	Temp (°C)	Comments
7:54	103	-	7.98	1704	84.2	19.37	BAIL
7:57	108	-	8.05	1816	454	19.03	
8:02	113	-	8.10	1707	756	20.07	
8:07	118	-	8.10	1686	>	20.19	
8:12	121	-	8.08	1709	>	20.30	
8:16	126	-	8.11	1679	>	19.78	
8:21	131	-	8.07	1712	>	19.92	
8:27	136	-	8.07	1724	>	19.98	
8:31	141	-	8.00	1747	>	20.03	
8:32	146	-	8.14	1716	>	19.61	
8:35	150		8.29	1754	>	19.90	✓
		BAILOR	DRY				

Purge Water Disposal: CONTAINING 20 / SPRAY AS DIRT CONTROL

Comments: \_\_\_\_\_

Field Personnel Signature: [Signature]



**CALIBRATION LOG FOR WATER SAMPLING**

Date	Time	Instrument Description			Calibration Fluid					Reading				Comments
		Brand	Type	Serial #	Brand	Lot #	pH	Cond (uS/cm)	Turb (NTU)	DO (mg/L)	pH	Cond (uS/cm)	Turb (NTU)	
5/14/12	9:00	YSI	556	1151027	CALIBRAT	9003	4	-	-	-	4.00	-	-	-
	↓		↓	03	CALIBRAT	9054	7	-	-	-	7.02	-	-	-
	↓		↓		AQUACAL	8868	-	1413	-	-	-	1414	-	-
		HACH	21000	1101	HACH	A1247	-	-	10	-	-	-	10.1	-
				292	HACH	A1247	-	-	20	-	-	-	20.4	-
					HACH	A1231	-	-	100	-	-	-	100	-
5/15/12	7:00	YSI	556		CALIBRAT	9003	4	-	-	-	4.00	-	-	-
	↓		↓		CALIBRAT	9054	7	-	-	-	7.02	-	-	-
	↓	HACH	21000	ⓐ	HACH	A1247	-	-	10	-	-	-	9.91	-
	↓		↓	↓	HACH	A1247	-	-	20	-	-	-	20.7	-
	↓		↓		HACH	A1231	-	-	100	-	-	-	99.6	-
5/16/12	8:00	YSI	556		AQUACAL	8868	-	1413	-	-	-	1416	-	-
	↓		↓	1151027	CALIBRAT	9003	4	-	-	-	4.00	-	-	-
	↓		↓	03	CALIBRAT	9054	7	-	-	-	7.00	-	-	-
	↓		↓		CALIBRAT	9054	-	1413	-	-	-	1412	-	-
	↓	HACH	21000	ⓐ	HACH	A1247	-	-	10	-	-	-	10.0	-
	↓		↓	↓	HACH	A1247	-	-	20	-	-	-	20.7	-
	↓		↓		HACH	A1253	-	-	100	-	-	-	99.7	-
5/17/12	7:25	YSI	556	ⓐ	CALIBRAT	9003	4	-	-	-	4.20	-	-	-
	↓		↓		CALIBRAT	9054	7	-	-	-	7.00	-	-	-
	↓		↓		AQUACAL	8868	-	1413	-	-	-	-	1411	-
	↓	HACH	21000	ⓐ	HACH	A1247	-	-	10	-	-	-	10.0	-
	↓		↓	↓	HACH	A1247	-	-	20	-	-	-	20.2	-
	↓		↓		HACH	A1231	-	-	100	-	-	-	99.8	-

-- Not Applicable ⓐ 110906012292

ⓑ 110102905

**Attachment 4**  
**Laboratory Certificate of Analysis**

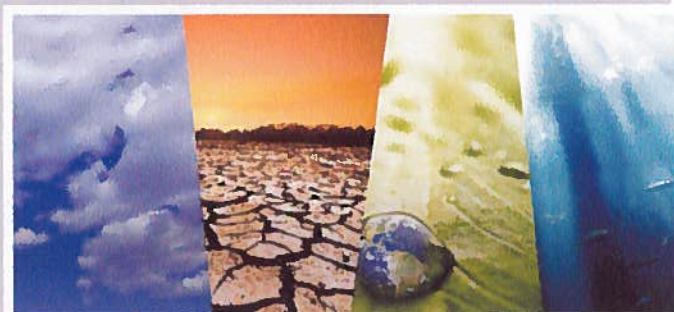




# CALSCIENCE

**WORK ORDER NUMBER: 12-05-0438**

*The difference is service*



AIR | SOIL | WATER | MARINE CHEMISTRY

### Analytical Report For

**Client:** Geosyntec Consultants

**Client Project Name:** Hawes Composting / SC0554

**Attention:** Jennifer Nevius  
10875 Rancho Bernardo Road, Suite 200  
San Diego, CA 92127-2116

Approved for release on 05/18/2012 by:  
Stephen Nowak  
Project Manager

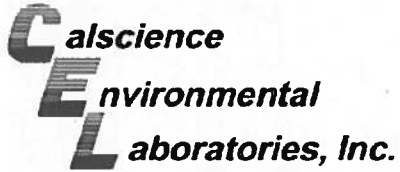
ResultLink ▶

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# Content

Client Project Name: Hawes Composting / SC0554  
Work Order Number: 12-05-04-B

1	Detections Summary	0
2	Client Sample Data	4
2.1	PA 8015B (M) C6-C44 (Solid)	4
2.2	PA 8260B Volatile Organics (Solid)	5
2.3	PA 6010B/7471A CAC (Site 22 Metals / PA 7471A Mercury (Solid))	7
	Quality Control Sample Data	8
	1 MS/MSD and/or Duplicate	8
	2 CS/CSD	15
4	Glossary of Terms and Qualifiers	21
5	Chain of Custody/Sample Receipt Form	22

Client:  eos Intec Consultants  
 10875 Rancho Bernardo Road, Suite 200  
 San Diego, CA 92127-2116  
 Attn:  Jennifer Nevius

Work Order:  12-05-04-8  
 Project name:  Hawes Composting / SC0554  
 Received:  05/11/12 18:05

**DETECTION SUMMARY**

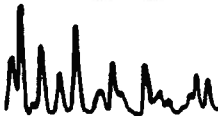
**Client Sample ID**

Analyte	Result	Qualifiers	Reporting Limit	Units	Method	Detection
<b>CMPM -1,2,-1,2-12-05-04-8-5</b>						
Arsenic	3.0		0.750	mg/kg	PA 6010B	PA 050B
Barium	50.1		0.500	mg/kg	PA 6010B	PA 050B
Beryllium	0.284		0.250	mg/kg	PA 6010B	PA 050B
Chromium	5.0		0.250	mg/kg	PA 6010B	PA 050B
Cobalt	3.08		0.250	mg/kg	PA 6010B	PA 050B
Copper	0.8		0.500	mg/kg	PA 6010B	PA 050B
Lead	3.18		0.500	mg/kg	PA 6010B	PA 050B
Nickel	4.32		0.250	mg/kg	PA 6010B	PA 050B
Vanadium	12.4		0.250	mg/kg	PA 6010B	PA 050B
Zinc	1.1		1.00	mg/kg	PA 6010B	PA 050B

Subcontracted analyses, if any, are not included in this summary.

