

1. "The first step in the process of creating a new product is to identify a market need." (10/10/2018)

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 (6) (Fill in the number of containers for each test)			
Project/Site Name: _____		Fax #: _____		Should this sample be considered: _____ <-- Preservative Type (6) _____ Comments: Note: extra sample is required for sample specific QC			
Address: _____		_____					
Collected by: _____		Send Results To: _____					
Sample ID	*Date Collected (mm-dd-yy)	*Time Collected (Military) (hh:mm)	QC Code (1)	Field Filtered (2)	Sample Matrix (3)	TSC A Regulated (4)	per of
* For composites - indicate start and stop date/time							
5.6A.R.2.1A, 5.6A.R.2.1B	12-14-15						
5.6A.R.2.2A, 5.6A.R.2.2B	12-14-15						
5.6A.R.2.3.1A, 5.6A.R.2.3.1B	12-14-15						
5.6A.R.2.3.2A, 5.6A.R.2.3.2B	12-14-15						
5.6A.R.4.1A, 5.6A.R.4.1B	12-14-15						
5.6A.R.4.2A, 5.6A.R.4.2B	12-14-15						
5.6A.R.2.1A, 5.6A.R.2.1B	12-14-15						
5.6A.R.2.2A, 5.6A.R.2.2B	12-14-15						
5.6A.R.2.3.1A, 5.6A.R.2.3.1B	12-14-15						
5.6A.R.2.3.2A, 5.6A.R.2.3.2B	12-14-15						
TAT Requested: Normal: _____ Rush: _____ Specify: _____ (Subject to Surcharges)		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		
1			1			GEL PM:	
2			2			Method of Shipment: _____ 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=Not 5.) Sample Analysis Requested: Analytical method requested (i.e. 8260B, 6010B/7470A) and number of containers provided for each (i.e. 3260B - 3, 6010B/7470A - 1). 6.) Preservative Type: HA = 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 WHITE = LABORATORY YELLOW = FILE PINK = CLIENT						For Lab Receiving Use Only Custody Seal Intact? YES NO Cooler Temp: C	

Page: _____ of _____ Project #: GEL Quote #: COC Number (if): PO Number:		<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 2040 Savage Road Charleston, SC 29407 Phone: (843) 556-8171 Fax: (843) 766-1178					
Client Name:				Phone #:				Sample Analysis Requested (4) (Fill in the number of containers for each test)									
Project/Site Name:				Fax #:				Should this sample be considered _____ Preservative Type (6)									
Address:								Comments Note: extra sample is required for sample specific QC									
Collected by:				Send Results To:													
Sample ID		*Date Collected (mm-dd-yy)		*Time Collected (Military) (hhmm)		QC Code		Field Filtered (Y/N)		Sample Matrix (6)		Rad. dose (r)		TSC A. Regulated		Der. of	
* For Composites - indicate start and stop date/time																	
5. 5A.R.4.1A, 5.5A.R.4.1B		12-14-15															
5. 5A.R.4.2A, 5.5A.R.4.2B		12-14-15															
5. 1B.R.1.1A, 5.1B.R.1.1B		12-14-15															
5. 1B.R.1.2A, 5.1B.R.2.2B		12-14-15															
5. 1B.R.2.1A, 5.1B.R.2.1B		12-14-15															
5. 1B.R.2.2A, 5.1B.R.2.2B		12-14-15															
5. 1A.R.2.1A, 5.1A.R.2.1B		12-14-15															
5. 1A.R.2.2A, 5.1A.R.2.2B		12-14-15															
5. 1A.R.2.3		12-14-15															
5. 2A.R.2.7		12-14-15															
TAT Requested: Normal: _____ Rush: _____ Specify: _____ (Subject to Surrogate)				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 * Each line is 1 sample - A 500mL, B 500mL																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:					
												Method of Shipment:					
												Date Shipped:					
												Airbill #:					
												Airbill #:					
1.) Chain of Custody Number - Client Determined 2.) QC Codes: N = Normal Sample, TB = Trip Blank, FH = Field Duplicate, EH = Equipment Blank, MS = Matrix Spike Sample, MSD = Matrix Spike Duplicate Sample, G = Grab, C = Composite 3.) Field Filtered: For liquid matrices, indicate with a - V - 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 = Mixed Liquid, SO = Soil, SD = Sediment, SL = Sludge, SS = Solid Waste, O = Oil, E = Effluent, P = Pulp, U = Urine, F = Fecal, N = N/A 5.) Sample Analysis Requested: Analytical method requested (i.e. 8260D, 6010D/7470A) and number of containers provided for each (i.e. 8260D - 3, 6010D/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 WHITE = LABORATORY YELLOW = FILE PINK = CLIENT																	
For Lab Receiving Use Only Custody Seal Intact? YES NO Cooler Temp: _____ C																	

