

Appendix E Background Areas (BGA)

Appendix E –
BGA 1 COC Field Copies

Page: _____ of _____	<h2 style="text-align: center;">GEL Chain of Custody and Analytical Request</h2> <p style="text-align: center;">**See www.gel.com for GEL's Sample Acceptance SOP**</p>	GEL Laboratories, LLC
Project #:		2040 Savage Road
GEL Quote #:		Charleston, SC 29407
COC Number (4):		Phone: (843) 556-8171
PO Number:	GEL Work Order Number:	Fax: (843) 766-1178

Client Name:		Phone #:		Sample Analysis Requested (5) (Fill in the number of containers for each test)																
Project/Site Name:		Fax #:		Should this sample be considered:													Preservative Type (6)			
Address:																				
Collected by:		Send Results To:		TSC A Registered													Comments Note: extra sample is required for sample specific QC			
Sample ID		Date Collected (mm-dd-yy)			*Time Collected (Military) (hh:mm)	QC Code (4)	Field Filtered (5)	Sample Matrix (6)	Rad active											
* For composites - indicate start and stop date/time																				
BG A 1.1.1		12/21/15																		
BG A 1.1.2		12/21/15																		
BG A 1.1.3		12/21/15																		
BG A 1.1.4		12/21/15																		
BG A 1.1.5		12/21/15																		
BG A 1.2.1		12/21/15																		
BG A 1.2.2		12/21/15																		
BG A 1.3.1		12/21/15																		
BG A 1.3.2		12/21/15																		
BG A 1.4.1		12/21/15																		

TAT Requested: Normal:	Rush:	Specify:	(Subject to Surcharge)	Fax Results:	Yes / No	Circle Deliverable: C of A / QC Summary / Level 1 / Level 2 / Level 3 / Level 4
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Remarks: Are there any known hazards applicable to these samples? If so, please list the hazards	Sample Collection Time Zone Eastern Pacific Central Other Mountain
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Chain of Custody Signatures				Sample Shipping and Delivery Details			
Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time	GEL PM:	
1			1			Method of Shipment	
2			2			Date Shipped:	
3			3			Airbill #	
						Airbill #	

1) Chain of Custody Number - Client Determined 2) QC Codes: N = Normal Sample, TB = Trip Blank, FD = Field Duplicate, EB = Equipment Blank, MS = Matrix Spike Sample, MSD = Matrix Spike Duplicate Sample, G = Grab, C = Composite 3) Field Filtered: For liquid matrices, indicate with a - Y - for yes the sample was field filtered or - N - for sample was not field filtered 4) Matrix Codes: DW = Drinking Water, GW = Groundwater, SW = Surface Water, WW = Waste Water, W = Water, ML = Misc Liquid, SO = Soil, SD = Sediment, SL = Sludge, SS = Solid Waste, O = Oil, F = Filter, P = Wipe, U = Urine, F = Fecal, N = N 5) Sample Analysis Requested: Analytical method requested (i.e. 8160B, 6010B/7470A) and number of containers provided for each (i.e. 8160B - 3, 6010B/7470A - 1). 6) Preservative Type: HA = Hydrochloric Acid, NI = Nitric Acid, SH = Sodium Hydroxide, SA = Sulfuric Acid, AA = Ascorbic Acid, HX = Hexene, ST = Sodium Thiosulfate. If no preservative is added - leave field blank	For Lab Receiving Use Only Custody Seal Intact? YES NO Cooler Temp. C
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WHITE - LABORATORY