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MD is shown





Geosyntec Consultants  
10875 Rancho Bernardo Road, Suite 200  
San Diego, CA 92127-2116

Date Received 05/11/12  
Work Order No. 12-05-0408  
Preparation PA 550B  
Method PA 8015B (M)  
Units mg/kg

Project Hawes Composting / SC0554

Page 1 of 1

Client Sample Number	Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
COMP\MW-1\23-1\2	12-05-0438-6-A	05/01/12 00:00	Soil	C 4	05/16/12	05/16/12 01:03	120616B02A

Parameter	Result	R	D	ua	Parameter	Result	R	D	ua
C6	ND	5.0	1		C21-C22	ND	5.0	1	
C7	ND	5.0	1		C23-C24	ND	5.0	1	
C8	ND	5.0	1		C25-C28	ND	5.0	1	
C9-C10	ND	5.0	1		C29-C32	ND	5.0	1	
C11-C12	ND	5.0	1		C33-C36	ND	5.0	1	
C13-C14	ND	5.0	1		C37-C40	ND	5.0	1	
C15-C16	ND	5.0	1		C41-C44	ND	5.0	1	
C17-C18	ND	5.0	1		C6-C44 Total	ND	5.0	1	
C19-C20	ND	5.0	1						

Surrogates	R	C	ua	Control Limits	Surrogates	R	C	ua	Control Limits
Decachlorobiphenyl	0			61-145	n-ctacosane	11			61-145

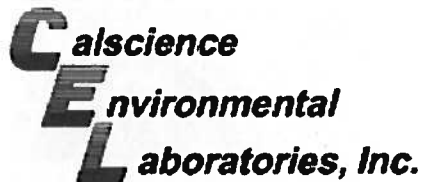
Method	Sample Number	Date/Time	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Metabolite Blank	014-086-30	N/A	Soil	C 4	05/16/12	05/16/12 21:20	120616B02A

Parameter	Result	R	D	ua	Parameter	Result	R	D	ua
C6	ND	5.0	1		C21-C22	ND	5.0	1	
C7	ND	5.0	1		C23-C24	ND	5.0	1	
C8	ND	5.0	1		C25-C28	ND	5.0	1	
C9-C10	ND	5.0	1		C29-C32	ND	5.0	1	
C11-C12	ND	5.0	1		C33-C36	ND	5.0	1	
C13-C14	ND	5.0	1		C37-C40	ND	5.0	1	
C15-C16	ND	5.0	1		C41-C44	ND	5.0	1	
C17-C18	ND	5.0	1		C6-C44 Total	ND	5.0	1	
C19-C20	ND	5.0	1						

Surrogates	R	C	ua	Control Limits	Surrogates	R	C	ua	Control Limits
Decachlorobiphenyl	0			61-145	n-ctacosane	112			61-145

R - Reporting Limit, D - Dilution Factor, ua - Qualifiers

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Analytical Report



Geoshtec Consultants  
10875 Rancho Bernardo Road, Suite 200  
San Diego, CA 92127-2116

Date Received 05/11/12  
Work Order No 12-05-0418  
Preparation PA 500C  
Method PA 8260B  
Units ug/kg

Project Hawes Composting / SC0554

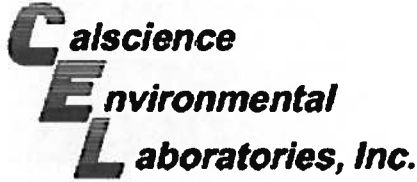
Page 1 of 2

Client Sample Number	Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	Batch ID
COMP.MW-1(23-1)2	12-05-0438-5-A	05/01/12 00:00	soil	CI-M 000	05/11/12	05/14/12 13:33	12061401

Parameter	Result	R	D	Qual	Parameter	Result	R	D	Qual
Acetone	ND	120	1		1,1-Dichloropropane	ND	5.0	1	
Benzene	ND	5.0	1		2,2-Dichloropropane	ND	5.0	1	
Bromobenzene	ND	5.0	1		1,1-Dichloropropene	ND	5.0	1	
Bromochloromethane	ND	5.0	1		c-1,1-Dichloropropene	ND	5.0	1	
Bromodichloromethane	ND	5.0	1		t-1,1-Dichloropropene	ND	5.0	1	
Bromoform	ND	5.0	1		Chlorobenzene	ND	5.0	1	
Bromomethane	ND	25	1		2-Hexanone	ND	5.0	1	
2-Butanone	ND	5.0	1		Isopropylbenzene	ND	5.0	1	
n-Butylbenzene	ND	5.0	1		p-Isopropyltoluene	ND	5.0	1	
sec-Butylbenzene	ND	5.0	1		Methylene Chloride	ND	5.0	1	
tert-Butylbenzene	ND	5.0	1		4-Methyl-2-Pentanone	ND	5.0	1	
Carbon Disulfide	ND	5.0	1		Naphthalene	ND	5.0	1	
Carbon Tetrachloride	ND	5.0	1		n-Propylbenzene	ND	5.0	1	
Chlorobenzene	ND	5.0	1		Styrene	ND	5.0	1	
Chloroethane	ND	5.0	1		1,1,1,2-Tetrachloroethane	ND	5.0	1	
Chloroform	ND	5.0	1		1,1,2,2-Tetrachloroethane	ND	5.0	1	
Chloromethane	ND	25	1		Chloroethene	ND	5.0	1	
2-Chlorotoluene	ND	5.0	1		Toluene	ND	5.0	1	
4-Chlorotoluene	ND	5.0	1		1,2-Dichlorobenzene	ND	10	1	
Dichloromethylmethane	ND	5.0	1		1,2,4-Trichlorobenzene	ND	5.0	1	
1,2-Dichloro-1-Chloropropane	ND	10	1		1,1,1-Trichloroethane	ND	5.0	1	
1,2-Dichloroethane	ND	5.0	1		1,1,2-Trichloroethane	ND	5.0	1	
Dibromomethane	ND	5.0	1		1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	5.0	1	
1,2-Dichlorobenzene	ND	5.0	1		Trichloroethene	ND	5.0	1	
1,1-Dichlorobenzene	ND	5.0	1		1,2-Dichloropropane	ND	5.0	1	
1,4-Dichlorobenzene	ND	5.0	1		1,2,4-Trimethylbenzene	ND	5.0	1	
Dichlorodifluoromethane	ND	5.0	1		Chlorofluoromethane	ND	5.0	1	
1,1-Dichloroethane	ND	5.0	1		1,1,5-Trimethylbenzene	ND	5.0	1	
1,2-Dichloroethane	ND	5.0	1		Pinyl Acetate	ND	5.0	1	
1,1-Dichloroethene	ND	5.0	1		Pinyl Chloride	ND	5.0	1	
c-1,2-Dichloroethene	ND	5.0	1		p/m-Xylene	ND	5.0	1	
t-1,2-Dichloroethene	ND	5.0	1		o-Xylene	ND	5.0	1	
1,2-Dichloropropane	ND	5.0	1		Methyl-tert-Butyl Ether (MTBE)	ND	5.0	1	
Surrogates	R/C	Control	Qual		Surrogates	R/C	Control	Qual	
		Limits					Limits		
1,4-Bromofluorobenzene	99	60-102			Dibromofluoromethane	101	60-141		
1,2-Dichloroethane-d4	104	62-146			o-Toluene-d8	101	70-100		