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 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) Comments: Note: extra sample is required for sample specific QC																			
Address: _____																							
Collected by: _____		Send Results To: _____																					
Sample ID <small>*For unpassives - indicate start and stop date/time</small>	Date Collected (mm-dd-yy)	Time Collected (Military)	QC Code (3)	Field Filtered (6)	Sample Matrix (6)	Radon Detected Yes	TSC A Regulated Per 61																
5.6A.R.1.1	12/17/15																						
5.6A.R.1.2	12/17/15																						
5.6A.R.1.3	12/17/15																						
5.6A.R.1.4	12/17/15																						
5.6A.R.1.5	12/17/15																						
5.6A.R.1.6	12/17/15																						
5.5A.R.1.1	12/17/15																						
5.5A.R.1.2	12/17/15																						
5.5A.R.1.3	12/17/15																						
5.5A.R.1.4	12/17/15																						
TAT Requested: Normal		Rush: _____		Specify: _____ (Subject to Surcharges)		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, P = Filter, P = Wipe, U = Urine, E = Fecal, N = F 5) Sample Analysis Requested: Analytical method requested (i.e. 8240B, 6010D/7470A) and number of containers requested for each (i.e. 3240B - 3/6010D/7470A - 1) 6) Preservative Type: HA = Hydrochloric Acid, NI = Nitric Acid, SL = Sodium Hydroxide, SA = Sulfuric Acid, AA = Ascorbic Acid, HX = Hexanoic, 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				

**App E –
Sub-Area 5.5 - Field Survey Checklist**

The MJW Companies

GPS Field Survey Checklist

The following field survey checklist is used once the survey team has walked to the location that they will begin a GPS survey. This checklist is intended to verify none of the cables or settings changed or cables came loose between the initial setup location and the field survey location. Complete step 9 once the current walkover segment is complete.

1. JB Verify the Ludlum Meter is in Rate mode
2. JB Verify that the Ludlum Meter is alternating display of "DUP" and "Value"
3. JB Set Menu 1 to "Status" and Menu 2 to "Receiver"
4. JB Verify that Antenna states "External"
5. JB Set Menu 1 to "Data"
6. JB Name a file to start the current survey and start the data logger

Filename: 12 17 15 5-5 a

- 12 17 15 5-1 a
7. JB Set Menu 1 to "Status" and Menu 2 to "Sensor"
 8. JB Verify that the sensor field is reading the same as the display on the Ludlum
 9. JB When finished, set Menu 1 to "Data" and close the current file.

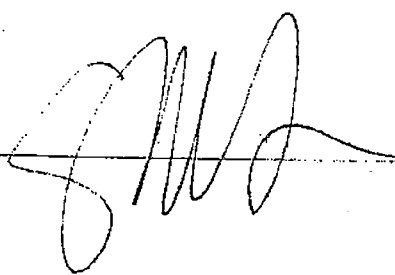
Name: John H. B.

Date: 12/17/15

The MJW Companies
GPS Initial Setup Checklist

1. ☒ Complete source check of Ludlum Meter
2. ☒ Power off Ludlum Meter
3. ☒ Verify Trimble is shutdown (not in suspend mode)
4. ☒ Connect the Serial Interface Adapter (SIA) to the Trimble Unit
5. ☒ Connect the Serial cable to the Ludlum Meter
6. ☒ Connect the Serial cable to the Trimble SIA
7. ☒ Connect external GPS antenna cable to the Trimble
8. ☒ Power on Ludlum Meter to Rate mode
9. ☒ Verify that the Ludlum Meter is alternating display of "DUP" and "Value"
10. ☒ Power on the Trimble and wait for it to completely boot
11. ☒ Launch TerraSync and wait for it to load and acquire satellites
12. ☒ Set Menu 1 to "Status" and Menu 2 to "Receiver"
13. ☒ Verify that Antenna states "External"
14. ☒ Set Menu 1 to "Data"
15. ☒ Name a test file and start the data logger
16. ☒ Set Menu 1 to "Status" and Menu 2 to "Sensor"
17. ☒ Verify that the sensor field is reading the same as the display on the Ludlum
18. ☒ Set Menu 1 to "Data" and close the current file.

