

**TABLE 1**  
**FORMER IKENOUE F 28-65HN TANK BATTERY**  
**SOIL ANALYTICAL RESULTS SUMMARY TABLE**  
**CONTAMINANTS OF CONCERN**

Sample ID	Date Sampled	Depth	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	1, 2, 4-TMB (mg/kg)	1, 3, 5-TMB (mg/kg)	Naphthalene (mg/kg)	TPH <sup>(4)</sup> (mg/kg)	Barium (mg/kg)
<b>Residential SSL <sup>(1,2)</sup></b>			<b>1.2</b>	<b>490</b>	<b>5.8</b>	<b>58</b>	<b>30</b>	<b>27</b>	<b>2</b>	<b>500</b>	<b>15,000</b>
<b>Protection of Groundwater SSL <sup>(1,2,3)</sup></b>			<b>0.0026</b>	<b>0.69</b>	<b>0.78</b>	<b>9.9</b>	<b>0.0081</b>	<b>0.0087</b>	<b>0.0038</b>	<b>500</b>	<b>82</b>
AST01 @ 0-6"	8/9/2023	0-6 in. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	NA
AST03-B @ 2.5'	8/9/2023	2.5 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	0.0066	<0.0050	<0.0038	<50	70.1
AST03-S @ 1'	8/9/2023	1 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<b>118</b>
SEP01-FL @ 4'	8/16/2023	4 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	NA
SEP02-FL @ 2.5'	8/8/2023	2.5 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	NA
SEP02-DL @ 3.5'	8/8/2023	3.5 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	NA
PWV01-B @ 3.5'	8/9/2023	3.5 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<b>162</b>
PWV01-W @ 1.5'	8/9/2023	1.5 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	0.0075	<0.0050	<0.0038	<50	<b>241</b>
WC01 @ 2.5'	8/8/2023	2.5 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	160	<b>213</b>
SEP01-DL-B @ 3.5'	8/8/2023	3.5 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	34.4
SEP01-DL-N @ 2.5'	8/8/2023	2.5 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<b>181</b>
SEP01-DL-E @ 2.5'	8/8/2023	2.5 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<b>114</b>
SEP01-DL-S @ 2.5'	8/8/2023	2.5 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<b>90.7</b>
SEP01-DL-W @ 2.5'	8/8/2023	2.5 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<b>103</b>
AST02-B @ 1'	8/9/2023	1 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<b>89.1</b>
AST02-W @ 6"	8/9/2023	6 in. bgs	<0.0020	<0.0050	<0.0050	<0.010	<b>0.070</b>	<b>0.047</b>	<0.0038	<50	<b>87.7</b>
SS01 @ 3'	8/16/2023	3 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	NA
SS02 @ 6"	8/16/2023	6 in. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	NA
SS03 @ 6"	8/16/2023	6 in. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	NA
SS04 @ 6"	8/16/2023	6 in. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	NA
SS05 @ 6"	8/16/2023	6 in. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	NA

**Notes:**

- Compounds referenced from the ECMC 2 CCR 404-1, Table 915-1, effective January 15, 2021.
- Soil Screening Levels (SSL) referenced from EPA Regional Screening Levels (EPA RSLs) for Chemical Contaminants at Superfund Sites, effective November 2020.
- SSLs are applicable if a pathway for communication with groundwater is present.
- Value calculated by adding TPH-GRO, TPH-DRO, and TPH-ORO concentrations.  
ECMC = Colorado Energy and Carbon Management Commission  
(<) = Analytical result is less than the indicated laboratory reporting limit.  
TPH-GRO = Total petroleum hydrocarbons - gasoline range organics  
TPH-DRO = Total petroleum hydrocarbons - diesel range organics  
TPH-ORO = Total petroleum hydrocarbons - oil range organics  
mg/kg = Milligrams per kilogram  
TMB = Trimethylbenzene  
NA = Constituent not analyzed  
ft. = Feet  
in. = Inches  
bgs = Below ground surface  
**BOLD** = Metal analytical result is in exceedance of applicable standard but below 1.25x background concentrations.  
**BOLD** = Analytical result is in exceedance of applicable standard.  
= Source material characterization sample, excavated and transported off site for disposal.

**TABLE 2**  
**FORMER IKENOUE F 28-65HN TANK BATTERY**  
**SOIL ANALYTICAL RESULTS SUMMARY TABLE**  
**INORGANIC COMPOUNDS**

Sample ID	Date Sampled	Depth	pH (units)	EC (mmhos/cm)	SAR (units)	Boron (mg/L)
<b>Soil Suitability for Reclamation Standard <sup>(1)</sup></b>			<b>6-8.3</b>	<b>&lt;4</b>	<b>&lt;6</b>	<b>2</b>
AST03-B @ 2.5'	8/9/2023	2.5 ft. bgs	7.80	0.531	0.0514	1.43
AST03-S @ 1'	8/9/2023	1 ft. bgs	7.62	0.534	0.0284	1.01
SEP01-FL @ 4'	8/16/2023	4 ft. bgs	7.65	0.450	1.42	0.376
SEP02-FL @ 2.5'	8/8/2023	2.5 ft. bgs	7.90	0.257	0.0823	0.200
SEP02-DL @ 3.5'	8/8/2023	3.5 ft. bgs	8.04	0.256	0.0676	0.129
PWV01-B @ 3.5'	8/9/2023	3.5 ft. bgs	7.55	0.548	0.0355	0.954
PWV01-W @ 1.5'	8/9/2023	1.5 ft. bgs	7.61	0.411	0.0147	0.925
WC01 @ 2.5'	8/8/2023	2.5 ft. bgs	7.41	0.528	1.88	0.565
SEP01-DL-B @ 3.5'	8/8/2023	3.5 ft. bgs	7.87	0.411	2.01	0.109
SEP01-DL-N @ 2.5'	8/8/2023	2.5 ft. bgs	7.69	0.407	0.351	0.0826
SEP01-DL-E @ 2.5'	8/8/2023	2.5 ft. bgs	7.80	0.581	1.94	0.0612
SEP01-DL-S @ 2.5'	8/8/2023	2.5 ft. bgs	7.68	0.524	2.17	0.417
SEP01-DL-W @ 2.5'	8/8/2023	2.5 ft. bgs	7.74	0.352	0.285	0.216
AST02-B @ 1'	8/9/2023	1 ft. bgs	8.04	0.859	0.0898	0.909
AST02-W @ 6"	8/9/2023	6 in. bgs	7.51	1.14	0.0632	1.11
SS06 @ 2.5'	8/16/2023	2.5 ft. bgs	7.95	0.274	0.277	0.187

**Notes:**

1. Compounds referenced from the ECMC 2 CCR 404-1, Table 915-1, effective January 15, 2021.

ECMC = Colorado Energy and Carbon Management Commission

EC = Electrical conductivity

SAR = Sodium adsorption ratio

mmhos/cm = millimhos per centimeter

mg/L = milligram per liter

ft. = Feet

in. = Inches

bgs = Below ground surface

  = Source material characterization sample, excavated and transported off site for disposal.

**TABLE 3**  
**FORMER IKENOUYE F 28-65HN TANK BATTERY**  
**SOIL ANALYTICAL RESULTS SUMMARY TABLE**  
**ORGANIC COMPOUNDS - PAHs**

Sample ID	Date Sampled	Depth	Acenaphthene (mg/kg)	Anthracene (mg/kg)	Benz(a) (mg/kg)	Benzo(a) (mg/kg)	Benzo(b) (mg/kg)	Benzo(k) (mg/kg)	Chrysene (mg/kg)	A,H (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	1,2,3-CD (mg/kg)	Pyrene (mg/kg)	1-M (mg/kg)	2-M (mg/kg)
Residential SSL <sup>(1,2)</sup>			360	1,800	1.1	0.11	1.1	11	110	0.11	240	240	1.1	180	18	24
Protection of Groundwater SSL <sup>(1,2,3)</sup>			0.55	5.8	0.011	0.24	0.3	2.9	9	0.096	8.9	0.54	0.98	1.3	0.006	0.019
AST01 @ 0-6"	8/9/2023	0-6 in. bgs	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
AST03-B @ 2.5'	8/9/2023	2.5 ft. bgs	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
AST03-S @ 1'	8/9/2023	1 ft. bgs	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
SEP01-FL @ 4'	8/16/2023	4 ft. bgs	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
SEP02-FL @ 2.5'	8/8/2023	2.5 ft. bgs	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
SEP02-DL @ 3.5'	8/8/2023	3.5 ft. bgs	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
PWV01-B @ 3.5'	8/9/2023	3.5 ft. bgs	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
PWV01-W @ 1.5'	8/9/2023	1.5 ft. bgs	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
WC01 @ 2.5'	8/8/2023	2.5 ft. bgs	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
SEP01-DL-B @ 3.5'	8/8/2023	3.5 ft. bgs	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
SEP01-DL-N @ 2.5'	8/8/2023	2.5 ft. bgs	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
SEP01-DL-E @ 2.5'	8/8/2023	2.5 ft. bgs	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
SEP01-DL-S @ 2.5'	8/8/2023	2.5 ft. bgs	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
SEP01-DL-W @ 2.5'	8/8/2023	2.5 ft. bgs	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
AST02-B @ 1'	8/9/2023	1 ft. bgs	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
AST02-W @ 6"	8/9/2023	6 in. bgs	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500

**Notes:**

- Compounds referenced from the ECMC 2 CCR 404-1, Table 915-1, effective January 15, 2021.
- Soil Screening Levels (SSL) referenced from EPA Regional Screening Levels (EPA RSLs) for Chemical Contaminants at Superfund Sites, effective November 2020.
- SSLs are applicable if a pathway for communication with groundwater is present.

ECMC = Colorado Energy and Carbon Management Commission

(<) = Analytical result is less than the indicated laboratory reporting limit.

PAHs = Polycyclic aromatic hydrocarbons

Benz(a) = Benzantrhacene

Benzo(a) = Benzopyrene

Benzo(b) = Benzo(a)fluoranthene

Benzo(k) = Benzo(a)fluoranthene

A,H = Dibenzoanthracene

1,2,3-CD = Indenopyrene

M = Methylnaphthalene

mg/kg = Milligrams per kilogram

ft. = Feet

in. = Inches

bgs = Below ground surface

  = Source material characterization sample, excavated and transported off site for disposal.

**TABLE 4**  
**FORMER IKENOUE F 28-65HN TANK BATTERY**  
**SOIL ANALYTICAL RESULTS SUMMARY TABLE**  
**METALS**

Sample ID	Date Sampled	Depth	Arsenic (mg/kg)	Barium (mg/kg)	Cadmium (mg/kg)	Chromium (VI) (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Nickel (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)	Zinc (mg/kg)
Residential SSL <sup>(1,2)</sup>			0.68	15,000	71	0.3	3,100	400	1,500	390	390	23,000
Protection of Groundwater SSL <sup>(1,2,3)</sup>			0.29	82	0.38	0.00067	46	14	26	0.26	0.8	370
AST03-B @ 2.5'	8/9/2023	2.5 ft. bgs	0.600	70.1	<0.200	<0.30 <sup>(4)</sup>	1.44	4.60	1.39	<0.260	0.0387	8.33
AST03-S @ 1'	8/9/2023	1 ft. bgs	0.873	118	<0.200	<0.30 <sup>(4)</sup>	2.08	4.63	1.79	<0.260	0.0454	9.95
PWV01-B @ 3.5'	8/9/2023	3.5 ft. bgs	0.599	162	<0.200	<0.30 <sup>(4)</sup>	1.77	3.50	1.64	<0.260	0.0236	7.87
PWV01-W @ 1.5'	8/9/2023	1.5 ft. bgs	0.864	241	<0.200	<0.30 <sup>(4)</sup>	1.42	4.43	1.60	<0.260	0.0310	8.40
WC01 @ 2.5'	8/8/2023	2.5 ft. bgs	0.526	213	<0.200	<0.30 <sup>(4)</sup>	3.17	8.43	1.61	<0.260	0.0590	8.60
AST02-B @ 1'	8/9/2023	1 ft. bgs	0.546	89.1	<0.200	<0.30 <sup>(4)</sup>	1.16	3.71	1.22	<0.260	0.0288	6.36
AST02-W @ 6"	8/9/2023	6 in. bgs	0.902	87.7	<0.200	<0.30 <sup>(4)</sup>	2.11	5.39	1.95	<0.260	0.0475	10.9
BKG01 @ 6"	8/9/2023	6 in. bgs	0.846	64.4	<0.200	<0.30 <sup>(4)</sup>	1.25	3.58	1.56	<0.260	0.0200	7.46
BKG01 @ 1'	8/9/2023	1 ft. bgs	0.603	73.2	<0.200	<0.30 <sup>(4)</sup>	0.998	3.50	1.60	<0.260	<0.0200	6.81
BKG01 @ 1.5'	8/9/2023	1.5 ft. bgs	1.27	81.3	<0.200	<0.30 <sup>(4)</sup>	0.991	4.53	1.76	<0.260	<0.0200	8.14
BKG01 @ 2.5'	8/9/2023	2.5 ft. bgs	0.923	113	<0.200	<0.30 <sup>(4)</sup>	1.48	4.76	1.79	<0.260	0.0336	8.64
BKG01 @ 3.5'	8/9/2023	3.5 ft. bgs	1.22	133	0.735	<0.30 <sup>(4)</sup>	7.23	28.6	1.94	0.692	0.449	25.4
BKG02 @ 6"	8/9/2023	6 in. bgs	0.737	99.7	0.273	<0.30 <sup>(4)</sup>	1.26	4.94	2.35	<0.260	0.0373	8.22
BKG02 @ 1'	8/9/2023	1 ft. bgs	1.10	67.0	<0.200	<0.30 <sup>(4)</sup>	2.12	6.02	1.46	<0.260	0.0352	7.42
BKG02 @ 1.5'	8/9/2023	1.5 ft. bgs	0.811	89.8	<0.200	<0.30 <sup>(4)</sup>	1.48	4.45	1.38	<0.260	0.0347	7.23
BKG02 @ 2.5'	8/9/2023	2.5 ft. bgs	1.16	70.1	0.252	<0.30 <sup>(4)</sup>	3.06	10.9	1.84	<0.260	0.116	16.2
BKG02 @ 3.5'	8/9/2023	3.5 ft. bgs	0.966	111	0.316	<0.30 <sup>(4)</sup>	7.09	23.4	1.77	0.427	0.329	18.7
Highest Root Zone Background Concentration (6 in - 2.5 ft) <sup>(5)</sup>			1.27	113	0.273	0.30	3.06	10.9	2.35	0.260	0.0373	16.2
1.25x Root Zone Background Concentration (6 in - 2.5 ft)			1.59	141	0.341	0.38	3.83	13.6	2.94	0.325	0.0466	20.3
Highest Background Concentration (3.5 foot) <sup>(5)</sup>			1.22	133	0.735	0.30	7.23	28.6	1.94	0.692	0.4490	25.4
1.25x Highest Background Concentration (3.5 foot)			1.53	166	0.919	0.38	9.04	35.8	2.43	0.865	0.5613	31.8

**Notes:**

- Compounds referenced from the ECMC 2 CCR 404-1, Table 915-1, effective January 15, 2021.
  - Soil Screening Levels (SSL) referenced from EPA Regional Screening Levels (EPA RSLs) for Chemical Contaminants at Superfund Sites, effective November 2020.
  - SSLs are applicable if a pathway for communication with groundwater is present.
  - Compound falls within ECMC Table 915-1 Footnote 9.
  - Non-detect background results accounted for in the mean background concentration by using the reporting limit.
- ECMC = Colorado Energy and Carbon Management Commission  
(<) = Analytical result is less than the indicated laboratory reporting limit.  
mg/kg = Milligrams per kilogram  
ft. = Feet  
in. = Inches  
bgs = Below ground surface  
**BOLD** = Analytical result is in exceedance of applicable standard.  
**BOLD** = Analytical result is in exceedance of applicable standard but below 1.25x background concentrations.  
= Source material characterization sample, excavated and transported off site for disposal.

**TABLE 5**  
**FORMER IKENOUYE F 28-65HN TANK BATTERY**  
**FIELD DATA SUMMARY TABLE**

Sample ID	Date Sampled	Depth	GPS Data <sup>(1)</sup> Latitude / Longitude		PDOP Value	VOC Concentration <sup>(2)</sup> (ppm)
AST01 @ 0-6"	8/9/2023	0-6 in. bgs	40.369088	-104.678516	1.0	0.6
AST03-B @ 2.5'	8/9/2023	2.5 ft. bgs	40.369042	-104.678417	0.8	5.6
AST03-N @ 1'	8/9/2023	1 ft. bgs	40.369054	-104.678416	0.7	0.5
AST03-E @ 1'	8/9/2023	1 ft. bgs	40.369049	-104.678388	0.8	0.4
AST03-S @ 1'	8/9/2023	1 ft. bgs	40.369034	-104.678410	0.7	4.4
AST03-W @ 1'	8/9/2023	1 ft. bgs	40.369034	-104.678439	0.7	0.3
SEP01-FL @ 4'	8/16/2023	4 ft. bgs	40.368563	-104.678337	0.8	1.2
SEP02-FL @ 2.5'	8/8/2023	2.5 ft. bgs	40.368713	-104.678399	0.8	0.1
SEP02-DL @ 3.5'	8/8/2023	3.5 ft. bgs	40.368770	-104.678400	0.9	0.1
PWV01-B @ 3.5'	8/9/2023	3.5 ft. bgs	40.369097	-104.678451	0.7	1.6
PWV01-N @ 1.5'	8/9/2023	1.5 ft. bgs	40.369102	-104.678449	0.8	0.4
PWV01-E @ 1.5'	8/9/2023	1.5 ft. bgs	40.369093	-104.678441	0.8	0.7
PWV01-S @ 1.5'	8/9/2023	1.5 ft. bgs	40.369094	-104.678454	0.8	0.4
PWV01-W @ 1.5'	8/9/2023	1.5 ft. bgs	40.369104	-104.678460	0.7	6.1
WC01 @ 2.5'	8/8/2023	2.5 ft. bgs	40.368672	-104.678380	1.0	99.8
SEP01-DL-B @ 3.5'	8/8/2023	3.5 ft. bgs	40.368657	-104.678378	0.9	6.7
SEP01-DL-N @ 2.5'	8/8/2023	2.5 ft. bgs	40.368693	-104.678386	0.8	0.3
SEP01-DL-E @ 2.5'	8/8/2023	2.5 ft. bgs	40.368667	-104.678362	0.9	0.1
SEP01-DL-S @ 2.5'	8/8/2023	2.5 ft. bgs	40.368644	-104.678363	0.9	0.9
SEP01-DL-W @ 2.5'	8/8/2023	2.5 ft. bgs	40.368658	-104.678395	0.9	0.1
ECD01 @ 0-6"	8/8/2023	0-6 in. bgs	40.368767	-104.678234	0.9	0.0
ECD02 @ 0-6"	8/8/2023	0-6 in. bgs	40.368721	-104.678230	0.9	0.0
ECD03 @ 0-6"	8/8/2023	0-6 in. bgs	40.368681	-104.678222	0.9	0.0
MH01 @ 0-6"	8/8/2023	0-6 in. bgs	40.368533	-104.678280	0.8	0.1
AST02-B @ 1'	8/9/2023	1 ft. bgs	40.369041	-104.678490	0.8	1.5
AST02-N @ 6"	8/9/2023	6 in. bgs	40.369052	-104.678500	0.8	0.7
AST02-E @ 6"	8/9/2023	6 in. bgs	40.369047	-104.678480	0.8	2.9
AST02-S @ 6"	8/9/2023	6 in. bgs	40.369025	-104.678461	0.8	1.4
AST02-W @ 6"	8/9/2023	6 in. bgs	40.369032	-104.678492	0.8	3.9
SS01 @ 3'	8/16/2023	3 ft. bgs	40.369035	-104.678498	0.7	1.0
SS02 @ 6"	8/16/2023	6 in. bgs	40.369033	-104.678522	0.8	0.1
SS03 @ 6"	8/16/2023	6 in. bgs	40.369005	-104.678488	0.8	0.0
SS04 @ 6"	8/16/2023	6 in. bgs	40.369044	-104.678482	0.8	1.7
SS05 @ 6"	8/16/2023	6 in. bgs	40.369054	-104.678501	0.8	1.5
SS06 @ 2.5'	8/16/2023	2.5 ft. bgs	40.369005	-104.678488	0.8	0.1
BKG01 @ 6"	8/9/2023	6 in. bgs	40.369192	-104.678644	0.9	0.0
BKG01 @ 1'	8/9/2023	1 ft. bgs	40.369192	-104.678644	0.9	0.3
BKG01 @ 1.5'	8/9/2023	1.5 ft. bgs	40.369192	-104.678644	0.9	0.2
BKG01 @ 2.5'	8/9/2023	2.5 ft. bgs	40.369192	-104.678644	0.9	0.4
BKG01 @ 3.5'	8/9/2023	3.5 ft. bgs	40.369192	-104.678644	0.9	1.1
BKG02 @ 6"	8/9/2023	6 in. bgs	40.369250	-104.678529	0.9	0.4

**TABLE 5**  
**FORMER IKENOUYE F 28-65HN TANK BATTERY**  
**FIELD DATA SUMMARY TABLE**

Sample ID	Date Sampled	Depth	GPS Data <sup>(1)</sup> Latitude / Longitude		PDOP Value	VOC Concentration <sup>(2)</sup> (ppm)
BKG02 @ 1'	8/9/2023	1 ft. bgs	40.369250	-104.678529	0.9	0.0
BKG02 @ 1.5'	8/9/2023	1.5 ft. bgs	40.369250	-104.678529	0.9	0.1
BKG02 @ 2.5'	8/9/2023	2.5 ft. bgs	40.369250	-104.678529	0.9	1.1
BKG02 @ 3.5'	8/9/2023	3.5 ft. bgs	40.369250	-104.678529	0.9	0.2

**Notes:**

1. Global Positioning System (GPS) data is provided in decimal degrees using North American Datum (NAD) 83 UTM Zone 13 North.

2. Volatile organic compound (VOC) concentrations are measured in the field using a photoionization detector (PID).

PDOP = Position Dilution of Precision

ppm = Parts per million

in. = Inches

ft. = Feet

bgs = Below ground surface

= Source material characterization sample, excavated and transported off site for disposal.

= Material excavated and transported off site for disposal.

## **ATTACHMENT A**

# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

August 22, 2023

Mark Longhurst

Tasman Geosciences

6855 W. 119th Ave.

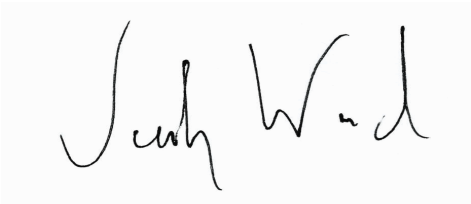
Broomfield, CO 80020

RE: PDC - Ikenouye F28-65HN Facility

Work Order #2308155

Enclosed are the results of analyses for samples received by Summit Scientific on 08/08/23 17:51. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Jacob Wood". The signature is written in a cursive, flowing style.