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R - Reporting Limit, D - Dilution Factor, Qual - Qualifiers



Analytical Report



Client Name: eosntec Consultants
Address: 10875 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2116

Date Received: 05/11/12
Order No: 12-05-0418
Preparation: PA 500C
Method: PA 8260B
Units: ug/kg

Project: Hawes Composting / SC0554

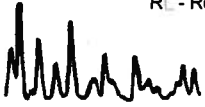
Page 2 of 2

Table with columns: Client Sample Number, Sample Number, Date/Time Collected, Matrix, Instrument, Date Prepared, Date/Time Analyzed, QC Batch ID. Row 1: Meto Blank, 014-314-1, N/A, Oil, CEM, 061412, 061412 12:38, 12051401

Main data table with columns: Parameter, Result, R, D, Qua, Parameter, Result, R, D, Qua. Lists various chemical compounds and their detection results.

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R - Reporting Limit, D - Dilution Factor, Qua - Qualifiers





Geosintec Consultants  
10875 Rancho Bernardo Road, Suite 200  
San Diego, CA 92127-2116

Date Received 05/11/12  
Work Order No. 12-05-0408  
Preparation PA 050B / PA 7471A Total  
Method PA 6010B / PA 7471A  
Units mg/kg

Project Hawes Composting / SC0554

Page 1 of 1

Client Sample Number	Sample Number	Date / Time Collected	Matrix	Instrument	Date Prepared	Date / Time Analyzed	QC Batch ID
COMP/MW-123-12	12-05-0438-5-A	05/09/12 00:00	soil	CP 6300	05/15/12	05/16/12 21:4	12061503

Comments -Mercury analysis was performed on 05/16/12 11:07 with catch 12051502

Parameter	Result	R	D	ua	Parameter	Result	R	D	ua
Antimony	ND	0.750	1		Mercury	ND	0.085	1	
Arsenic	06	0.750	1		Molybdenum	ND	0.250	1	
Barium	501	0.500	1		Nickel	42	0.250	1	
Beryllium	0.284	0.250	1		Selenium	ND	0.750	1	
Cadmium	ND	0.500	1		Silver	ND	0.250	1	
Chromium	5/60	0.250	1		Thallium	ND	0.750	1	
Cobalt	08	0.250	1		Titanium	12/4	0.250	1	
Copper	6/87	0.500	1		Zinc	17/1	1.00	1	
Lead	1/18	0.500	1						

Method Blank	04-00-835	N/A	soil	Mercury	05/15/12	05/16/12 10:1	12061502
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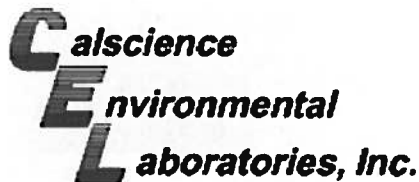
Comments -Preparation/analysis for Mercury was performed PA 7471A

Parameter	Result	R	D	ua
Mercury	ND	0.085	1	

Method Blank	01-002-168	N/A	soil	CP 6300	05/15/12	05/16/12 10:25	12061503
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Parameter	Result	R	D	ua	Parameter	Result	R	D	ua
Antimony	ND	0.750	1		Lead	ND	0.500	1	
Arsenic	ND	0.750	1		Molybdenum	ND	0.250	1	
Barium	ND	0.500	1		Nickel	ND	0.250	1	
Beryllium	ND	0.250	1		Selenium	ND	0.750	1	
Cadmium	ND	0.500	1		Silver	ND	0.250	1	
Chromium	ND	0.250	1		Thallium	ND	0.750	1	
Cobalt	ND	0.250	1		Titanium	ND	0.250	1	
Copper	ND	0.500	1		Zinc	ND	1.00	1	

R - Reporting Limit, D - Dilution Factor, ua - qualifiers



Quality Control - Precision/Duplicate



Geosyntec Consultants  
10875 Rancho Bernardo Road, Suite 200  
San Diego, CA 92127-2116

Date Received: 05/11/12  
Work Order No: 12-05-0408  
Preparation: PA 050B  
Method: PA 6010B

Project Hawes Composting / SC0554

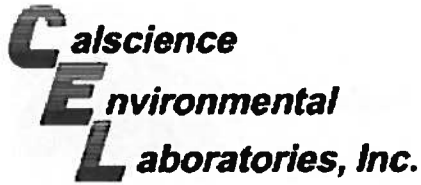
Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
12-05-100-1	soil	CP 6300	05/15/12	06/11/12	12051503

Parameter	SPM ADD	MS R/C	MSD R/C	R/C C	RPD	RPD C	Qualifiers
Antimony	25.00	50	44	50-115	1	0-20	
Arsenic	25.00	112	118	75-125	5	0-20	
Barium	25.00	4	4	75-125	4	0-20	
Beryllium	25.00	108	112	75-125		0-20	
Cadmium	25.00	105	102	75-125		0-20	
Chromium	25.00	92	94	75-125	2	0-20	
Cobalt	25.00	4	4	75-125	4	0-20	
Copper	25.00	95	100	75-125		0-20	
Lead	25.00	105	10	75-125	2	0-20	
Molybdenum	25.00	100	105	75-125	5	0-20	
Nickel	25.00	4	4	75-125	4	0-20	
Selenium	25.00	10	107	75-125	4	0-20	
Silver	12.50	101	101	75-125	0	0-20	
Thallium	25.00	60	67	75-125	11	0-20	
Titanium	25.00	76	87	75-125	7	0-20	
Zinc	25.00	81	60	75-125	10	0-20	

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RPD - Relative Percent Difference, C - Control Limit





Quality Control - PD PD



Geosyntec Consultants  
10875 Rancho Bernardo Road, Suite 200  
San Diego, CA 92127-2116

Date Received 05/11/12  
Work Order No 12-05-048  
Preparation PA 050B  
Method PA 6010B

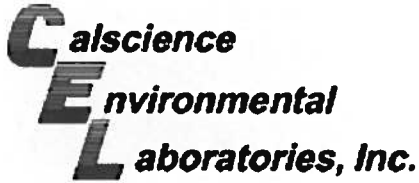
Project Hawes Composting / SC0554

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	PDS / PDS Batch Number
12-06-100-1	soil	CP 6300	06/16/12	06/16/12	12061603