Name: _____



Date: _____

12.17.15
08:41 AM

App E-
Sub-Area 5.5- Instrument Field Sheets

MJSVTS
MJSV TECHNICAL SERVICES

Rev 1 10/18/15

Instrument Field Response Check Log

1. Instrument Information¹

Ratemeter: Make/Model:

Ludlum 2241-2

Serial No.

206098

Cal. Due Date:

09/01/16

Detector 1: Make/Model:

Ludlum 44-10

Serial No.

PR112142

Cal. Due Date:

Bicron MicroRem Meter:

Serial No.

2. Check Source Information:

Source 1 Isotope: Th-232 Serial No.: 111Activity: 20.1 units: NCAssay Date: 12/30/10

Response Acceptance Range (+/-20%): uRem/hr +20% _____

uRem/hr -20% _____

net cpm + 20% 53198net cpm -20% 35866Source 2 Isotope: Cs-137 Serial No.: 119E23-12Activity: 0.02 units: NCAssay Date: NA

Response Acceptance Range (+/-20%): uRem/hr +20% _____

uRem/hr -20% _____

net cpm + 20% 13273net cpm -20% 8899

3. Technician/Worker Performing Checks:

Name: J. Edwards

Title:

RCTDate: 12/17/15Time: 0815

4. Site or Location:

Site/Job:

Area 5.5-5.6

Location Description:

woods

GPS Coordinates (when required):

X-Coord:

Y-Coord:

Instrument Field Response ²					Use Acceptance Criteria				Remarks		
Meter	Bkg Cnt Time	Bkg Counts (cpm) or uRem/hr	Source Cnt Time	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 min	9274 cpm	1 min	44808 cpm	Y	Y	Y	0819	49.4°	Th-232	DE
Ratemeter	"	"	1 min	11109 cpm	Y	Y	Y	0823	49.4°	Cs-137	DE
Ratemeter	1 min	9433 cpm	1 min	46391 cpm	Y	Y	Y	1033	50.1°	Th-232	DE
Ratemeter	"	"	1 min	11440 cpm	Y	Y	Y	1040	50.1°	Cs-137	DE
Ratemeter	1 min	7804 cpm	1 min	44433 cpm	Y	Y	Y	1400	43.5°	Th-232	TB
Ratemeter	"	"	1 min	4743 cpm	Y	Y	Y	1400	43.5°	Cs-137	TB
Bicron	NA	5 pmu/hr	NA	30 pmu/hr	Y	Y	Y	1035	50.3°	Th-232	DE
Bicron	NA	N/A	NA	N/A							N/A
Bicron	NA	5 uRem/hr	NA	30 pmu/hr	Y	Y	Y	1400	43.5°	Th-232	TB

1. 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.

2. 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

App E –
Sub-Area 5.5 - Sample Data Sheets

SAMPLE LOCATION DATA SHEET

Date: 12-17-15 Project: NY56RDA Name: Brown
Weather: 40's, drizzle

1. Sample Area (SA):

SA Designation: 5.5A Description: wooded lot
SA Origin Location: _____ Coord. System: _____
SA Land Mark Description: _____ Coord: _____

2. Sample Location Data:

Sample Area ID: 5.5A.R.1 Matrix: Seif

Location Coord: N 42° 31' 16.03" W 78° 58' 39.95"

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

X Dist. from Origin (0,0) N/A Y Dist. from Origin: N/A

Site Sketch Attached (Yes) ☒ (NO)

Sample Location Description: flat ground, some trees, dead leaves (chorel)

Canopy Type: partially 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	6867	7267	5	5	Bicron: WDLUM 2241-2 Serial # 206098 Cal due 09/01/16
1	6856	7155			2x2: WDLUM 44-10 Serial # PR112642 #
					Bicron cal due 2/18/16 Micro Rm #1487