YELLOW - FILE

PINK - CLIENT

Page: _____ of _____ Project #: _____ GEL Quote #: _____ COC Number (1): _____ PO Number: _____		GEL Chain of Custody and Analytical Request **See www.gel.com for GEL's Sample Acceptance SOP** GEL Work Order Number: _____				GEL Laboratories, LLC 2040 Savage Road Charleston, SC 29407 Phone: (843) 556-8171 Fax: (843) 766-1178	
Client Name: _____		Phone #: _____		Sample Analysis Requested (5): (Fill in the number of containers for each test)			
Project/Site Name: _____		Fax #: _____		Should this sample be considered _____		Preservative Type (6)	
Address: _____		_____					
Collected by: _____		Send Results To: _____		TSC A Regulated _____		Comments Note: extra sample is required for sample specific QC	
Sample ID <small>*For composts - indicate start and stop date/time</small>		Date Collected (mm-dd-yy) *Time Collected (Military) (hh:mm)					
BGA 1.4.2		12/21/15					
BGA 1.5.1		12/21/15					
BGA 1.5.2		12/21/15					
BGA 2.1.1		12/21/15					
BGA 2.1.2		12/21/15					
BGA 2.1.3		12/21/15					
BGA 2.1.4		12/21/15					
BGA 2.1.5		12/21/15					
BGA 2.2.1		12/21/15					
BGA 2.2.2		12/21/15					
TAT Requested: Normal: _____ Rush: _____ Specify: _____ (Subject to Surcharge)		Fax Results: Yes / No		Circle Deliverable: C of A / QC Summary / Level 1 / Level 2 / Level 3 / Level 4			
Remarks: Are there any known hazards applicable to these samples? If so, please list the hazards						Sample Collection Time Zone Eastern Pacific Central Other _____ Mountain	
Chain of Custody Signatures				Sample Shipping and Delivery Details			
Relinquished By (Signed) _____ Date _____ Time _____		Received by (signed) _____ Date _____ Time _____		GEL PM: _____			
1. _____		1. _____		Method of Shipment: _____		Date Shipped: _____	
2. _____		2. _____		Airbill #: _____			
3. _____		3. _____		Airbill #: _____			
1.) Chain of Custody Number - Client Determined 2.) QC Codes: N = Normal Sample, TB = Trip Blank, FD = Field Duplicate, EB = Equipment Blank, MS = Matrix Spike Sample, MSD = Matrix Spike Duplicate Sample, G = Grab, C = Composite 3.) Field Filtered: For liquid matrices, indicate with a - Y - for yes the sample was field filtered or - N - for sample was not field filtered. 4.) Matrix Codes: DW=Drinking Water, GW=Groundwater, SW=Surface Water, WW=Waste Water, W=Water, ML=Misc Liquid, SO=Soil, SD=Sediment, SL=Sludge, SS=Solid Waste, O=Oil, F=Filter, P=Wipe, U=Urine, F=Fecal, N=_____ 5.) Sample Analysis Requested: Analytical method requested (i.e. 8260B, 6010B/7470A) and number of containers provided for each (i.e. 8260B - 3, 6010B/7470A - 1). 6.) Preservative Type: HX = Hydrochloric Acid, NI = Nitric Acid, SH = Sodium Hydroxide, SA = Sulfuric Acid, AA = Ascorbic Acid, HX = Hexane, ST = Sodium Thiosulfate; If no preservative is added - leave field blank				For Lab Receiving Use Only Custody Seal Intact? YES NO Cooler Temp: _____ C			

WHITE = LABORATORY

YELLOW = FILE

PINK = CLIENT

Appendix E –
BGA 1 Instrument Field Sheets



MNV TECHNICAL SERVICES

Rev 1 10/18/15

Instrument Field Response Check Log

1. Instrument Information¹

Ratemeter: Make/Model: LUDLUM 2241-2 Serial No. 262737 Cal. Due Date: 9/2/16
 Detector 1: Make/Model: LUDLUM 44-10 Serial No. PR 111127
 Bicron MicroRam Meter: Serial No. A224U Cal. Due Date: 8/4/16

2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 116 Activity: <0.1 units: µCi Assay Date: 12/30/10
 Response Acceptance Range (+/-20%): uRem/hr +20% uRem/hr -20% net cpm + 20% 22926 net cpm -20% 15284

Source 2 Isotope: Cs-137 Serial No.: 87F13-48 Activity: 0.02 units: µCi Assay Date: 1/20/10
 Response Acceptance Range (+/-20%): uRem/hr +20% uRem/hr -20% net cpm + 20% 13375 net cpm -20% 8919

3. Technician/Worker Performing Checks:

Name: STEVE KINSMANTitle: RETDate: 12/21/15 Time: 08304. Site or Location: Site/Job: BGA 1Location Description: FIELDGPS Coordinates (when required): X-Coord: N 42° 25' 54.49" Y-Coord: W 78° 38' 17.24"