Parameter	SP ADD ID	PDS R C	PDS R C	R C C	RPD	RPD C	Qualifiers
Antimony	25 00	81	82	75-125	1	0-20	
Arsenic	25 00	101	102	75-125	1	0-20	
Barium	25 00	4	4	75-125	4	0-20	
Beryllium	25 00	10	10	75-125	0	0-20	
Cadmium	25 00	100	100	75-125	0	0-20	
Chromium	25 00	101	101	75-125	0	0-20	
Cobalt	25 00	4	4	75-125	4	0-20	
Copper	25 00	10	102	75-125	0	0-20	
Lead	25 00	97	97	75-125	1	0-20	
Molybdenum	25 00	100	100	75-125	1	0-20	
Nickel	25 00	4	4	75-125	4	0-20	
Selenium	25 00	102	10	75-125	1	0-20	
Silver	12 50	100	100	75-125	0	0-20	
Thallium	25 00	98	97	75-125	1	0-20	
Vanadium	25 00	99	100	75-125	0	0-20	
Zinc	25 00	100	99	75-125	0	0-20	

Return to Contents

RPD - Relative Percent Difference, C - Control Limit



Quality Control - Precision & Accuracy



Geosyntec Consultants  
10875 Rancho Bernardo Road, Suite 200  
San Diego, CA 92127-2116

Date Received 05/11/12  
Work Order No. 12-05-0408  
Preparation PA 550B  
Method PA 8015B (M)

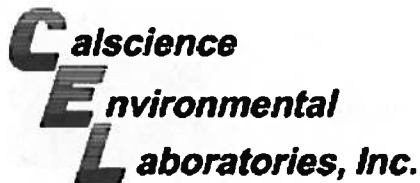
Project Hawes Composting / SC0554

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
12-06-0852-1	Soil	C 4	05/15/12	05/15/12	12061602

Parameter	SPM ADD	MS R/C	MSD R/C	R/C C	RPD	RPD C	Qualifiers
PH as Diesel	400.0	106	110	64-10		0-15	

Return to Contents

RPD - Relative Percent Difference, C - Control Limit



Quality Control - Precision & Accuracy



Geosintec Consultants  
10875 Rancho Bernardo Road, Suite 200  
San Diego, CA 92127-2116

Date Received: 05/11/12  
Work Order No: 12-05-0418  
Preparation: PA 7471A (b)1  
Method: PA 7471A

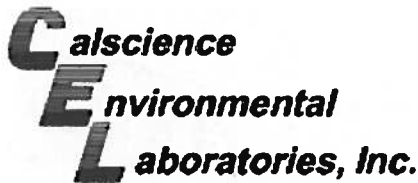
Project Hawes Composting / SC0554

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
12-06-1001	Soil	Mercury	05/16/12	05/17/12	12061602

Parameter	SPM ADD	MS R/C	MSD R/C	R/C C	RPD	RPD C	Qualifiers
Mercury	0.850	94	92	71-17	2	0-14	

Return to Contents ↑

RPD - Relative Percent Difference, C - Control Limit



Quality Control - Precision & Accuracy



Geosyntec Consultants  
10875 Rancho Bernardo Road, Suite 200  
San Diego, CA 92127-2116

Date Received: 05/11/12  
Work Order No: 12-05-0408  
Preparation: PA 500C  
Method: PA 8260B

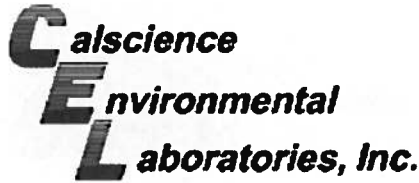
Project Hawes Composting / SC0554

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
COMP:MW-12(3-12)	Soil	CI-M	05/11/12	05/14/12	120514-01

Parameter	SPM ADD	MS R/C	MSD R/C	R/C C	RPD	RPD C	Qualifiers
Acetone	50.00	24	288	70-100	17	0-20	
Benzene	50.00	87	105	61-127	18	0-20	
Bromobenzene	50.00	92	100	70-100	9	0-20	
Bromochloromethane	50.00	98	111	70-100	12	0-20	
Bromodichloromethane	50.00	82	91	70-100	11	0-20	
Bromoform	50.00	81	92	70-100	14	0-20	
Bromomethane	50.00	85	90	70-100	9	0-20	
2-Butanone	50.00	121	1.5	70-100	11	0-20	
n-Butylbenzene	50.00	84	99	77-120	16	0-25	
sec-Butylbenzene	50.00	79	95	70-100	19	0-20	
tert-Butylbenzene	50.00	76	92	70-100	19	0-20	
Carbon Disulfide	50.00	77	96	70-100	22	0-20	4
Carbon tetrachloride	50.00	76	97	51-105	24	0-29	
Chlorobenzene	50.00	80	95	57-120	10	0-20	
Chloroethane	50.00	99	104	70-100	6	0-20	
Chloroform	50.00	91	107	70-100	16	0-20	
Chloromethane	50.00	97	106	70-100	9	0-20	
2-Chlorotoluene	50.00	81	92	70-100	10	0-20	
4-Chlorotoluene	50.00	80	90	70-100	15	0-20	
Dichloromethane	50.00	78	86	70-100	10	0-20	
1,2-Dichloroethane	50.00	85	99	70-100	14	0-20	
1,1-Dichloroethane	50.00	97	100	64-124	7	0-20	
Dibromomethane	50.00	90	101	70-100	8	0-20	
1,2-Dichlorobenzene	50.00	80	90	05-101	11	0-25	
1,4-Dichlorobenzene	50.00	80	90	70-100	11	0-20	
1,4-Dichlorobenzene	50.00	88	97	70-100	10	0-20	
Dichlorodifluoromethane	50.00	99	106	70-100	7	0-20	
1,1-Dichloroethane	50.00	92	109	70-100	17	0-20	
1,2-Dichloroethane	50.00	95	101	70-100	7	0-20	
1,1-Dichloroethane	50.00	85	105	47-140	21	0-25	
c-1,2-Dichloroethene	50.00	92	109	70-100	17	0-20	
t-1,2-Dichloroethene	50.00	90	107	70-100	17	0-20	

Return to Contents

RPD - Relative Percent Difference, C - Control Limit



Quality Control - Certificate of Compliance



Geosyntec Consultants  
10875 Rancho Bernardo Road, Suite 200  
San Diego, CA 92127-2116

Date Received: 05/11/12  
Work Order No: 12-05-0418  
Preparation: PA 5000C  
Method: PA 8260B

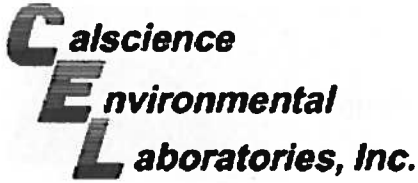
Project Hawes Composting / SC0554

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
COMP\MW-1\2\3-1\2	Soil	CM	05/11/12	05/14/12	120614001