4. Sample Information:

Sample Area ID: 5.5A.R.1.1-6

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	top soil	dk brown	5.5A.R.1.1	few roots
15-30	top soil	brown	5.5A.R.1.2	few roots
30-60	top soil / sand	H. brown	5.5A.R.1.3	more roots
60-100	top soil / sand	H. brown	5.5A.R.1.4	more roots
0-15	top soil	dk brown	5.5A.R.1.5	few roots
60-100	top soil / sand	H. brown	5.5A.R.1.6	more roots

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

SAMPLE LOCATION DATA SHEET

Date: 12-14-15 Project: NYSERDA Name: Teri Brown

Weather: clear, partly cloudy, 60°

1. Sample Area (SA):

SA Designation: 5.5.2.18 Description: Woods
SA Origin Location: _____ Coord. System: _____
SA Land Mark Description: _____ Coord: _____

2. Sample Location Data:

Sample Area ID: 5.5.2.2 Matrix: soil

Location Coord: N 42° 31' 15.80" W 78° 58' 40.20"

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

X Dist. from Origin (0,0) N/A Y Dist. from Origin: N/A

Site Sketch Attached (Yes) ☒ NO

Sample Location Description: trees, leaves

Canopy Type: Open Land Use: Hiking 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	6286	5997	7	6	Bicron - LUDLUM 2241-2 Serial # 262737 Cal due 9/2/16
1	6119	5868			2x2 - LUDLUM 44-10 Serial # PR111127 #A2240 Cal due 8/4/16

4. Sample Information:

Sample Area ID: 5.5.A.2.2.1-2

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	Soil	Brown	5.5.A.2.2.1	loose, small roots, some gray (ash?)
15-30	Soil	light Brown	5.5.A.2.2.2	small roots

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

SAMPLE LOCATION DATA SHEET

Date: 12-14-15 Project: NYSERDA Name: Ten Brown

Weather: _____

1. Sample Area (SA)

SA Designation: 5.5 Description: Woods
SA Origin Location: _____ Coord. System: _____
SA Land Mark Description: _____ Coord: _____

2. Sample Location Data:

Sample Area ID: 5.5.R.3 Matrix: Soil

Location Coord: N 42° 31' 15.84" W 78° 58' 39.72"

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

X Dist. from Origin (0,0) N/A Y Dist. from Origin: N/A

Site Sketch Attached (Yes) (NO)

Sample Location Description: trees very light brown, leaves

Canopy Type: Open Land Use: Hiking 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	6266	6066	6	5	Bicron - LUDLUM 2241-2 Serial # 262737 Cal due 9/2/16
1	6430	5915			2x2 - LUDLUM 44-10 Serial #PR11127 #A2240 Cal due 8/4/16

4. Sample Information:

Sample Area ID: 5.5A.R.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	Soil	Brown	5.5A.R.3.1	loose, small roots
15-30	Soil	light brown	5.5A.R.3.2	small roots, rocks

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

10/20/15

SAMPLE LOCATION DATA SHEET

Date: 12-14-15 Project: NYSEDA Name: Toni Brown

Weather: calm, partly cloudy, 60°F

1. Sample Area (SA):

SA Designation: 5.SA Description: Woods
SA Origin Location: _____ Coord. System: _____
SA Land Mark Description: _____ Coord: _____

2. Sample Location Data:

Sample Area ID: 5.SA.R.4 Matrix: Soil

Location Coord: N 72° 31' 15" W 05° W 78° 58' 40" 00'

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

X Dist. from Origin (0,0) N/A Y Dist. from Origin: N/A

Site Sketch Attached (Yes) (NO)

Sample Location Description: trees, leaves, some saplings,

Canopy Type: Open Land Use: Hiking 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	6258	6077	8	7	Bicron - LUDLUM 2241-2 Serial # 262737 Cal due 9/2/16
1	6286	5958			2x2 - LUDLUM 44-10 Serial # PR111127 #A2240 Cal due 8/4/16

4. Sample Information:

Sample Area ID: 5.SA.R.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)
0-15	Soil	Brown	5.SA.R.4.1	Loway, small roots
15-30	Soil	light brown	5.SA.R.4.2	roots, rocks

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