Jacob Wood For Paul Shrewsbury

President





Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**

08/22/23 14:37

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WC01@2.5'	2308155-01	Soil	08/08/23 12:55	08/08/23 17:51
SEP01-DL-B@3.5'	2308155-02	Soil	08/08/23 13:00	08/08/23 17:51
SEP01-DL-N@2.5'	2308155-03	Soil	08/08/23 13:05	08/08/23 17:51
SEP01-DL-W@2.5'	2308155-04	Soil	08/08/23 13:10	08/08/23 17:51
SEP01-DL-S@2.5'	2308155-05	Soil	08/08/23 13:15	08/08/23 17:51
SEP01-DL-E@2.5'	2308155-06	Soil	08/08/23 13:20	08/08/23 17:51

#### Case Narrative

Bryce Goldade requested Barium, Boron, SAR, EC, pH, & PAH be added to SEP01-DL-B@3.5', SEP01-DL-N@2.5', SEP01-DL-W@2.5', SEP01-DL-S@2.5', & SEP01-DL-E@2.5' on 8/15/2023.

This report includes those results.

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

Client: PDC PDC / Tasman		Send Data To: Project Manager: Mark Longhurst		Send Invoice To: Company: PDC Energy	
Address: 6855 W 119th Ave		E-Mail: mark.longhurst@PDCE.com		Project Name/Location:	
City/State/Zip: Broomfield / CO / 80220				AFE#:	
Phone: 303-487-1228		Project Name: Ikenauye F28-65HN Facility		PO/Billing Codes:	
Sampler Name: Jordan Hestmark		Project Number:		Contact: Mark Longhurst	

					Preservative				Matrix				Analysis Requested							Special Instructions	
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO3	None	Other _____	Water	Soil	Air-Canister #	Other _____	BTEXN - 8260B	TPH - (C6 - C36)	1,2,4 & 1,3,5 - TMB	Boron - HWS	pH, EC, SAR	PAHs	Metals	TDS, SO4, Cl	
1	WC01 @ 2.5'	8/8/23	1255	2			X			X			X	X	X	X	X	X	X		
2	SEPO1-DL-B @ 3.5'		1300	1									X	X	X						
3	SEPO1-DL-N @ 2.5'		1305	1									X	X	X						
4	SEPO1-DL-W @ 2.5'		1310	1									X	X	X						
5	SEPO1-DL-S @ 2.5'		1315	1									X	X	X						
6	SEPO1-DL-E @ 2.5'		1320	1									X	X	X						
7																					
8																					
9																					
10																					
11																					
12																					
13																					
14																					
15																					

Relinquished by: Jordan Hestmark	Date/Time: 8/8/23 1641	Received by: Tasman Lockbox	Date/Time: 8/8/23 1641	TAT Business Days	Field DO	Notes:
				Same Day	Field EC	
Relinquished by: Tasman Lockbox	Date/Time: 8/8/23 1751	Received by: [Signature]	Date/Time: 8/8/23 1751	1 Day	Field ORP	
				2 Days	Field pH	
Relinquished by:	Date/Time:	Received by:	Date/Time:	3 Days	Field Temp.	
				Standard	Field Turb.	
Temperature Upon Receipt: 9.1	Corrected Temperature: 9	IR gun #: 1	HNO3 lot #:			

S<sub>2</sub>

## Sample Receipt Checklist

S2 Work Order# 2308155Client: BoctasmanClient Project ID: TKenouye F28-65HN FacilityShipped Via: H.D./P.U./FedEx/UPS/USPS/Other ☐ Airbill #:                     

<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	-------------------------------------	--------------------------	--------------------------	--------------------------

Matrix (Check all that apply)

Air

☐

Soil/Solid

☐

Water

☐

Other

☐

Temp (°C)

9.1

Thermometer #

1

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? <sup>(1)</sup> NOTE: If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>on ICE</u>
If custody seals are present, are they intact? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are samples due within 48 hours present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>Same day</u>
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe <sup>2+</sup> ), Hexavalent Chromium (Cr <sup>6+</sup> , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out Completely? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact? <sup>(1)</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided? <sup>(1)</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received? <sup>(1)</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC? <sup>(1)</sup>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling)? <sup>(1)</sup> Note the type of preservative in the comments column – HCl, H <sub>2</sub> SO <sub>4</sub> , NaOH, HNO <sub>3</sub> , etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2? <sup>(1)</sup> Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Additional Comments (if any):				
<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.				

Custodian Printed Name

Date/Time

B.C.H.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/22/23 14:37

**WC01@2.5'**  
**2308155-01 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/08/23 12:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BGH0322	08/08/23	08/08/23	EPA 8260B	
Toluene	ND	0.0050		"	"	"	"	"	"	
Ethylbenzene	ND	0.0050		"	"	"	"	"	"	
Xylenes (total)	ND	0.010		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050		"	"	"	"	"	"	
Naphthalene	ND	0.0038		"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50		"	"	"	"	"	"	

Date Sampled: **08/08/23 12:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0384	96.1 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0480	120 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0422	105 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/08/23 12:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	160	50		mg/kg	1	BGH0323	08/08/23	08/08/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **08/08/23 12:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	11.6	92.4 %		30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/22/23 14:37

**WC01@2.5'**  
**2308155-01 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **08/08/23 12:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGH0329	08/09/23	08/09/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **08/08/23 12:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0335	101 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0162	48.6 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **08/08/23 12:55**


Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.565</b>	0.0100	mg/L	1	BGH0336	08/09/23	08/10/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **08/08/23 12:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

Summit Scientific



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/22/23 14:37

**WC01@2.5'**  
**2308155-01 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Arsenic	0.526	0.200	mg/kg dry	1	BGH0327	08/09/23	08/09/23	EPA 6020B
Barium	213	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	3.17	0.400	"	"	"	"	"	"
Lead	8.43	0.200	"	"	"	"	"	"
Nickel	1.61	0.400	"	"	"	"	"	"
Silver	0.0590	0.0200	"	"	"	"	"	"
Zinc	8.60	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **08/08/23 12:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGH0331	08/09/23	08/09/23	EPA 7196A	

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction**

Date Sampled: **08/08/23 12:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	20.8	0.0576	mg/L dry	1	BGH0321	08/08/23	08/09/23	EPA 6020B	
Magnesium	14.1	0.0576	"	"	"	"	"	"	
Sodium	45.3	0.0576	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **08/08/23 12:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.88	0.00100	units	1	BGH0404	08/10/23	08/10/23	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/22/23 14:37

**WC01@2.5'**  
**2308155-01 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **08/08/23 12:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	86.8		%	1	BGH0324	08/09/23	08/09/23	Calculation	

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **08/08/23 12:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.528	0.0100	mmhos/cm	1	BGH0351	08/09/23	08/09/23	EPA 120.1	

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

Date Sampled: **08/08/23 12:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.41		pH Units	1	BGH0352	08/09/23	08/09/23	EPA 9045D	

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*





Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/22/23 14:37

**SEP01-DL-B@3.5'**  
**2308155-02 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/08/23 13:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGH0322	08/08/23	08/08/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **08/08/23 13:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0430	107 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0447	112 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0460	115 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/08/23 13:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGH0323	08/08/23	08/08/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/08/23 13:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	11.5	92.0 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.





Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/22/23 14:37

**SEP01-DL-B@3.5'**  
**2308155-02 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **08/08/23 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGH0644	08/16/23	08/16/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **08/08/23 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0167	50.0 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0162	48.6 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **08/08/23 13:00**


Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.109</b>	0.0100	mg/L	1	BGH0665	08/16/23	08/18/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **08/08/23 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

Summit Scientific



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/22/23 14:37

**SEP01-DL-B@3.5'**  
**2308155-02 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Barium	34.4	0.400	mg/kg dry	1	BGH0636	08/16/23	08/17/23	EPA 6020B
--------	------	-------	-----------	---	---------	----------	----------	-----------

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction**

Date Sampled: **08/08/23 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	20.8	0.0528	mg/L dry	1	BGH0654	08/16/23	08/18/23	EPA 6020B	
Magnesium	11.9	0.0528	"	"	"	"	"	"	
Sodium	46.5	0.0528	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **08/08/23 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	2.01	0.00100	units	1	BGH0764	08/18/23	08/18/23	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **08/08/23 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	94.7		%	1	BGH0664	08/16/23	08/16/23	Calculation	

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **08/08/23 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.411	0.0100	mmhos/cm	1	BGH0725	08/17/23	08/17/23	EPA 120.1	

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

Date Sampled: **08/08/23 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/22/23 14:37

**SEP01-DL-B@3.5'**  
**2308155-02 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

pH	7.87	pH Units	1	BGH0724	08/17/23	08/17/23	EPA 9045D
----	------	----------	---	---------	----------	----------	-----------

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/22/23 14:37

**SEP01-DL-N@2.5'**  
**2308155-03 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/08/23 13:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGH0322	08/08/23	08/08/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **08/08/23 13:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0386	96.6 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0418	105 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0474	118 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/08/23 13:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGH0323	08/08/23	08/08/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/08/23 13:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	10.5	84.2 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/22/23 14:37

**SEP01-DL-N@2.5'**  
**2308155-03 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **08/08/23 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGH0644	08/16/23	08/16/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **08/08/23 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0169	50.6 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0159	47.8 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **08/08/23 13:05**


Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.0826</b>	0.0100	mg/L	1	BGH0665	08/16/23	08/18/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **08/08/23 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

Summit Scientific



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/22/23 14:37

**SEP01-DL-N@2.5'**  
**2308155-03 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Barium	181	0.400	mg/kg dry	1	BGH0636	08/16/23	08/17/23	EPA 6020B
--------	-----	-------	-----------	---	---------	----------	----------	-----------

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction**

Date Sampled: **08/08/23 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	27.4	0.0600	mg/L dry	1	BGH0654	08/16/23	08/18/23	EPA 6020B	
Magnesium	14.3	0.0600	"	"	"	"	"	"	
Sodium	9.10	0.0600	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **08/08/23 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.351	0.00100	units	1	BGH0764	08/18/23	08/18/23	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **08/08/23 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	83.4		%	1	BGH0664	08/16/23	08/16/23	Calculation	

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **08/08/23 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.407	0.0100	mmhos/cm	1	BGH0725	08/17/23	08/17/23	EPA 120.1	

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

Date Sampled: **08/08/23 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/22/23 14:37

**SEP01-DL-N@2.5'**  
**2308155-03 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

pH	7.69	pH Units	1	BGH0724	08/17/23	08/17/23	EPA 9045D
----	------	----------	---	---------	----------	----------	-----------

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/22/23 14:37

**SEP01-DL-W@2.5'**  
**2308155-04 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/08/23 13:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGH0322	08/08/23	08/08/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **08/08/23 13:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0431	108 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0400	100 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0455	114 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/08/23 13:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGH0323	08/08/23	08/08/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/08/23 13:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	10.8	86.2 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.





Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/22/23 14:37

**SEP01-DL-W@2.5'**  
**2308155-04 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **08/08/23 13:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGH0644	08/16/23	08/16/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **08/08/23 13:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0195	58.5 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0160	48.1 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **08/08/23 13:10**


Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.216</b>	0.0100	mg/L	1	BGH0665	08/16/23	08/18/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **08/08/23 13:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

Summit Scientific



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/22/23 14:37

**SEP01-DL-W@2.5'**  
**2308155-04 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Barium	103	0.400	mg/kg dry	1	BGH0636	08/16/23	08/17/23	EPA 6020B
--------	-----	-------	-----------	---	---------	----------	----------	-----------

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction**

Date Sampled: **08/08/23 13:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	30.4	0.0551	mg/L dry	1	BGH0654	08/16/23	08/18/23	EPA 6020B	
Magnesium	15.8	0.0551	"	"	"	"	"	"	
Sodium	7.78	0.0551	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **08/08/23 13:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.285	0.00100	units	1	BGH0764	08/18/23	08/18/23	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **08/08/23 13:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	90.7		%	1	BGH0664	08/16/23	08/16/23	Calculation	

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **08/08/23 13:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.352	0.0100	mmhos/cm	1	BGH0725	08/17/23	08/17/23	EPA 120.1	

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

Date Sampled: **08/08/23 13:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/22/23 14:37

**SEP01-DL-W@2.5'**  
**2308155-04 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

pH	7.74	pH Units	1	BGH0724	08/17/23	08/17/23	EPA 9045D
----	------	----------	---	---------	----------	----------	-----------

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/22/23 14:37

**SEP01-DL-S@2.5'**  
**2308155-05 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/08/23 13:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGH0322	08/08/23	08/08/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **08/08/23 13:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0414	104 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0415	104 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0496	124 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/08/23 13:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGH0323	08/08/23	08/08/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/08/23 13:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	10.7	85.8 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/22/23 14:37

**SEP01-DL-S@2.5'**  
**2308155-05 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **08/08/23 13:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGH0644	08/16/23	08/16/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **08/08/23 13:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0212	63.7 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0207	62.1 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **08/08/23 13:15**

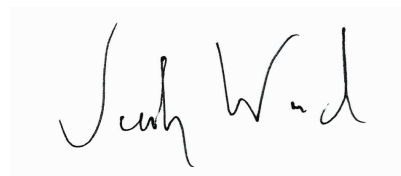
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.417</b>	0.0100	mg/L	1	BGH0665	08/16/23	08/18/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **08/08/23 13:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

Summit Scientific



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/22/23 14:37

**SEP01-DL-S@2.5'**  
**2308155-05 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Barium	90.7	0.400	mg/kg dry	1	BGH0636	08/16/23	08/17/23	EPA 6020B
--------	------	-------	-----------	---	---------	----------	----------	-----------

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction**

Date Sampled: **08/08/23 13:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	27.5	0.0555	mg/L dry	1	BGH0654	08/16/23	08/18/23	EPA 6020B	
Magnesium	24.0	0.0555	"	"	"	"	"	"	
Sodium	64.5	0.0555	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **08/08/23 13:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	2.17	0.00100	units	1	BGH0764	08/18/23	08/18/23	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **08/08/23 13:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	90.0		%	1	BGH0664	08/16/23	08/16/23	Calculation	

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **08/08/23 13:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.524	0.0100	mmhos/cm	1	BGH0725	08/17/23	08/17/23	EPA 120.1	

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

Date Sampled: **08/08/23 13:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/22/23 14:37

**SEP01-DL-S@2.5'**  
**2308155-05 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

pH	7.68	pH Units	1	BGH0724	08/17/23	08/17/23	EPA 9045D
----	------	----------	---	---------	----------	----------	-----------

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/22/23 14:37

**SEP01-DL-E@2.5'**  
**2308155-06 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/08/23 13:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGH0322	08/08/23	08/08/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **08/08/23 13:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0417	104 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0452	113 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0429	107 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/08/23 13:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGH0323	08/08/23	08/08/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/08/23 13:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	11.7	93.8 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.





Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/22/23 14:37

**SEP01-DL-E@2.5'**  
**2308155-06 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **08/08/23 13:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGH0644	08/16/23	08/16/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **08/08/23 13:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0193	57.8 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0161	48.3 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **08/08/23 13:20**


Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.0612</b>	0.0100	mg/L	1	BGH0665	08/16/23	08/18/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **08/08/23 13:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

Summit Scientific



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/22/23 14:37

**SEP01-DL-E@2.5'**  
**2308155-06 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Barium	114	0.400	mg/kg dry	1	BGH0636	08/16/23	08/17/23	EPA 6020B
--------	-----	-------	-----------	---	---------	----------	----------	-----------

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction**

Date Sampled: **08/08/23 13:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	22.2	0.0575	mg/L dry	1	BGH0654	08/16/23	08/18/23	EPA 6020B	
Magnesium	10.9	0.0575	"	"	"	"	"	"	
Sodium	44.7	0.0575	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **08/08/23 13:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.94	0.00100	units	1	BGH0764	08/18/23	08/18/23	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **08/08/23 13:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	86.9		%	1	BGH0664	08/16/23	08/16/23	Calculation	

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **08/08/23 13:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.581	0.0100	mmhos/cm	1	BGH0725	08/17/23	08/17/23	EPA 120.1	

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

Date Sampled: **08/08/23 13:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/22/23 14:37

**SEP01-DL-E@2.5'**  
**2308155-06 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

pH	7.80	pH Units	1	BGH0724	08/17/23	08/17/23	EPA 9045D
----	------	----------	---	---------	----------	----------	-----------

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/22/23 14:37

## Volatile Organic Compounds by EPA Method 8260B - Quality Control

### Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

#### Batch BGH0322 - EPA 5030 Soil MS

##### Blank (BGH0322-BLK1)

Prepared & Analyzed: 08/08/23

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
1,2,4-Trimethylbenzene	ND	0.0050	"							
1,3,5-Trimethylbenzene	ND	0.0050	"							
Naphthalene	ND	0.0038	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0403		"	0.0400		101	50-150			
Surrogate: Toluene-d8	0.0419		"	0.0400		105	50-150			
Surrogate: 4-Bromofluorobenzene	0.0457		"	0.0400		114	50-150			

##### LCS (BGH0322-BS1)

Prepared & Analyzed: 08/08/23

Benzene	0.120	0.0020	mg/kg	0.100		120	70-130			
Toluene	0.106	0.0050	"	0.100		106	70-130			
Ethylbenzene	0.107	0.0050	"	0.100		107	70-130			
m,p-Xylene	0.225	0.010	"	0.200		112	70-130			
o-Xylene	0.0967	0.0050	"	0.100		96.7	70-130			
1,2,4-Trimethylbenzene	0.115	0.0050	"	0.100		115	70-130			
1,3,5-Trimethylbenzene	0.108	0.0050	"	0.100		108	70-130			
Naphthalene	0.0730	0.0038	"	0.100		73.0	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0365		"	0.0400		91.4	50-150			
Surrogate: Toluene-d8	0.0435		"	0.0400		109	50-150			
Surrogate: 4-Bromofluorobenzene	0.0433		"	0.0400		108	50-150			

##### Matrix Spike (BGH0322-MS1)

Source: 2308155-01

Prepared & Analyzed: 08/08/23

Benzene	0.101	0.0020	mg/kg	0.100	ND	101	70-130			
Toluene	0.106	0.0050	"	0.100	ND	106	70-130			
Ethylbenzene	0.0821	0.0050	"	0.100	ND	82.1	70-130			
m,p-Xylene	0.171	0.010	"	0.200	ND	85.6	70-130			
o-Xylene	0.0769	0.0050	"	0.100	ND	76.9	70-130			
1,2,4-Trimethylbenzene	0.0806	0.0050	"	0.100	ND	80.6	70-130			
1,3,5-Trimethylbenzene	0.0795	0.0050	"	0.100	ND	79.5	70-130			
Naphthalene	0.0981	0.0038	"	0.100	ND	98.1	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0446		"	0.0400		111	50-150			
Surrogate: Toluene-d8	0.0427		"	0.0400		107	50-150			
Surrogate: 4-Bromofluorobenzene	0.0433		"	0.0400		108	50-150			

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/22/23 14:37

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**Summit Scientific**

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

**Batch BGH0322 - EPA 5030 Soil MS**

Matrix Spike Dup (BGH0322-MSD1)		Source: 2308155-01			Prepared & Analyzed: 08/08/23					
Benzene	0.102	0.0020	mg/kg	0.100	ND	102	70-130	1.51	30	
Toluene	0.0940	0.0050	"	0.100	ND	94.0	70-130	11.5	30	
Ethylbenzene	0.0800	0.0050	"	0.100	ND	80.0	70-130	2.70	30	
m,p-Xylene	0.166	0.010	"	0.200	ND	83.2	70-130	2.88	30	
o-Xylene	0.0704	0.0050	"	0.100	ND	70.4	70-130	8.79	30	
1,2,4-Trimethylbenzene	0.0734	0.0050	"	0.100	ND	73.4	70-130	9.43	30	
1,3,5-Trimethylbenzene	0.0758	0.0050	"	0.100	ND	75.8	70-130	4.75	30	
Naphthalene	0.0848	0.0038	"	0.100	ND	84.8	70-130	14.6	30	
Surrogate: 1,2-Dichloroethane-d4		0.0418	"	0.0400		104	50-150			
Surrogate: Toluene-d8		0.0392	"	0.0400		97.9	50-150			
Surrogate: 4-Bromofluorobenzene		0.0444	"	0.0400		111	50-150			

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/22/23 14:37

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

**Batch BGH0323 - EPA 3550A**

**Blank (BGH0323-BLK1)**

Prepared & Analyzed: 08/08/23

C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
Surrogate: o-Terphenyl	11.8		"	12.5		94.4	30-150			

**LCS (BGH0323-BS1)**

Prepared & Analyzed: 08/08/23

C10-C28 (DRO)	440	50	mg/kg	500		88.0	70-130			
Surrogate: o-Terphenyl	11.1		"	12.5		89.2	30-150			

**Matrix Spike (BGH0323-MS1)**

Source: 2308146-03

Prepared: 08/08/23 Analyzed: 08/09/23

C10-C28 (DRO)	451	50	mg/kg	500	25.6	85.1	70-130			
Surrogate: o-Terphenyl	12.0		"	12.5		96.3	30-150			

**Matrix Spike Dup (BGH0323-MSD1)**

Source: 2308146-03

Prepared: 08/08/23 Analyzed: 08/09/23

C10-C28 (DRO)	463	50	mg/kg	500	25.6	87.5	70-130	2.59	20	
Surrogate: o-Terphenyl	12.3		"	12.5		98.5	30-150			

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/22/23 14:37

## PAH by EPA Method 8270D SIM - Quality Control

### Summit Scientific

Reporting				Spike	Source	%REC			RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

#### Batch BGH0329 - EPA 5030 Soil MS

##### Blank (BGH0329-BLK1)

Prepared & Analyzed: 08/09/23

Acenaphthene	ND	0.00500	mg/kg							
Anthracene	ND	0.00500	"							
Benzo (a) anthracene	ND	0.00500	"							
Benzo (a) pyrene	ND	0.00500	"							
Benzo (b) fluoranthene	ND	0.00500	"							
Benzo (k) fluoranthene	ND	0.00500	"							
Chrysene	ND	0.00500	"							
Dibenz (a,h) anthracene	ND	0.00500	"							
Fluoranthene	ND	0.00500	"							
Fluorene	ND	0.00500	"							
Indeno (1,2,3-cd) pyrene	ND	0.00500	"							
Pyrene	ND	0.00500	"							
1-Methylnaphthalene	ND	0.00500	"							
2-Methylnaphthalene	ND	0.00500	"							
Surrogate: 2-Methylnaphthalene-d10	0.0256		"	0.0333		76.9	40-150			
Surrogate: Fluoranthene-d10	0.0265		"	0.0333		79.6	40-150			