Parameter	SPM ADD	MS R/C	MSD R/C	R/C C	RPD	RPD C	Qualifiers
1,2-Dichloropropane	50.00	89	99	79-115	11	0-25	
1,1-Dichloropropane	50.00	98	106	70-100	8	0-20	
2,2-Dichloropropane	50.00	86	105	70-100	21	0-20	4
1,1,1-Dichloropropane	50.00	85	107	70-100	2	0-20	4
c-1,1-Dichloropropene	50.00	101	109	70-100	7	0-20	
t-1,1-Dichloropropene	50.00	9	100	70-100	7	0-20	
1,1-Dichloroethene	50.00	87	102	57-129	15	0-22	
2-Hexanone	50.00	94	94	70-100	0	0-20	
Isopropylbenzene	50.00	81	94	70-100	15	0-20	
p-Isopropyltoluene	50.00	80	94	70-100	16	0-20	
Methylenedichloride	50.00	9	107	70-100	14	0-20	
4-Methyl-2-Pentanone	50.00	9	97	70-100	4	0-20	
Naphthalene	50.00	89	96	70-100	7	0-20	
n-Propylbenzene	50.00	79	92	70-100	15	0-20	
Styrene	50.00	91	100	70-100	10	0-20	
1,1,1,2-Tetrachloroethane	50.00	85	96	70-100	12	0-20	
1,1,1,2,2-Pentachloroethane	50.00	95	106	70-100	11	0-20	
1,1,2,2-Tetrachloroethene	50.00	115	115	70-100	16	0-20	
Toluene	50.00	88	101	60-120	14	0-20	
1,2-Dichlorobenzene	50.00	81	8	70-100	2	0-20	
1,2,4-Trichlorobenzene	50.00	79	81	70-100		0-20	
1,1,1-Trichloroethane	50.00	85	10	70-100	19	0-20	
1,1,2-Trichloroethane	50.00	94	102	70-100	8	0-20	
1,1,2-Trichloro-1,2,2-Trifluoroethane	50.00	78	97	70-100	22	0-20	4
1,1-Dichloroethene	50.00	89	10	44-158	15	0-20	
1,2-Dichloropropane	50.00	95	104	70-100	9	0-20	
1,2,4-Trimethylbenzene	50.00	88	100	70-100	1	0-20	
1,1-Dichloroethane	50.00	109	116	70-100	6	0-20	
1,2,5-Trimethylbenzene	50.00	89	101	70-100	1	0-20	
Acetate	50.00	1	10	70-100	19	0-20	
Chloride	50.00	101	107	49-109	6	0-47	
p/m-Xylene	100.0	8	95	70-100	14	0-20	

Return to Contents

RPD - Relative Percent Difference, C - Control Limit



Quality Control - Precision/Duplicate



Geos Intec Consultants  
10875 Rancho Bernardo Road, Suite 200  
San Diego, CA 92127-2116

Date Received: 05/11/12  
Work Order No: 12-05-0408  
Preparation: PA 50LOC  
Method: PA 8260B

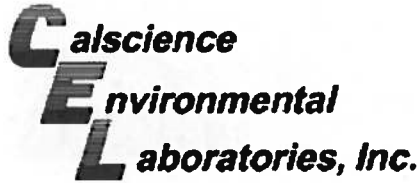
Project Hawes Composting / SC0554

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
COMP\MW-12\3-12	Soil	CI-M	06/11/12	06/14/12	12061401

Parameter	SPM ADD/D	MS R/C	MSD R/C	R/C C	RPD	RPD C	Qualifiers
o-xylene	50.00	81	92	70-10	12	0-20	
Methyl-Butylbenzene (M/B)	50.00	90	97	57-12	8	0-21	

Return to Contents ↑

RPD - Relative Percent Difference, C - Control Limit



Quality Control - Control - Duplicate



Geosyntec Consultants  
10875 Rancho Bernardo Road, Suite 200  
San Diego, CA 92127-2116

Date Received  N/A  
 Work Order No.  12-05-0418  
 Preparation  PA 050B  
 Method  PA 6010B

Project  Hawes Composting / SC0554

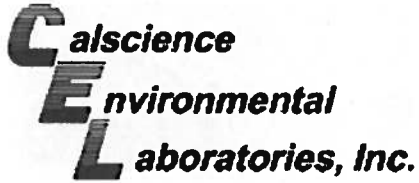
Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	CS/ CSD Batch Number
01-002-168	soil	CP 6300	06/16/12	06/16/12	12051603

Parameter	SPM ADD	CS R/C	CSD R/C	R/C C	M/C	RPD	RPD C	Qualifiers
Antimony	25.00	102	102	80-120	7-127	0	0-20	
Arsenic	25.00	102	102	80-120	7-127	0	0-20	
Barium	25.00	110	109	80-120	7-127	0	0-20	
Beryllium	25.00	10	10	80-120	7-127	0	0-20	
Cadmium	25.00	106	106	80-120	7-127	1	0-20	
Chromium	25.00	105	106	80-120	7-127	0	0-20	
Cobalt	25.00	11	11	80-120	7-127	0	0-20	
Copper	25.00	105	105	80-120	7-127	0	0-20	
Lead	25.00	106	106	80-120	7-127	0	0-20	
Molybdenum	25.00	104	104	80-120	7-127	0	0-20	
Nickel	25.00	111	111	80-120	7-127	0	0-20	
Selenium	25.00	104	105	80-120	7-127	1	0-20	
Silver	12.50	101	101	80-120	7-127	0	0-20	
Thallium	25.00	109	110	80-120	7-127	1	0-20	
Titanium	25.00	10	10	80-120	7-127	0	0-20	
Zinc	25.00	108	107	80-120	7-127	0	0-20	

Total number of CS compounds  16  
 Total number of M compounds  0  
 Total number of M compounds allowed  1  
 CS M/C validation result  Pass

Return to Contents

RPD - Relative Percent Difference, C - Control Limit



Quality Control - Critical Dilute



Geosyntec Consultants  
10875 Rancho Bernardo Road, Suite 200  
San Diego, CA 92127-2116

Date Received: N/A  
Work Order No: 12-05-0408  
Preparation: PA 550B  
Method: PA 8015B (M)

Project: Hawes Composting / SC0554

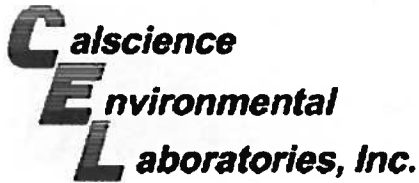
Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	CS/CSD Batch Number
014-086-030	oil	C 4	05/15/12	06/15/12	120616B02A

Parameter	SPM ADD	CS R C	CSD R C	R C C	RPD	RPD C	Qualifiers
PH as Diesel	400.0	109	11	75-12	4	0-12	

Return to Contents

RPD - Relative Percent Difference, C - Control Limit





Quality Control - Critical Data



Geosintec Consultants  
10875 Rancho Bernardo Road, Suite 200  
San Diego, CA 92127-2116