Instrument Field Response ²					Use Acceptance Criteria				Remarks	
Meter	Bkg Cnt Time (min)	Bkg Counts (cpm) or uRem/hr	Source Cnt Time (min)	Source Response (gross cpm or uRem/hr)	+/- 20% source gross cpm or uRem/hr (Y/N)	Inst. Calib. current (Y/N)	Battery Check (Y/N)	Time Of check	Ambient Temp. (°F)	Initials and Comments (add'l Info: Inst. Condition, etc.)
Ratemeter	1	6705	1	19313	Y	Y	Y	0830	48.2	Th232 SK
Ratemeter	1	6705	1	10335	Y	Y	Y	0830	48.2	Cs137 SK
Ratemeter	1	7729	1	19444	Y	Y	Y	1200	46.1	Th232 SK
Ratemeter	1	7729	1	10722	Y	Y	Y	1200	46.1	Cs137 SK
Ratemeter	1	7713	1	20402	Y	Y	Y	1500	45.1	Th232 SK
Ratemeter	1	7713	1	11311	Y	Y	Y	1500	45.1	Cs137 SK
Bicron	NA	5	NA	17	Y	Y	Y	0830	48.2	Th232 SK
Bicron	NA	6	NA	18	Y	Y	Y	1200	46.1	Th232 SK
Bicron	NA	8	NA	19	Y	Y	Y	1500	45.1	Th232 SK

- Instrument designated check source is listed on calibration sticker. Record check source response (net cpm) prior to field deployment for all check sources being used.
- Source and Background count rate should be determined from the average of three static counts at the same location. Repeat counts should be within 20%. If count rate diverges significantly, perform additional counts to evaluate instrument stability.

Appendix E –
BGA 1 Sample Location Data Sheets

SAMPLE LOCATION DATA SHEET

Date: 12/21/15 Project: NY SERDA Name: J. Brown

Weather: cloudy, 30's

1. Sample Area (SA):

SA Designation: SG-A1 Description: open field off Thurnwald Dr.
SA Origin Location: A Coord. System: _____
SA Land Mark Description: _____ Coord: _____

2. Sample Location Data:

Sample Area ID: SG-A1.1 Matrix: Soil

Location Coord: 42°25'55.31"N 78°38'16.20"W

Alternate Location Measurements (distance from SA origin and Local Coord.)

X Dist. from Origin (0,0) _____ Y Dist. from Origin: _____

Site Sketch Attached (Yes) (NO):

Sample Location Description: Plot 1, 2, 3, 4, 5 (clear), grass (clear)

Canopy Type: open Land Use: hiking Soil Moisture (Wet, dry, etc.): comp

3. Location Radiation Readings:

2x2 NaI (cpm)			Bicron (uRem/hr)		Notes
Count time (min)	1 cm	1m	1 cm	1m	
1	7106	6576	5	4	Bry. Muesken #A224U cal'd 8/4/16 Lid. M 2241-Z #262737 Lid. 44-16 probe PR 11127 cal'd 8/4/16
1	7294	6390			

4. Sample Information:

Sample Area ID: SG-A1.1.1-5 7/2/16

Description by Depth:

Depth Interval (cm)	Soil Type (Org, clay, sand, etc.)	Soil Color	Sample ID	Sampling Description (Surface litter type/depth, sample depth retention, refusal, stone or rock, topography, erosion features)
0-15	topsoil	dk brown	SG-A1.1.1	rocky, roots
15-30	topsoil	dk brown	SG-A1.1.2	rocky, roots
30-60	topsoil	dk brown	SG-A1.1.3	rocky, roots
60-100	topsoil	dk brown	SG-A1.1.4	rocky, roots
0-15	topsoil	dk brown	SG-A1.1.5	rocky, roots

Sample Recorded on Laboratory COC form and Container Labeled: ☒ (Y) ☐ (N)



SAMPLE LOCATION DATA SHEET

Date: 12/21/15 Project: NYSE RDA Name: J. Brown

Weather: cold, windy, 36's

1. Sample Area (SA):

SA Designation: BG-A1 Description: Geotextile off Thompson Drive
 SA Origin Location: _____ Coord. System: _____
 SA Land Mark Description: _____ Coord: _____

2. Sample Location Data:

Sample Area ID: BG-A1.2 Matrix: Soil

Location Coord: 42°25'55.35" N 78°38'16.45" W

Alternate Location Measurements (distance from SA origin and Local Coord.)