##### LCS (BGH0329-BS1)

Prepared & Analyzed: 08/09/23

Acenaphthene	0.0279	0.00500	mg/kg	0.0333		83.7	31-137			
Anthracene	0.0290	0.00500	"	0.0333		86.9	30-120			
Benzo (a) anthracene	0.0269	0.00500	"	0.0333		80.6	30-120			
Benzo (a) pyrene	0.0274	0.00500	"	0.0333		82.1	30-120			
Benzo (b) fluoranthene	0.0286	0.00500	"	0.0333		85.8	30-120			
Benzo (k) fluoranthene	0.0289	0.00500	"	0.0333		86.8	30-120			
Chrysene	0.0294	0.00500	"	0.0333		88.3	30-120			
Dibenz (a,h) anthracene	0.0260	0.00500	"	0.0333		78.1	30-120			
Fluoranthene	0.0280	0.00500	"	0.0333		84.0	30-120			
Fluorene	0.0281	0.00500	"	0.0333		84.2	30-120			
Indeno (1,2,3-cd) pyrene	0.0194	0.00500	"	0.0333		58.3	30-120			
Pyrene	0.0298	0.00500	"	0.0333		89.3	35-142			
1-Methylnaphthalene	0.0247	0.00500	"	0.0333		74.1	35-142			
2-Methylnaphthalene	0.0302	0.00500	"	0.0333		90.6	35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0271		"	0.0333		81.3	40-150			
Surrogate: Fluoranthene-d10	0.0277		"	0.0333		83.2	40-150			

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/22/23 14:37

## PAH by EPA Method 8270D SIM - Quality Control

### Summit Scientific

Analyte	Reporting			Spike		Source		%REC		RPD	
	Result	Limit	Units	Level		Result	%REC	Limits	RPD	Limit	Notes

#### Batch BGH0329 - EPA 5030 Soil MS

##### Matrix Spike (BGH0329-MS1)

Source: 2308140-01

Prepared & Analyzed: 08/09/23

Acenaphthene	0.0180	0.00500	mg/kg	0.0333	ND	54.0	31-137				
Anthracene	0.0183	0.00500	"	0.0333	ND	54.8	30-120				
Benzo (a) anthracene	0.0174	0.00500	"	0.0333	ND	52.1	30-120				
Benzo (a) pyrene	0.0169	0.00500	"	0.0333	ND	50.8	30-120				
Benzo (b) fluoranthene	0.0173	0.00500	"	0.0333	ND	51.8	30-120				
Benzo (k) fluoranthene	0.0180	0.00500	"	0.0333	ND	54.0	30-120				
Chrysene	0.0184	0.00500	"	0.0333	ND	55.3	30-120				
Dibenz (a,h) anthracene	0.0162	0.00500	"	0.0333	ND	48.6	30-120				
Fluoranthene	0.0175	0.00500	"	0.0333	ND	52.6	30-120				
Fluorene	0.0186	0.00500	"	0.0333	ND	55.9	30-120				
Indeno (1,2,3-cd) pyrene	0.0157	0.00500	"	0.0333	ND	47.0	30-120				
Pyrene	0.0184	0.00500	"	0.0333	ND	55.1	35-142				
1-Methylnaphthalene	0.0140	0.00500	"	0.0333	ND	41.9	15-130				
2-Methylnaphthalene	0.0182	0.00500	"	0.0333	ND	54.6	15-130				
Surrogate: 2-Methylnaphthalene-d10	0.0196		"	0.0333		58.7	40-150				
Surrogate: Fluoranthene-d10	0.0179		"	0.0333		53.8	40-150				

##### Matrix Spike Dup (BGH0329-MSD1)

Source: 2308140-01

Prepared & Analyzed: 08/09/23

Acenaphthene	0.0160	0.00500	mg/kg	0.0333	ND	47.9	31-137	11.8	30		
Anthracene	0.0164	0.00500	"	0.0333	ND	49.2	30-120	10.8	30		
Benzo (a) anthracene	0.0156	0.00500	"	0.0333	ND	46.9	30-120	10.5	30		
Benzo (a) pyrene	0.0150	0.00500	"	0.0333	ND	45.0	30-120	12.2	30		
Benzo (b) fluoranthene	0.0154	0.00500	"	0.0333	ND	46.2	30-120	11.4	30		
Benzo (k) fluoranthene	0.0162	0.00500	"	0.0333	ND	48.7	30-120	10.3	30		
Chrysene	0.0167	0.00500	"	0.0333	ND	50.1	30-120	10.0	30		
Dibenz (a,h) anthracene	0.0139	0.00500	"	0.0333	ND	41.8	30-120	15.0	30		
Fluoranthene	0.0151	0.00500	"	0.0333	ND	45.2	30-120	15.2	30		
Fluorene	0.0165	0.00500	"	0.0333	ND	49.6	30-120	12.1	30		
Indeno (1,2,3-cd) pyrene	0.0137	0.00500	"	0.0333	ND	41.1	30-120	13.3	30		
Pyrene	0.0172	0.00500	"	0.0333	ND	51.6	35-142	6.54	30		
1-Methylnaphthalene	0.0159	0.00500	"	0.0333	ND	47.6	15-130	12.8	50		
2-Methylnaphthalene	0.0179	0.00500	"	0.0333	ND	53.6	15-130	1.92	50		
Surrogate: 2-Methylnaphthalene-d10	0.0180		"	0.0333		53.9	40-150				
Surrogate: Fluoranthene-d10	0.0154		"	0.0333		46.1	40-150				

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.





Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/22/23 14:37

## PAH by EPA Method 8270D SIM - Quality Control

### Summit Scientific

Analyte	Reporting			Spike		Source		%REC		RPD	
	Result	Limit	Units	Level		Result		%REC	Limits	RPD	Limit
Notes											

#### Batch BGH0644 - EPA 5030 Soil MS

##### Blank (BGH0644-BLK1)

Prepared & Analyzed: 08/16/23

Acenaphthene	ND	0.00500	mg/kg								
Anthracene	ND	0.00500	"								
Benzo (a) anthracene	ND	0.00500	"								
Benzo (a) pyrene	ND	0.00500	"								
Benzo (b) fluoranthene	ND	0.00500	"								
Benzo (k) fluoranthene	ND	0.00500	"								
Chrysene	ND	0.00500	"								
Dibenz (a,h) anthracene	ND	0.00500	"								
Fluoranthene	ND	0.00500	"								
Fluorene	ND	0.00500	"								
Indeno (1,2,3-cd) pyrene	ND	0.00500	"								
Pyrene	ND	0.00500	"								
1-Methylnaphthalene	ND	0.00500	"								
2-Methylnaphthalene	ND	0.00500	"								
Surrogate: 2-Methylnaphthalene-d10	0.0235		"	0.0333		70.5		40-150			
Surrogate: Fluoranthene-d10	0.0231		"	0.0333		69.2		40-150			

##### LCS (BGH0644-BS1)

Prepared & Analyzed: 08/16/23

Acenaphthene	0.0329	0.00500	mg/kg	0.0333		98.8		31-137			
Anthracene	0.0317	0.00500	"	0.0333		95.0		30-120			
Benzo (a) anthracene	0.0323	0.00500	"	0.0333		96.9		30-120			
Benzo (a) pyrene	0.0308	0.00500	"	0.0333		92.4		30-120			
Benzo (b) fluoranthene	0.0323	0.00500	"	0.0333		96.9		30-120			
Benzo (k) fluoranthene	0.0317	0.00500	"	0.0333		95.2		30-120			
Chrysene	0.0313	0.00500	"	0.0333		93.9		30-120			
Dibenz (a,h) anthracene	0.0313	0.00500	"	0.0333		93.9		30-120			
Fluoranthene	0.0258	0.00500	"	0.0333		77.4		30-120			
Fluorene	0.0311	0.00500	"	0.0333		93.3		30-120			
Indeno (1,2,3-cd) pyrene	0.0218	0.00500	"	0.0333		65.3		30-120			
Pyrene	0.0287	0.00500	"	0.0333		86.1		35-142			
1-Methylnaphthalene	0.0213	0.00500	"	0.0333		63.9		35-142			
2-Methylnaphthalene	0.0312	0.00500	"	0.0333		93.7		35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0230		"	0.0333		68.9		40-150			
Surrogate: Fluoranthene-d10	0.0294		"	0.0333		88.2		40-150			

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/22/23 14:37

### PAH by EPA Method 8270D SIM - Quality Control

#### Summit Scientific

Analyte	Reporting			Spike		Source		%REC		RPD	
	Result	Limit	Units	Level		Result		%REC	Limits	RPD	Notes

#### Batch BGH0644 - EPA 5030 Soil MS

##### Matrix Spike (BGH0644-MS1)

Source: 2308155-02

Prepared & Analyzed: 08/16/23

Acenaphthene	0.0222	0.00500	mg/kg	0.0333	ND	66.6	31-137		
Anthracene	0.0234	0.00500	"	0.0333	ND	70.1	30-120		
Benzo (a) anthracene	0.0249	0.00500	"	0.0333	ND	74.7	30-120		
Benzo (a) pyrene	0.0231	0.00500	"	0.0333	ND	69.3	30-120		
Benzo (b) fluoranthene	0.0237	0.00500	"	0.0333	ND	71.2	30-120		
Benzo (k) fluoranthene	0.0232	0.00500	"	0.0333	ND	69.5	30-120		
Chrysene	0.0250	0.00500	"	0.0333	ND	75.0	30-120		
Dibenz (a,h) anthracene	0.0241	0.00500	"	0.0333	ND	72.3	30-120		
Fluoranthene	0.0235	0.00500	"	0.0333	ND	70.6	30-120		
Fluorene	0.0228	0.00500	"	0.0333	ND	68.4	30-120		
Indeno (1,2,3-cd) pyrene	0.0239	0.00500	"	0.0333	ND	71.7	30-120		
Pyrene	0.0181	0.00500	"	0.0333	ND	54.3	35-142		
1-Methylnaphthalene	0.0157	0.00500	"	0.0333	ND	47.1	15-130		
2-Methylnaphthalene	0.0204	0.00500	"	0.0333	ND	61.3	15-130		
Surrogate: 2-Methylnaphthalene-d10	0.0174		"	0.0333		52.1	40-150		
Surrogate: Fluoranthene-d10	0.0244		"	0.0333		73.2	40-150		

##### Matrix Spike Dup (BGH0644-MSD1)

Source: 2308155-02

Prepared & Analyzed: 08/16/23

Acenaphthene	0.0197	0.00500	mg/kg	0.0333	ND	59.2	31-137	11.7	30
Anthracene	0.0209	0.00500	"	0.0333	ND	62.8	30-120	10.9	30
Benzo (a) anthracene	0.0203	0.00500	"	0.0333	ND	61.0	30-120	20.2	30
Benzo (a) pyrene	0.0190	0.00500	"	0.0333	ND	57.0	30-120	19.4	30
Benzo (b) fluoranthene	0.0200	0.00500	"	0.0333	ND	60.0	30-120	17.1	30
Benzo (k) fluoranthene	0.0202	0.00500	"	0.0333	ND	60.7	30-120	13.5	30
Chrysene	0.0213	0.00500	"	0.0333	ND	63.8	30-120	16.2	30
Dibenz (a,h) anthracene	0.0198	0.00500	"	0.0333	ND	59.4	30-120	19.5	30
Fluoranthene	0.0186	0.00500	"	0.0333	ND	55.8	30-120	23.5	30
Fluorene	0.0201	0.00500	"	0.0333	ND	60.3	30-120	12.7	30
Indeno (1,2,3-cd) pyrene	0.0208	0.00500	"	0.0333	ND	62.4	30-120	13.9	30
Pyrene	0.0143	0.00500	"	0.0333	ND	43.0	35-142	23.2	30
1-Methylnaphthalene	0.0153	0.00500	"	0.0333	ND	45.9	15-130	2.53	50
2-Methylnaphthalene	0.0180	0.00500	"	0.0333	ND	53.9	15-130	12.8	50
Surrogate: 2-Methylnaphthalene-d10	0.0157		"	0.0333		47.1	40-150		
Surrogate: Fluoranthene-d10	0.0211		"	0.0333		63.2	40-150		

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/22/23 14:37

**Total Metals by EPA 6020B Hot Water Soluble Extraction - Quality Control**  
**Summit Scientific**

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

**Batch BGH0336 - EPA 3050B**

**Blank (BGH0336-BLK1)**

Prepared: 08/09/23 Analyzed: 08/10/23

Boron ND 0.0100 mg/L

**LCS (BGH0336-BS1)**

Prepared: 08/09/23 Analyzed: 08/10/23

Boron 5.08 0.0100 mg/L 5.00 102 80-120

**Duplicate (BGH0336-DUP1)**

**Source: 2308155-01**

Prepared: 08/09/23 Analyzed: 08/10/23

Boron 0.569 0.0100 mg/L 0.565 0.671 20

**Matrix Spike (BGH0336-MS1)**

**Source: 2308155-01**

Prepared: 08/09/23 Analyzed: 08/10/23

Boron 6.06 0.0100 mg/L 5.00 0.565 110 75-125

**Matrix Spike Dup (BGH0336-MSD1)**

**Source: 2308155-01**

Prepared: 08/09/23 Analyzed: 08/10/23

Boron 6.05 0.0100 mg/L 5.00 0.565 110 75-125 0.137 25

**Batch BGH0665 - EPA 3050B**

**Blank (BGH0665-BLK1)**

Prepared: 08/16/23 Analyzed: 08/18/23

Boron ND 0.0100 mg/L

**LCS (BGH0665-BS1)**

Prepared: 08/16/23 Analyzed: 08/18/23

Boron 5.84 0.0100 mg/L 5.00 117 80-120

**Duplicate (BGH0665-DUP1)**

**Source: 2308155-02**

Prepared: 08/16/23 Analyzed: 08/18/23

Boron 0.0630 0.0100 mg/L 0.109 53.6 20 QR-01

**Matrix Spike (BGH0665-MS1)**

**Source: 2308155-02**

Prepared: 08/16/23 Analyzed: 08/18/23

Boron 6.76 0.0100 mg/L 5.00 0.109 133 75-125 QM-07

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**

08/22/23 14:37

**Total Metals by EPA 6020B Hot Water Soluble Extraction - Quality Control**

**Summit Scientific**

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD	
		Limit	Units		Result	%REC	Limits	RPD	Limit	Notes

**Batch BGH0665 - EPA 3050B**

**Matrix Spike Dup (BGH0665-MSD1)**

**Source: 2308155-02**

Prepared: 08/16/23 Analyzed: 08/18/23

Boron	6.80	0.0100	mg/L	5.00	0.109	134	75-125	0.599	25	QM-07
-------	------	--------	------	------	-------	-----	--------	-------	----	-------

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/22/23 14:37

**Total Metals by EPA 6020B - Quality Control**  
**Summit Scientific**

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

**Batch BGH0327 - EPA 3050B**

**Blank (BGH0327-BLK1)**

Prepared & Analyzed: 08/09/23

Arsenic	ND	0.200	mg/kg wet
Barium	ND	0.400	"
Cadmium	ND	0.200	"
Copper	ND	0.400	"
Lead	ND	0.200	"
Nickel	ND	0.400	"
Silver	ND	0.0200	"
Zinc	ND	0.400	"
Selenium	ND	0.260	"

**LCS (BGH0327-BS1)**

Prepared & Analyzed: 08/09/23

Arsenic	37.8	0.200	mg/kg wet	40.0	94.5	80-120
Barium	38.9	0.400	"	40.0	97.2	80-120
Cadmium	1.93	0.200	"	2.00	96.4	80-120
Copper	38.3	0.400	"	40.0	95.8	80-120
Lead	19.7	0.200	"	20.0	98.4	80-120
Nickel	37.5	0.400	"	40.0	93.7	80-120
Silver	1.90	0.0200	"	2.00	95.0	80-120
Zinc	38.0	0.400	"	40.0	95.0	80-120


**Duplicate (BGH0327-DUP1)**

Source: 2306248-02

Prepared & Analyzed: 08/09/23

Arsenic	1.81	0.200	mg/kg dry	1.23	38.5	20	QR-01
Barium	43.8	0.400	"	77.7	55.8	20	QR-04
Cadmium	0.605	0.200	"	0.505	18.0	20	
Copper	4.32	0.400	"	3.12	32.1	20	QR-04
Lead	14.8	0.200	"	11.1	28.3	20	QR-04
Nickel	3.93	0.400	"	3.63	7.96	20	
Silver	0.0557	0.0200	"	0.0552	0.930	20	
Zinc	21.2	0.400	"	16.1	27.2	20	QR-04
Selenium	0.366	0.260	"	0.251	37.3	200	

Summit Scientific



*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/22/23 14:37

**Total Metals by EPA 6020B - Quality Control**  
**Summit Scientific**

Analyte	Reporting			Spike	Source	%REC		RPD		
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

**Batch BGH0327 - EPA 3050B**

Matrix Spike (BGH0327-MS1)			Source: 2306248-02		Prepared & Analyzed: 08/09/23						
Arsenic	12.1	0.200	mg/kg dry	51.6	1.23	21.0	75-125				QM-07
Barium	101	0.400	"	51.6	77.7	44.3	75-125				QM-07
Cadmium	2.60	0.200	"	2.58	0.505	81.1	75-125				
Copper	14.0	0.400	"	51.6	3.12	21.0	75-125				QM-07
Lead	29.9	0.200	"	25.8	11.1	72.7	75-125				QM-07
Nickel	14.1	0.400	"	51.6	3.63	20.2	75-125				QM-07
Silver	2.12	0.0200	"	2.58	0.0552	80.2	75-125				
Zinc	27.6	0.400	"	51.6	16.1	22.3	75-125				QM-07

Matrix Spike Dup (BGH0327-MSD1)			Source: 2306248-02		Prepared & Analyzed: 08/09/23						
Arsenic	12.2	0.200	mg/kg dry	51.6	1.23	21.4	75-125	1.55	25		QM-07
Barium	101	0.400	"	51.6	77.7	44.5	75-125	0.136	25		QM-07
Cadmium	2.62	0.200	"	2.58	0.505	81.9	75-125	0.811	25		
Copper	14.1	0.400	"	51.6	3.12	21.3	75-125	1.04	25		QM-07
Lead	30.2	0.200	"	25.8	11.1	74.1	75-125	1.25	25		QM-07
Nickel	14.3	0.400	"	51.6	3.63	20.7	75-125	1.61	25		QM-07
Silver	2.16	0.0200	"	2.58	0.0552	81.5	75-125	1.54	25		
Zinc	27.8	0.400	"	51.6	16.1	22.6	75-125	0.607	25		QM-07

**Batch BGH0442 - EPA 3050B**

Blank (BGH0442-BLK1)			Prepared: 08/10/23 Analyzed: 08/21/23								
Arsenic	ND	0.200	mg/kg wet								
Barium	ND	0.400	"								
Cadmium	ND	0.200	"								
Copper	ND	0.400	"								
Lead	ND	0.200	"								
Nickel	ND	0.400	"								
Silver	ND	0.0200	"								
Zinc	ND	0.400	"								
Selenium	ND	0.260	"								

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/22/23 14:37

**Total Metals by EPA 6020B - Quality Control**  
**Summit Scientific**

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

**Batch BGH0442 - EPA 3050B**

**LCS (BGH0442-BS1)**

Prepared: 08/10/23 Analyzed: 08/21/23

Arsenic	41.1	0.200	mg/kg wet	40.0		103	80-120			
Barium	42.6	0.400	"	40.0		106	80-120			
Cadmium	1.98	0.200	"	2.00		99.1	80-120			
Copper	41.1	0.400	"	40.0		103	80-120			
Lead	20.0	0.200	"	20.0		100	80-120			
Nickel	40.6	0.400	"	40.0		102	80-120			
Silver	2.01	0.0200	"	2.00		100	80-120			
Zinc	40.6	0.400	"	40.0		102	80-120			

**Duplicate (BGH0442-DUP1)**

Source: 2307450-01RE2

Prepared: 08/10/23 Analyzed: 08/21/23

Arsenic	7.19	0.200	mg/kg wet		7.35			2.22	20	
Barium	159	0.400	"		144			10.0	20	
Cadmium	0.319	0.200	"		0.331			3.69	20	
Copper	6.55	0.400	"		6.30			3.90	20	
Lead	9.23	0.200	"		9.18			0.556	20	
Nickel	7.11	0.400	"		6.97			2.02	20	
Silver	0.0656	0.0200	"		0.0576			13.0	20	
Zinc	26.2	0.400	"		24.9			5.07	20	
Selenium	0.208	0.260	"		0.201			3.71	200	

**Matrix Spike (BGH0442-MS1)**

Source: 2307450-01RE2

Prepared: 08/10/23 Analyzed: 08/21/23

Arsenic	49.5	0.200	mg/kg wet	40.0	7.35	105	75-125			
Barium	189	0.400	"	40.0	144	113	75-125			
Cadmium	2.42	0.200	"	2.00	0.331	104	75-125			
Copper	28.7	0.400	"	40.0	6.30	56.0	75-125			QM-07
Lead	29.8	0.200	"	20.0	9.18	103	75-125			
Nickel	29.9	0.400	"	40.0	6.97	57.2	75-125			QM-07
Silver	2.13	0.0200	"	2.00	0.0576	104	75-125			
Zinc	46.3	0.400	"	40.0	24.9	53.4	75-125			QM-07

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/22/23 14:37

**Total Metals by EPA 6020B - Quality Control**  
**Summit Scientific**

Analyte	Reporting			Spike	Source	%REC		RPD		
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

**Batch BGH0442 - EPA 3050B**

Matrix Spike Dup (BGH0442-MSD1)		Source: 2307450-01RE2			Prepared: 08/10/23		Analyzed: 08/21/23				
Arsenic	49.6	0.200	mg/kg wet	40.0	7.35	106	75-125	0.329	25		
Barium	187	0.400	"	40.0	144	109	75-125	0.932	25		
Cadmium	2.39	0.200	"	2.00	0.331	103	75-125	1.11	25		
Copper	28.6	0.400	"	40.0	6.30	55.8	75-125	0.286	25		QM-07
Lead	29.3	0.200	"	20.0	9.18	101	75-125	1.46	25		
Nickel	29.9	0.400	"	40.0	6.97	57.4	75-125	0.268	25		QM-07
Silver	2.11	0.0200	"	2.00	0.0576	103	75-125	0.754	25		
Zinc	46.4	0.400	"	40.0	24.9	53.7	75-125	0.284	25		QM-07

**Batch BGH0636 - EPA 3050B**

LCS (BGH0636-BS1)					Prepared: 08/16/23		Analyzed: 08/17/23				
Barium	40.2	0.400	mg/kg wet	40.0		100	80-120				
Duplicate (BGH0636-DUP1)		Source: 2308155-02			Prepared: 08/16/23		Analyzed: 08/17/23				
Barium	49.9	0.400	mg/kg dry		34.4			36.8	20		QR-04
Matrix Spike (BGH0636-MS1)		Source: 2308155-02			Prepared: 08/16/23		Analyzed: 08/17/23				
Barium	102	0.400	mg/kg dry	42.2	34.4	159	75-125				QM-07
Matrix Spike Dup (BGH0636-MSD1)		Source: 2308155-02			Prepared: 08/16/23		Analyzed: 08/17/23				
Barium	100	0.400	mg/kg dry	42.2	34.4	156	75-125	1.45	25		QM-07