Date Received: N/A  
Work Order No: 12-05-0418  
Preparation: PA 7471A Total  
Method: PA 7471A

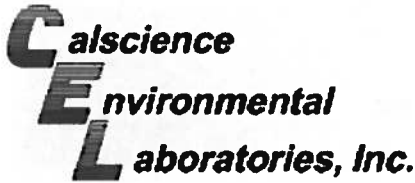
Project: Hawes Composting / SC0554

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	CS/CSD Batch Number
04-00-835	soil	Mercur	061512	061112	12051602

Parameter	SPM ADD	CS R/C	CSD R/C	R/C C	RPD	RPD C	Qualifiers
Mercur	0.850	102	101	85-121	1	0-10	

Return to Contents

RPD - Relative Percent Difference, C - Control Limit



Quality Control - Control Chart



Geos Intec Consultants  
10875 Rancho Bernardo Road, Suite 200  
San Diego, CA 92127-2116

Date Received  N/A  
Work Order No  12-05-0418  
Preparation  PA 500C  
Method  PA 8260B

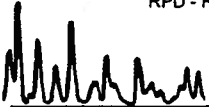
Project  Hawes Composting / SC0554

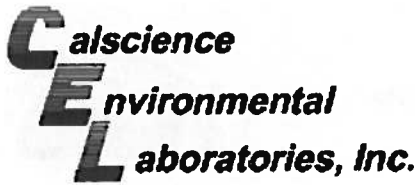
Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	CS/CSD Batch Number
014-314-1	Soil	CM	06/14/12	05/14/12	12061401

Parameter	SP ADD/D	CS R/C	CSD R/C	R/C C	M/C	RPD	RPD C	Qualifiers
Acetone	50.00	171	189	70-10	60-140	10	0-20	
Benzene	50.00	96	97	78-120	71-127	2	0-20	
Bromobenzene	50.00	99	100	70-10	60-140	2	0-20	
Bromochloromethane	50.00	102	106	70-10	60-140	5	0-20	
Bromodichloromethane	50.00	9	95	70-10	60-140	2	0-20	
Bromoform	50.00	9	97	70-10	60-140	4	0-20	
Bromomethane	50.00	85	8	70-10	60-140		0-20	
2-Butanone	50.00	118	128	70-10	60-140	8	0-20	
n-Butylbenzene	50.00	10	10	77-12	69-101	0	0-25	
sec-Butylbenzene	50.00	9	94	70-10	60-140	1	0-20	
tert-Butylbenzene	50.00	92	9	70-10	60-140	1	0-20	
Carbon Disulfide	50.00	88	92	70-10	60-140	5	0-20	
Carbon tetrachloride	50.00	99	101	49-109	4-154	2	0-20	
Chlorobenzene	50.00	91	92	79-120	72-127	1	0-20	
Chloroethane	50.00	94	94	70-10	60-140	0	0-20	
Chloroform	50.00	98	100	70-10	60-140	2	0-20	
Chloromethane	50.00	97	99	70-10	60-140	2	0-20	
2-Chlorotoluene	50.00	92	9	70-10	60-140	0	0-20	
4-Chlorotoluene	50.00	90	90	70-10	60-140	1	0-20	
Dibromochloromethane	50.00	88	91	70-10	60-140		0-20	
1,2-Dibromo-2-Chloropropane	50.00	89	96	70-10	60-140	8	0-20	
1,2-Dibromoethane	50.00	92	99	70-10	60-140	7	0-20	
Dibromomethane	50.00	9	97	70-10	60-140	5	0-20	
1,2-Dichlorobenzene	50.00	91	91	75-120	68-128	0	0-20	
1,3-Dichlorobenzene	50.00	90	89	70-10	60-140	1	0-20	
1,4-Dichlorobenzene	50.00	98	98	70-10	60-140	1	0-20	
Dichlorodifluoromethane	50.00	97	99	70-10	60-140	2	0-20	
1,1-Dichloroethane	50.00	95	98	70-10	60-140		0-20	
1,2-Dichloroethane	50.00	95	98	70-10	60-140	4	0-20	
1,1-Dichloroethene	50.00	96	98	74-122	66-10	2	0-20	
c-1,2-Dichloroethene	50.00	97	99	70-10	60-140	2	0-20	
t-1,2-Dichloroethene	50.00	98	102	70-10	60-140	4	0-20	
1,2-Dichloropropane	50.00	96	99	79-115	7-121		0-25	

Return to Contents

RPD - Relative Percent Difference, C - Control Limit





Quality Control - Control Duplicate



Geos Intec Consultants  
10875 Rancho Bernardo Road, Suite 200  
San Diego, CA 92127-2116

Date Received  
Work Order No  
Preparation  
Method

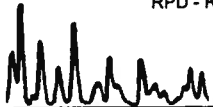
N/A  
12-05-04  
PA 500C  
PA 8260B

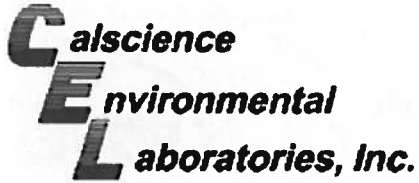
Project Hawes Composting / SC0554

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	CS/ CSD Batch Number				
014-314-1	Soil	CI M	06/14/12	06/14/12	12061401				
Parameter	SPM ADD	CS R/C	CSD R/C	R/C C	M/C	RPD	RPD C	Qualifiers	
1,2-Dichloropropane	50.00	96	100	70-100	60-140	4	0-20		
2,2-Dichloropropane	50.00	101	101	70-100	60-140	0	0-20		
1,1-Dichloropropene	50.00	98	100	70-100	60-140	2	0-20		
c-1,2-Dichloropropene	50.00	108	111	70-100	60-140		0-20		
t-1,2-Dichloropropene	50.00	98	101	70-100	60-140		0-20		
1,1,1-Trichloroethane	50.00	98	101	76-120	69-127	2	0-20		
2-Hexanone	50.00	106	114	70-100	60-140	8	0-20		
Isopropylbenzene	50.00	90	94	70-100	60-140	2	0-20		
p-Isopropyltoluene	50.00	95	95	70-100	60-140	0	0-20		
Methoxychloride	50.00	98	101	70-100	60-140		0-20		
4-Methyl-2-Pentanone	50.00	91	99	70-100	60-140	9	0-20		
Naphthalene	50.00	94	99	70-100	60-140	6	0-20		
n-Propylbenzene	50.00	90	90	70-100	60-140	1	0-20		
Styrene	50.00	98	100	70-100	60-140	2	0-20		
1,1,1,2-Tetrachloroethane	50.00	96	100	70-100	60-140	4	0-20		
1,1,2,2-Tetrachloroethane	50.00	90	99	70-100	60-140	6	0-20		
1,1,2,2-Tetrachloroethane	50.00	97	99	70-100	60-140	2	0-20		
1,2,4-Trichlorobenzene	50.00	98	98	77-120	70-127	1	0-20		
1,2,4-Trichlorobenzene	50.00	97	98	70-100	60-140	1	0-20		
1,2,4-Trichlorobenzene	50.00	96	94	70-100	60-140	2	0-20		
1,1,1-Trichloroethane	50.00	100	102	70-100	60-140	2	0-20		
1,1,2-Trichloroethane	50.00	92	98	70-100	60-140	6	0-20		
1,1,2-Trichloro-1,2,2-Trifluoroethane	50.00	90	92	70-100	60-140	2	0-20		
1,1,2-Trichloroethane	50.00	97	98	70-100	60-140	1	0-20		
1,2-Dichloropropane	50.00	89	97	70-100	60-140	8	0-20		
1,2,4-Trimethylbenzene	50.00	100	100	70-100	60-140	0	0-20		
1,1,1-Trichloroethane	50.00	102	100	70-100	60-140	1	0-20		
1,1,5-Trimethylbenzene	50.00	100	104	70-100	60-140	1	0-20		
Methyl Acetate	50.00	62	61	70-100	60-140		0-20	M	
Methyl Chloride	50.00	97	99	68-122	59-101	2	0-20		
p-m-Xylene	100.00	94	95	70-100	60-140	1	0-20		
o-Xylene	50.00	88	90	70-100	60-140	2	0-20		
Methyl-tert-Butyl Ether (MTBE)	50.00	88	94	77-120	70-127	6	0-20		