X Dist. from Origin (0,0) _____ Y Dist. from Origin: _____

Site Sketch Attached (Yes) (NO)

Sample Location Description: flat, open, ~3" snow (cleared), grass (cleared)

Canopy Type: open Land Use: hiking, etc. Soil Moisture (Wet, dry, etc.): damp

3. Location Radiation Readings:

2x2 NaI (cpm)			Bicron (uRem/hr)		Notes
Count time (min)	1 cm	1m	1 cm	1m	
1	6659	6256	5	4	Bicron Monitor # A2241, 0.1 dose Burlington 2241 2# 242737 with 44-10 pairs, 18 111127 cal d 7/2/16
1	6685	6193			

4. Sample Information:

Sample Area ID: BG-A1.2.1-2

Description by Depth:

Depth Interval (cm)	Soil Type (Org, clay, sand, etc.)	Soil Color	Sample ID	Sampling Description (Surface litter type/depth, sample depth retention, refusal, stone or rock, topography, erosion features)
0-15	topsoil	dk brown	BG-A1.2.1	rocky, roots
15-30	topsoil	dk brown	BG-A1.2.2	rocky, roots

Sample Recorded on Laboratory COC form and Container Labeled: (Y) (N)

10/20/15

SAMPLE LOCATION DATA SHEET

Date: 12/21/15 Project: N45LRDH Name: J. Brown

Weather: cloudy, 30's

1. Sample Area (SA):

SA Designation: BG-A1 Description: open field off Thruway Drive
SA Origin Location: _____ Coord. System: _____
SA Land Mark Description: _____ Coord: _____

2. Sample Location Data:

Sample Area ID: BG-A1.3 Matrix: Soil
Location Coord: 42°25'55.47"N 75°38'16.32"W

Alternate Location Measurements (distance from SA origin and Local Coord.)

X Dist. from Origin (0,0) _____ Y Dist. from Origin: _____

Site Sketch Attached (Yes) (NO)

Sample Location Description: flat, open area (wooded), grass (clearing)

Canopy Type: open Land Use: hiking, etc. Soil Moisture (Wet, dry, etc.): _____

3. Location Radiation Readings:

2x2 NaI (cpm)			Bicron (uRem/hr)		Notes
Count time (min)	1 cm	1m	1 cm	1m	
1	6742	6188	5	4	Bicron MicroRem #43246 cal. due 1/4/16
1	6703	6103			Ludlum 2241 Z # 262731
					cal 44-10 probe # PR 81127 cal. due 1/2/16

4. Sample Information:

Sample Area ID: BG-A1.3.1-2

Description by Depth:

Depth Interval (cm)	Soil Type (Org; clay; sand, etc.)	Soil Color	Sample ID	Sampling Description (Surface litter type/depth, sample depth retention, refusal, stone or rock, topography, erosion features)
0-15	topsoil	dk brown	BG-A1.3.1	rocky, roots
15-30	topsoil	dk brown	BG-A1.3.2	rocky, roots

Sample Recorded on Laboratory COC form and Container Labeled: (Y) (N)



MVT TECHNICAL SERVICES

SAMPLE LOCATION DATA SHEET

Date: 12/2/15 Project: NHSLKDA Name: J. BrowningWeather: cold, 20's, drizzle

1. Sample Area (SA):

SA Designation: BG-A1 Description: open field off Thimblewood Dr.
 SA Origin Location: _____ Coord. System: _____
 SA Land Mark Description: _____ Coord: _____

2. Sample Location Data:

Sample Area ID: BG-A1.4 Matrix: SoilLocation Coord: 42°25'55.44" N 78°38'16.22" W

Alternate Location Measurements (distance from SA origin and Local Coord.)

X Dist. from Origin (0,0) _____ Y Dist. from Origin: _____

Site Sketch Attached (Yes) ☒ (NO)Sample Location Description: flat, open ~ 3" snow (cleared), grass (cleared)Canopy Type: open Land Use: hiking, etc. Soil Moisture (Wet, dry, etc.): dry

3. Location Radiation Readings:

2x2 NaI (cpm)			Bicron (uRem/hr)		Notes
Count time (min)	1 cm	1m	1 cm	1m	
1	6484	6382	5	4	Bureau Micro-R-M # A2241A cal date 8/7/16 In 1/1/16 2241-2 #202737 with 44-10 probe # PR111127 cal date 7/2/16
1	6582	6382			

4. Sample Information:

Sample Area ID: BG-A1.4.1-2

Description by Depth:

Depth Interval (cm)	Soil Type (Org; clay; sand, etc.)	Soil Color	Sample ID	Sampling Description (Surface litter type/depth, sample depth retention, refusal, stone or rock, topography, erosion features)
0-5	top soil	dk brown	BG-A1.4.1	rocky, roots
5-30	top soil	dk brown	BG-A1.4.2	rocky, roots

Sample Recorded on Laboratory COC form and Container Labeled: ☒ (Y) ☐ (N)

10/20/15

SAMPLE LOCATION DATA SHEET

Date: 1/12/16 Project: WISCONSIN Name: J. B. B.

Weather: cloudy, 30s

1. Sample Area (SA):

SA Designation: BGA1 Description: open field off Thimble Dr
SA Origin Location: _____ Coord. System: _____
SA Land Mark Description: _____ Coord: _____

2. Sample Location Data:

Sample Area ID: BGA1.5 Matrix: Soil
Location Coord: 42°25'55.26" N 78°38'16.1" W

Alternate Location Measurements (distance from SA origin and Local Coord.)
X Dist. from Origin (0,0) _____ Y Dist. from Origin: _____

Site Sketch Attached (Yes) (NO)

Sample Location Description: flat, open, 3" snow (cleared), grass (cleared)

Canopy Type: Open Land Use: hiking, etc Soil Moisture (Wet, dry, etc.): damp

3. Location Radiation Readings:

2x2 NaI (cpm)			Bieron (uRem/hr)		Notes
Count time (min)	1 cm	1m	1 cm	1m	
1	6728	6353	4	3	Bieron Micro-R-m # A2246 cal date 8/4/16 Ludlum 2241-2 # 262737 with 44-10 probe # 111127 cal date 9/2/16
1	6797	6404			

4. Sample Information:

Sample Area ID: BGA 1.5.1-2

Description by Depth:

Depth Interval (cm)	Soil Type (Org; clay; sand, etc.)	Soil Color	Sample ID	Sampling Description (Surface litter type/depth, sample depth retention, refusal, stone or rock, topography, erosion features)
0-5	topsoil	dk brown	BGA 1.5.1	rocky, roots
5-10	topsoil	dk brown	BGA 1.5.2	rocky, roots

Sample Recorded on Laboratory COC form and Container Labeled: (Y) (N)

Appendix E-
BGA 1 Static Survey Table

Background Area 1 Sampling Table

Date		Elevation				Location	Coordinates	
Collected	Sample	0-15 cm	15-30 cm	30-60 cm	60-100c cm			
12/21/15	BGA1.1.1	X				open field off Thornwood Drive	42° 25' 55.31" N	78° 38' 16.27" W
12/21/15	BGA1.1.2		X					
12/21/15	BGA1.1.3			X				
12/21/15	BGA1.1.4				X			
12/21/15	BGA1.1.5	X						
12/21/15	BGA1.2.1	X					42° 25' 55.35" N	78° 38' 16.45" W
12/21/15	BGA1.2.2		X					
12/21/15	BGA1.3.1	X					42° 25' 55.47" N	78° 38' 16.32" W
12/21/15	BGA1.3.2		X					
12/21/15	BGA1.4.1	X					42° 25' 55.44" N	78° 38' 16.22" W
12/21/15	BGA1.4.2		X					
12/21/15	BGA1.5.1	X					42° 25' 55.26" N	78° 38' 16.1" W
12/21/15	BGA1.5.2		X					

BGA 1.3 — 212 — BGA 1.4

furrowed off
area for prod
M. SERIDA
designated
background area

BGA 1.2

BGA 1.5

BGA 1.1

Drawing not
to scale.

Thornwood
↓

N →