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*





Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/22/23 14:37

**Hexavalent Chromium by EPA Method 7196 - Quality Control**  
**Summit Scientific**

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

**Batch BGH0331 - 3060A Mod**

**Blank (BGH0331-BLK1)**

Prepared & Analyzed: 08/09/23

Chromium, Hexavalent ND 0.30 mg/kg wet

**LCS (BGH0331-BS1)**

Prepared & Analyzed: 08/09/23

Chromium, Hexavalent 23.8 0.30 mg/kg wet 25.0 95.0 80-120

**Duplicate (BGH0331-DUP1)**

**Source: 2308155-01**

Prepared & Analyzed: 08/09/23

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

**Matrix Spike (BGH0331-MS1)**

**Source: 2308155-01**

Prepared & Analyzed: 08/09/23

Chromium, Hexavalent 24.8 0.30 mg/kg dry 28.8 ND 86.2 75-125

**Matrix Spike Dup (BGH0331-MSD1)**

**Source: 2308155-01**

Prepared & Analyzed: 08/09/23

Chromium, Hexavalent 25.4 0.30 mg/kg dry 28.8 ND 88.2 75-125 2.29 20

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/22/23 14:37

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction - Quality Control**  
**Summit Scientific**

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

**Batch BGH0321 - General Preparation**

**Blank (BGH0321-BLK1)**

Prepared: 08/08/23 Analyzed: 08/09/23

Calcium	ND	0.0500	mg/L wet
Magnesium	ND	0.0500	"
Sodium	ND	0.0500	"

**LCS (BGH0321-BS1)**

Prepared: 08/08/23 Analyzed: 08/09/23

Calcium	3.61	0.0500	mg/L wet	5.00	72.1	70-130
Magnesium	5.59	0.0500	"	5.00	112	70-130
Sodium	5.55	0.0500	"	5.00	111	70-130

**Batch BGH0654 - General Preparation**

**Blank (BGH0654-BLK1)**

Prepared: 08/16/23 Analyzed: 08/18/23

Calcium	ND	0.0500	mg/L wet
Magnesium	ND	0.0500	"
Sodium	ND	0.0500	"

**LCS (BGH0654-BS1)**

Prepared: 08/16/23 Analyzed: 08/18/23

Calcium	4.75	0.0500	mg/L wet	5.00	95.0	70-130
Magnesium	6.37	0.0500	"	5.00	127	70-130
Sodium	6.10	0.0500	"	5.00	122	70-130

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**

08/22/23 14:37

**Physical Parameters by APHA/ASTM/EPA Methods - Quality Control**

**Summit Scientific**

Analyte	Result	Reporting			Spike	Source	%REC		RPD		Notes
		Limit	Units	Level	Result	%REC	Limits	RPD	Limit		

**Batch BGH0324 - General Preparation**

**Duplicate (BGH0324-DUP1)**

**Source: 2308146-01**

Prepared & Analyzed: 08/09/23

% Solids	85.9	%		84.2		1.98	20
----------	------	---	--	------	--	------	----

**Batch BGH0664 - General Preparation**

**Duplicate (BGH0664-DUP1)**

**Source: 2308155-02**

Prepared & Analyzed: 08/16/23

% Solids	94.7	%		94.7		0.0179	20
----------	------	---	--	------	--	--------	----

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/22/23 14:37

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction - Quality Control**  
**Summit Scientific**

Analyte	Reporting			Spike Level	Source		%REC		RPD	
	Result	Limit	Units		Result	%REC	Limits	RPD	Limit	Notes

**Batch BGH0351 - General Preparation**

**Blank (BGH0351-BLK1)**

Prepared & Analyzed: 08/09/23

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BGH0351-BS1)**

Prepared & Analyzed: 08/09/23

Specific Conductance (EC) 0.155 0.0100 mmhos/cm 0.150 103 95-105

**Duplicate (BGH0351-DUP1)**

Source: 2308155-01

Prepared & Analyzed: 08/09/23

Specific Conductance (EC) 0.522 0.0100 mmhos/cm 0.528 1.28 20

**Batch BGH0725 - General Preparation**

**Blank (BGH0725-BLK1)**

Prepared & Analyzed: 08/17/23

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BGH0725-BS1)**

Prepared & Analyzed: 08/17/23

Specific Conductance (EC) 0.156 0.0100 mmhos/cm 0.150 104 95-105

**Duplicate (BGH0725-DUP1)**

Source: 2308155-02

Prepared & Analyzed: 08/17/23

Specific Conductance (EC) 0.400 0.0100 mmhos/cm 0.411 2.69 20

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/22/23 14:37

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction - Quality Control**  
**Summit Scientific**

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

**Batch BGH0352 - General Preparation**

**LCS (BGH0352-BS1)**

Prepared & Analyzed: 08/09/23

pH	9.03		pH Units	9.18		98.4	95-105
----	------	--	----------	------	--	------	--------

**Duplicate (BGH0352-DUP1)**

**Source: 2308155-01**

Prepared & Analyzed: 08/09/23

pH	7.48		pH Units		7.41		0.940	20
----	------	--	----------	--	------	--	-------	----

**Batch BGH0724 - General Preparation**

**LCS (BGH0724-BS1)**

Prepared & Analyzed: 08/17/23

pH	9.02		pH Units	9.18		98.3	95-105
----	------	--	----------	------	--	------	--------

**Duplicate (BGH0724-DUP1)**

**Source: 2308155-02**

Prepared & Analyzed: 08/17/23

pH	7.90		pH Units		7.87		0.380	20
----	------	--	----------	--	------	--	-------	----

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/22/23 14:37

### Notes and Definitions

QR-04	The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
QR-01	Analyses are not controlled on RPD values from sample concentrations less than 10 times the reporting limit. QC batch accepted based on LCS and/or LCSD QC results.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

August 16, 2023

Mark Longhurst

Tasman Geosciences

6855 W. 119th Ave.

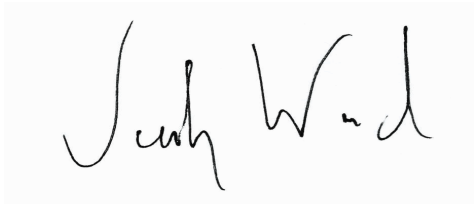
Broomfield, CO 80020

RE: PDC - Ikenouye F28-65HN Facility

Work Order #2308166

Enclosed are the results of analyses for samples received by Summit Scientific on 08/08/23 17:51. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Jacob Wood". The signature is written in a cursive, flowing style.

Jacob Wood For Paul Shrewsbury

President



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
08/16/23 16:25

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SEP02-FL@2.5'	2308166-01	Soil	08/08/23 11:30	08/08/23 17:51
SEP02-DL@3.5'	2308166-02	Soil	08/08/23 11:35	08/08/23 17:51

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Client: PDC PDC / Tasman		Send Data To: Project Manager: Mark Longhurst		Send Invoice To: Company: PDC Energy	
Address: 6855 W 119th Ave		E-Mail: mark.longhurst@PDCE.com		Project Name/Location:	
City/State/Zip: Broomfield / CO / 80220				AFE#:	
Phone: 303-487-1228		Project Name: Irenonge FZ8-65HN Facility		PO/Billing Codes:	
Sampler Name: Jordan Hestmark		Project Number:		Contact: Mark Longhurst	

					Preservative				Matrix				Analysis Requested								Special Instructions	
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	BTEXN - 8260B	TPH - (C6 - C36)	1,2,4 & 1,3,5 - TMB	Boron - HWS	pH, EC, SAR	PAHs	Metals	TDS, SO4, Cl		
1	SEPOZ-FL @ 2.5'	8/8/23	1130	2			X			X			X	X	X	X	X	X	X			
2	SEPOZ-DL @ 3.5'	↓	1135	2			X			X			X	X	X	X	X	X	X			
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						
13																						
14																						
15																						

Relinquished by: Jordan Hestmark	Date/Time: 8/8/23 1641	Received by: Tasman Lockbox	Date/Time: 8/8/23 1641	TAT Business Days	Field DO	Notes:
				Same Day	Field EC	
Relinquished by: Tasman Lockbox	Date/Time: 8/8/23 1751	Received by: [Signature]	Date/Time: 8/8/23 1751	1 Day	Field ORP	
				2 Days	Field pH	
Relinquished by:	Date/Time:	Received by:	Date/Time:	3 Days	Field Temp.	
				Standard	X Field Turb.	
Temperature Upon Receipt: 9.1	Corrected Temperature: 6	IR gun #: )		HNO3 lot #:		

S<sub>2</sub>

## Sample Receipt Checklist

S2 Work Order# 2308166

Client: Port Tasman Client Project ID: Kenonye F28-COHN  
 Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other ☐ Airbill #: Facility

☐ ☐ ☐ ☐ ☐

Matrix (Check all that apply) Air ☐ Soil/Solid ☒ Water ☐ Other ☐

Temp (°C) 9.1Thermometer # 1

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? <sup>(1)</sup> NOTE: If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	on ice
Are samples due within 48 hours present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe <sup>2+</sup> ), Hexavalent Chromium (Cr <sup>6+</sup> , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out Completely? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling)? <sup>(1)</sup> Note the type of preservative in the comments column – HCl, H <sub>2</sub> SO <sub>4</sub> , NaOH, HNO <sub>3</sub> , etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2? <sup>(1)</sup> Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Comments (if any):				

<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.

Josh  
 Custodian Printed Name

08/08/23  
 Date/Time

444



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/16/23 16:25

**SEP02-FL@2.5'**  
**2308166-01 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/08/23 11:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	0.0020	mg/kg	1	BGH0344	08/09/23	08/09/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **08/08/23 11:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4	0.0452	113 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0400	100 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0417	104 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/08/23 11:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	ND	50	mg/kg	1	BGH0348	08/09/23	08/10/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/08/23 11:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl	11.0	87.8 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/16/23 16:25

**SEP02-FL@2.5'**  
**2308166-01 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **08/08/23 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGH0332	08/09/23	08/10/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **08/08/23 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0363	109 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0220	65.9 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **08/08/23 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.200</b>	0.0100	mg/L	1	BGH0526	08/14/23	08/15/23	EPA 6020B	

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction**

Date Sampled: **08/08/23 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/16/23 16:25

**SEP02-FL@2.5'**  
**2308166-01 (Soil)**

**Summit Scientific**

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction**

Calcium	29.8	0.0558	mg/L dry	1	BGH0487	08/11/23	08/14/23	EPA 6020B
Magnesium	6.43	0.0558	"	"	"	"	"	"
Sodium	1.90	0.0558	"	"	"	"	"	"

**Calculated Analysis**

Date Sampled: **08/08/23 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0823	0.00100	units	1	BGH0595	08/15/23	08/15/23	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **08/08/23 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	89.6		%	1	BGH0335	08/09/23	08/09/23	Calculation	

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **08/08/23 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.257	0.0100	mmhos/cm	1	BGH0539	08/14/23	08/14/23	EPA 120.1	

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

Date Sampled: **08/08/23 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.90		pH Units	1	BGH0540	08/14/23	08/14/23	EPA 9045D	

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/16/23 16:25

**SEP02-DL@3.5'**  
**2308166-02 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/08/23 11:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGH0344	08/09/23	08/09/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **08/08/23 11:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0449	112 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0396	99.1 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0405	101 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/08/23 11:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGH0348	08/09/23	08/10/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/08/23 11:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	10.3	82.3 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/16/23 16:25

**SEP02-DL@3.5'**  
**2308166-02 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **08/08/23 11:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGH0332	08/09/23	08/10/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **08/08/23 11:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0279	83.8 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0207	62.0 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **08/08/23 11:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.129</b>	0.0100	mg/L	1	BGH0526	08/14/23	08/15/23	EPA 6020B	

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction**

Date Sampled: **08/08/23 11:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/16/23 16:25

**SEP02-DL@3.5'**  
**2308166-02 (Soil)**

**Summit Scientific**

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction**

Calcium	77.8	0.0561	mg/L dry	1	BGH0487	08/11/23	08/14/23	EPA 6020B
Magnesium	21.9	0.0561	"	"	"	"	"	"
Sodium	2.62	0.0561	"	"	"	"	"	"

**Calculated Analysis**

Date Sampled: **08/08/23 11:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0676	0.00100	units	1	BGH0595	08/15/23	08/15/23	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **08/08/23 11:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	89.1		%	1	BGH0335	08/09/23	08/09/23	Calculation	

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **08/08/23 11:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.256	0.0100	mmhos/cm	1	BGH0539	08/14/23	08/14/23	EPA 120.1	

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

Date Sampled: **08/08/23 11:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.04		pH Units	1	BGH0540	08/14/23	08/14/23	EPA 9045D	

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*





Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/16/23 16:25

## Volatile Organic Compounds by EPA Method 8260B - Quality Control

### Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

#### Batch BGH0344 - EPA 5030 Soil MS

##### Blank (BGH0344-BLK1)

Prepared & Analyzed: 08/09/23

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
1,2,4-Trimethylbenzene	ND	0.0050	"							
1,3,5-Trimethylbenzene	ND	0.0050	"							
Naphthalene	ND	0.0038	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0429		"	0.0400		107	50-150			
Surrogate: Toluene-d8	0.0389		"	0.0400		97.2	50-150			
Surrogate: 4-Bromofluorobenzene	0.0406		"	0.0400		101	50-150			

##### LCS (BGH0344-BS1)

Prepared & Analyzed: 08/09/23

Benzene	0.108	0.0020	mg/kg	0.100		108	70-130			
Toluene	0.0974	0.0050	"	0.100		97.4	70-130			
Ethylbenzene	0.102	0.0050	"	0.100		102	70-130			
m,p-Xylene	0.204	0.010	"	0.200		102	70-130			
o-Xylene	0.0907	0.0050	"	0.100		90.7	70-130			
1,2,4-Trimethylbenzene	0.0972	0.0050	"	0.100		97.2	70-130			
1,3,5-Trimethylbenzene	0.0941	0.0050	"	0.100		94.1	70-130			
Naphthalene	0.0889	0.0038	"	0.100		88.9	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0436		"	0.0400		109	50-150			
Surrogate: Toluene-d8	0.0400		"	0.0400		100	50-150			
Surrogate: 4-Bromofluorobenzene	0.0388		"	0.0400		97.0	50-150			

##### Matrix Spike (BGH0344-MS1)

Source: 2308165-14

Prepared & Analyzed: 08/09/23

Benzene	0.103	0.0020	mg/kg	0.100	ND	103	70-130			
Toluene	0.0926	0.0050	"	0.100	ND	92.6	70-130			
Ethylbenzene	0.0980	0.0050	"	0.100	ND	98.0	70-130			
m,p-Xylene	0.198	0.010	"	0.200	ND	99.1	70-130			
o-Xylene	0.0888	0.0050	"	0.100	ND	88.8	70-130			
1,2,4-Trimethylbenzene	0.0950	0.0050	"	0.100	ND	95.0	70-130			
1,3,5-Trimethylbenzene	0.0904	0.0050	"	0.100	ND	90.4	70-130			
Naphthalene	0.0945	0.0038	"	0.100	ND	94.5	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0434		"	0.0400		109	50-150			
Surrogate: Toluene-d8	0.0401		"	0.0400		100	50-150			
Surrogate: 4-Bromofluorobenzene	0.0384		"	0.0400		96.0	50-150			

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/16/23 16:25

## Volatile Organic Compounds by EPA Method 8260B - Quality Control

### Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

#### Batch BGH0344 - EPA 5030 Soil MS

Matrix Spike Dup (BGH0344-MSD1)		Source: 2308165-14			Prepared & Analyzed: 08/09/23					
Benzene	0.130	0.0020	mg/kg	0.100	ND	130	70-130	23.0	30	
Toluene	0.121	0.0050	"	0.100	ND	121	70-130	26.2	30	
Ethylbenzene	0.132	0.0050	"	0.100	ND	132	70-130	29.9	30	QM-07
m,p-Xylene	0.264	0.010	"	0.200	ND	132	70-130	28.6	30	QM-07
o-Xylene	0.110	0.0050	"	0.100	ND	110	70-130	21.2	30	
1,2,4-Trimethylbenzene	0.121	0.0050	"	0.100	ND	121	70-130	24.1	30	
1,3,5-Trimethylbenzene	0.119	0.0050	"	0.100	ND	119	70-130	27.3	30	
Naphthalene	0.106	0.0038	"	0.100	ND	106	70-130	11.3	30	
Surrogate: 1,2-Dichloroethane-d4		0.0440	"	0.0400		110	50-150			
Surrogate: Toluene-d8		0.0398	"	0.0400		99.6	50-150			
Surrogate: 4-Bromofluorobenzene		0.0377	"	0.0400		94.4	50-150			

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/16/23 16:25

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

**Batch BGH0348 - EPA 3550A**

**Blank (BGH0348-BLK1)**

Prepared & Analyzed: 08/09/23

C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
Surrogate: o-Terphenyl	11.9		"	12.5		95.6	30-150			

**LCS (BGH0348-BS1)**

Prepared & Analyzed: 08/09/23

C10-C28 (DRO)	403	50	mg/kg	500		80.7	70-130			
Surrogate: o-Terphenyl	10.8		"	12.5		86.6	30-150			

**Matrix Spike (BGH0348-MS1)**

Source: 2308165-14

Prepared & Analyzed: 08/09/23

C10-C28 (DRO)	407	50	mg/kg	500	6.79	80.0	70-130			
Surrogate: o-Terphenyl	10.6		"	12.5		84.9	30-150			

**Matrix Spike Dup (BGH0348-MSD1)**

Source: 2308165-14

Prepared & Analyzed: 08/09/23

C10-C28 (DRO)	381	50	mg/kg	500	6.79	74.8	70-130	6.52	20	
Surrogate: o-Terphenyl	10.1		"	12.5		80.5	30-150			

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/16/23 16:25

## PAH by EPA Method 8270D SIM - Quality Control

### Summit Scientific

Reporting				Spike	Source	%REC			RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

#### Batch BGH0332 - EPA 5030 Soil MS

##### Blank (BGH0332-BLK1)

Prepared: 08/09/23 Analyzed: 08/10/23

Acenaphthene	ND	0.00500	mg/kg							
Anthracene	ND	0.00500	"							
Benzo (a) anthracene	ND	0.00500	"							
Benzo (a) pyrene	ND	0.00500	"							
Benzo (b) fluoranthene	ND	0.00500	"							
Benzo (k) fluoranthene	ND	0.00500	"							
Chrysene	ND	0.00500	"							
Dibenz (a,h) anthracene	ND	0.00500	"							
Fluoranthene	ND	0.00500	"							
Fluorene	ND	0.00500	"							
Indeno (1,2,3-cd) pyrene	ND	0.00500	"							
Pyrene	ND	0.00500	"							
1-Methylnaphthalene	ND	0.00500	"							
2-Methylnaphthalene	ND	0.00500	"							
Surrogate: 2-Methylnaphthalene-d10	0.0332		"	0.0333		99.5	40-150			
Surrogate: Fluoranthene-d10	0.0242		"	0.0333		72.5	40-150			

##### LCS (BGH0332-BS1)

Prepared: 08/09/23 Analyzed: 08/10/23

Acenaphthene	0.0287	0.00500	mg/kg	0.0333		86.1	31-137			
Anthracene	0.0308	0.00500	"	0.0333		92.3	30-120			
Benzo (a) anthracene	0.0279	0.00500	"	0.0333		83.8	30-120			
Benzo (a) pyrene	0.0313	0.00500	"	0.0333		94.0	30-120			
Benzo (b) fluoranthene	0.0328	0.00500	"	0.0333		98.5	30-120			
Benzo (k) fluoranthene	0.0312	0.00500	"	0.0333		93.5	30-120			
Chrysene	0.0315	0.00500	"	0.0333		94.4	30-120			
Dibenz (a,h) anthracene	0.0325	0.00500	"	0.0333		97.4	30-120			
Fluoranthene	0.0300	0.00500	"	0.0333		89.9	30-120			
Fluorene	0.0303	0.00500	"	0.0333		90.9	30-120			
Indeno (1,2,3-cd) pyrene	0.0333	0.00500	"	0.0333		99.9	30-120			
Pyrene	0.0328	0.00500	"	0.0333		98.3	35-142			
1-Methylnaphthalene	0.0314	0.00500	"	0.0333		94.2	35-142			
2-Methylnaphthalene	0.0339	0.00500	"	0.0333		102	35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0343		"	0.0333		103	40-150			
Surrogate: Fluoranthene-d10	0.0304		"	0.0333		91.2	40-150			

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/16/23 16:25

## PAH by EPA Method 8270D SIM - Quality Control

### Summit Scientific

Analyte	Reporting			Spike		Source		%REC		RPD	
	Result	Limit	Units	Level		Result	%REC	Limits	RPD	Limit	Notes

#### Batch BGH0332 - EPA 5030 Soil MS

##### Matrix Spike (BGH0332-MS1)

Source: 2308165-14

Prepared: 08/09/23 Analyzed: 08/10/23

Acenaphthene	0.0208	0.00500	mg/kg	0.0333	ND	62.5	31-137				
Anthracene	0.0199	0.00500	"	0.0333	ND	59.6	30-120				
Benzo (a) anthracene	0.0198	0.00500	"	0.0333	ND	59.5	30-120				
Benzo (a) pyrene	0.0201	0.00500	"	0.0333	ND	60.3	30-120				
Benzo (b) fluoranthene	0.0228	0.00500	"	0.0333	ND	68.5	30-120				
Benzo (k) fluoranthene	0.0213	0.00500	"	0.0333	ND	64.0	30-120				
Chrysene	0.0221	0.00500	"	0.0333	ND	66.3	30-120				
Dibenz (a,h) anthracene	0.0220	0.00500	"	0.0333	ND	66.0	30-120				
Fluoranthene	0.0185	0.00500	"	0.0333	ND	55.4	30-120				
Fluorene	0.0202	0.00500	"	0.0333	ND	60.5	30-120				
Indeno (1,2,3-cd) pyrene	0.0168	0.00500	"	0.0333	ND	50.4	30-120				
Pyrene	0.0250	0.00500	"	0.0333	ND	75.0	35-142				
1-Methylnaphthalene	0.0192	0.00500	"	0.0333	ND	57.6	15-130				
2-Methylnaphthalene	0.0238	0.00500	"	0.0333	ND	71.4	15-130				
Surrogate: 2-Methylnaphthalene-d10	0.0191		"	0.0333		57.4	40-150				
Surrogate: Fluoranthene-d10	0.0180		"	0.0333		54.0	40-150				

##### Matrix Spike Dup (BGH0332-MSD1)

Source: 2308165-14

Prepared: 08/09/23 Analyzed: 08/10/23

Acenaphthene	0.0201	0.00500	mg/kg	0.0333	ND	60.2	31-137	3.81	30		
Anthracene	0.0198	0.00500	"	0.0333	ND	59.3	30-120	0.555	30		
Benzo (a) anthracene	0.0196	0.00500	"	0.0333	ND	58.7	30-120	1.28	30		
Benzo (a) pyrene	0.0198	0.00500	"	0.0333	ND	59.5	30-120	1.32	30		
Benzo (b) fluoranthene	0.0228	0.00500	"	0.0333	ND	68.5	30-120	0.0350	30		
Benzo (k) fluoranthene	0.0212	0.00500	"	0.0333	ND	63.7	30-120	0.388	30		
Chrysene	0.0213	0.00500	"	0.0333	ND	63.8	30-120	3.91	30		
Dibenz (a,h) anthracene	0.0214	0.00500	"	0.0333	ND	64.3	30-120	2.55	30		
Fluoranthene	0.0196	0.00500	"	0.0333	ND	58.8	30-120	5.83	30		
Fluorene	0.0200	0.00500	"	0.0333	ND	59.9	30-120	1.01	30		
Indeno (1,2,3-cd) pyrene	0.0169	0.00500	"	0.0333	ND	50.8	30-120	0.798	30		
Pyrene	0.0233	0.00500	"	0.0333	ND	70.0	35-142	6.96	30		
1-Methylnaphthalene	0.0215	0.00500	"	0.0333	ND	64.4	15-130	11.1	50		
2-Methylnaphthalene	0.0229	0.00500	"	0.0333	ND	68.7	15-130	3.89	50		
Surrogate: 2-Methylnaphthalene-d10	0.0212		"	0.0333		63.5	40-150				
Surrogate: Fluoranthene-d10	0.0193		"	0.0333		57.8	40-150				