Return to Contents

RPD - Relative Percent Difference, C - Control Limit





Quality Control - Certificate



Geosyntec Consultants  
10875 Rancho Bernardo Road, Suite 200  
San Diego, CA 92127-2116

Date Received N/A  
Work Order No 12-05-048  
Preparation PA 500C  
Method PA 8260B

Project Hawes Composting / SC0554

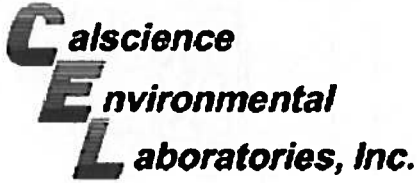
Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	CS/CSD Batch Number
014-314-1	Soil	CM	05/14/12	06/14/12	12061401

Parameter: SP, ADD, CS, R, CSD, R, C, R, C, M, C, RPD, RPD, Qualifiers

Total number of CS compounds: 66  
 Total number of M compounds: 1  
 Total number of M compounds allowed: 1  
 CS M validation result: Pass

Return to Contents

RPD - Relative Percent Difference, C - Control Limit



Qualification and Accreditation



Work Order Number: 12-05-048

Qualifier	Definition
	See applicable analysis comment
	Less than the indicated value
	Greater than the indicated value
1	Surrogate compound recovery was out of control due to a required sample dilution therefore, the sample data was reported without further clarification
2	Surrogate compound recovery was out of control due to matrix interference the associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification
	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference the associated LCS and/or CCSD was in control and, therefore, the sample data was reported without further clarification
4	The MS/MSD RPD was out of control due to matrix interference the LCS/CCSD RPD was in control and, therefore, the sample data was reported without further clarification
5	The PDS/PDSD or P/S/P/SD associated with this batch of samples was out of control due to a matrix interference effect the associated batch LCS/CCSD was in control and, hence, the associated sample data was reported without further clarification
6	Surrogate recovery below the acceptance limit
7	Surrogate recovery above the acceptance limit
B	Anaesthetic was present in the associated method blank
B	Sample analyzed after holding time expired
	Concentration exceeds the calibration range
	Sample was extracted past end of recommended maximum holding time
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present or detected
HD	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present or detected
J	Anaesthetic was detected at a concentration below the reporting limit and above the laboratory method detection limit Reported value is estimated
M	LCS/CCSD Recovery Percentage is within Marginal Compliance (M) Control Limit range
ND	Parameter not detected at the indicated reporting limit
	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater
S	The sample extract was subjected to silica treatment prior to analysis
	Recovery and/or RPD out-of-range
	Anaesthetic presence was not confirmed second column or GC/MS analysis

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for moisture. AOC results are reported on a wet weight basis  
 MPN - Most Probable Number

Return to Contents



# Analysis Request and Chain of Custody Record

White copy: to accompany samples  
 Yellow copy: field copy

Project Name: **HAWES**  
 Samplers Names: **R. Gray**  
 Laboratory Name: \_\_\_\_\_  
 Lab Address: \_\_\_\_\_  
 Project Number: \_\_\_\_\_  
 Project Contact: \_\_\_\_\_  
 Lab Contact: \_\_\_\_\_  
 Lab Phone: \_\_\_\_\_  
 Carrier/Waybill No.: \_\_\_\_\_

Required Analyses				
VOCS by 8260B	Metals 6010B	SVOCs by 8270	TH-C-C	OR 6015M
SO <sub>4</sub> 502	NO <sub>3</sub> 503	NO <sub>2</sub> 504	AM	AM
SO <sub>4</sub> 505	NO <sub>3</sub> 506	NO <sub>2</sub> 507	AM	AM
SO <sub>4</sub> 508	NO <sub>3</sub> 509	NO <sub>2</sub> 510	AM	AM

Sample Name	Date	Time	Sample Type	Bottle Type and Volume/Preservative					Number of Containers	Comments	Lab Use Only	Condition of Bottles
				501	502	503	504	505				
WW-1	5/3/12	946	SOI	X					1			<i>[Handwritten note]</i>
WW-2	5/3/12	907	SOI	X					2			

**Special Instructions:**

Normal  Rush:

1. Relinquished by (Signature/Affiliation) *[Signature]* Date 5/4/12 Time 1355  
 2. Relinquished by (Signature/Affiliation) *[Signature]* Date 05/04/12 Time 2010  
 3. Relinquished by (Signature/Affiliation) *[Signature]* Date \_\_\_\_\_ Time \_\_\_\_\_

1. Received by (Signature/Affiliation) *[Signature]* Date 05/04/12 Time 1300  
 2. Received by (Signature/Affiliation) *[Signature]* Date 05/4/12 Time 20:10  
 3. Received by (Signature/Affiliation) *[Signature]* Date \_\_\_\_\_ Time \_\_\_\_\_

Turn-around Time: \_\_\_\_\_

Analysis Request and Chain of Custody Record

12-65-0438 (2/2)

Page 1 of 1

White copy: to accompany samples  
Yellow copy: field copy

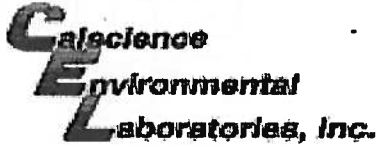
Sample Name	Date	Time	Sample Type	VOCs by 8260B		Metals 1-22		SVOCs by 8270		TPH-CC		Number of Containers	Comments	Lab Use Only	Condition of Bottles	
				✓	✗	✓	✗	✓	✗	✓	✗					
MW-3-1	5/9/12	1830	Soil	✓	✗	✓	✗	✓	✗	✓	✗	1	Placed in secure refrigerator at Geosyntec 5/11/12 5/11/12 5/11/12 5/11/12			
MW-3-2	5/9/12	1830	↓	✓	✗	✓	✗	✓	✗	✓	✗	1				