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/16/23 16:25

**Total Metals by EPA 6020B Hot Water Soluble Extraction - Quality Control**  
**Summit Scientific**

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

**Batch BGH0526 - EPA 3050B**

**Blank (BGH0526-BLK1)**

Prepared: 08/14/23 Analyzed: 08/15/23

Boron ND 0.0100 mg/L

**LCS (BGH0526-BS1)**

Prepared: 08/14/23 Analyzed: 08/15/23

Boron 5.73 0.0100 mg/L 5.00 115 80-120

**Duplicate (BGH0526-DUP1)**

**Source: 2308166-01**

Prepared: 08/14/23 Analyzed: 08/15/23

Boron 0.107 0.0100 mg/L 0.200 60.1 20 QR-01

**Matrix Spike (BGH0526-MS1)**

**Source: 2308166-01**

Prepared: 08/14/23 Analyzed: 08/15/23

Boron 5.85 0.0100 mg/L 5.00 0.200 113 75-125

**Matrix Spike Dup (BGH0526-MSD1)**

**Source: 2308166-01**

Prepared: 08/14/23 Analyzed: 08/15/23

Boron 5.56 0.0100 mg/L 5.00 0.200 107 75-125 5.01 25

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**

08/16/23 16:25

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction - Quality Control**

**Summit Scientific**

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD	
		Limit	Units		Result	%REC	Limits	RPD	Limit	Notes

**Batch BGH0487 - General Preparation**

**Blank (BGH0487-BLK1)**

Prepared: 08/11/23 Analyzed: 08/14/23

Calcium	ND	0.0500	mg/L wet
Magnesium	ND	0.0500	"
Sodium	ND	0.0500	"

**LCS (BGH0487-BS1)**

Prepared: 08/11/23 Analyzed: 08/14/23

Calcium	4.09	0.0500	mg/L wet	5.00	81.9	70-130
Magnesium	5.40	0.0500	"	5.00	108	70-130
Sodium	6.12	0.0500	"	5.00	122	70-130

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**

08/16/23 16:25

**Physical Parameters by APHA/ASTM/EPA Methods - Quality Control**

**Summit Scientific**

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD	
		Limit	Units		Result	%REC	Limits	RPD	Limit	Notes

**Batch BGH0335 - General Preparation**

**Duplicate (BGH0335-DUP1)**

**Source: 2308163-01**

Prepared & Analyzed: 08/09/23

% Solids	87.6	%	87.1	0.520	20
----------	------	---	------	-------	----

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*





Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/16/23 16:25

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction - Quality Control**  
**Summit Scientific**

Analyte	Result	Reporting			Spike	Source	%REC		RPD	
		Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

**Batch BGH0539 - General Preparation**

**Blank (BGH0539-BLK1)**

Prepared & Analyzed: 08/14/23

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BGH0539-BS1)**

Prepared & Analyzed: 08/14/23

Specific Conductance (EC) 0.154 0.0100 mmhos/cm 0.150 103 95-105

**Duplicate (BGH0539-DUP1)**

**Source: 2308161-01**

Prepared & Analyzed: 08/14/23

Specific Conductance (EC) 1.01 0.0100 mmhos/cm 1.03 2.55 20

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**

08/16/23 16:25

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction - Quality Control**

**Summit Scientific**

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD	
		Limit	Units		Result	%REC	Limits	RPD	Limit	Notes

**Batch BGH0540 - General Preparation**

**LCS (BGH0540-BS1)**

Prepared & Analyzed: 08/14/23

pH	9.01	pH Units	9.18	98.1	95-105
----	------	----------	------	------	--------

**Duplicate (BGH0540-DUP1)**

**Source: 2308161-01**

Prepared & Analyzed: 08/14/23

pH	8.03	pH Units	8.05	0.249	20
----	------	----------	------	-------	----

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/16/23 16:25

### Notes and Definitions

QR-01	Analyses are not controlled on RPD values from sample concentrations less than 10 times the reporting limit. QC batch accepted based on LCS and/or LCSD QC results.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

August 14, 2023

Mark Longhurst

Tasman Geosciences

6855 W. 119th Ave.

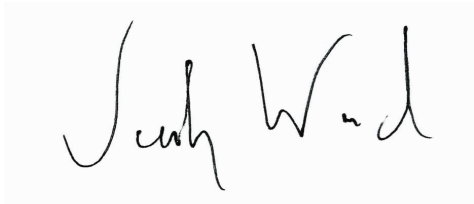
Broomfield, CO 80020

RE: PDC - Ikenouye F28-65HN Facility

Work Order #2308208

Enclosed are the results of analyses for samples received by Summit Scientific on 08/09/23 16:10. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Jacob Wood". The signature is written in a cursive, flowing style.

Jacob Wood For Paul Shrewsbury

President



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
PWV01-B@3.5'	2308208-01	Soil	08/09/23 09:00	08/09/23 16:10
PWV01-W@1.5'	2308208-03	Soil	08/09/23 09:10	08/09/23 16:10
AST02-B@1'	2308208-06	Soil	08/09/23 09:25	08/09/23 16:10
AST02-W@6"	2308208-08	Soil	08/09/23 09:35	08/09/23 16:10
AST03-B@2.5'	2308208-11	Soil	08/09/23 11:00	08/09/23 16:10
AST03-S@1'	2308208-14	Soil	08/09/23 11:15	08/09/23 16:10
BKG01@6"	2308208-16	Soil	08/09/23 13:00	08/09/23 16:10
BKG01@1'	2308208-17	Soil	08/09/23 13:05	08/09/23 16:10
BKG01@1.5'	2308208-18	Soil	08/09/23 13:10	08/09/23 16:10
BKG01@2.5'	2308208-19	Soil	08/09/23 13:15	08/09/23 16:10
BKG01@3.5'	2308208-20	Soil	08/09/23 13:20	08/09/23 16:10
BKG02@6"	2308208-21	Soil	08/09/23 14:00	08/09/23 16:10
BKG02@1'	2308208-22	Soil	08/09/23 14:05	08/09/23 16:10
BKG02@1.5'	2308208-23	Soil	08/09/23 14:10	08/09/23 16:10
BKG02@2.5'	2308208-24	Soil	08/09/23 14:15	08/09/23 16:10
BKG02@3.5'	2308208-25	Soil	08/09/23 14:20	08/09/23 16:10
AST01@0-6"	2308208-26	Soil	08/09/23 10:00	08/09/23 16:10

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

Client: PDC PDC / Tasman		Send Data To: Project Manager: Mark Longhurst		Send Invoice To: Company: PDC Energy	
Address: 6855 W 119th Ave		E-Mail: mark.longhurst@PDCE.com		Project Name/Location:	
City/State/Zip: Broomfield / CO / 80220				AFE#:	
Phone: 303-487-1228		Project Name: Ikenoye F28-65HN Facility		PO/Billing Codes:	
Sampler Name: Jordan Hestmark		Project Number:		Contact: Mark Longhurst	

					Preservative				Matrix				Analysis Requested									Special Instructions
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	BTEXN - 8260B	TPH - (C6 - C36)	1,2,4 & 1,3,5 - TMB	Boron - HWS	pH, EC, SAR	PAHs	Metals	TDS, SO4, Cl	Hold	
1	PWV01-B @ 3.5'	8/9/23	900	2			X			X			X	X	X	X	X	X	X	X		
2	PWV01-N @ 1.5'		905																			X
3	PWV01-W @ 1.5'		910										X	X	X	X	X	X	X	X		
4	PWV01-S @ 1.5'		915																			X
5	PWV01-E @ 1.5'		920																			X
6	AST02-B @ 1'		925										X	X	X	X	X	X	X	X		
7	AST02-N @ 6"		930																			X
8	AST02-W @ 6"		935										X	X	X	X	X	X	X	X		
9	AST02-S @ 6"		940																			X
10	AST02-E @ 6"		945																			X
11	AST03-B @ 2.5'		1100										X	X	X	X	X	X	X	X	X	
12	AST03-N @ 1'		1105																			X
13	AST03-W @ 1'		1110																			X
14	AST03-S @ 1'		1115										X	X	X	X	X	X	X	X	X	
15	AST03-E @ 1'		1120																			X

Relinquished by: Jordan Hestmark	Date/Time: 8/9/23 1703	Received by: Tasman Lockbox	Date/Time: 8/9/23 1703	TAT Business Days	Field DO	Notes:
				Same Day	Field EC	
Relinquished by: Tasman Lockbox	Date/Time: 8/9/23 1610	Received by: D.H.	Date/Time: 8/9/23 1610	1 Day	Field ORP	
				2 Days	Field pH	
Relinquished by:	Date/Time:	Received by:	Date/Time:	3 Days	Field Temp.	
				Standard	Field Turb.	
Temperature Upon Receipt: 9.4		Corrected Temperature: 9		IR gun #: 1	HNO3 lot #:	



Client: PDC PDC / Tasman		Send Data To: Project Manager: Mark Longhurst		Send Invoice To: Company: PDC Energy	
Address: 6855 W 119th Ave		E-Mail: mark.longhurst@PDCE.com		Project Name/Location:	
City/State/Zip: Broomfield / CO / 80220				AFE#:	
Phone: 303-487-1228		Project Name: Ikeronje F28-65HN Facility		PO/Billing Codes:	
Sampler Name: Jordan Hestmark		Project Number:		Contact: Mark Longhurst	

					Preservative				Matrix				Analysis Requested							Special Instructions		
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO3	None	Other _____	Water	Soil	Air-Canister #	Other _____	BTEXN - 8260B	TPH - (C6 - C36)	1,2,4 & 1,3,5 - TMB	Boron - HWS	pH, EC, SAR	PAHs	Metals	TDS, SO4, Cl		
1	BKG01 @ 6"	8/9/23	1300	1			X			X										X		<del>Hold</del> JH
2	BKG01 @ 1'		1305	1																		
3	BKG01 @ 1.5'		1310	1																		
4	BKG01 @ 2.5'		1315	1																		
5	BKG01 @ 3.5'		1320	1																		
6	BKG02 @ 6"		1400	1																		
7	BKG02 @ 1'		1405	1																		
8	BKG02 @ 1.5'		1410	1																		
9	BKG02 @ 2.5'		1415	1																		
10	BKG02 @ 3.5'		1420	1																		
11	AST01 @ 0-6"		1000	2									X	X	X				X			
12																						
13																						
14																						
15																						

Relinquished by: Jordan Hestmark	Date/Time: 8/9/23 1703	Received by: Tasman Lockbox	Date/Time: 8/9/23 1703	TAT Business Days	Field DO	Notes:
Relinquished by: Tasman Lockbox	Date/Time: 8/9/23 1610	Received by: [Signature]	Date/Time: 8/9/23 1610	Same Day	Field EC	
				1 Day	Field ORP	
				2 Days	Field pH	
				3 Days	Field Temp.	
				Standard	X Field Turb.	
Temperature Upon Receipt: 94	Corrected Temperature: 9	IR gun #: 1	HNO3 lot #:			

S<sub>2</sub>

2/2

## Sample Receipt Checklist

S2 Work Order# 2308208Client: PoltasmanClient Project ID: Ikanouye F28-GSHN FacilityShipped Via: H.D./P.U./FedEx/UPS/USPS/Other ☐

Airbill #: \_\_\_\_\_

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Matrix (Check all that apply)

Air

☐

Soil/Solid

☐

Water

☐

Other

☐

Temp (°C)

9.4

Thermometer #

1

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? <sup>(1)</sup> NOTE: If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	on Ice
If custody seals are present, are they intact? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are samples due within 48 hours present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Same day
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe <sup>2+</sup> ), Hexavalent Chromium (Cr <sup>6+</sup> , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out Completely? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling)? <sup>(1)</sup> Note the type of preservative in the comments column – HCl, H <sub>2</sub> SO <sub>4</sub> , NaOH, HNO <sub>3</sub> , etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2? <sup>(1)</sup> Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Comments (if any):				

<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.

Custodian Printed Name

Date/Time

AS

8/9/23

9.6.0





Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

**PWV01-B@3.5'**  
**2308208-01 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/09/23 09:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BGH0385	08/09/23	08/09/23	EPA 8260B	
Toluene	ND	0.0050		"	"	"	"	"	"	
Ethylbenzene	ND	0.0050		"	"	"	"	"	"	
Xylenes (total)	ND	0.010		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050		"	"	"	"	"	"	
Naphthalene	ND	0.0038		"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50		"	"	"	"	"	"	

Date Sampled: **08/09/23 09:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	0.0449	112 %		50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0399	99.8 %		50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0414	103 %		50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/09/23 09:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BGH0388	08/09/23	08/09/23	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **08/09/23 09:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl	11.9	95.6 %		30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

**PWV01-B@3.5'**  
**2308208-01 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **08/09/23 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGH0400	08/10/23	08/11/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **08/09/23 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0151	45.3 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0144	43.3 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **08/09/23 09:00**

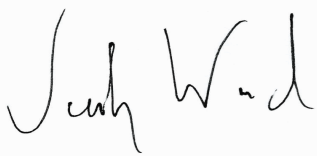
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.954</b>	0.0100	mg/L	1	BGH0418	08/10/23	08/11/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **08/09/23 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

Summit Scientific



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

**PWV01-B@3.5'**  
**2308208-01 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Arsenic	0.599	0.200	mg/kg dry	1	BGH0393	08/10/23	08/11/23	EPA 6020B
Barium	162	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	1.77	0.400	"	"	"	"	"	"
Lead	3.50	0.200	"	"	"	"	"	"
Nickel	1.64	0.400	"	"	"	"	"	"
Silver	0.0236	0.0200	"	"	"	"	"	"
Zinc	7.87	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **08/09/23 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGH0449	08/10/23	08/10/23	EPA 7196A	

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction**

Date Sampled: **08/09/23 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	25.7	0.0567	mg/L dry	1	BGH0383	08/09/23	08/11/23	EPA 6020B	
Magnesium	12.7	0.0567	"	"	"	"	"	"	
Sodium	0.937	0.0567	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **08/09/23 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0355	0.00100	units	1	BGH0472	08/11/23	08/11/23	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

**PWV01-B@3.5'**  
**2308208-01 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **08/09/23 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	88.1		%	1	BGH0456	08/11/23	08/11/23	Calculation	

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **08/09/23 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.548	0.0100	mmhos/cm	1	BGH0425	08/10/23	08/10/23	EPA 120.1	

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

Date Sampled: **08/09/23 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.55		pH Units	1	BGH0424	08/10/23	08/10/23	EPA 9045D	

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

**PWV01-W@1.5'**  
**2308208-03 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/09/23 09:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGH0385	08/09/23	08/09/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
<b>1,2,4-Trimethylbenzene</b>	<b>0.0075</b>	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **08/09/23 09:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0436	109 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0397	99.2 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0412	103 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/09/23 09:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGH0388	08/09/23	08/09/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/09/23 09:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	12.0	96.3 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

**PWV01-W@1.5'**  
**2308208-03 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **08/09/23 09:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Acenaphthene	ND	0.00500	mg/kg	1	BGH0400	08/10/23	08/11/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **08/09/23 09:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10	0.0145	43.5 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0137	41.0 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **08/09/23 09:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
<b>Boron</b>	<b>0.925</b>	0.0100	mg/L	1	BGH0418	08/10/23	08/11/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **08/09/23 09:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

**PWV01-W@1.5'**  
**2308208-03 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Arsenic	0.864	0.200	mg/kg dry	1	BGH0393	08/10/23	08/11/23	EPA 6020B
Barium	241	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	1.42	0.400	"	"	"	"	"	"
Lead	4.43	0.200	"	"	"	"	"	"
Nickel	1.60	0.400	"	"	"	"	"	"
Silver	0.0310	0.0200	"	"	"	"	"	"
Zinc	8.40	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **08/09/23 09:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGH0449	08/10/23	08/10/23	EPA 7196A	

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction**

Date Sampled: **08/09/23 09:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	105	0.0569	mg/L dry	1	BGH0383	08/09/23	08/11/23	EPA 6020B	
Magnesium	14.9	0.0569	"	"	"	"	"	"	
Sodium	0.648	0.0569	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **08/09/23 09:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0147	0.00100	units	1	BGH0472	08/11/23	08/11/23	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

**PWV01-W@1.5'**  
**2308208-03 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **08/09/23 09:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	87.9			%	1	BGH0456	08/11/23	08/11/23	Calculation	

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **08/09/23 09:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	0.411	0.0100		mmhos/cm	1	BGH0425	08/10/23	08/10/23	EPA 120.1	

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

Date Sampled: **08/09/23 09:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	7.61			pH Units	1	BGH0424	08/10/23	08/10/23	EPA 9045D	

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*





Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

**AST02-B@1'**  
**2308208-06 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/09/23 09:25**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGH0385	08/09/23	08/09/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **08/09/23 09:25**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0460	115 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0400	100 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0406	101 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/09/23 09:25**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGH0388	08/09/23	08/10/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/09/23 09:25**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	11.8	94.8 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

**AST02-B@1'**  
**2308208-06 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **08/09/23 09:25**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Acenaphthene	ND	0.00500	mg/kg	1	BGH0400	08/10/23	08/11/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **08/09/23 09:25**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10	0.0204	61.2 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0194	58.2 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **08/09/23 09:25**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
<b>Boron</b>	<b>0.909</b>	0.0100	mg/L	1	BGH0418	08/10/23	08/11/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **08/09/23 09:25**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

**AST02-B@1'**  
**2308208-06 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Arsenic	0.546	0.200	mg/kg dry	1	BGH0393	08/10/23	08/11/23	EPA 6020B
Barium	89.1	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	1.16	0.400	"	"	"	"	"	"
Lead	3.71	0.200	"	"	"	"	"	"
Nickel	1.22	0.400	"	"	"	"	"	"
Silver	0.0288	0.0200	"	"	"	"	"	"
Zinc	6.36	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **08/09/23 09:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGH0449	08/10/23	08/10/23	EPA 7196A	

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction**

Date Sampled: **08/09/23 09:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	21.7	0.0537	mg/L dry	1	BGH0383	08/09/23	08/11/23	EPA 6020B	
Magnesium	11.6	0.0537	"	"	"	"	"	"	
Sodium	2.16	0.0537	"	"	"	"	"	"	

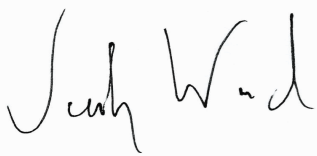
**Calculated Analysis**

Date Sampled: **08/09/23 09:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0898	0.00100	units	1	BGH0472	08/11/23	08/11/23	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Summit Scientific



*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

**AST02-B@1'**  
**2308208-06 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **08/09/23 09:25**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	93.2			%	1	BGH0456	08/11/23	08/11/23	Calculation	

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **08/09/23 09:25**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	0.859	0.0100		mmhos/cm	1	BGH0425	08/10/23	08/10/23	EPA 120.1	

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

Date Sampled: **08/09/23 09:25**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	8.04			pH Units	1	BGH0424	08/10/23	08/10/23	EPA 9045D	

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

**AST02-W@6"**  
**2308208-08 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/09/23 09:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGH0385	08/09/23	08/09/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **08/09/23 09:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0462	116 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0400	100 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0410	103 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/09/23 09:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGH0388	08/09/23	08/10/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/09/23 09:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	12.0	96.1 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Date Sampled: **08/09/23 09:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

**AST02-W@6''**  
**2308208-08 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGH0400	08/10/23	08/11/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **08/09/23 09:35**

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0156	46.7 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0166	49.9 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **08/09/23 09:35**


Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>1.11</b>	0.0100	mg/L	1	BGH0418	08/10/23	08/11/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **08/09/23 09:35**

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Arsenic</b>	<b>0.902</b>	0.200	mg/kg dry	1	BGH0393	08/10/23	08/11/23	EPA 6020B	
<b>Barium</b>	<b>87.7</b>	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
<b>Copper</b>	<b>2.11</b>	0.400	"	"	"	"	"	"	

Summit Scientific



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

**AST02-W@6''**  
**2308208-08 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Lead	5.39	0.200	mg/kg dry	1	BGH0393	08/10/23	08/11/23	EPA 6020B
Nickel	1.95	0.400	"	"	"	"	"	"
Silver	0.0475	0.0200	"	"	"	"	"	"
Zinc	10.9	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **08/09/23 09:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGH0449	08/10/23	08/10/23	EPA 7196A	

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction**

Date Sampled: **08/09/23 09:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	40.8	0.0582	mg/L dry	1	BGH0383	08/09/23	08/11/23	EPA 6020B	
Magnesium	15.4	0.0582	"	"	"	"	"	"	
Sodium	2.02	0.0582	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **08/09/23 09:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0632	0.00100	units	1	BGH0472	08/11/23	08/11/23	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **08/09/23 09:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	85.9		%	1	BGH0456	08/11/23	08/11/23	Calculation	

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**

08/14/23 14:30

**AST02-W@6"**

**2308208-08 (Soil)**

**Summit Scientific**

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **08/09/23 09:35**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	1.14	0.0100		mmhos/cm	1	BGH0425	08/10/23	08/10/23	EPA 120.1	

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

Date Sampled: **08/09/23 09:35**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	7.51			pH Units	1	BGH0424	08/10/23	08/10/23	EPA 9045D	

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*





Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

**AST02-W@6"**  
**2308208-08 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/09/23 09:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
<b>1,2,4-Trimethylbenzene</b>	<b>0.070</b>	0.0050	mg/kg	1	BGH0439	08/10/23	08/10/23	EPA 8260B	
<b>1,3,5-Trimethylbenzene</b>	<b>0.047</b>	0.0050	"	"	"	"	"	"	

Date Sampled: **08/09/23 09:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0455	114 %	50-150		"	"	"	"	
<i>Surrogate: Toluene-d8</i>	0.0392	98.0 %	50-150		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0400	100 %	50-150		"	"	"	"	

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

**AST03-B@2.5'**  
**2308208-11 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/09/23 11:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGH0385	08/09/23	08/09/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
<b>1,2,4-Trimethylbenzene</b>	<b>0.0066</b>	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **08/09/23 11:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0459	115 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0395	98.8 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0401	100 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/09/23 11:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGH0388	08/09/23	08/10/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/09/23 11:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	11.5	91.7 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