Turn-around Time:  
 Normal  Rush:

Special Instructions: Composite with samples MW-1 and MW-2 of COC 6173

1. Relinquished by (Signature/Affiliation)	5/10/12	Date	0700	Time	1. Received by (Signature/Affiliation)	5/11/12	Date	11:45	Time
2. Relinquished by (Signature/Affiliation)	5/11/12	Date	1805	Time	2. Received by (Signature/Affiliation)	Dannyle ccc	Date	5/11/12	Time
3. Relinquished by (Signature/Affiliation)		Date		Time	3. Received by (Signature/Affiliation)		Date		Time





WORK ORDER #: 12-05-0438

**SAMPLE RECEIPT FORM**

Cooler 1 of 1

CLIENT: GEOSYNTEC

DATE: 05/04/12

**TEMPERATURE:** Thermometer ID: SC2 (Criteria: 0.0°C – 6.0°C, not frozen)

Temperature 1.6 °C - 0.3 °C (CF) = 1.3 °C  Blank  Sample

Sample(s) outside temperature criteria (PM/APM contacted by: \_\_\_\_\_).

Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

Received at ambient temperature, placed on ice for transport by Courier.

Ambient Temperature:  Air  Filter

Initial: [Signature]

**CUSTODY SEALS INTACT:**

Cooler  \_\_\_\_\_  No (Not Intact)  Not Present  N/A Initial: [Signature]

Sample  \_\_\_\_\_  No (Not Intact)  Not Present Initial: [Signature]

**SAMPLE CONDITION:**

	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COC document(s) received complete.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
<input type="checkbox"/> No analysis requested. <input type="checkbox"/> Not relinquished. <input type="checkbox"/> No date/time relinquished.			
Sampler's name indicated on COC.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container label(s) consistent with COC.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container(s) intact and good condition.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proper containers and sufficient volume for analyses requested.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Analyses received within holding time.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
pH / Res. Chlorine / Diss. Sulfide / Diss. Oxygen received within 24 hours...	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Proper preservation noted on COC or sample container.....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace.....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Tedlar bag(s) free of condensation.....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**CONTAINER TYPE:**

Solid:  4ozCGJ  8ozCGJ  16ozCGJ  Sleeve (\_\_\_\_)  EnCores®  TerraCores®  \_\_\_\_\_

Water:  VOA  VOA<sub>h</sub>  VOAn<sub>2</sub>  125AGB  125AGB<sub>h</sub>  125AGB<sub>p</sub>  1AGB  1AGBn<sub>2</sub>  1AGBs

500AGB  500AGJ  500AGJs  250AGB  250CGB  250CGBs  1PB  1PBna  500PB

250PB  250PBn  125PB  125PBz<sub>na</sub>  100PJ  100PJn<sub>2</sub>  \_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_

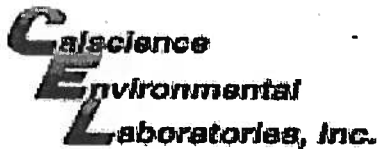
Air:  Tedlar®  Summa® Other:  \_\_\_\_\_ Trip Blank Lot#: \_\_\_\_\_ Labeled/Checked by: [Signature]

Container: C: Clear A: Amber P: Plastic G: Glass J: Jar B: Bottle Z: Ziploc/Resealable Bag E: Envelope Reviewed by: PT

Preservative: h: HCL n: HNO<sub>3</sub> na<sub>2</sub>: Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub> na: NaOH p: H<sub>3</sub>PO<sub>4</sub> s: H<sub>2</sub>SO<sub>4</sub> u: Ultra-pure z<sub>na</sub>: ZnAc<sub>2</sub>+NaOH f: Filtered Scanned by: PT

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WORK ORDER #: 12-05-0438

**SAMPLE RECEIPT FORM**

Cooler 1 of 1

CLIENT: Geosyntec

DATE: 05/11/12

**TEMPERATURE:** Thermometer ID: SC2 (Criteria: 0.0 °C – 6.0 °C, not frozen)

Temperature 1.9 °C - 0.3 °C (CF) = 1.6 °C  Blank  Sample

Sample(s) outside temperature criteria (PM/APM contacted by: \_\_\_\_\_).

Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

Received at ambient temperature, placed on ice for transport by Courier.

Ambient Temperature:  Air  Filter

Initial: BL

**CUSTODY SEALS INTACT:**

Cooler  \_\_\_\_\_  No (Not Intact)  Not Present  N/A

Sample  \_\_\_\_\_  No (Not Intact)  Not Present

Initial: BL

**SAMPLE CONDITION:**

	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COC document(s) received complete.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
<input type="checkbox"/> No analysis requested. <input type="checkbox"/> Not relinquished. <input type="checkbox"/> No date/time relinquished.			
Sampler's name indicated on COC.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container label(s) consistent with COC.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container(s) intact and good condition.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proper containers and sufficient volume for analyses requested.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Analyses received within holding time.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
pH / Res. Chlorine / Diss. Sulfide / Diss. Oxygen received within 24 hours...	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Proper preservation noted on COC or sample container.....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace.....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Tedlar bag(s) free of condensation.....	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**CONTAINER TYPE:**

Solid:  4ozCGJ  8ozCGJ  16ozCGJ  Sleeve (\_\_\_\_)  EnCores®  TerraCores®  2ozCGJ<sup>-4</sup>

Water:  VOA  VOA<sub>h</sub>  VOA<sub>na2</sub>  125AGB  125AGB<sub>h</sub>  125AGB<sub>p</sub>  1AGB  1AGB<sub>na2</sub>  1AGB<sub>s</sub>

500AGB  500AGJ  500AGJ<sub>s</sub>  250AGB  250CGB  250CGB<sub>s</sub>  1PB  1PB<sub>na</sub>  500PB

250PB  250PB<sub>n</sub>  125PB  125PB<sub>z<sub>na</sub></sub>  100PJ  100PJ<sub>na2</sub>  \_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_

Air:  Tedlar®  Summa® Other:  \_\_\_\_\_ Trip Blank Lot#: \_\_\_\_\_ Labeled/Checked by: BL

Container: C: Clear A: Amber P: Plastic G: Glass J: Jar B: Bottle Z: Ziploc/Resealable Bag E: Envelope Reviewed by: WSC

Preservative: h: HCL n: HNO<sub>3</sub> na<sub>2</sub>:Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub> na: NaOH p: H<sub>3</sub>PO<sub>4</sub> s: H<sub>2</sub>SO<sub>4</sub> u: Ultra-pure z<sub>na</sub>: ZnAc<sub>2</sub>+NaOH f: Filtered Scanned by: WSC

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