**AST03-B@2.5'**  
**2308208-11 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **08/09/23 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGH0400	08/10/23	08/11/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **08/09/23 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0160	48.0 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0147	44.1 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **08/09/23 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>1.43</b>	0.0100	mg/L	1	BGH0418	08/10/23	08/11/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **08/09/23 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

**AST03-B@2.5'**  
**2308208-11 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Arsenic	0.600	0.200	mg/kg dry	1	BGH0393	08/10/23	08/11/23	EPA 6020B
Barium	70.1	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	1.44	0.400	"	"	"	"	"	"
Lead	4.60	0.200	"	"	"	"	"	"
Nickel	1.39	0.400	"	"	"	"	"	"
Silver	0.0387	0.0200	"	"	"	"	"	"
Zinc	8.33	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **08/09/23 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGH0449	08/10/23	08/10/23	EPA 7196A	

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction**

Date Sampled: **08/09/23 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	19.4	0.0604	mg/L dry	1	BGH0383	08/09/23	08/11/23	EPA 6020B	
Magnesium	13.6	0.0604	"	"	"	"	"	"	
Sodium	1.33	0.0604	"	"	"	"	"	"	

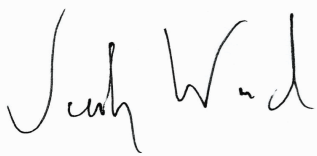
**Calculated Analysis**

Date Sampled: **08/09/23 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0514	0.00100	units	1	BGH0472	08/11/23	08/11/23	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Summit Scientific



*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

**AST03-B@2.5'**  
**2308208-11 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **08/09/23 11:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
% Solids	82.8			%	1	BGH0456	08/11/23	08/11/23	Calculation	

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **08/09/23 11:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Specific Conductance (EC)	0.531	0.0100		mmhos/cm	1	BGH0425	08/10/23	08/10/23	EPA 120.1	

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

Date Sampled: **08/09/23 11:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
pH	7.80			pH Units	1	BGH0424	08/10/23	08/10/23	EPA 9045D	

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

**AST03-S@1'**  
**2308208-14 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/09/23 11:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGH0385	08/09/23	08/09/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **08/09/23 11:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0446	112 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0397	99.2 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0428	107 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/09/23 11:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGH0388	08/09/23	08/10/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/09/23 11:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	12.3	98.4 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

**AST03-S@1'**  
**2308208-14 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **08/09/23 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGH0400	08/10/23	08/11/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **08/09/23 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0193	57.9 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0178	53.5 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **08/09/23 11:15**


Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>1.01</b>	0.0100	mg/L	1	BGH0418	08/10/23	08/11/23	EPA 6020B	

**Total Metals by EPA 6020B**

Date Sampled: **08/09/23 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

Summit Scientific



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

**AST03-S@1'**  
**2308208-14 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Arsenic	0.873	0.200	mg/kg dry	1	BGH0393	08/10/23	08/11/23	EPA 6020B
Barium	118	0.400	"	"	"	"	"	"
Cadmium	ND	0.200	"	"	"	"	"	"
Copper	2.08	0.400	"	"	"	"	"	"
Lead	4.63	0.200	"	"	"	"	"	"
Nickel	1.79	0.400	"	"	"	"	"	"
Silver	0.0454	0.0200	"	"	"	"	"	"
Zinc	9.95	0.400	"	"	"	"	"	"
Selenium	ND	0.260	"	"	"	"	"	"

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **08/09/23 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGH0449	08/10/23	08/10/23	EPA 7196A	

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction**

Date Sampled: **08/09/23 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	63.3	0.0557	mg/L dry	1	BGH0383	08/09/23	08/11/23	EPA 6020B	
Magnesium	15.1	0.0557	"	"	"	"	"	"	
Sodium	1.02	0.0557	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **08/09/23 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.0284	0.00100	units	1	BGH0472	08/11/23	08/11/23	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*





Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

**AST03-S@1'**  
**2308208-14 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **08/09/23 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	89.8		%	1	BGH0456	08/11/23	08/11/23	Calculation	

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **08/09/23 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.534	0.0100	mmhos/cm	1	BGH0425	08/10/23	08/10/23	EPA 120.1	

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

Date Sampled: **08/09/23 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.62		pH Units	1	BGH0424	08/10/23	08/10/23	EPA 9045D	

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

**BKG01@6"**  
**2308208-16 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **08/09/23 13:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	<b>0.846</b>	0.200	mg/kg dry	1	BGH0393	08/10/23	08/11/23	EPA 6020B	
Barium	<b>64.4</b>	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	<b>1.25</b>	0.400	"	"	"	"	"	"	
Lead	<b>3.58</b>	0.200	"	"	"	"	"	"	
Nickel	<b>1.56</b>	0.400	"	"	"	"	"	"	
Silver	<b>0.0200</b>	0.0200	"	"	"	"	"	"	
Zinc	<b>7.46</b>	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **08/09/23 13:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGH0449	08/10/23	08/10/23	EPA 7196A	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **08/09/23 13:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	<b>92.0</b>		%	1	BGH0456	08/11/23	08/11/23	Calculation	

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

**BKG01@1'**  
**2308208-17 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **08/09/23 13:05**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Arsenic</b>	<b>0.603</b>	0.200	mg/kg dry	1	BGH0393	08/10/23	08/11/23	EPA 6020B	
<b>Barium</b>	<b>73.2</b>	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
<b>Copper</b>	<b>0.998</b>	0.400	"	"	"	"	"	"	
<b>Lead</b>	<b>3.50</b>	0.200	"	"	"	"	"	"	
<b>Nickel</b>	<b>1.60</b>	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
<b>Zinc</b>	<b>6.81</b>	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **08/09/23 13:05**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGH0449	08/10/23	08/10/23	EPA 7196A	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **08/09/23 13:05**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>% Solids</b>	<b>89.3</b>		%	1	BGH0456	08/11/23	08/11/23	Calculation	

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

**BKG01@1.5'**  
**2308208-18 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **08/09/23 13:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Arsenic</b>	<b>1.27</b>	0.200	mg/kg dry	1	BGH0393	08/10/23	08/11/23	EPA 6020B	
<b>Barium</b>	<b>81.3</b>	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
<b>Copper</b>	<b>0.991</b>	0.400	"	"	"	"	"	"	
<b>Lead</b>	<b>4.53</b>	0.200	"	"	"	"	"	"	
<b>Nickel</b>	<b>1.76</b>	0.400	"	"	"	"	"	"	
Silver	ND	0.0200	"	"	"	"	"	"	
<b>Zinc</b>	<b>8.14</b>	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **08/09/23 13:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGH0449	08/10/23	08/10/23	EPA 7196A	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **08/09/23 13:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>% Solids</b>	<b>87.9</b>		%	1	BGH0456	08/11/23	08/11/23	Calculation	

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

**BKG01@2.5'**  
**2308208-19 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **08/09/23 13:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	<b>0.923</b>	0.200	mg/kg dry	1	BGH0393	08/10/23	08/11/23	EPA 6020B	
Barium	<b>113</b>	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	<b>1.48</b>	0.400	"	"	"	"	"	"	
Lead	<b>4.76</b>	0.200	"	"	"	"	"	"	
Nickel	<b>1.79</b>	0.400	"	"	"	"	"	"	
Silver	<b>0.0336</b>	0.0200	"	"	"	"	"	"	
Zinc	<b>8.64</b>	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **08/09/23 13:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGH0449	08/10/23	08/10/23	EPA 7196A	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **08/09/23 13:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	<b>87.0</b>		%	1	BGH0456	08/11/23	08/11/23	Calculation	

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

**BKG01@3.5'**  
**2308208-20 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **08/09/23 13:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	1.22	0.200	mg/kg dry	1	BGH0393	08/10/23	08/11/23	EPA 6020B	
Barium	133	0.400	"	"	"	"	"	"	
Cadmium	0.735	0.200	"	"	"	"	"	"	
Copper	7.23	0.400	"	"	"	"	"	"	
Lead	28.6	0.200	"	"	"	"	"	"	
Nickel	1.94	0.400	"	"	"	"	"	"	
Silver	0.449	0.0200	"	"	"	"	"	"	
Zinc	25.4	0.400	"	"	"	"	"	"	
Selenium	0.692	0.260	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **08/09/23 13:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGH0449	08/10/23	08/10/23	EPA 7196A	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **08/09/23 13:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	77.9		%	1	BGH0456	08/11/23	08/11/23	Calculation	

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

**BKG02@6"**  
**2308208-21 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **08/09/23 14:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	<b>0.737</b>	0.200	mg/kg dry	1	BGH0393	08/10/23	08/11/23	EPA 6020B	
Barium	<b>99.7</b>	0.400	"	"	"	"	"	"	
Cadmium	<b>0.273</b>	0.200	"	"	"	"	"	"	
Copper	<b>1.26</b>	0.400	"	"	"	"	"	"	
Lead	<b>4.94</b>	0.200	"	"	"	"	"	"	
Nickel	<b>2.35</b>	0.400	"	"	"	"	"	"	
Silver	<b>0.0373</b>	0.0200	"	"	"	"	"	"	
Zinc	<b>8.22</b>	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **08/09/23 14:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGH0449	08/10/23	08/10/23	EPA 7196A	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **08/09/23 14:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	<b>91.0</b>		%	1	BGH0456	08/11/23	08/11/23	Calculation	

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

**BKG02@1'**  
**2308208-22 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **08/09/23 14:05**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	1.10	0.200	mg/kg dry	1	BGH0393	08/10/23	08/11/23	EPA 6020B	
Barium	67.0	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	2.12	0.400	"	"	"	"	"	"	
Lead	6.02	0.200	"	"	"	"	"	"	
Nickel	1.46	0.400	"	"	"	"	"	"	
Silver	0.0352	0.0200	"	"	"	"	"	"	
Zinc	7.42	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **08/09/23 14:05**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGH0449	08/10/23	08/10/23	EPA 7196A	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **08/09/23 14:05**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	88.6		%	1	BGH0456	08/11/23	08/11/23	Calculation	

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*





Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

**BKG02@1.5'**  
**2308208-23 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **08/09/23 14:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	<b>0.811</b>	0.200	mg/kg dry	1	BGH0393	08/10/23	08/11/23	EPA 6020B	
Barium	<b>89.8</b>	0.400	"	"	"	"	"	"	
Cadmium	ND	0.200	"	"	"	"	"	"	
Copper	<b>1.48</b>	0.400	"	"	"	"	"	"	
Lead	<b>4.45</b>	0.200	"	"	"	"	"	"	
Nickel	<b>1.38</b>	0.400	"	"	"	"	"	"	
Silver	<b>0.0347</b>	0.0200	"	"	"	"	"	"	
Zinc	<b>7.23</b>	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **08/09/23 14:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGH0449	08/10/23	08/10/23	EPA 7196A	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **08/09/23 14:10**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	<b>91.1</b>		%	1	BGH0456	08/11/23	08/11/23	Calculation	

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

**BKG02@2.5'**  
**2308208-24 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **08/09/23 14:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	1.16	0.200	mg/kg dry	1	BGH0393	08/10/23	08/11/23	EPA 6020B	
Barium	70.1	0.400	"	"	"	"	"	"	
Cadmium	0.252	0.200	"	"	"	"	"	"	
Copper	3.06	0.400	"	"	"	"	"	"	
Lead	10.9	0.200	"	"	"	"	"	"	
Nickel	1.84	0.400	"	"	"	"	"	"	
Silver	0.116	0.0200	"	"	"	"	"	"	
Zinc	16.2	0.400	"	"	"	"	"	"	
Selenium	ND	0.260	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **08/09/23 14:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGH0449	08/10/23	08/10/23	EPA 7196A	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **08/09/23 14:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	82.7		%	1	BGH0456	08/11/23	08/11/23	Calculation	

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

**BKG02@3.5'**  
**2308208-25 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **08/09/23 14:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Arsenic	<b>0.966</b>	0.200	mg/kg dry	1	BGH0393	08/10/23	08/11/23	EPA 6020B	
Barium	<b>111</b>	0.400	"	"	"	"	"	"	
Cadmium	<b>0.316</b>	0.200	"	"	"	"	"	"	
Copper	<b>7.09</b>	0.400	"	"	"	"	"	"	
Lead	<b>23.4</b>	0.200	"	"	"	"	"	"	
Nickel	<b>1.77</b>	0.400	"	"	"	"	"	"	
Silver	<b>0.329</b>	0.0200	"	"	"	"	"	"	
Zinc	<b>18.7</b>	0.400	"	"	"	"	"	"	
Selenium	<b>0.427</b>	0.260	"	"	"	"	"	"	

**Hexavalent Chromium by EPA Method 7196**

Date Sampled: **08/09/23 14:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BGH0449	08/10/23	08/10/23	EPA 7196A	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **08/09/23 14:20**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
% Solids	<b>80.4</b>		%	1	BGH0456	08/11/23	08/11/23	Calculation	

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

**AST01@0-6"**  
**2308208-26 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/09/23 10:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGH0385	08/09/23	08/09/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **08/09/23 10:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0447	112 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0399	99.8 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0405	101 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/09/23 10:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGH0388	08/09/23	08/10/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/09/23 10:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	11.2	89.4 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

**AST01@0-6"**  
**2308208-26 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **08/09/23 10:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Acenaphthene	ND	0.00500	mg/kg	1	BGH0400	08/10/23	08/11/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **08/09/23 10:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 2-Methylnaphthalene-d10	0.0163	48.8 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0134	40.3 %	40-150		"	"	"	"	

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

## Volatile Organic Compounds by EPA Method 8260B - Quality Control

### Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

#### Batch BGH0385 - EPA 5030 Soil MS

##### Blank (BGH0385-BLK1)

Prepared: 08/09/23 Analyzed: 08/10/23

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
1,2,4-Trimethylbenzene	ND	0.0050	"							
1,3,5-Trimethylbenzene	ND	0.0050	"							
Naphthalene	ND	0.0038	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0442		"	0.0400		110	50-150			
Surrogate: Toluene-d8	0.0394		"	0.0400		98.6	50-150			
Surrogate: 4-Bromofluorobenzene	0.0405		"	0.0400		101	50-150			

##### LCS (BGH0385-BS1)

Prepared: 08/09/23 Analyzed: 08/10/23

Benzene	0.109	0.0020	mg/kg	0.100		109	70-130			
Toluene	0.0961	0.0050	"	0.100		96.1	70-130			
Ethylbenzene	0.0999	0.0050	"	0.100		99.9	70-130			
m,p-Xylene	0.201	0.010	"	0.200		101	70-130			
o-Xylene	0.0924	0.0050	"	0.100		92.4	70-130			
1,2,4-Trimethylbenzene	0.0952	0.0050	"	0.100		95.2	70-130			
1,3,5-Trimethylbenzene	0.0901	0.0050	"	0.100		90.1	70-130			
Naphthalene	0.0885	0.0038	"	0.100		88.5	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0424		"	0.0400		106	50-150			
Surrogate: Toluene-d8	0.0395		"	0.0400		98.8	50-150			
Surrogate: 4-Bromofluorobenzene	0.0371		"	0.0400		92.8	50-150			

##### Matrix Spike (BGH0385-MS1)

Source: 2308202-01

Prepared: 08/09/23 Analyzed: 08/10/23

Benzene	0.0979	0.0020	mg/kg	0.100	ND	97.9	70-130			
Toluene	0.0918	0.0050	"	0.100	ND	91.8	70-130			
Ethylbenzene	0.0828	0.0050	"	0.100	ND	82.8	70-130			
m,p-Xylene	0.163	0.010	"	0.200	ND	81.3	70-130			
o-Xylene	0.0783	0.0050	"	0.100	ND	78.3	70-130			
1,2,4-Trimethylbenzene	0.0918	0.0050	"	0.100	ND	91.8	70-130			
1,3,5-Trimethylbenzene	0.0792	0.0050	"	0.100	ND	79.2	70-130			
Naphthalene	0.0899	0.0038	"	0.100	ND	89.9	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0438		"	0.0400		110	50-150			
Surrogate: Toluene-d8	0.0399		"	0.0400		99.8	50-150			
Surrogate: 4-Bromofluorobenzene	0.0388		"	0.0400		97.1	50-150			

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

## Volatile Organic Compounds by EPA Method 8260B - Quality Control

### Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

#### Batch BGH0385 - EPA 5030 Soil MS

##### Matrix Spike Dup (BGH0385-MSD1)

Source: 2308202-01

Prepared: 08/09/23 Analyzed: 08/10/23

Benzene	0.0917	0.0020	mg/kg	0.100	ND	91.7	70-130	6.49	30	
Toluene	0.0895	0.0050	"	0.100	ND	89.5	70-130	2.52	30	
Ethylbenzene	0.0773	0.0050	"	0.100	ND	77.3	70-130	6.93	30	
m,p-Xylene	0.175	0.010	"	0.200	ND	87.6	70-130	7.44	30	
o-Xylene	0.0791	0.0050	"	0.100	ND	79.1	70-130	1.03	30	
1,2,4-Trimethylbenzene	0.0760	0.0050	"	0.100	ND	76.0	70-130	18.8	30	
1,3,5-Trimethylbenzene	0.0832	0.0050	"	0.100	ND	83.2	70-130	4.84	30	
Naphthalene	0.0811	0.0038	"	0.100	ND	81.1	70-130	10.4	30	
Surrogate: 1,2-Dichloroethane-d4	0.0431		"	0.0400		108	50-150			
Surrogate: Toluene-d8	0.0399		"	0.0400		99.8	50-150			
Surrogate: 4-Bromofluorobenzene	0.0382		"	0.0400		95.6	50-150			

#### Batch BGH0439 - EPA 5030 Soil MS

##### Blank (BGH0439-BLK1)

Prepared: 08/10/23 Analyzed: 08/11/23

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
1,2,4-Trimethylbenzene	ND	0.0050	"							
1,3,5-Trimethylbenzene	ND	0.0050	"							
Naphthalene	ND	0.0038	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0519		"	0.0400		130	50-150			
Surrogate: Toluene-d8	0.0346		"	0.0400		86.6	50-150			
Surrogate: 4-Bromofluorobenzene	0.0353		"	0.0400		88.4	50-150			

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

## Volatile Organic Compounds by EPA Method 8260B - Quality Control

### Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

#### Batch BGH0439 - EPA 5030 Soil MS

##### LCS (BGH0439-BS1)

Prepared: 08/10/23 Analyzed: 08/11/23

Benzene	0.0852	0.0020	mg/kg	0.100		85.2	70-130			
Toluene	0.0880	0.0050	"	0.100		88.0	70-130			
Ethylbenzene	0.117	0.0050	"	0.100		117	70-130			
m,p-Xylene	0.253	0.010	"	0.200		127	70-130			
o-Xylene	0.111	0.0050	"	0.100		111	70-130			
1,2,4-Trimethylbenzene	0.103	0.0050	"	0.100		103	70-130			
1,3,5-Trimethylbenzene	0.0933	0.0050	"	0.100		93.3	70-130			
Naphthalene	0.0918	0.0038	"	0.100		91.8	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0518		"	0.0400		130	50-150			
Surrogate: Toluene-d8	0.0337		"	0.0400		84.2	50-150			
Surrogate: 4-Bromofluorobenzene	0.0349		"	0.0400		87.2	50-150			

##### Matrix Spike (BGH0439-MS1)

Source: 2308235-01

Prepared: 08/10/23 Analyzed: 08/11/23

Benzene	0.0853	0.0020	mg/kg	0.100	ND	85.3	70-130			
Toluene	0.0891	0.0050	"	0.100	ND	89.1	70-130			
Ethylbenzene	0.116	0.0050	"	0.100	ND	116	70-130			
m,p-Xylene	0.247	0.010	"	0.200	ND	123	70-130			
o-Xylene	0.110	0.0050	"	0.100	ND	110	70-130			
1,2,4-Trimethylbenzene	0.101	0.0050	"	0.100	ND	101	70-130			
1,3,5-Trimethylbenzene	0.0935	0.0050	"	0.100	ND	93.5	70-130			
Naphthalene	0.0860	0.0038	"	0.100	ND	86.0	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0564		"	0.0400		141	50-150			
Surrogate: Toluene-d8	0.0345		"	0.0400		86.2	50-150			
Surrogate: 4-Bromofluorobenzene	0.0358		"	0.0400		89.6	50-150			

##### Matrix Spike Dup (BGH0439-MSD1)

Source: 2308235-01

Prepared: 08/10/23 Analyzed: 08/11/23

Benzene	0.0849	0.0020	mg/kg	0.100	ND	84.9	70-130	0.458	30	
Toluene	0.0883	0.0050	"	0.100	ND	88.3	70-130	0.981	30	
Ethylbenzene	0.115	0.0050	"	0.100	ND	115	70-130	0.337	30	
m,p-Xylene	0.247	0.010	"	0.200	ND	124	70-130	0.267	30	
o-Xylene	0.109	0.0050	"	0.100	ND	109	70-130	0.825	30	
1,2,4-Trimethylbenzene	0.0997	0.0050	"	0.100	ND	99.7	70-130	1.61	30	
1,3,5-Trimethylbenzene	0.0909	0.0050	"	0.100	ND	90.9	70-130	2.80	30	
Naphthalene	0.0913	0.0038	"	0.100	ND	91.3	70-130	5.99	30	
Surrogate: 1,2-Dichloroethane-d4	0.0543		"	0.0400		136	50-150			
Surrogate: Toluene-d8	0.0346		"	0.0400		86.5	50-150			
Surrogate: 4-Bromofluorobenzene	0.0341		"	0.0400		85.2	50-150			

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.





Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

**Batch BGH0388 - EPA 3550A**

**Blank (BGH0388-BLK1)**

Prepared: 08/09/23 Analyzed: 08/10/23

C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
Surrogate: o-Terphenyl	9.35		"	12.5		74.8	30-150			

**LCS (BGH0388-BS1)**

Prepared: 08/09/23 Analyzed: 08/10/23

C10-C28 (DRO)	442	50	mg/kg	500		88.4	70-130			
Surrogate: o-Terphenyl	8.53		"	12.5		68.2	30-150			

**Matrix Spike (BGH0388-MS1)**

Source: 2308202-01

Prepared: 08/09/23 Analyzed: 08/10/23

C10-C28 (DRO)	403	50	mg/kg	500	9.66	78.6	70-130			
Surrogate: o-Terphenyl	9.46		"	12.5		75.7	30-150			

**Matrix Spike Dup (BGH0388-MSD1)**

Source: 2308202-01

Prepared: 08/09/23 Analyzed: 08/10/23

C10-C28 (DRO)	410	50	mg/kg	500	9.66	80.0	70-130	1.69	20	
Surrogate: o-Terphenyl	7.59		"	12.5		60.8	30-150			

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

## PAH by EPA Method 8270D SIM - Quality Control

### Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

#### Batch BGH0400 - EPA 5030 Soil MS

##### Blank (BGH0400-BLK1)

Prepared & Analyzed: 08/10/23

Acenaphthene	ND	0.00500	mg/kg
Anthracene	ND	0.00500	"
Benzo (a) anthracene	ND	0.00500	"
Benzo (a) pyrene	ND	0.00500	"
Benzo (b) fluoranthene	ND	0.00500	"
Benzo (k) fluoranthene	ND	0.00500	"
Chrysene	ND	0.00500	"
Dibenz (a,h) anthracene	ND	0.00500	"
Fluoranthene	ND	0.00500	"
Fluorene	ND	0.00500	"
Indeno (1,2,3-cd) pyrene	ND	0.00500	"
Pyrene	ND	0.00500	"
1-Methylnaphthalene	ND	0.00500	"
2-Methylnaphthalene	ND	0.00500	"

Surrogate: 2-Methylnaphthalene-d10	0.0277	"	0.0333	83.2	40-150
Surrogate: Fluoranthene-d10	0.0265	"	0.0333	79.4	40-150

##### LCS (BGH0400-BS1)

Prepared & Analyzed: 08/10/23

Acenaphthene	0.0274	0.00500	mg/kg	0.0333	82.1	31-137
Anthracene	0.0286	0.00500	"	0.0333	85.7	30-120
Benzo (a) anthracene	0.0241	0.00500	"	0.0333	72.2	30-120
Benzo (a) pyrene	0.0277	0.00500	"	0.0333	83.2	30-120
Benzo (b) fluoranthene	0.0278	0.00500	"	0.0333	83.4	30-120
Benzo (k) fluoranthene	0.0284	0.00500	"	0.0333	85.3	30-120
Chrysene	0.0288	0.00500	"	0.0333	86.4	30-120
Dibenz (a,h) anthracene	0.0271	0.00500	"	0.0333	81.2	30-120
Fluoranthene	0.0282	0.00500	"	0.0333	84.5	30-120
Fluorene	0.0263	0.00500	"	0.0333	79.0	30-120
Indeno (1,2,3-cd) pyrene	0.0276	0.00500	"	0.0333	82.8	30-120
Pyrene	0.0314	0.00500	"	0.0333	94.1	35-142
1-Methylnaphthalene	0.0293	0.00500	"	0.0333	87.8	35-142
2-Methylnaphthalene	0.0339	0.00500	"	0.0333	102	35-142

Surrogate: 2-Methylnaphthalene-d10	0.0310	"	0.0333	93.1	40-150
Surrogate: Fluoranthene-d10	0.0324	"	0.0333	97.1	40-150

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

## PAH by EPA Method 8270D SIM - Quality Control

### Summit Scientific

Reporting				Spike	Source	%REC			RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

#### Batch BGH0400 - EPA 5030 Soil MS

##### Matrix Spike (BGH0400-MS1)

Source: 2308202-01

Prepared & Analyzed: 08/10/23

Acenaphthene	0.0202	0.00500	mg/kg	0.0333	ND	60.6	31-137			
Anthracene	0.0216	0.00500	"	0.0333	ND	64.7	30-120			
Benzo (a) anthracene	0.0184	0.00500	"	0.0333	ND	55.1	30-120			
Benzo (a) pyrene	0.0204	0.00500	"	0.0333	ND	61.3	30-120			
Benzo (b) fluoranthene	0.0205	0.00500	"	0.0333	ND	61.6	30-120			
Benzo (k) fluoranthene	0.0202	0.00500	"	0.0333	ND	60.5	30-120			
Chrysene	0.0204	0.00500	"	0.0333	ND	61.3	30-120			
Dibenz (a,h) anthracene	0.0203	0.00500	"	0.0333	ND	61.0	30-120			
Fluoranthene	0.0215	0.00500	"	0.0333	ND	64.5	30-120			
Fluorene	0.0206	0.00500	"	0.0333	ND	61.9	30-120			
Indeno (1,2,3-cd) pyrene	0.0194	0.00500	"	0.0333	ND	58.2	30-120			
Pyrene	0.0220	0.00500	"	0.0333	ND	66.1	35-142			
1-Methylnaphthalene	0.0280	0.00500	"	0.0333	ND	83.9	15-130			
2-Methylnaphthalene	0.0312	0.00500	"	0.0333	ND	93.5	15-130			
Surrogate: 2-Methylnaphthalene-d10	0.0245		"	0.0333		73.4	40-150			
Surrogate: Fluoranthene-d10	0.0258		"	0.0333		77.5	40-150			

##### Matrix Spike Dup (BGH0400-MSD1)

Source: 2308202-01

Prepared & Analyzed: 08/10/23

Acenaphthene	0.0177	0.00500	mg/kg	0.0333	ND	53.0	31-137	13.4	30	
Anthracene	0.0190	0.00500	"	0.0333	ND	57.1	30-120	12.5	30	
Benzo (a) anthracene	0.0167	0.00500	"	0.0333	ND	50.2	30-120	9.21	30	
Benzo (a) pyrene	0.0183	0.00500	"	0.0333	ND	54.9	30-120	11.0	30	
Benzo (b) fluoranthene	0.0183	0.00500	"	0.0333	ND	54.9	30-120	11.6	30	
Benzo (k) fluoranthene	0.0187	0.00500	"	0.0333	ND	56.1	30-120	7.48	30	
Chrysene	0.0186	0.00500	"	0.0333	ND	55.7	30-120	9.58	30	
Dibenz (a,h) anthracene	0.0190	0.00500	"	0.0333	ND	57.1	30-120	6.62	30	
Fluoranthene	0.0194	0.00500	"	0.0333	ND	58.2	30-120	10.2	30	
Fluorene	0.0186	0.00500	"	0.0333	ND	55.7	30-120	10.4	30	
Indeno (1,2,3-cd) pyrene	0.0185	0.00500	"	0.0333	ND	55.6	30-120	4.65	30	
Pyrene	0.0197	0.00500	"	0.0333	ND	59.1	35-142	11.2	30	
1-Methylnaphthalene	0.0244	0.00500	"	0.0333	ND	73.3	15-130	13.5	50	
2-Methylnaphthalene	0.0292	0.00500	"	0.0333	ND	87.6	15-130	6.52	50	
Surrogate: 2-Methylnaphthalene-d10	0.0223		"	0.0333		66.8	40-150			
Surrogate: Fluoranthene-d10	0.0225		"	0.0333		67.6	40-150			

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

**Total Metals by EPA 6020B Hot Water Soluble Extraction - Quality Control**  
**Summit Scientific**

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

**Batch BGH0418 - EPA 3050B**

**Blank (BGH0418-BLK1)**

Prepared: 08/10/23 Analyzed: 08/11/23

Boron ND 0.0100 mg/L

**LCS (BGH0418-BS1)**

Prepared: 08/10/23 Analyzed: 08/11/23

Boron 5.65 0.0100 mg/L 5.00 113 80-120

**Duplicate (BGH0418-DUP1)**

**Source: 2308206-01**

Prepared: 08/10/23 Analyzed: 08/11/23

Boron 0.785 0.0100 mg/L 0.894 13.0 20

**Matrix Spike (BGH0418-MS1)**

**Source: 2308206-01**

Prepared: 08/10/23 Analyzed: 08/11/23

Boron 6.74 0.0100 mg/L 5.00 0.894 117 75-125

**Matrix Spike Dup (BGH0418-MSD1)**

**Source: 2308206-01**

Prepared: 08/10/23 Analyzed: 08/11/23

Boron 6.75 0.0100 mg/L 5.00 0.894 117 75-125 0.110 25

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

**Total Metals by EPA 6020B - Quality Control**  
**Summit Scientific**

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

**Batch BGH0393 - EPA 3050B**

**Blank (BGH0393-BLK1)**

Prepared: 08/10/23 Analyzed: 08/11/23

Arsenic	ND	0.200	mg/kg wet
Barium	ND	0.400	"
Cadmium	ND	0.200	"
Copper	ND	0.400	"
Lead	ND	0.200	"
Nickel	ND	0.400	"
Silver	ND	0.0200	"
Zinc	ND	0.400	"
Selenium	ND	0.260	"

**LCS (BGH0393-BS1)**

Prepared: 08/10/23 Analyzed: 08/11/23

Arsenic	33.6	0.200	mg/kg wet	40.0	84.1	80-120
Barium	38.1	0.400	"	40.0	95.2	80-120
Cadmium	1.99	0.200	"	2.00	99.6	80-120
Copper	37.5	0.400	"	40.0	93.9	80-120
Lead	23.2	0.200	"	20.0	116	80-120
Nickel	37.9	0.400	"	40.0	94.6	80-120
Silver	1.98	0.0200	"	2.00	98.9	80-120
Zinc	39.5	0.400	"	40.0	98.8	80-120

**Duplicate (BGH0393-DUP1)**

Source: 2308161-01

Prepared: 08/10/23 Analyzed: 08/11/23

Arsenic	1.12	0.200	mg/kg dry	1.13	0.626	20
Barium	24.0	0.400	"	20.5	15.6	20
Cadmium	0.0474	0.200	"	0.0530	11.2	20
Copper	0.287	0.400	"	0.376	26.9	20
Lead	3.43	0.200	"	3.71	7.81	20
Nickel	1.70	0.400	"	1.93	13.2	20
Silver	0.00985	0.0200	"	0.0108	9.09	20
Zinc	8.58	0.400	"	9.04	5.18	20
Selenium	ND	0.260	"	ND		200

QR-01

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

**Total Metals by EPA 6020B - Quality Control**  
**Summit Scientific**

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

**Batch BGH0393 - EPA 3050B**

**Matrix Spike (BGH0393-MS1)**

**Source: 2308161-01**

Prepared: 08/10/23 Analyzed: 08/11/23

Arsenic	12.4	0.200	mg/kg dry	46.9	1.13	24.0	75-125			QM-07
Barium	60.0	0.400	"	46.9	20.5	84.2	75-125			
Cadmium	1.57	0.200	"	2.35	0.0530	64.8	75-125			QM-07
Copper	10.9	0.400	"	46.9	0.376	22.5	75-125			QM-07
Lead	17.1	0.200	"	23.5	3.71	57.0	75-125			QM-07
Nickel	12.2	0.400	"	46.9	1.93	22.0	75-125			QM-07
Silver	1.48	0.0200	"	2.35	0.0108	62.6	75-125			QM-07
Zinc	20.3	0.400	"	46.9	9.04	24.0	75-125			QM-07

**Matrix Spike Dup (BGH0393-MSD1)**

**Source: 2308161-01**

Prepared: 08/10/23 Analyzed: 08/11/23

Arsenic	12.7	0.200	mg/kg dry	46.9	1.13	24.6	75-125	2.19	25	QM-07
Barium	62.6	0.400	"	46.9	20.5	89.7	75-125	4.24	25	
Cadmium	1.65	0.200	"	2.35	0.0530	68.1	75-125	4.69	25	QM-07
Copper	11.2	0.400	"	46.9	0.376	23.1	75-125	2.47	25	QM-07
Lead	17.7	0.200	"	23.5	3.71	59.6	75-125	3.55	25	QM-07
Nickel	12.6	0.400	"	46.9	1.93	22.7	75-125	2.61	25	QM-07
Silver	1.55	0.0200	"	2.35	0.0108	65.7	75-125	4.83	25	QM-07
Zinc	20.5	0.400	"	46.9	9.04	24.4	75-125	0.961	25	QM-07

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

**Hexavalent Chromium by EPA Method 7196 - Quality Control**  
**Summit Scientific**

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

**Batch BGH0449 - 3060A Mod**

**Blank (BGH0449-BLK1)**

Prepared & Analyzed: 08/10/23

Chromium, Hexavalent ND 0.30 mg/kg wet

**LCS (BGH0449-BS1)**

Prepared & Analyzed: 08/10/23

Chromium, Hexavalent 24.4 0.30 mg/kg wet 25.0 97.4 80-120

**Duplicate (BGH0449-DUP1)**

**Source: 2308206-01**

Prepared & Analyzed: 08/10/23

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

**Matrix Spike (BGH0449-MS1)**

**Source: 2308206-01**

Prepared & Analyzed: 08/10/23

Chromium, Hexavalent 37.7 0.30 mg/kg dry 38.5 ND 98.0 75-125

**Matrix Spike Dup (BGH0449-MSD1)**

**Source: 2308206-01**

Prepared & Analyzed: 08/10/23

Chromium, Hexavalent 38.0 0.30 mg/kg dry 38.5 ND 98.6 75-125 0.610 20

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**

08/14/23 14:30

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction - Quality Control**

**Summit Scientific**

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD	
		Limit	Units		Result	%REC	Limits	RPD	Limit	Notes

**Batch BGH0383 - General Preparation**

**Blank (BGH0383-BLK1)**

Prepared: 08/09/23 Analyzed: 08/10/23

Calcium	ND	0.0500	mg/L wet
Magnesium	ND	0.0500	"
Sodium	ND	0.0500	"

**LCS (BGH0383-BS1)**

Prepared: 08/09/23 Analyzed: 08/10/23

Calcium	4.06	0.0500	mg/L wet	5.00	81.2	70-130
Magnesium	4.29	0.0500	"	5.00	85.7	70-130
Sodium	4.42	0.0500	"	5.00	88.5	70-130

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*





Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

**Physical Parameters by APHA/ASTM/EPA Methods - Quality Control**

**Summit Scientific**

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD	
		Limit	Units		Result	%REC	Limits	RPD	Limit	Notes

**Batch BGH0456 - General Preparation**

**Duplicate (BGH0456-DUP1)**

**Source: 2308208-01**

Prepared & Analyzed: 08/11/23

% Solids	88.5	%	88.1	0.426	20
----------	------	---	------	-------	----

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**

08/14/23 14:30

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction - Quality Control**

**Summit Scientific**

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD	
		Limit	Units		Result	%REC	Limits	RPD	Limit	Notes

**Batch BGH0425 - General Preparation**

**Blank (BGH0425-BLK1)**

Prepared & Analyzed: 08/10/23

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BGH0425-BS1)**

Prepared & Analyzed: 08/10/23

Specific Conductance (EC) 0.154 0.0100 mmhos/cm 0.150 103 95-105

**Duplicate (BGH0425-DUP1)**

**Source: 2308206-01**

Prepared & Analyzed: 08/10/23

Specific Conductance (EC) 0.572 0.0100 mmhos/cm 0.572 0.00 20

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**

08/14/23 14:30

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction - Quality Control**

**Summit Scientific**

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD	
		Limit	Units		Result	%REC	Limits	RPD	Limit	Notes

**Batch BGH0424 - General Preparation**

**LCS (BGH0424-BS1)**

Prepared & Analyzed: 08/10/23

pH	9.08	pH Units	9.18	98.9	95-105
----	------	----------	------	------	--------

**Duplicate (BGH0424-DUP1)**

**Source: 2308206-01**

Prepared & Analyzed: 08/10/23

pH	7.08	pH Units	7.08	0.00	20
----	------	----------	------	------	----

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/14/23 14:30

### Notes and Definitions

QR-01	Analyses are not controlled on RPD values from sample concentrations less than 10 times the reporting limit. QC batch accepted based on LCS and/or LCSD QC results.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

August 25, 2023

Mark Longhurst

Tasman Geosciences

6855 W. 119th Ave.

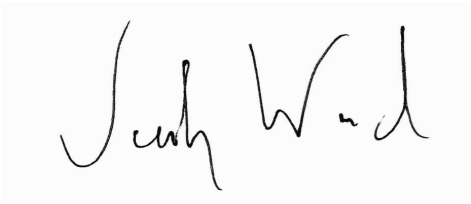
Broomfield, CO 80020

RE: PDC - Ikenouye F28-65HN Facility

Work Order #2308357

Enclosed are the results of analyses for samples received by Summit Scientific on 08/16/23 17:33. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Jacob Wood". The signature is written in a cursive, flowing style.

Jacob Wood For Paul Shrewsbury

President



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/25/23 13:37

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SEP01-FL@4'	2308357-01	Soil	08/16/23 10:00	08/16/23 17:33
SS01@3'	2308357-02	Soil	08/16/23 10:05	08/16/23 17:33
SS02@6"	2308357-03	Soil	08/16/23 10:10	08/16/23 17:33
SS03@6"	2308357-04	Soil	08/16/23 10:15	08/16/23 17:33
SS04@6"	2308357-05	Soil	08/16/23 10:20	08/16/23 17:33
SS05@6"	2308357-06	Soil	08/16/23 10:25	08/16/23 17:33
SS06@2.5'	2308357-07	Soil	08/16/23 10:30	08/16/23 17:33

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

Client: PDC PDC / Tasman		Send Data To:		Send Invoice To:	
Address: 6855 W 119th Ave		Project Manager: Mark Longhurst		Company: PDC Energy	
City/State/Zip: Broomfield / CO / 80220		E-Mail: mark.longhurst@PDCE.com		Project Name/Location:	
Phone: 303-487-1228		Project Name: Ikenoye F 28-65HN Facility		AFE#:	
Sampler Name: Jordan Hestmark		Project Number:		PO/Billing Codes:	
		Contact: Mark Longhurst			

					Preservative				Matrix				Analysis Requested							Special Instructions	
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO3	None	Other _____	Water	Soil	Air-Canister #	Other _____	BTEXN - 8260B	TPH - (C6 - C36)	1,2,4 & 1,3,5 - TMB	Boron - HWS	pH, EC, SAR	PAHs	Metals	TDS, SO4, Cl	Standard TAT
1	SEPD1-FL @ 4'	8/16/23	1000	2			X			X			X	X	X	X	X	X	X		X
2	SS01 @ 3'		1005										X	X	X						
3	SS02 @ 6"		1010										X	X	X						
4	SS03 @ 6"		1015										X	X	X						
5	SS04 @ 6"		1020										X	X	X						
6	SS05 @ 6"		1025										X	X	X						
7	SS06 @ 2.5'		1030													X	X				X
8																					
9																					
10																					
11																					
12																					
13																					
14																					
15																					

Relinquished by: <i>Jordan Hestmark</i>	Date/Time: 8/16/23 1310	Received by: <i>Tasman</i>	Date/Time: 8/16/23 1310	TAT Business Days	Field DO	Notes:
				Same Day <input checked="" type="checkbox"/>	Field EC	
Relinquished by: <i>Tasman Lockbox</i>	Date/Time: 8/16/23 1733	Received by: <i>[Signature]</i>	Date/Time: 8/16/23 1733	1 Day <input type="checkbox"/>	Field ORP	
				2 Days <input type="checkbox"/>	Field pH	
Relinquished by:	Date/Time:	Received by:	Date/Time:	3 Days <input type="checkbox"/>	Field Temp.	
				Standard <input type="checkbox"/>	Field Turb.	
Temperature Upon Receipt: 9.2	Corrected Temperature: $\emptyset$	IR gun #: 1	HNO3 lot #:			

S<sub>2</sub>

## Sample Receipt Checklist

S2 Work Order# 2308357Client: DoctasmanClient Project ID: Kenawy F28-05 HN FacilityShipped Via: H.D./P.U./FedEx/UPS/USPS/Other ☐

Airbill #: \_\_\_\_\_

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Matrix (Check all that apply)

Air

☐

Soil/Solid

☒

Water

☐

Other

☐

Temp (°C)

9.2

Thermometer #

1

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? <sup>(1)</sup> NOTE: If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>NOTE</u>
If custody seals are present, are they intact? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are samples due within 48 hours present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>Same day</u>
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe <sup>2+</sup> ), Hexavalent Chromium (Cr <sup>6+</sup> , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out Completely? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC? <sup>(1)</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling)? <sup>(1)</sup> Note the type of preservative in the comments column – HCl, H <sub>2</sub> SO <sub>4</sub> , NaOH, HNO <sub>3</sub> , etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2? <sup>(1)</sup> Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Comments (if any):				
<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.				

Josh  
Custodian Printed Name

08/16/23  
Date/Time





Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/25/23 13:37

**SEP01-FL@4'**  
**2308357-01 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/16/23 10:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGH0721	08/17/23	08/19/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **08/16/23 10:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0480	120 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0398	99.5 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0397	99.2 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/16/23 10:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGH0722	08/17/23	08/17/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/16/23 10:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	8.74	69.9 %	30-150		"	"	"	"	

**PAH by EPA Method 8270D SIM**

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/25/23 13:37

**SEP01-FL@4'**  
**2308357-01 (Soil)**

**Summit Scientific**

**PAH by EPA Method 8270D SIM**

Date Sampled: **08/16/23 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BGH0707	08/17/23	08/19/23	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **08/16/23 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10	0.0255	76.4 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10	0.0155	46.5 %	40-150		"	"	"	"	

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **08/16/23 10:00**


Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Boron</b>	<b>0.376</b>	0.0100	mg/L	1	BGH0796	08/21/23	08/21/23	EPA 6020B	

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction**

Date Sampled: **08/16/23 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

Summit Scientific



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/25/23 13:37

**SEP01-FL@4'**  
**2308357-01 (Soil)**

**Summit Scientific**

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction**

Calcium	37.5	0.0609	mg/L dry	1	BGH0811	08/21/23	08/24/23	EPA 6020B
Magnesium	23.4	0.0609	"	"	"	"	"	"
Sodium	45.0	0.0609	"	"	"	"	"	"

**Calculated Analysis**

Date Sampled: **08/16/23 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.42	0.00100	units	1	BGH1039	08/25/23	08/25/23	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **08/16/23 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	82.1		%	1	BGH0785	08/19/23	08/19/23	Calculation	

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **08/16/23 10:00**

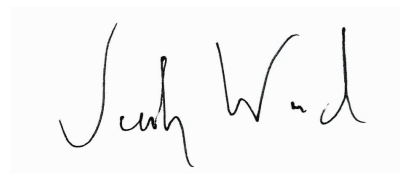
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.450	0.0100	mmhos/cm	1	BGH0872	08/22/23	08/22/23	EPA 120.1	

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

Date Sampled: **08/16/23 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.65		pH Units	1	BGH0873	08/22/23	08/22/23	EPA 9045D	

Summit Scientific



*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/25/23 13:37

**SS01@3'**  
**2308357-02 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/16/23 10:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGH0660	08/16/23	08/16/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **08/16/23 10:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0520	130 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0378	94.4 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0409	102 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/16/23 10:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGH0661	08/16/23	08/16/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/16/23 10:05**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	7.97	63.7 %	30-150		"	"	"	"	

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/25/23 13:37

**SS02@6"**  
**2308357-03 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/16/23 10:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGH0660	08/16/23	08/16/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **08/16/23 10:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0526	132 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0372	92.9 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0414	104 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/16/23 10:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGH0661	08/16/23	08/16/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/16/23 10:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	7.84	62.7 %	30-150		"	"	"	"	

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/25/23 13:37

**SS03@6"**  
**2308357-04 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/16/23 10:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGH0660	08/16/23	08/16/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **08/16/23 10:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0499	125 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0377	94.2 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0414	104 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/16/23 10:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGH0661	08/16/23	08/16/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/16/23 10:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	9.59	76.7 %	30-150		"	"	"	"	

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/25/23 13:37

**SS04@6"**  
**2308357-05 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/16/23 10:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGH0660	08/16/23	08/17/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **08/16/23 10:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0488	122 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0360	90.1 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0398	99.6 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/16/23 10:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGH0661	08/16/23	08/16/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/16/23 10:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	7.47	59.7 %	30-150		"	"	"	"	

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/25/23 13:37

**SS05@6"**  
**2308357-06 (Soil)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/16/23 10:25**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	BGH0660	08/16/23	08/17/23	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **08/16/23 10:25**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4	0.0480	120 %	50-150		"	"	"	"	
Surrogate: Toluene-d8	0.0377	94.2 %	50-150		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	0.0390	97.5 %	50-150		"	"	"	"	

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **08/16/23 10:25**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	BGH0661	08/16/23	08/17/23	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/16/23 10:25**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl	8.29	66.3 %	30-150		"	"	"	"	

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.





Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/25/23 13:37

**SS06@2.5'**  
**2308357-07 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B Hot Water Soluble Extraction**

Date Sampled: **08/16/23 10:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
<b>Boron</b>	<b>0.187</b>	0.0100	mg/L	1	BGH0796	08/21/23	08/21/23	EPA 6020B	

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction**

Date Sampled: **08/16/23 10:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
<b>Calcium</b>	<b>50.6</b>	0.0560	mg/L dry	1	BGH0811	08/21/23	08/24/23	EPA 6020B	
<b>Magnesium</b>	<b>9.89</b>	0.0560	"	"	"	"	"	"	
<b>Sodium</b>	<b>8.23</b>	0.0560	"	"	"	"	"	"	

**Calculated Analysis**

Date Sampled: **08/16/23 10:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
<b>Sodium Adsorption Ratio</b>	<b>0.277</b>	0.00100	units	1	BGH1039	08/25/23	08/25/23	Calculation	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **08/16/23 10:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
<b>% Solids</b>	<b>89.3</b>		%	1	BGH0785	08/19/23	08/19/23	Calculation	

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction**

Date Sampled: **08/16/23 10:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
<b>Specific Conductance (EC)</b>	<b>0.274</b>	0.0100	mmhos/cm	1	BGH0872	08/22/23	08/22/23	EPA 120.1	

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
08/25/23 13:37

**SS06@2.5'**  
**2308357-07 (Soil)**

**Summit Scientific**

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction**

Date Sampled: **08/16/23 10:30**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>pH</b>	<b>7.95</b>			pH Units	1	BGH0873	08/22/23	08/22/23	EPA 9045D	

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/25/23 13:37

## Volatile Organic Compounds by EPA Method 8260B - Quality Control

### Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

#### Batch BGH0660 - EPA 5030 Soil MS

##### Blank (BGH0660-BLK1)

Prepared: 08/16/23 Analyzed: 08/17/23

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
1,2,4-Trimethylbenzene	ND	0.0050	"							
1,3,5-Trimethylbenzene	ND	0.0050	"							
Naphthalene	ND	0.0038	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0465		"	0.0400		116	50-150			
Surrogate: Toluene-d8	0.0297		"	0.0400		74.3	50-150			
Surrogate: 4-Bromofluorobenzene	0.0298		"	0.0400		74.6	50-150			

##### LCS (BGH0660-BS1)

Prepared: 08/16/23 Analyzed: 08/17/23

Benzene	0.126	0.0020	mg/kg	0.100		126	70-130			
Toluene	0.117	0.0050	"	0.100		117	70-130			
Ethylbenzene	0.0959	0.0050	"	0.100		95.9	70-130			
m,p-Xylene	0.189	0.010	"	0.200		94.3	70-130			
o-Xylene	0.0946	0.0050	"	0.100		94.6	70-130			
1,2,4-Trimethylbenzene	0.0905	0.0050	"	0.100		90.5	70-130			
1,3,5-Trimethylbenzene	0.0831	0.0050	"	0.100		83.1	70-130			
Naphthalene	0.101	0.0038	"	0.100		101	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0574		"	0.0400		144	50-150			
Surrogate: Toluene-d8	0.0284		"	0.0400		71.0	50-150			
Surrogate: 4-Bromofluorobenzene	0.0329		"	0.0400		82.4	50-150			

##### Matrix Spike (BGH0660-MS1)

Source: 2308291-02

Prepared: 08/16/23 Analyzed: 08/17/23

Benzene	0.107	0.0020	mg/kg	0.100	ND	107	70-130			
Toluene	0.109	0.0050	"	0.100	ND	109	70-130			
Ethylbenzene	0.0926	0.0050	"	0.100	ND	92.6	70-130			
m,p-Xylene	0.219	0.010	"	0.200	ND	110	70-130			
o-Xylene	0.109	0.0050	"	0.100	ND	109	70-130			
1,2,4-Trimethylbenzene	0.110	0.0050	"	0.100	ND	110	70-130			
1,3,5-Trimethylbenzene	0.114	0.0050	"	0.100	ND	114	70-130			
Naphthalene	0.109	0.0038	"	0.100	ND	109	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0584		"	0.0400		146	50-150			
Surrogate: Toluene-d8	0.0289		"	0.0400		72.3	50-150			
Surrogate: 4-Bromofluorobenzene	0.0340		"	0.0400		85.0	50-150			

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/25/23 13:37

## Volatile Organic Compounds by EPA Method 8260B - Quality Control

### Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

#### Batch BGH0660 - EPA 5030 Soil MS

##### Matrix Spike Dup (BGH0660-MSD1)

Source: 2308291-02

Prepared: 08/16/23 Analyzed: 08/17/23

Benzene	0.102	0.0020	mg/kg	0.100	ND	102	70-130	5.07	30	
Toluene	0.107	0.0050	"	0.100	ND	107	70-130	1.64	30	
Ethylbenzene	0.0970	0.0050	"	0.100	ND	97.0	70-130	4.71	30	
m,p-Xylene	0.214	0.010	"	0.200	ND	107	70-130	2.28	30	
o-Xylene	0.0946	0.0050	"	0.100	ND	94.6	70-130	13.8	30	
1,2,4-Trimethylbenzene	0.0947	0.0050	"	0.100	ND	94.7	70-130	15.0	30	
1,3,5-Trimethylbenzene	0.117	0.0050	"	0.100	ND	117	70-130	2.86	30	
Naphthalene	0.109	0.0038	"	0.100	ND	109	70-130	0.00	30	
Surrogate: 1,2-Dichloroethane-d4	0.0498		"	0.0400		124	50-150			
Surrogate: Toluene-d8	0.0291		"	0.0400		72.8	50-150			
Surrogate: 4-Bromofluorobenzene	0.0356		"	0.0400		89.0	50-150			

#### Batch BGH0721 - EPA 5030 Soil MS

##### Blank (BGH0721-BLK1)

Prepared: 08/17/23 Analyzed: 08/19/23

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
1,2,4-Trimethylbenzene	ND	0.0050	"							
1,3,5-Trimethylbenzene	ND	0.0050	"							
Naphthalene	ND	0.0038	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0457		"	0.0400		114	50-150			
Surrogate: Toluene-d8	0.0400		"	0.0400		100	50-150			
Surrogate: 4-Bromofluorobenzene	0.0406		"	0.0400		101	50-150			

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/25/23 13:37

## Volatile Organic Compounds by EPA Method 8260B - Quality Control

### Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

#### Batch BGH0721 - EPA 5030 Soil MS

##### LCS (BGH0721-BS1)

Prepared: 08/17/23 Analyzed: 08/19/23

Benzene	0.102	0.0020	mg/kg	0.100		102	70-130			
Toluene	0.130	0.0050	"	0.100		130	70-130			
Ethylbenzene	0.101	0.0050	"	0.100		101	70-130			
m,p-Xylene	0.235	0.010	"	0.200		117	70-130			
o-Xylene	0.106	0.0050	"	0.100		106	70-130			
1,2,4-Trimethylbenzene	0.117	0.0050	"	0.100		117	70-130			
1,3,5-Trimethylbenzene	0.112	0.0050	"	0.100		112	70-130			
Naphthalene	0.123	0.0038	"	0.100		123	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0470		"	0.0400		118	50-150			
Surrogate: Toluene-d8	0.0411		"	0.0400		103	50-150			
Surrogate: 4-Bromofluorobenzene	0.0383		"	0.0400		95.8	50-150			

##### Matrix Spike (BGH0721-MS1)

Source: 2308377-01

Prepared: 08/17/23 Analyzed: 08/19/23

Benzene	0.0957	0.0020	mg/kg	0.100	ND	95.7	70-130			
Toluene	0.0967	0.0050	"	0.100	ND	96.7	70-130			
Ethylbenzene	0.0966	0.0050	"	0.100	ND	96.6	70-130			
m,p-Xylene	0.230	0.010	"	0.200	ND	115	70-130			
o-Xylene	0.0976	0.0050	"	0.100	ND	97.6	70-130			
1,2,4-Trimethylbenzene	0.0955	0.0050	"	0.100	ND	95.5	70-130			
1,3,5-Trimethylbenzene	0.0701	0.0050	"	0.100	ND	70.1	70-130			
Naphthalene	0.102	0.0038	"	0.100	ND	102	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0476		"	0.0400		119	50-150			
Surrogate: Toluene-d8	0.0401		"	0.0400		100	50-150			
Surrogate: 4-Bromofluorobenzene	0.0385		"	0.0400		96.3	50-150			

##### Matrix Spike Dup (BGH0721-MSD1)

Source: 2308377-01

Prepared: 08/17/23 Analyzed: 08/19/23

Benzene	0.109	0.0020	mg/kg	0.100	ND	109	70-130	13.1	30	
Toluene	0.108	0.0050	"	0.100	ND	108	70-130	10.8	30	
Ethylbenzene	0.0905	0.0050	"	0.100	ND	90.5	70-130	6.51	30	
m,p-Xylene	0.213	0.010	"	0.200	ND	106	70-130	7.67	30	
o-Xylene	0.0916	0.0050	"	0.100	ND	91.6	70-130	6.34	30	
1,2,4-Trimethylbenzene	0.111	0.0050	"	0.100	ND	111	70-130	15.3	30	
1,3,5-Trimethylbenzene	0.0943	0.0050	"	0.100	ND	94.3	70-130	29.4	30	
Naphthalene	0.105	0.0038	"	0.100	ND	105	70-130	2.94	30	
Surrogate: 1,2-Dichloroethane-d4	0.0505		"	0.0400		126	50-150			
Surrogate: Toluene-d8	0.0413		"	0.0400		103	50-150			
Surrogate: 4-Bromofluorobenzene	0.0398		"	0.0400		99.6	50-150			

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/25/23 13:37

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

**Batch BGH0661 - EPA 3550A**

**Blank (BGH0661-BLK1)**

Prepared & Analyzed: 08/16/23

C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
Surrogate: o-Terphenyl	16.8		"	12.5		134	30-150			

**LCS (BGH0661-BS1)**

Prepared & Analyzed: 08/16/23

C10-C28 (DRO)	555	50	mg/kg	500		111	70-130			
Surrogate: o-Terphenyl	15.8		"	12.5		127	30-150			

**Matrix Spike (BGH0661-MS1)**

Source: 2308291-02

Prepared & Analyzed: 08/16/23

C10-C28 (DRO)	526	50	mg/kg	500	24.4	100	70-130			
Surrogate: o-Terphenyl	14.9		"	12.5		119	30-150			

**Matrix Spike Dup (BGH0661-MSD1)**

Source: 2308291-02

Prepared & Analyzed: 08/16/23

C10-C28 (DRO)	501	50	mg/kg	500	24.4	95.4	70-130	4.79	20	
Surrogate: o-Terphenyl	15.7		"	12.5		126	30-150			

**Batch BGH0722 - EPA 3550A**

**Blank (BGH0722-BLK1)**

Prepared & Analyzed: 08/17/23


C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
Surrogate: o-Terphenyl	8.31		"	12.5		66.5	30-150			

**LCS (BGH0722-BS1)**

Prepared & Analyzed: 08/17/23

C10-C28 (DRO)	383	50	mg/kg	500		76.6	70-130			
Surrogate: o-Terphenyl	9.10		"	12.5		72.8	30-150			

Summit Scientific



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
08/25/23 13:37

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

Analyte	Result	Reporting			Spike	Source	%REC		RPD		
		Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes	

**Batch BGH0722 - EPA 3550A**

<b>Matrix Spike (BGH0722-MS1)</b>		<b>Source: 2308377-01</b>			Prepared & Analyzed: 08/17/23						
C10-C28 (DRO)	188	50	mg/kg	500	34.4	30.7	70-130				QM-07
Surrogate: o-Terphenyl	7.01		"	12.5		56.1	30-150				
<b>Matrix Spike Dup (BGH0722-MSD1)</b>		<b>Source: 2308377-01</b>			Prepared & Analyzed: 08/17/23						
C10-C28 (DRO)	167	50	mg/kg	500	34.4	26.6	70-130	11.7	20		QM-07
Surrogate: o-Terphenyl	6.93		"	12.5		55.4	30-150				

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/25/23 13:37

## PAH by EPA Method 8270D SIM - Quality Control

### Summit Scientific

Reporting				Spike	Source	%REC			RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

#### Batch BGH0707 - EPA 5030 Soil MS

##### Blank (BGH0707-BLK1)

Prepared: 08/17/23 Analyzed: 08/19/23

Acenaphthene	ND	0.00500	mg/kg							
Anthracene	ND	0.00500	"							
Benzo (a) anthracene	ND	0.00500	"							
Benzo (a) pyrene	ND	0.00500	"							
Benzo (b) fluoranthene	ND	0.00500	"							
Benzo (k) fluoranthene	ND	0.00500	"							
Chrysene	ND	0.00500	"							
Dibenz (a,h) anthracene	ND	0.00500	"							
Fluoranthene	ND	0.00500	"							
Fluorene	ND	0.00500	"							
Indeno (1,2,3-cd) pyrene	ND	0.00500	"							
Pyrene	ND	0.00500	"							
1-Methylnaphthalene	ND	0.00500	"							
2-Methylnaphthalene	ND	0.00500	"							
Surrogate: 2-Methylnaphthalene-d10	0.0283		"	0.0333		84.9	40-150			
Surrogate: Fluoranthene-d10	0.0226		"	0.0333		67.7	40-150			

##### LCS (BGH0707-BS1)

Prepared: 08/17/23 Analyzed: 08/19/23

Acenaphthene	0.0358	0.00500	mg/kg	0.0333	107	31-137
Anthracene	0.0401	0.00500	"	0.0333	120	30-120
Benzo (a) anthracene	0.0357	0.00500	"	0.0333	107	30-120
Benzo (a) pyrene	0.0331	0.00500	"	0.0333	99.4	30-120
Benzo (b) fluoranthene	0.0293	0.00500	"	0.0333	88.0	30-120
Benzo (k) fluoranthene	0.0303	0.00500	"	0.0333	90.8	30-120
Chrysene	0.0368	0.00500	"	0.0333	111	30-120
Dibenz (a,h) anthracene	0.0379	0.00500	"	0.0333	114	30-120
Fluoranthene	0.0363	0.00500	"	0.0333	109	30-120
Fluorene	0.0323	0.00500	"	0.0333	96.9	30-120
Indeno (1,2,3-cd) pyrene	0.0379	0.00500	"	0.0333	114	30-120
Pyrene	0.0392	0.00500	"	0.0333	118	35-142
1-Methylnaphthalene	0.0368	0.00500	"	0.0333	110	35-142
2-Methylnaphthalene	0.0363	0.00500	"	0.0333	109	35-142
Surrogate: 2-Methylnaphthalene-d10	0.0382		"	0.0333	115	40-150
Surrogate: Fluoranthene-d10	0.0335		"	0.0333	100	40-150

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.





Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/25/23 13:37

## PAH by EPA Method 8270D SIM - Quality Control

### Summit Scientific

Analyte	Reporting			Spike		Source		%REC		RPD	
	Result	Limit	Units	Level		Result	%REC	Limits	RPD	Limit	Notes

#### Batch BGH0707 - EPA 5030 Soil MS

##### Matrix Spike (BGH0707-MS1)

Source: 2308347-01

Prepared: 08/17/23 Analyzed: 08/19/23

Acenaphthene	0.0190	0.00500	mg/kg	0.0333	ND	57.1	31-137				
Anthracene	0.0223	0.00500	"	0.0333	ND	66.9	30-120				
Benzo (a) anthracene	0.0209	0.00500	"	0.0333	ND	62.8	30-120				
Benzo (a) pyrene	0.0196	0.00500	"	0.0333	ND	58.9	30-120				
Benzo (b) fluoranthene	0.0221	0.00500	"	0.0333	ND	66.4	30-120				
Benzo (k) fluoranthene	0.0231	0.00500	"	0.0333	ND	69.3	30-120				
Chrysene	0.0226	0.00500	"	0.0333	ND	67.8	30-120				
Dibenz (a,h) anthracene	0.0275	0.00500	"	0.0333	ND	82.4	30-120				
Fluoranthene	0.0211	0.00500	"	0.0333	ND	63.4	30-120				
Fluorene	0.0190	0.00500	"	0.0333	ND	57.0	30-120				
Indeno (1,2,3-cd) pyrene	0.0309	0.00500	"	0.0333	ND	92.7	30-120				
Pyrene	0.0222	0.00500	"	0.0333	ND	66.7	35-142				
1-Methylnaphthalene	0.0208	0.00500	"	0.0333	ND	62.4	15-130				
2-Methylnaphthalene	0.0187	0.00500	"	0.0333	ND	56.2	15-130				
Surrogate: 2-Methylnaphthalene-d10	0.0190		"	0.0333		57.0	40-150				
Surrogate: Fluoranthene-d10	0.0190		"	0.0333		57.0	40-150				

##### Matrix Spike Dup (BGH0707-MSD1)

Source: 2308347-01

Prepared: 08/17/23 Analyzed: 08/19/23

Acenaphthene	0.0231	0.00500	mg/kg	0.0333	ND	69.4	31-137	19.4	30		
Anthracene	0.0254	0.00500	"	0.0333	ND	76.1	30-120	12.9	30		
Benzo (a) anthracene	0.0232	0.00500	"	0.0333	ND	69.7	30-120	10.4	30		
Benzo (a) pyrene	0.0190	0.00500	"	0.0333	ND	56.9	30-120	3.41	30		
Benzo (b) fluoranthene	0.0178	0.00500	"	0.0333	ND	53.3	30-120	21.8	30		
Benzo (k) fluoranthene	0.0188	0.00500	"	0.0333	ND	56.5	30-120	20.4	30		
Chrysene	0.0182	0.00500	"	0.0333	ND	54.5	30-120	21.7	30		
Dibenz (a,h) anthracene	0.0289	0.00500	"	0.0333	ND	86.8	30-120	5.31	30		
Fluoranthene	0.0251	0.00500	"	0.0333	ND	75.2	30-120	17.0	30		
Fluorene	0.0203	0.00500	"	0.0333	ND	60.8	30-120	6.45	30		
Indeno (1,2,3-cd) pyrene	0.0307	0.00500	"	0.0333	ND	92.1	30-120	0.613	30		
Pyrene	0.0250	0.00500	"	0.0333	ND	75.1	35-142	11.7	30		
1-Methylnaphthalene	0.0179	0.00500	"	0.0333	ND	53.8	15-130	14.8	50		
2-Methylnaphthalene	0.0168	0.00500	"	0.0333	ND	50.5	15-130	10.8	50		
Surrogate: 2-Methylnaphthalene-d10	0.0185		"	0.0333		55.6	40-150				
Surrogate: Fluoranthene-d10	0.0232		"	0.0333		69.7	40-150				

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility  
Project Number: [none]  
Project Manager: Mark Longhurst

**Reported:**  
08/25/23 13:37

**Total Metals by EPA 6020B Hot Water Soluble Extraction - Quality Control**  
**Summit Scientific**

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

**Batch BGH0796 - EPA 3050B**

**Blank (BGH0796-BLK1)**

Prepared & Analyzed: 08/21/23

Boron ND 0.0100 mg/L

**LCS (BGH0796-BS1)**

Prepared & Analyzed: 08/21/23

Boron 4.98 0.0100 mg/L 5.00 99.6 80-120

**Duplicate (BGH0796-DUP1)**

**Source: 2308174-03**

Prepared & Analyzed: 08/21/23

Boron 0.685 0.0100 mg/L 0.661 3.53 20

**Matrix Spike (BGH0796-MS1)**

**Source: 2308174-03**

Prepared & Analyzed: 08/21/23

Boron 6.37 0.0100 mg/L 5.00 0.661 114 75-125

**Matrix Spike Dup (BGH0796-MSD1)**

**Source: 2308174-03**

Prepared & Analyzed: 08/21/23

Boron 7.31 0.0100 mg/L 5.00 0.661 133 75-125 13.7 25 QM-01

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**

08/25/23 13:37

**Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction - Quality Control**

**Summit Scientific**

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD	
		Limit	Units		Result	%REC	Limits	RPD	Limit	Notes

**Batch BGH0811 - General Preparation**

**Blank (BGH0811-BLK1)**

Prepared: 08/21/23 Analyzed: 08/24/23

Calcium	ND	0.0500	mg/L wet
Magnesium	ND	0.0500	"
Sodium	ND	0.0500	"

**LCS (BGH0811-BS1)**

Prepared: 08/21/23 Analyzed: 08/24/23

Calcium	5.64	0.0500	mg/L wet	5.00	113	70-130
Magnesium	5.40	0.0500	"	5.00	108	70-130
Sodium	5.24	0.0500	"	5.00	105	70-130

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
08/25/23 13:37

### Physical Parameters by APHA/ASTM/EPA Methods - Quality Control

#### Summit Scientific

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD	
		Limit	Units		Result	%REC	Limits	RPD	Limit	Notes

#### Batch BGH0785 - General Preparation

Duplicate (BGH0785-DUP1)

Source: 2308174-03

Prepared & Analyzed: 08/19/23

% Solids	79.1	%	80.4	1.60	20
----------	------	---	------	------	----

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
08/25/23 13:37

**Specific Conductance by EPA Method 120.1, Saturated Paste Extraction - Quality Control**

**Summit Scientific**

Analyte	Result	Reporting			Spike	Source	%REC		RPD		
		Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes	

**Batch BGH0872 - General Preparation**

**Blank (BGH0872-BLK1)**

Prepared & Analyzed: 08/22/23

Specific Conductance (EC) ND 0.0100 mmhos/cm

**LCS (BGH0872-BS1)**

Prepared & Analyzed: 08/22/23

Specific Conductance (EC) 0.156 0.0100 mmhos/cm 0.150 104 95-105

**Duplicate (BGH0872-DUP1)**

Source: 2308357-01

Prepared & Analyzed: 08/22/23

Specific Conductance (EC) 0.450 0.0100 mmhos/cm 0.450 0.00 20

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**  
08/25/23 13:37

**Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction - Quality Control**

**Summit Scientific**

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD	
		Limit	Units		Result	%REC	Limits	RPD	Limit	Notes

**Batch BGH0873 - General Preparation**

**LCS (BGH0873-BS1)**

Prepared & Analyzed: 08/22/23

pH	8.98	pH Units	9.18	97.8	95-105
----	------	----------	------	------	--------

**Duplicate (BGH0873-DUP1)**

Source: 2308357-01

Prepared & Analyzed: 08/22/23

pH	7.65	pH Units	7.65	0.00	20
----	------	----------	------	------	----

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Tasman Geosciences  
6855 W. 119th Ave.  
Broomfield CO, 80020

Project: PDC - Ikenouye F28-65HN Facility

Project Number: [none]

Project Manager: Mark Longhurst

**Reported:**

08/25/23 13:37

### Notes and Definitions

QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
QM-01	The spike recovery for this QC sample is outside of established control limits due to sample matrix interference.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference