Go East Landfill Closure Construction Quality Assurance Report

Appendix E Construction Summary Report GeoEngineers, Inc., April 7, 2022



Construction Summary Report (LDA #1)

Go East Landfill Closure (PFN 20 118246 LDA) Snohomish County, Washington

for **PACE Engineers, Inc.**

April 7, 2022



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17425 NE Union Hill Road, Suite 250 Redmond, Washington 98052 425.861.6000

Construction Summary Report (LDA #1)

Go East Landfill Closure (PFN 20 118246 LDA) Snohomish County, Washington

File No. 6694-002-02

April 7, 2022

Prepared for:

PACE Engineers, Inc. 11255 Kirkland Way, Suite 300 Kirkland, Washington 98033

Attention: Marty Penhallegon

Prepared by:

GeoEngineers, Inc. 17425 NE Union Hill Road, Suite 250 Redmond, Washington 98052 425.861.6000

Colton W. McInelly, PE Geotechnical Engineer



talf a ulate

Robert C. Metcalfe, PE, LÉG Principal Geotechnical Engineer

CWM:RCM:nld

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Appendix D. Vibration Monitoring Summary Letter (https://geoengineers.sharefile.com/d-s56dfd770f15f4393819d148c9bfddb23)

1.0 INTRODUCTION

This report presents a summary of GeoEngineers' construction quality control observation services for the Go East Landfill Closure (LDA #1) project located in Snohomish County, Washington. The project consists of the closure of the Go East Landfill by consolidating approximately 60,000 cubic yards of landfill material prior to capping the landfill footprint with a geosynthetic/soil cover system. A residential development (LDA #2) will then be constructed around the closed landfill. Closure of the landfill also included excavation and deep dynamic compaction of landfill waste under the stormwater detention pond (Cover System #2), regrading of the landfill surface, and constructing a rock fill toe buttress along the bottom of the northeast slope. The Snohomish County Planning and Development Services project number for the landfill closure is PFN 20-118246 LDA.

The landfill closure was completed in general conformance with the Go East Landfill Closure Plan (revised January 18, 2018 with updates), prepared by PACE Engineers, Inc., the Construction Quality Assurance Plan in Support of LDA for Go East (dated April 7, 2020), and the project drawings titled "Go East Landfill Closure, Land Disturbance Activity – LDA #1", dated June 9, 2021, and approved by Snohomish County Planning and Development Services, dated June 23, 2021.

2.0 OBSERVATIONS AND TESTING

GeoEngineers served at the Construction Quality Assurance (CQA) Engineer for the Go East Landfill closure and was on site for construction observation and testing for 202 days from April 2, 2021 through March 21, 2022. On-going construction and construction observation services have continued since this time. GeoEngineers services for the landfill closure (LDA #1) included the following:

- Observing the wedge excavation and landfill material relocation;
- Observing subgrade conditions, and placement and compaction of structural fill in the wedge excavation;
- Observing placement and compaction of landfill materials;
- Observing placement of drainage materials in the west wedge excavation, including placement and compaction of the silt/clay dam, and placement of structural fill;
- Monitoring construction of the landfill cover system, including:
 - Evaluating subgrade conditions for the geomembrane;
 - Observe excavation of anchor trenches;
 - Observing geomembrane installation and seaming;
 - Observing installation of the geocomposite drainage layer;
 - Observing placement of a cushion geotextile (where needed);
 - Observing placement of the sand cover layer over the geomembrane; and
 - Observe placement and compaction of backfill in anchor trenches;



- Evaluating the west cut slope, construction of the groundwater interceptor trench, and construction of the geomembrane for the permanent stream alignment;
- Observing construction of the rock buttress at the toe of the northeast slope;
- Monitoring deep dynamic compaction activities in stormwater pond footprint; and
- Evaluating vibration monitoring data before, during and after deep dynamic compaction activities.

Field reports summarizing our construction observation activities are presented in our daily field reports for the project, numbers 1 through 202 (dated April 2, 2021 through March 21, 2022), and are included in Appendix A.

2.1. Wedge Excavation

2.1.1. Landfill Material Relocation

GeoEngineers observed the removal of landfill waste from the west and south wedge excavation areas and relocation of that material to portions of the landfill that was covered with the landfill cover system. The material was removed until native sand was encountered. We observed these activities during our site visits from April 23 through May 27, 2021 and from June 8 through June 25, 2021. Based on our observations, the landfill material was removed as planned and relocated to the upper portion of the landfill in general accordance with the project plans and specifications.

2.1.2. Landfill Material Placement and Compaction

We observed placement and compaction of the relocated landfill waste material from the west and south wedge excavation areas onto portions of the landfill that was covered with the geomembrane system. The relocated landfill waste was spread in approximately 12-inch-thick loose level lifts before being compacted with a landfill compactor making a minimum of four passes over each lift. These activities were observed during our site visits from April 23 through August 13, 2021. Based on our observations, it is our opinion that the relocated landfill material was placed and compacted in general accordance with the project plans and specifications.

2.1.3. Wedge Excavation Subgrade Preparation

GeoEngineers observed preparation of the subgrade areas in the wedge excavations during our site visits from May 5 to June 25, 2021. The exposed wedge excavation subgrades typically consisted of native fine to medium sand with silt. Once the native sand was exposed and approved for backfilling, the exposed subgrade areas were compacted with steel drum vibratory roller by making at least four passes over the exposed subgrade or the subgrade areas were compacted with vibratory plate mounted on an excavator. We evaluated the subgrade by means of probing with a ½-inch-diameter steel probe rod. Typical probe depths ranged from 3 to 4 inches. We observed that the subgrades were generally firm and in a suitable condition for fill placement. Based on our observations and evaluations, it is our opinion that wedge excavation subgrade preparation was completed in general accordance with the project plans and specifications.

2.1.4. Wedge Excavation Backfill Placement

Placement and compaction of backfill in the wedge excavations was observed and evaluated during our site visits from May 12 to September 2, 2021. The fill typically consisted of native fine to medium sand with



silt generated from on-site cut areas and/or imported silty fine to medium sand with gravel. Fill placement consisted of spreading the backfill in maximum 12-inch-thick loose level lifts and compacting each lift with at least four passes using a heavy steel drum vibratory roller. We also observed the performance of the fill under fully loaded off-road haul trucks and other construction equipment, The backfill was also evaluated by performing in-place moisture and density tests using a nuclear density gauge and by means of probing with a ½-inch-diameter steel probe rod. Density testing indicated that the fill had been compacted to at least 95 percent of the maximum dry density (MDD) as determined by ASTM D 1557 in the future lot areas (LDA #2) and to at least 90 percent of the MDD in the landfill closure area (LDA #1). Based on our observations, evaluations and test results, it is our opinion that the wedge excavation backfill placement and compaction was completed in general accordance with the project plans and specifications.

2.1.5. West Wedge Excavation - Groundwater Seepage Drain and Clay Dam Backfill

A clay dam was constructed along the southwest side of the landfill in the west wedge excavation area where moderate groundwater seepage was observed. Based on discussions during construction, the clay dam was constructed under the southwest edge of the landfill closure. Prior to constructing the clay dam, a groundwater collection and drainage layer was constructed at the base of the west wedge excavation after the landfill waste was removed and the wedge excavation was approved for backfilling. The groundwater drainage layer consisted of 1 to 2 feet of quarry spalls overlain by a needle-punched nonwoven geotextile separator. The clay dam was constructed in 12-inch-thick maximum loose lifts and each loose lift was compacted with a sheeps-foot compactor and/or a vibratory steel drum roller each making a minimum of four passes over each lift. We evaluated the material by performing in-place moisture and density testing with a nuclear density gauge. Density testing indicated that the material had been compacted to at least 95 percent of the MDD in future lot areas (LDA #2) and to at least 90 percent of the MDD in the landfill closure area (LDA #1). Based on our observations, evaluations, and test results, it is our opinion that clay dam and groundwater seepage collection layer were constructed in general accordance with our recommendations, and the project plans and specifications.

2.2. Landfill Cover System

2.2.1. Landfill Subgrade Preparation

GeoEngineers evaluated placement and compaction of the relocated landfill waste as described above, and observed exposed cut areas on the south slope and around the stormwater detention pond area. The exposed and compacted final surface of the landfill waste was evaluated prior to placing the 6-inch-thick sand layer. The exposed landfill waste surface was evaluated and observed debris that could penetrate the sand layer and possible puncture the geomembrane was removed (such as protruding wood waste, metal debris, wire, etc.). Once the landfill surface was approved, then the 6-inch-thick sand layer was placed and compacted with at least four passes using a dozer. We observed and evaluated the geomembrane subgrade conditions during our site visits from September 13, 2021 to February 1, 2022. Based on our observations, the finished landfill waste surface was properly prepared for placement of the 6-inch-thick sand layer in general accordance with the project plans and specifications.

2.2.1. 6-inch Sand Layer

We observed placement and compaction of the 6-inch-thick sand layer located below the geomembrane cover system. The sand layer was compacted with a dozer or smooth drum vibratory roller that made a minimum of four passes over the sand layer. We periodically probed the sand layer to check that it was at least 6 inches thick after compaction. We also observed the sand layer to make sure it was free of



unsuitable materials or debris and standing water prior to deployment of the geomembrane. Based on our observations and evaluations, it is our opinion that the 6-inch-thick sand layer was placed and compacted in general accordance with the project plans and specifications.

2.2.2. Anchor Trench Excavation

We observed excavation of the anchor trenches for the landfill cover system. We walked the anchor trenches to make sure the outside edge was excavated in clean soil. Where the inside edges of the anchor trenches were excavated in landfill material, we assessed the anchor trench sidewalls and observed removal of significant protruding landfill waste that posed a risk to the geomembrane. Once approved, exposed wood waste along the interior anchor trenches was covered with a needle-punched nonwoven cushion geotextile (TenCate Mirafi 1160N). The cushion geotextile was placed where needed after we approved subgrade conditions along the trenches. Based on our observations, it is our opinion that the anchor trenches were excavated and prepared in general accordance with the project plans and specifications, and our recommendations.

2.2.3. Geomembrane Installation

GeoEngineers observed installation of the geomembrane cover system and seaming of the geomembrane panels during our site visits from September 14, 2021 to February 16, 2022. The geomembrane consisted of Solmax 40-mil LLDPE double-sided textured geomembrane. The installation subcontractor typically seamed the panels together using fusion welding (double-wedge welding) equipment set at a speed of 6.5 feet per minute. Some shorter panels were seamed using extrusion welds. Extrusion welds were also used to patch three-way intersections, observed geomembrane damaged areas, and failed fusion welds.

Prior to production welding, geomembrane fusion and extrusion welded seams were tested for peel and shear (tensile) per the Go East Landfill Closure Plan and the Solmax quality assurance control manual (Section 7.0) by preparing test seams on geomembrane fragments. Coupons were tested in the field using a calibrated tensiometer. Test seam samples passed for film tear bond (FTB) and in shear prior to beginning production welding. Air pressure testing (non-destructive) was performed on fusion welded seams, while extrusion welds were used for all other seaming including where damaged was observed in the geomembrane, at three-way panel intersections, for failed fusion welded seams, and around penetrations through the geomembrane.

Based on our observations, and observed testing of geomembrane seams and test samples, it is our opinion that the geomembrane installation was completed in general accordance with the project plans and specifications, and the manufacturer requirements.

2.2.4. Geomembrane Seam Testing – Outside Laboratory Test Results

Destructive seam samples were obtained for every approximately 500 linear feet of geomembrane panel field seaming. Twenty-seven destructive seam tests were taken during the project from fusion welded seams and sent to an outside laboratory (TRI Environmental) for testing. The destructive seam samples were tested for peal (FTB) and in shear. All tested samples met the minimum project requirements. The test results are included in Appendix B.



2.2.5. Geocomposite Drainage Layer Installation

GeoEngineers observed installation of the geocomposite drainage layer that was placed over the geomembrane. The geocomposite drainage layer consisted of Solmax FabriNet 200 or 225-mil double-sided drainage composite. The panels were connected using zip ties typically spaced at approximately 2- to 3-foot intervals. The upper needle-punched non-woven geotextile was heat-bonded (tack welded) together. Based on our observations, the geocomposite drainage layer was installed in accordance with the project plans and specifications, and the manufactures recommendations.

2.2.6. Anchor Trench Backfill

We observed and evaluated backfilling of the anchor trenches after the landfill cover system geosynthetic materials were installed. Anchor trench backfill consisted of native or imported sand with silt that was placed in approximately 12-inch-thick loose lifts and compacted with a vibratory plate mounded on an excavator. We evaluated the backfill be means of probing with a ½-inch diameter steel probe rod and using a nuclear density gauge. The test results indicated that the backfill had been compacted to at least 90 percent of the MDD in accordance with ASTM D1557. Based on our observations, evaluations, and the test results, the anchor trench backfill was placed and compacted in general accordance with the project plans and specifications.

2.2.7. Placement and Compaction of 12-inch Cover Sand Layer

At least 12 inches of sand was placed and compacted over the geomembrane and geocomposite drainage layers on the landfill. The 12-inch-thick sand layer was placed in one lift with a dozer before being track-walked in place with at least four passes using the dozer. We walked the edges of the sand layer to make sure the exposed geosynthetic materials were not damaged during placement of the cover sand layer. Based on our observations, the cover sand was placed and compacted in general accordance with the project plans and specifications.

2.2.8. Detention Pond

The detention pond cover system (Cover System #2) consisted of two geomembrane layers and two geocomposite drainage layers. A leak detection system was constructed between the two geomembrane layers. Based on our observations, the detention pond cover system was installed in accordance with the project plans and specifications.

2.3. West Cut Slope and Stream Channel Construction

2.3.1. West Cut Slope

We observed excavation of the west cut slope as shown on the drawings, as well as construction of the west stream channel. The west cut slope was completed as shown on the drawings. Portions of the lower slope were overexcavated to mine sand for use on the landfill. Where overexcavated, the contractor backfilled the excavation with imported structural fill consisting of silty sand with variable gravel content. The structural fill was generally placed in 12-inch-thick maximum loose lifts and compacted with a hoepack or steel drum roller. We evaluated the backfill by means of probing with a ¹/₂-inch-diameter steel probe rod and using a nuclear density gauge. The test results indicated that the backfill had been compacted to at least 90 percent of the MDD in accordance with ASTM D1557. Based on our observations, evaluations, and test results, the west slope backfill was placed and compacted in general accordance with the project plans and specifications.



2.3.2. Groundwater Interceptor Trench

A groundwater interceptor trench was installed along the toe of the west slope and below the west stream channel to intercept groundwater seepage emanating from the base of the west slope. The groundwater interceptor trench was installed during our site visits from September 1 to September 16, 2021. The interceptor trench consisted of an 8-inch-diameter perforated corrugated drainage pipe (ADS N-12) surrounded by approximately 12 inches of washed ³/₄-inch drainage rock that was wrapped in a needle-punched nonwoven geotextile.

We also observed construction of a blanket drain along a portion of the west slope adjacent to the west side of the stream channel during our site visits from August 2 to October 5, 2021. The blanket drain was constructed to intercept and convey a high groundwater flow area to the previously constructed groundwater interceptor trench. The blanket drain consisted of a 2-foot-thick layer of 2- to 4-inch quarry spalls wrapped in a needle-punched nonwoven geotextile. The west stream channel was then constructed over this portion of the blanket drain.

Based on our observations, it is our opinion that the groundwater interceptor trench and blanket drain were constructed in general accordance with our recommendations and the project drawings.

2.3.3. Backfill and Compaction

We observed and evaluated backfill that was placed along the base of the west slope and around and below the west stream channel. Backfill consisted of imported silty sand with variable gravel that was placed in approximately 12-inch-thick loose lifts before being compacted with a vibratory drum roller. We evaluated the fill by means of in-place moisture and density testing with a nuclear density gauge. Density testing indicated that the backfill had been compacted to at least 90 percent of the MDD per ASTM D 1557. Based on our observations and evaluations the backfill was placed and compacted in general accordance with the project plans and specifications.

2.3.4. Geomembrane Subgrade Preparation

We evaluated the subgrade conditions for the west stream alignment prior to placement of the geomembrane. We evaluated the subgrade by means of probing with a ½-inch diameter steel probe rod. Probe depths were typically less than 2 inches. The subgrade was also observed to be free of deleterious material that could damage the geomembrane. Based on our observations, the subgrade was prepared in general accordance with the project plans and specifications.

2.3.5. Geomembrane Installation

GeoEngineers observed installation of the west stream channel geomembrane and seaming of the geomembrane panels. The geomembrane consisted of Solmax 40-mil LLDPE double-sided textured geomembrane. The installation subcontractor typically seamed the panels together using fusion welding (double-wedge welding) equipment set at a speed of 6.5 feet per minute. Some shorter panels were seamed using extrusion welds. Extrusion welds were also used to patch three-way intersections, observed geomembrane damaged areas, and failed fusion welds.

Prior to production welding, geomembrane fusion and extrusion welded seams were tested for peel and shear (tensile) per the Go East Landfill Closure Plan and the Solmax quality assurance control manual (Section 7.0) by preparing test seams on geomembrane fragments. Coupons were tested in the field using



a calibrated tensiometer. Test seam samples passed for FTB and in shear prior to beginning production welding. Air pressure testing (non-destructive) was performed on fusion welded seams, while extrusion welds were used for all other seaming including where damaged was observed in the geomembrane, at three-way panel intersections, for failed fusion welded seams, and around penetrations through the geomembrane.

Based on our observations, and observed testing of geomembrane seams and test samples, it is our opinion that the geomembrane installation was completed in general accordance with the project plans and specifications, and the manufacturer requirements.

2.3.6. Anchor Trench Excavation and Backfill

We observed excavation of the anchor trenches prior to installation of the geomembrane and approved the subgrade conditions prior to deployment of the geomembrane. After installation of the geomembrane, we observed placement of backfill in the anchor trenches during our site visits from September 20, 2021 through February 17, 2022. Backfill was placed in 12-inch loose lifts and compacted with an excavator mounted vibratory plate. Density testing indicated that the fill had been compacted to at least 95 percent of the MDD as determined by ASTM D 1557. Based on our observations, evaluations, and test results, it is our opinion that the anchor trenches were prepared and then backfilled in general accordance with the project plans and specifications.

2.3.7. Cover Sand Placement

We observed placement and compaction of at least 12 inches of sand over the geomembrane along the stream channel. The sand was placed in one lift before being compacted with a vibratory plate mounted to an excavator. Based on our observations, the cover sand was placed in general accordance with the project plans and specifications.

2.4. Northeast Slope - Rock Fill Buttress and Spring Box

2.4.1. Buttress Rock Fill

As shown on the drawings, a rock fill buttress was constructed along the base of the northeast slope. The subgrade was prepared by cutting vegetation down to the existing topsoil surface and by removing large woody debris, brush, down trees, and stumps. After the vegetation and debris was removed, we observed and approved the subgrade conditions prior to placement of the needle-punched nonwoven geotextile separator across the exposed subgrade surface. Rock fill consisting of 4- to 8-inch quarry spalls were then placed on the geotextile to construct the buttress fill. The rock fill was compacted with the back of the excavator mounted bucket. Based on our observations, the northeast slope buttress rock fill was constructed in general accordance with the project plans and specifications.

2.4.2. Groundwater Seepage Collection and Spring Box Installation

In accordance with the project plans, a spring box was constructed near the east end of the gravel working pad at the base of the northeast slope. In order to collect and convey groundwater seepage that was emanating from the base of the northeast slope towards the spring box, a geosynthetic clay liner (GCL) was installed. The GCL consisted of bentonite clay sandwiched between two needle-punched nonwoven geotextiles (Solmax Bentoliner, 0.75 lbs/ft²). The subgrade was first prepared by forming a channel to convey the groundwater seepage towards the spring box. Approximately 6 inches of 5/e-inch clean crushed



gravel was placed on the exposed subgrade. The GCL was then installed on the constructed channel. GCL panels were overlapped at least 6 inches and panels were seamed together using bentonite placed between the overlaps. The GCL was also adhered to the back of the spring box using bentonite. Once the GCL was installed, it was covered with about 12 inches of the 5%-inch clean crushed gravel prior to placing additional 4- to 8-inch quarry spalls to construct the remaining working pad and to finished construction of the buttress fill. Based on our observations, the spring box and GCL were constructed in general accordance with the project plans and specifications, and our recommendations.

2.5. Deep Dynamic Compaction

Deep dynamic compaction was completed at the location of the future detention ponds. The deep dynamic compaction was completed to reduce potential long-term settlement under the future detention ponds by compacting landfill debris beneath the ponds. The deep dynamic compaction process consisted of 297 drop point locations spaced at 12-feet on-center in an equilateral triangle spacing within in the detention pond footprint. A track-mounted crane (Liebherr HS 885 HD) with a 25-ton 6-foot-high by 8-foot-diameter tamper was used to complete the dynamic compaction. The deep dynamic compaction was performed by raising the 25-ton tamper to a height of 40 feet above the working pad (1-foot-thick quarry spalls) and dropping it at the specified drop point location. The tamper was dropped at each drop point location at least four times. Compaction of the drop point craters generally decreased significantly on the final two drops, indicating the material beneath it was compacting as planned. Crater depths typically ranged from 3 to 6 feet deep and were based on observations during the compaction process and were estimated to the nearest quarter foot.

Based on our observations of the deep dynamic compaction process completed for the project, the dynamic compaction program was completed in accordance with the intent of our recommendations and the approve project plans and specifications. A letter summarizing the results of our observations during the deep dynamic compaction program is included in Appendix C.

2.6. Vibration Monitoring

Vibration monitoring equipment was installed at two locations along the north and northwest property lines. Vibration monitoring station M1 was installed adjacent to Lot 64 and vibration monitoring station M2 was installed adjacent to Lot 23. Vibrations were monitored from March 29 to May 17, 2021. The primary purpose of the vibration monitoring program was to measure vibrations to assess potential impacts from deep dynamic compaction activities on the nearby residences located closest to where deep dynamic compaction was planned. Measured vibrations during construction were below the range of vibrations that adversely impact residential buildings. In addition, deep dynamic compaction activities in the detention pond area did not produce any vibrations that were detected at the monitoring stations. Our letter summarizing the vibration monitoring program is included in Appendix D.

3.0 CONCLUSIONS

Based on our observations, evaluations and testing completed for the project, we conclude that the work discussed herein for the Go East Landfill Closure project has been completed in general accordance with the project documents and the requirements of the Snohomish County Planning and Development Services approved project plans, dated June 23, 2021.



In accordance with the project CQA Plan, the undersigned professional engineer states that:

A designated representative under the supervision of a licensed professional engineer was present during construction to observe construction activities, and that person has reviewed the results of the field testing of materials, and to the best of the persons knowledge, and belief, the Go East Landfill Closure was constructed in general accordance with the approved construction documents and the materials used in construction were in general conformance with the specifications. Based on the forgoing, the project can begin post-closure requirements.

Rolf C. aletalle

Robert C. Metcalfe, PE, LEG Principal Geotechnical Engineer





APPENDIX A Field Reports (GeoEngineers) Field reports are provided in Appendix F of the Construction Quality Assurance Report (PACE Engineers, July 1, 2022).

APPENDIX B Seam Testing Results (TRI Environmental)



TESTING, RESEARCH, CONSULTING AND FIELD SERVICES

Austin, TX - USA | Anaheim, CA - USA | Anderson, SC - USA | Gold Coast - Australia | Suzhou - China

SAMPLE ID

DS-12 P87/ P88

DS-13 P95/ P96

DS-14 P49/ P107

DS-15 S19/ S20

DS-16 S24/S26

DS-17 S39/S40

DS-18 P84/ P112

DS-19 P123/ P127

DS-20 P128/ P129

DS-24 P146/ P150

DS-25 P158/ P159

Colton McInelly Geo Engineers 17425 NE Union Hill Road, Ste 250 Redmond, WA 98052

Re: FINAL LABORATORY TEST REPORT

Dear Mr. McInelly:

Thank you for consulting TRI California for your material testing needs.

Enclosed is the *final* laboratory report for the Seam testing of twenty-two (22) LLDPE seam samples.

PROJECT NAME: Go East Landfill

DATE REPORTED: February 11, 2022- Original reported February 16, 2022- Updated to correct specs.

TRI-CA CONTROL NUMBER

161634

161635

161636

161637

161638

161639

161640

161641

161642

161643

161644

REFERENCE TRI JOB NO .: CA220118

DATE RECEIVED: February 11, 2022

SAMPLES SENT BY: Geo Engineers

SAMPLE IDENTIFICATIONS:

SAMPLE ID	TRI-CA CONTROL NUMBER
DS-1 P2/P3	161623
DS-2 P4/P5	161624
DS-3 P8/P9	161625
DS-4 P8/ P13	161626
DS-5 P35/P36	161627
DS-6 P40 P41	161628
DS-7 P46/P47	161629
DS-8 P61/P65	161630
DS-9 P68/P69	161631
DS-10 P76/ P77	161632
DS-11 P79/ P80	161633

TESTS REQUIRED / PERFORMED:

TEST METHOD	DESCRIPTION
1. ASTM D6392	Shear Bond Strength
2. ASTM D6392	Peel Bond Adhesion

TEST RESULTS: The test results are summarized in the attached Table 1 to 11.

Note: The general conditioning and testing of the material samples identified in this report were performed within the range of the laboratory environmental conditions; i.e., 20-24°C and 45-65% RH. Otherwise, the actual environmental conditions are indicated in the respective test method reported.

Respectfully, TRI Environmental, Inc. - California

Maria Expetio

Maria Espitia **Quality Assurance**

Chad Blackwell **TRI-CA** Director

Signatures are on file

It shall be noted that the samples tested are believed to be true representatives of the material produced under the designation herein stated. In addition, the attached laboratory tests results are considered indicative only of the quality of samples/specimens that were actually tested. The appropriate test methods hereby employed are based on the current and accepted industry practices. TRI neither accepts responsibility for nor makes claims to the intended final use and purpose of the material. The test data and all associated project information shall be held confidential and not to be reproduced and/or disclosed to other parties except in full and with prior written approval from pertinent entity duly authorized by the respective client or from the client itself. It is our policy to keep physical records of each job for two (2) years commencing from the date of receipt of the samples and keep its corresponding electronic file for seven (7) years. Failed seam samples are kept for two (2) years and good seam samples are disposed of after two (2) weeks. On the other hand, should you need us to keep them at a longer period, please advise us in writing.

12 Pages Total (including this sheet)





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DATE REC'D: 11-Feb-22

TESTING, RESEARCH, CONSULTING AND FIELD SERVICES Austin, TX - USA | Anaheim, CA - USA | Anderson, SC - USA | Gold Coast - Australia | Suzhou - China

MATERIAL: 40mil LLDPE SEAM

SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: GeoEngineers PROJECT: Go East Landfill Closure

SEAM TYPE: Fusion Weld TRI JOB #: CA220118

Maria Expetia QC'd By: TEST METHOD: ASTM D6392 iai-la

DATE REPORT: 16-Feb-22

Crosshead Spee	d: 20 in/min					Crosshead Spe	ed: 20 in/min				
			SHEA	R EVALUAT	ION			PEEL E	VALUATION		
		MAXIMUM	Elongation	Locus	PROJECT		MAXIMUM	%	LOCUS	PROJECT	
SAMPLE	TRI	STRENGTH	Run up to	of	SPEC.	SPECIMEN	STRENGTH	INCURSION	OF	SPEC.	
ID	CONTROL #	(lb/in width)	-	Break	(lb/in width)	NUMBER	(lb/in width)	(%)	BREAK	(Ib/in width)	
DS- 1	161623	134	>50%	SE1		1 Outside	123	0	SE1		
P2/ P3		134	>50%	SE1		2 Outside	132	0	SE1		
		135	>50%	SE1		3 Outside	124	0	SE1		
		131	>50%	SE1		4 Outside	99	0	SE1		
		134	>50%	SE1		5 Outside	111	0	SE1		
						AVG:	118			50	
						STD. DEV.	13				
						1 Inside	114	0	SE1		
						2 Inside	124	0	SE1		
						3 Inside	127	0	SE1		
						4 Inside	107	0	SE1		
						5 Inside	107	0	SE1		
	AVG.	134		I	60	AVG:	116	-		50	
	STD. DEV.	2				STD. DEV.	9				
DS- 2	161624	134	>50%	SE1		1 Outside	102	0	SE1		
P4/ P5		139	>50%	SE1		2 Outside	112	0	SE1		
		135	>50%	SE1		3 Outside	103	0	SE1		
		134	>50%	SE1		4 Outside	111	0	SE1		
		133	>50%	SE1		5 Outside	114	0	SE1		
		100	20070	021		AVG:	109	0	021	50	
						STD. DEV.	5			00	
						1 Inside	105	0	SE1		
						2 Inside	103	0	SE1		
						3 Inside	106	0	SE1		
						4 Inside	100	0	SE1		
						5 Inside	122	0	SE1		
	AVG:	135			60	AVG:	124	0	SET	50	
	STD. DEV.	2			00	STD. DEV.	9			50	
	ON (ASTM D6392 FL			EXTRUSION:	AD1	-	-	L DELAMINATED UNDER			
AD	ADHESION FAILU	,		EATROSION.	AD2	ADHESION FAILU		ELAWINATED UNDER	THE BEAD.		
BRK	BREAK IN SHEET				AD-WLD	BREAK THROUG					
SE1		R EDGE OF SEAM.			SE1		OM EDGE OF SEAM	L			
SE2	BREAK AT INNER				SE2	BREAK AT TOP E					
AD-BRK		SEAM AFTER SOME	ADHESION FAILUF	RE.	SE3		OM EDGE OF SEAN	(for PEEL only)			
SIP	SEPARATION IN	THE PLANE OF THE	SHEET.		BRK1	BREAK IN BOTTO					
					BRK2	BREAK IN TOP S			_		
					AD-BRK HT	BREAK IN FIRST BREAK AT EDGE		E ADHESION FAILURE			
					SIP		THE PLANE OF THE	E SHEET.			
	(End of Tab	le 1)				(Sheet 1 of 1)					
	,	,						. ,			



TESTING, RESEARCH, CONSULTING AND FIELD SERVICES

MATERIAL: 40mil LLDPE SEAM

Austin, TX - USA | Anaheim, CA - USA | Anderson, SC - USA | Gold Coast - Australia | Suzhou - China TABLE 2.

SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: GeoEngineers PROJECT: Go East Landfill Closure DATE REC'D: 11-Feb-22

SEAM TYPE: Fusion Weld TRI JOB #: CA220118 QC'd By: TEST METHOD: ASTM D6392 DATE REPORT: 16-Feb-22

Crosshead Speed: 20 in/min Crosshead Speed: 20 in/min SHEAR EVALUATION PEEL EVALUATION MAXIMUM Elongation PROJECT MAXIMUM LOCUS PROJECT Locus % SAMPLE SPECIMEN INCURSION SPEC. TRI STRENGTH Run up to of SPEC. STRENGTH OF ID CONTROL # (lb/in width) Break (lb/in width) NUMBER (lb/in width) (%) BREAK (lb/in width) DS- 3 161625 131 >50% SE1 1 Outside 90 0 SE1 P8/ P9 131 >50% SE1 2 Outside 97 0 SE1 130 >50% SE1 3 Outside 110 0 SE1 129 >50% SE1 4 Outside 109 0 SE1 SE1 0 131 >50% 5 Outside 111 SE1 103 50 AVG: STD. DEV 9 95 0 SE1 1 Inside 2 Inside 108 0 SE1 113 0 SE1 3 Inside 4 Inside 112 0 SE1 SE1 5 Inside 110 0 AVG. 130 60 108 AVG: 50 STD. DEV. STD. DEV 1 7 DS- 4 161626 132 SE1 119 0 SE1 >50% 1 Outside P8/ P13 SE1 117 SE1 136 >50% 2 Outside 0 134 >50% SE1 3 Outside 101 0 SE1 134 >50% SE1 4 Outside 110 0 SE1 135 >50% SE1 5 Outside 100 0 SE1 109 AVG: 50 STD. DEV 9 1 Inside 103 0 SE1 2 Inside 119 0 SF1 SE1 3 Inside 108 0 106 0 SE1 4 Inside 5 Inside 100 0 SE1 60 AVG: 134 AVG: 107 50 STD. DEV. 1 STD. DEV. 7 ADHESION FAILURE. SPECIMENS DELAMINATED UNDER THE BEAD. BREAK DESCRIPTION (ASTM D6392 FUSION): EXTRUSION: AD1 AD ADHESION FAILURE. AD2 ADHESION FAILURE. BRK AD-WLD BREAK THROUGH THE FILLET. BREAK IN SHEETING. SE1 SE1 BREAK AT OUTER EDGE OF SEAM. BREAK AT BOTTOM EDGE OF SEAM. SE2 SE2 BREAK AT INNER EDGE OF SEAM. BREAK AT TOP EDGE OF SEAM. BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE. AD-BRK SE3 BREAK AT BOTTOM EDGE OF SEAM (for PEEL only) SEPARATION IN THE PLANE OF THE SHEET. BRK1 SIP BREAK IN BOTTOM SHEETING.

BREAK IN TOP SHEETING.

BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.

BREAK AT EDGE OF HOT TACK

SEPARATION IN THE PLANE OF THE SHEET.

(End of Table 2)

(Sheet 1 of 1)

By accepting the data and results presented on this report, the Client agrees to limit the liability of TRI Environmental, Inc. from Client and all other parties for claims on issues, due to the use of this data, to the cost for the respective tests presented in this report; and the Client agrees to indemnify and hold harmless TRI Environmental, Inc. from and against all liabilities in excess of the aforementioned limit.

BRK2

ΗT

SIP

AD-BRK



TESTING, RESEARCH, CONSULTING AND FIELD SERVICES Austin, TX - USA | Anaheim, CA - USA | Anderson, SC - USA | Gold Coast - Australia | Suzhou - China TABLE 3

MATERIAL: 40mil LLDPE SEAM

SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: GeoEngineers PROJECT: Go East Landfill Closure DATE REC'D: 11-Feb-22

SEAM TYPE: Fusion Weld TRI JOB #: CA220118

Maria Espitis QC'd By: TEST METHOD: ASTM D6392 DATE REPORT: 16-Feb-22 Al-LA

Crosshead Speed	l: 20 in/min					Crosshead Speed: 20 in/min					
			SHEA	R EVALUAT	ION			PEEL E	VALUATION		
		MAXIMUM	Elongation	Locus	PROJECT		MAXIMUM	%	LOCUS	PROJECT	
SAMPLE	TRI	STRENGTH	Run up to	of	SPEC.	SPECIMEN	STRENGTH	INCURSION	OF	SPEC.	
ID	CONTROL #	(lb/in width)		Break	(lb/in width)	NUMBER	(lb/in width)	(%)	BREAK	(lb/in width)	
DS- 5	161627	135	>50%	SE1		1 Outside	119	0	SE1		
P35/ P36		136	>50%	SE1		2 Outside	129	0	SE1		
		135	>50%	SE1		3 Outside	125	0	SE1		
		133	>50%	SE1		4 Outside	117	0	SE1		
		136	>50%	SE1		5 Outside	125	0	SE1		
						AVG:	123			50	
						STD. DEV.	5				
						1 Inside	91	0	SE1		
						2 Inside	100	0	SE1		
						3 Inside	95	0	SE1		
						4 Inside	94	0	SE1		
						5 Inside	94	0	SE1		
	AVG.	135			60	AVG:	95			50	
	STD. DEV.	1				STD. DEV.	3				
DS- 6	161628	133	>50%	SE1		1 Outside	116	0	SE1		
P40/ P41		133	>50%	SE1		2 Outside	112	0	SE1		
		137	>50%	SE1		3 Outside	119	0	SE1		
		133	>50%	SE1		4 Outside	118	0	SE1		
		131	>50%	SE1		5 Outside	115	0	SE1		
						AVG:	116			50	
						STD. DEV.	3				
						1 Inside	117	0	SE1		
						2 Inside	105	0	SE1		
						3 Inside	102	0	SE1		
						4 Inside	105	0	SE1		
						5 Inside	103	0	SE1		
	AVG:	133			60	AVG:	106			50	
	STD. DEV.	2				STD. DEV.	6				
BREAK DESCRIPTIO	N (ASTM D6392 FU	ISION):		EXTRUSION:	AD1	ADHESION FAILU	JRE. SPECIMENS D	ELAMINATED UNDER	THE BEAD.		
AD	ADHESION FAILU	RE.			AD2	ADHESION FAILU	IRE.				
BRK	BREAK IN SHEETI				AD-WLD	BREAK THROUGH THE FILLET.					
SE1	BREAK AT OUTER				SE1	BREAK AT BOTTOM EDGE OF SEAM.					
SE2	BREAK AT INNER				SE2	BREAK AT TOP E					
AD-BRK SIP		SEAM AFTER SOME THE PLANE OF THE		KE.	SE3 BRK1	BREAK AT BOTT	OM EDGE OF SEAN	I (TOT PEEL ONLY)			
011		THE FLAME OF THE	UNELT.		BRK2	BREAK IN TOP S					
					AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.					
					HT	BREAK AT EDGE OF HOT TACK					
					SIP	SEPARATION IN	THE PLANE OF THE	E SHEET.			

(End of Table 3)

(Sheet 1 of 1)



TESTING, RESEARCH, CONSULTING AND FIELD SERVICES Austin, TX - USA | Anaheim, CA - USA | Anderson, SC - USA | Gold Coast - Australia | Suzhou - China

MATERIAL: 40mil LLDPE SEAM

SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: GeoEngineers PROJECT: Go East Landfill Closure DATE REC'D: 11-Feb-22

SEAM TYPE: Fusion Weld TRI JOB #: CA220118

Maria Espitia QC'd By: TEST METHOD: ASTM D6392 DATE REPORT: 16-Feb-22 iai-la

Crosshead Speed	: 20 in/min					Crosshead Spe	ed: 20 in/min					
			SHEA	R EVALUAT	ION			PEEL E	VALUATION			
		MAXIMUM	Elongation	Locus	PROJECT		MAXIMUM	%	LOCUS	PROJECT		
SAMPLE	TRI	STRENGTH	Run up to	of	SPEC.	SPECIMEN	STRENGTH	INCURSION	OF	SPEC.		
ID	CONTROL #	(Ib/in width)		Break	(Ib/in width)	NUMBER	(lb/in width)	(%)	BREAK	(Ib/in width)		
DS- 7	161629	138	>50%	SE1		1 Outside	113	0	SE1			
P46/ P47		138	>50%	SE1		2 Outside	101	0	SE1			
		137	>50%	SE1		3 Outside	109	0	SE1			
		138	>50%	SE1		4 Outside	91	0	SE1			
		137	>50%	SE1		5 Outside	103	0	SE1			
						AVG:	103			50		
						STD. DEV.	8					
						1 Inside	103	0	SE1			
						2 Inside	104	0	SE1			
						3 Inside	107	0	SE1			
						4 Inside	103	0	SE1			
						5 Inside	108	0	SE1			
	AVG.	138			60	AVG:	105	-		50		
	STD. DEV.	1				STD. DEV.	2					
DS- 8	161630	138	>50%	SE1		1 Outside	107	0	SE1			
P61/ P65		141	>50%	SE1		2 Outside	103	0	SE1			
		141	>50%	SE1		3 Outside	99	0	SE1			
		142	>50%	SE1		4 Outside	97	0	SE1			
		138	>50%	SE1		5 Outside	104	0	SE1			
		100	20070	0E1		AVG:	102	0	021	50		
						STD. DEV.	4			00		
						1 Inside	100	0	SE1			
						2 Inside	100	0	SE1			
						2 Inside 3 Inside	116	0	SE1			
						4 Inside	94	0	SE1			
							-	0	SE1			
	AVG:	4.40		ļ	60	5 Inside	107	0	SET	50		
	-	140 2			60	AVG: STD. DEV.	104 8			50		
	STD. DEV.			EXTRUSION:	AD1			ELAMINATED UNDER				
REAK DESCRIPTIO	ADHESION FAILU	,		EXTRUSION:	AD1 AD2	ADHESION FAILU		JELAMINATED UNDER	THE BEAD.			
IRK	BREAK IN SHEET				AD2 AD-WLD							
E1		REDGE OF SEAM.			SE1	BREAK THROUGH THE FILLET. BREAK AT BOTTOM EDGE OF SEAM.						
E2	BREAK AT INNER				SE2	BREAK AT BOTTOM EDGE OF SEAM. BREAK AT TOP EDGE OF SEAM.						
D-BRK		SEAM AFTER SOME	ADHESION FAILUR	RE.	SE3		OM EDGE OF SEAN	(for PEEL only)				
IP		THE PLANE OF THE			BRK1	BREAK IN BOTT						
					BRK2	BREAK IN TOP S						
					AD-BRK			E ADHESION FAILURI				
					HT SIP	BREAK AT EDGE	E OF HOT TACK THE PLANE OF THE					
					511			LONCEL.				

(End of Table 4)

(Sheet 1 of 1)



TESTING, RESEARCH, CONSULTING AND FIELD SERVICES

MATERIAL: 40mil LLDPE SEAM

Austin, TX - USA | Anaheim, CA - USA | Anderson, SC - USA | Gold Coast - Australia | Suzhou - China TABLE 5.

SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: GeoEngineers PROJECT: Go East Landfill Closure DATE REC'D: 11-Feb-22

(End of Table 5)

SEAM TYPE: Fusion Weld TRI JOB #: CA220118

Maria Expetia QC'd By: TEST METHOD: ASTM D6392 DATE REPORT: 16-Feb-22 iai-la

DATE RECD.	11-Feb-22				IRIJUD #.	CAZZUTIO			DATE REPORT.	10-1 60-22
Crosshead Speed	: 20 in/min					Crosshead Spe	eed: 20 in/min			
· · ·			SHEA	R EVALUAT	ION	İ		PEEL E	VALUATION	
1		MAXIMUM	Elongation	Locus	PROJECT		MAXIMUM	%	LOCUS	PROJECT
SAMPLE	TRI	STRENGTH	Run up to	of	SPEC.	SPECIMEN	STRENGTH	INCURSION	OF	SPEC.
ID	CONTROL #	(lb/in width)	,	Break	(Ib/in width)	NUMBER	(lb/in width)	(%)	BREAK	(lb/in width)
DS- 9	161631	132	>50%	SE1		1 Outside	108	0	SE1	
P68/ P69		135	>50%	SE1		2 Outside	100	0	SE1	
		134	>50%	SE1		3 Outside	108	0	SE1	
		137	>50%	SE1		4 Outside	104	0	SE1	
		136	>50%	SE1		5 Outside	108	0	SE1	
						AVG:	106			50
						STD. DEV.	4			
						1 Inside	111	0	SE1	
						2 Inside	108	0	SE1	
						3 Inside	112	0	SE1	
						4 Inside	109	0	SE1	
						5 Inside	111	0	SE1	
	AVG.	135			60	AVG:	110			50
	STD. DEV.	2				STD. DEV.	2			
DS- 10	161632	142	>50%	SE1		1 Outside	110	0	SE1	
P76/ P77		139	>50%	SE1		2 Outside	114	0	SE1	
		140	>50%	SE1		3 Outside	126	0	SE1	
		141	>50%	SE1		4 Outside	127	0	SE1	
		140	>50%	SE1		5 Outside	111	0	SE1	
						AVG:	118			50
						STD. DEV.	8			
						1 Inside	105	0	SE1	
						2 Inside	102	0	SE1	
						3 Inside	104	0	SE1	
						4 Inside	102	0	SE1	
						5 Inside	106	0	SE1	
	AVG:	140			60	AVG:	104			50
	STD. DEV.	1				STD. DEV.	2			
BREAK DESCRIPTIO	N (ASTM D6392 FU	JSION):		EXTRUSION:	AD1	ADHESION FAILU	URE. SPECIMENS D	DELAMINATED UNDER	R THE BEAD.	
AD	ADHESION FAILU				AD2	ADHESION FAILU				
BRK	BREAK IN SHEET				AD-WLD	BREAK THROUG				
SE1		R EDGE OF SEAM.			SE1		OM EDGE OF SEAM			
SE2 AD-BRK	BREAK AT INNER	EDGE OF SEAM. SEAM AFTER SOME		2E	SE2 SE3	BREAK AT TOP E	DGE OF SEAM. OM EDGE OF SEAN	(for PEEL only)		
SIP		THE PLANE OF THE		\L.	BRK1	BREAK IN BOTT				
					BRK2	BREAK IN TOP S				
					AD-BRK			E ADHESION FAILURI	Ξ.	
					HT SIP	BREAK AT EDGE	E OF HOT TACK THE PLANE OF THE			
					017	JEPARA HUN IN	THE PLANE OF THE	E OREET.		

By accepting the data and results presented on this report, the Client agrees to limit the liability of TRI Environmental, Inc. from Client and all other parties for claims on issues, due to the use of this data, to the cost for the respective tests presented in this report; and the Client agrees to indemnify and hold harmless TRI Environmental, Inc. from and against all liabilities in excess of the aforementioned limit.

(Sheet 1 of 1)



DATE REC'D: 11-Feb-22

TESTING, RESEARCH, CONSULTING AND FIELD SERVICES Austin, TX - USA | Anaheim, CA - USA | Anderson, SC - USA | Gold Coast - Australia | Suzhou - China TABLE 6

MATERIAL: 40mil LLDPE SEAM

SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: GeoEngineers PROJECT: Go East Landfill Closure

SEAM TYPE: Fusion Weld TRI JOB #: CA220118

Maria Expitia QC'd By: TEST METHOD: ASTM D6392 DATE REPORT: 16-Feb-22 AI-LA

DINENEOD						04220110			DITLE THE OTT.			
Crosshead Speed	d: 20 in/min					Crosshead Spe	eed: 20 in/min					
			SHEA	R EVALUAT	TION			PEEL E	VALUATION			
		MAXIMUM	Elongation	Locus	PROJECT		MAXIMUM	%	LOCUS	PROJECT		
SAMPLE	TRI	STRENGTH	Run up to	of	SPEC.	SPECIMEN	STRENGTH	INCURSION	OF	SPEC.		
ID	CONTROL #	(lb/in width)	-	Break	(Ib/in width)	NUMBER	(lb/in width)	(%)	BREAK	(lb/in width)		
DS- 11	161633	132	>50%	SE1		1 Outside	112	0	SE1			
P79/ P80		126	>50%	SE1		2 Outside	107	0	SE1			
		131	>50%	SE1		3 Outside	108	0	SE1			
		129	>50%	SE1		4 Outside	116	0	SE1			
		129	>50%	SE1		5 Outside	111	0	SE1			
						AVG:	111			50		
						STD. DEV.	4					
						1 Inside	103	0	SE1			
						2 Inside	97	0	SE1			
						3 Inside	92	0	SE1			
						4 Inside	93	0	SE1			
						5 Inside	101	0	SE1			
	AVG.	130			60	AVG:	97	Ŭ	021	50		
	STD. DEV.	2			00	STD. DEV.	5			00		
DS- 12	161634	133	>50%	SE1		1 Outside	98	0	SE1			
P87/ P88	101004	135	>50%	SE1		2 Outside	99	0	SE1			
1 017 1 00		132	>50%	SE1		3 Outside	99	0	SE1			
		133	>50%	SE1		4 Outside	95	0	SE1			
		133	>50%	SE1		5 Outside	107	0	SE1			
		155	>50%	SET		AVG:	107	0	3ET	50		
						STD. DEV.	4			50		
								0	054			
						1 Inside	105	0	SE1			
						2 Inside	99	0	SE1			
						3 Inside	111	0	SE1			
						4 Inside	107	0	SE1			
						5 Inside	113	0	SE1			
	AVG:	133			60	AVG:	107			50		
	STD. DEV.	1				STD. DEV.	6					
	ON (ASTM D6392 FL	,		EXTRUSION:	AD1			ELAMINATED UNDER	R THE BEAD.			
D	ADHESION FAILU				AD2	ADHESION FAILU						
RK	BREAK IN SHEET				AD-WLD	BREAK THROUGH THE FILLET.						
E1		R EDGE OF SEAM.			SE1		OM EDGE OF SEAN	l.				
E2	BREAK AT INNER				SE2	BREAK AT TOP E		(for DEEL only)				
D-BRK IP		SEAM AFTER SOME THE PLANE OF THE		KE.	SE3 BRK1	BREAK AT BOTTOM EDGE OF SEAM (for PEEL only) BREAK IN BOTTOM SHEETING.						
			UNEET.		BRK2	BREAK IN TOP SHEETING.						
					AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.						
					HT	BREAK AT EDGE	E OF HOT TACK					
					CID		THE DLANE OF TH					

(End of Table 6)

(Sheet 1 of 1)

By accepting the data and results presented on this report, the Client agrees to limit the liability of TRI Environmental, Inc. from Client and all other parties for claims on issues, due to the use of this data, to the cost for the respective tests presented in this report; and the Client agrees to indemnify and hold harmless TRI Environmental, Inc. from and against all liabilities in excess of the aforementioned limit.

SEPARATION IN THE PLANE OF THE SHEET.

SIP



TESTING, RESEARCH, CONSULTING AND FIELD SERVICES

Austin, TX - USA | Anaheim, CA - USA | Anderson, SC - USA | Gold Coast - Australia | Suzhou - China TABLE 7.

SEAM PEEL AND SHEAR TEST RESULTS MATERIAL: 40mil LLDPE SEAM

CLIENT: GeoEngineers PROJECT: Go East Landfill Closure DATE REC'D: 11-Feb-22

SEAM TYPE: Fusion Weld TRI JOB #: CA220118

Maria Expetia QC'd By: TEST METHOD: ASTM D6392 DATE REPORT: 16-Feb-22 AI-LA

									-		
Crosshead Speed	: 20 in/min					Crosshead Spe	ed: 20 in/min				
			SHEA	R EVALUAT	ION			PEEL E	VALUATION		
		MAXIMUM	Elongation	Locus	PROJECT		MAXIMUM	%	LOCUS	PROJECT	
SAMPLE	TRI	STRENGTH	Run up to	of	SPEC.	SPECIMEN	STRENGTH	INCURSION	OF	SPEC.	
ID	CONTROL #	(lb/in width)	-	Break	(lb/in width)	NUMBER	(lb/in width)	(%)	BREAK	(Ib/in width)	
DS- 13	161635	134	>50%	SE1		1 Outside	104	0	SE1		
P95/ P96		133	>50%	SE1		2 Outside	107	0	SE1		
		134	>50%	SE1		3 Outside	109	0	SE1		
		133	>50%	SE1		4 Outside	104	0	SE1		
		135	>50%	SE1		5 Outside	104	0	SE1		
						AVG:	106			50	
						STD. DEV.	3				
						1 Inside	105	0	SE1		
						2 Inside	89	0	SE1		
						3 Inside	100	0	SE1		
						4 Inside	105	0	SE1		
						5 Inside	92	0	SE1		
	AVG.	134			60	AVG:	98	-	_	50	
	STD. DEV.	1				STD. DEV.	7				
DS- 14	161636	139	>50%	SE1		1 Outside	93	0	SE1		
P49/ P107		138	>50%	SE1		2 Outside	86	0	SE1		
		139	>50%	SE1		3 Outside	81	0	SE1		
		137	>50%	SE1		4 Outside	87	0	SE1		
		139	>50%	SE1		5 Outside	91	0	SE1		
						AVG:	88	-		50	
						STD. DEV.	5				
						1 Inside	114	0	SE1		
						2 Inside	109	0	SE1		
						3 Inside	110	0	SE1		
						4 Inside	113	0	SE1		
						5 Inside	116	0	SE1		
	AVG:	138		<u>I</u>	60	AVG:	112	Ů	021	50	
	STD. DEV.	1				STD. DEV.	3				
BREAK DESCRIPTIO		-		EXTRUSION:	AD1		÷	DELAMINATED UNDER	THE BEAD		
AD	ADHESION FAILU	,			AD2	ADHESION FAILU					
3RK	BREAK IN SHEET	ING.			AD-WLD	BREAK THROUGH THE FILLET.					
SE1	BREAK AT OUTER	R EDGE OF SEAM.			SE1	BREAK AT BOTTOM EDGE OF SEAM.					
SE2	BREAK AT INNER				SE2 SE3	BREAK AT TOP E					
AD-BRK							OM EDGE OF SEAM	I (for PEEL only)			
SIP	SEPARATION IN 1	THE PLANE OF THE	SHEET.		BRK1 BRK2	BREAK IN BOTTOM SHEETING.					
						BREAK IN TOP SHEETING. BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.					
					AD-BRK HT	BREAK AT EDGE					
					SIP		THE PLANE OF TH	E SHEET.			

(End of Table 7)

(Sheet 1 of 1)



TESTING, RESEARCH, CONSULTING AND FIELD SERVICES Austin, TX - USA | Anaheim, CA - USA | Anderson, SC - USA | Gold Coast - Australia | Suzhou - China TABLE 8

MATERIAL: 40mil LLDPE SEAM

SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: GeoEngineers PROJECT: Go East Landfill Closure DATE REC'D: 11-Feb-22

SEAM TYPE: Fusion Weld TRI JOB #: CA220118

Maria Expetia QC'd By: TEST METHOD: ASTM D6392 DATE REPORT: 16-Feb-22 iai-la

Crosshead Speed:	20 in/min					Crosshead Spe	ed: 20 in/min				
			SHEA	R EVALUAT	ION			PEEL E	VALUATION		
		MAXIMUM	Elongation	Locus	PROJECT		MAXIMUM	%	LOCUS	PROJECT	
SAMPLE	TRI	STRENGTH	Run up to	of	SPEC.	SPECIMEN	STRENGTH	INCURSION	OF	SPEC.	
ID	CONTROL #	(lb/in width)		Break	(lb/in width)	NUMBER	(lb/in width)	(%)	BREAK	(Ib/in width)	
DS- 15	161637	131	>50%	SE1		1 Outside	103	0	SE1		
S19/ S20		131	>50%	SE1		2 Outside	106	0	SE1		
		131	>50%	SE1		3 Outside	107	0	SE1		
		130	>50%	SE1		4 Outside	102	0	SE1		
		128	>50%	SE1		5 Outside	105	0	SE1		
						AVG:	105			50	
						STD. DEV.	2				
						1 Inside	103	0	SE1		
						2 Inside	109	0	SE1		
						3 Inside	111	0	SE1		
						4 Inside	111	0	SE1		
						5 Inside	110	0	SE1		
	AVG.	130			60	AVG:	109			50	
	STD. DEV.	1				STD. DEV.	4				
DS- 16	161638	129	>50%	SE1		1 Outside	97	0	SE1		
S24/ S26		126	>50%	SE1		2 Outside	108	0	SE1		
		127	>50%	SE1		3 Outside	105	0	SE1		
		128	>50%	SE1		4 Outside	107	0	SE1		
		129	>50%	SE1		5 Outside	96	0	SE1		
						AVG:	103	-		50	
						STD. DEV.	5				
						1 Inside	98	0	SE1		
						2 Inside	102	0	SE1		
						3 Inside	98	0	SE1		
						4 Inside	97	0	SE1		
						5 Inside	97	0	SE1		
	AVG:	128		ł	60	AVG:	98	Ŭ	021	50	
	STD. DEV.	1			00	STD. DEV.	2			00	
REAK DESCRIPTIO		-		EXTRUSION:	AD1	-	_	ELAMINATED UNDER	THE BEAD.		
D	ADHESION FAILU	,			AD2	ADHESION FAILU	IRE.				
RK	BREAK IN SHEET	NG.			AD-WLD	BREAK THROUGH					
E1	BREAK AT OUTER EDGE OF SEAM.				SE1	BREAK AT BOTTO	OM EDGE OF SEAM	l.			
E2	BREAK AT INNER				SE2	BREAK AT TOP EDGE OF SEAM.					
D-BRK		SEAM AFTER SOME		RE.	SE3	BREAK AT BOTTOM EDGE OF SEAM (for PEEL only)					
IP	SEPARATION IN T	THE PLANE OF THE	SHEET.		BRK1	BREAK IN BOTTOM SHEETING.					
					BRK2 AD-BRK	BREAK IN TOP SHEETING. BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.					
					AD-BRK HT	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE. BREAK AT EDGE OF HOT TACK					

(End of Table 8)

(Sheet 1 of 1)



TESTING, RESEARCH, CONSULTING AND FIELD SERVICES Austin, TX - USA | Anaheim, CA - USA | Anderson, SC - USA | Gold Coast - Australia | Suzhou - China

MATERIAL: 40mil LLDPE SEAM

SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: GeoEngineers PROJECT: Go East Landfill Closure DATE REC'D: 11-Feb-22

SEAM TYPE: Fusion Weld TRI JOB #: CA220118

Maria Espitia QC'd By: TEST METHOD: ASTM D6392 DATE REPORT: 16-Feb-22 iai-la

Crosshead Speed.	: 20 in/min					Crosshead Speed: 20 in/min					
				R EVALUAT	ION		-		VALUATION		
		MAXIMUM	Elongation	Locus	PROJECT		MAXIMUM	%	LOCUS	PROJECT	
SAMPLE	TRI	STRENGTH	Run up to	of	SPEC.	SPECIMEN	STRENGTH	INCURSION	OF	SPEC.	
ID	CONTROL #	(Ib/in width)		Break	(lb/in width)	NUMBER	(lb/in width)	(%)	BREAK	(lb/in width)	
DS- 17	161639	130	>50%	SE1		1 Outside	93	0	SE1		
S39/ S40		136	>50%	SE1		2 Outside	87	0	SE1		
		129	>50%	SE1		3 Outside	81	0	SE1		
		134	>50%	SE1		4 Outside	110	0	SE1		
		134	>50%	SE1		5 Outside	97	0	SE1		
						AVG:	94			50	
						STD. DEV.	11				
						1 Inside	91	0	SE1		
						2 Inside	108	0	SE1		
						3 Inside	110	0	SE1		
						4 Inside	110	0	SE1		
						5 Inside	116	0	SE1		
	AVG.	133			60	AVG:	107			50	
	STD. DEV.	3				STD. DEV.	10				
DS- 18	161640	135	>50%	SE1		1 Outside	108	0	SE1		
P84/ P112		134	>50%	SE1		2 Outside	83	0	SE1		
		134	>50%	SE1		3 Outside	92	0	SE1		
		135	>50%	SE1		4 Outside	93	0	SE1		
		130	>50%	SE1		5 Outside	92	0	SE1		
						AVG:	94			50	
						STD. DEV.	9				
						1 Inside	94	0	SE1		
						2 Inside	85	0	SE1		
						3 Inside	92	0	SE1		
						4 Inside	104	0	SE1		
						5 Inside	91	0	SE1		
	AVG:	134		-	60	AVG:	93			50	
	STD. DEV.	2				STD. DEV.	7				
BREAK DESCRIPTIO	N (ASTM D6392 FU	JSION):		EXTRUSION:	AD1	ADHESION FAILU	JRE. SPECIMENS D	ELAMINATED UNDER	THE BEAD.		
AD	ADHESION FAILUI				AD2	ADHESION FAILU					
BRK	BREAK IN SHEETI				AD-WLD	BREAK THROUGH THE FILLET.					
SE1	BREAK AT OUTER				SE1		OM EDGE OF SEAM	l.			
SE2 AD-BRK	BREAK AT INNER				SE2 SE3	BREAK AT TOP EDGE OF SEAM. BREAK AT BOTTOM EDGE OF SEAM (for PEEL only)					
ad-brk SIP						BREAK AT BOTT		(IOI PEEL ONIY)			
	52.700010010101		J I.		BRK1 BRK2	BREAK IN TOP S					
					AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.					
					HT	BREAK AT EDGE					
					SIP	SEPARATION IN	THE PLANE OF THE	E SHEET.			

(End of Table 9)

(Sheet 1 of 1)



DATE REC'D: 11-Feb-22

TESTING, RESEARCH, CONSULTING AND FIELD SERVICES Austin, TX - USA | Anaheim, CA - USA | Anderson, SC - USA | Gold Coast - Australia | Suzhou - China TABLE 10

MATERIAL: 40mil LLDPE SEAM

SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: GeoEngineers PROJECT: Go East Landfill Closure

SEAM TYPE: Fusion Weld TRI JOB #: CA220118

Maria Expetio QC'd By: TEST METHOD: ASTM D6392 DATE REPORT: 16-Feb-22 AI-LA

crosshead Speed.	: 20 in/min					Crosshead Spe	ed: 20 in/min				
			SHEA	R EVALUAT	ION			PEEL E	VALUATION		
		MAXIMUM	Elongation	Locus	PROJECT		MAXIMUM	%	LOCUS	PROJECT	
SAMPLE	TRI	STRENGTH	Run up to	of	SPEC.	SPECIMEN	STRENGTH	INCURSION	OF	SPEC.	
ID	CONTROL #	(lb/in width)		Break	(Ib/in width)	NUMBER	(lb/in width)	(%)	BREAK	(lb/in width)	
DS- 19	161641	109	>50%	SE1		1 Outside	104	0	SE1		
P123/ P127		113	>50%	SE1		2 Outside	107	0	SE1		
		113	>50%	SE1		3 Outside	113	0	SE1		
		113	>50%	SE1		4 Outside	106	0	SE1		
		112	>50%	SE1		5 Outside	103	0	SE1		
						AVG:	107			50	
						STD. DEV.	4				
						1 Inside	111	0	SE1		
						2 Inside	97	0	SE1		
						3 Inside	101	0	SE1		
						4 Inside	108	0	SE1		
						5 Inside	102	0	SE1		
	AVG.	112			60	AVG:	104			50	
	STD. DEV.	2				STD. DEV.	6				
DS- 20	161642	135	>50%	SE1		1 Outside	114	0	SE1		
P128/ P129		133	>50%	SE1		2 Outside	115	0	SE1		
		128	>50%	SE1		3 Outside	101	0	SE1		
		128	>50%	SE1		4 Outside	115	0	SE1		
		131	>50%	SE1		5 Outside	101	0	SE1		
						AVG:	109			50	
						STD. DEV.	7				
						1 Inside	113	0	SE1		
						2 Inside	114	0	SE1		
						3 Inside	98	0	SE1		
						4 Inside	108	0	SE1		
						5 Inside	107	0	SE1		
	AVG:	131			60	AVG:	108			50	
	STD. DEV.	3				STD. DEV.	6				
REAK DESCRIPTIO	N (ASTM D6392 FU	ISION):		EXTRUSION:	AD1	ADHESION FAILU	JRE. SPECIMENS D	ELAMINATED UNDER	THE BEAD.		
D	ADHESION FAILUI				AD2	ADHESION FAILU					
RK	BREAK IN SHEETI				AD-WLD	BREAK THROUG					
E1	BREAK AT OUTER				SE1	BREAK AT BOTTOM EDGE OF SEAM.					
E2	BREAK AT INNER				SE2	BREAK AT TOP E					
D-BRK P		SEAM AFTER SOME THE PLANE OF THE		KE.	SE3 BRK1		OM EDGE OF SEAN	i (for PEEL only)			
		THE FLAME OF THE	UNELT.		BRK2	BREAK IN BOTTOM SHEETING. BREAK IN TOP SHEETING.					
					AD-BRK			E ADHESION FAILURE			
					HT SIP	BREAK AT EDGE	E OF HOT TACK THE PLANE OF THE				

(End of Table 10)

(Sheet 1 of 1)



TESTING, RESEARCH, CONSULTING AND FIELD SERVICES

MATERIAL: 40mil LLDPE SEAM

Austin, TX - USA | Anaheim, CA - USA | Anderson, SC - USA | Gold Coast - Australia | Suzhou - China

SEAM PEEL AND SHEAR TEST RESULTS

CLIENT: GeoEngineers PROJECT: Go East Landfill Closure DATE REC'D: 11-Feb-22

SEAM TYPE: Fusion Weld TRI JOB #: CA220118

aria Espitis QC'd By: TEST METHOD: ASTM D6392 DATE REPORT: 16-Feb-22

Crosshead Speed: 20 in/min Crosshead Speed: 20 in/min SHEAR EVALUATION PEEL EVALUATION MAXIMUM Elongation PROJECT MAXIMUM LOCUS PROJECT Locus % SAMPLE SPECIMEN INCURSION SPEC. TRI STRENGTH Run up to of SPEC. STRENGTH OF ID CONTROL # (lb/in width) Break (lb/in width) NUMBER (lb/in width) (%) BREAK (lb/in width) DS- 24 161643 133 >50% SE1 1 Outside 104 0 SE1 P146/ P150 132 >50% SE1 2 Outside 116 0 SE1 130 >50% SE1 3 Outside 112 0 SE1 132 >50% SE1 4 Outside 109 0 SE1 130 SE1 5 Outside 117 0 >50% SE1 111 50 AVG: STD. DEV 5 106 0 SE1 1 Inside 2 Inside 115 0 SE1 115 0 SE1 3 Inside 4 Inside 106 0 SE1 SE1 5 Inside 105 0 AVG. 131 60 AVG: 109 50 STD. DEV. STD. DEV 1 5 DS- 25 161644 86 SE1 78 0 SE1 >50% 1 Outside P158/ P159 SE1 78 SE1 88 >50% 2 Outside 0 86 >50% SE1 3 Outside 79 0 SE1 81 >50% SE1 4 Outside 80 0 SE1 85 >50% SE1 5 Outside 82 0 SE1 79 AVG: 50 STD. DEV 2 1 Inside 82 0 SE1 2 Inside 88 0 SF1 SE1 3 Inside 82 0 85 0 SE1 4 Inside 5 Inside 85 0 SE1 AVG: 85 60 AVG: 84 50 STD. DEV. 3 STD. DEV. 3 ADHESION FAILURE. SPECIMENS DELAMINATED UNDER THE BEAD. BREAK DESCRIPTION (ASTM D6392 FUSION): EXTRUSION: AD1 AD ADHESION FAILURE. AD2 ADHESION FAILURE. BRK AD-WLD BREAK THROUGH THE FILLET. BREAK IN SHEETING. SE1 SE1 BREAK AT OUTER EDGE OF SEAM. BREAK AT BOTTOM EDGE OF SEAM. SE2 SE2 BREAK AT INNER EDGE OF SEAM. BREAK AT TOP EDGE OF SEAM. BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE. AD-BRK SE3 BREAK AT BOTTOM EDGE OF SEAM (for PEEL only) SEPARATION IN THE PLANE OF THE SHEET. BRK1 SIP BREAK IN BOTTOM SHEETING. BRK2 BREAK IN TOP SHEETING. AD-BRK BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE. ΗT BREAK AT EDGE OF HOT TACK

SEPARATION IN THE PLANE OF THE SHEET.

(End of Table 11)

(Sheet 1 of 1)

By accepting the data and results presented on this report, the Client agrees to limit the liability of TRI Environmental, Inc. from Client and all other parties for claims on issues, due to the use of this data, to the cost for the respective tests presented in this report; and the Client agrees to indemnify and hold harmless TRI Environmental, Inc. from and against all liabilities in excess of the aforementioned limit.

SIP



TESTING, RESEARCH, CONSULTING AND FIELD SERVICES Austin, TX - USA | Anaheim, CA - USA | Anderson, SC - USA | Gold Coast - Australia | Suzhou - China

February 18, 2022

Colton McInelly *Geo Engineers* 17425 NE Union Hill Road, Ste 250 Redmond, WA 98052



Re: FINAL LABORATORY TEST REPORT

Dear Mr. McInelly:

Thank you for consulting TRI California for your material testing needs.

Enclosed is the *final* laboratory report for the Seam testing of five (5) LLDPE seam samples.

PROJECT NAME: Go East Landfill

DATE REPORTED: February 18, 2022

REFERENCE TRI JOB NO .: CA220150

DATE RECEIVED: February 18, 2022

SAMPLES SENT BY: Geo Engineers

SAMPLE IDENTIFICATIONS:

SAMPLE ID	TRI-CA CONTROL NUMBER
DS-21 P133/ P134	161754
DS-22 P135/ P136	161755
DS-23 P141/ P142	161756
DS-26 P162/ P163	161757
DS-27 P177/ P179	161758
TESTS REQUIRED / PERFORMED:	
TEST METHOD	DESCRIPTION
1. ASTM D6392	Shear Bond Strength

TEST RESULTS: The test results are summarized in the attached Tables 1 to 3.

Note: The general conditioning and testing of the material samples identified in this report were performed within the range of the laboratory environmental conditions; i.e., 20-24°C and 45-65% RH. Otherwise, the actual environmental conditions are indicated in the respective test method reported.

Peel Bond Adhesion

Respectfully,

TRI Environmental, Inc. - California

2. ASTM D6392

Mariea Espetia

Maria Espitia Quality Assurance

Chad Blackwell TRI-CA Director

Signatures are on file

It shall be noted that the samples tested are believed to be true representatives of the material produced under the designation herein stated. In addition, the attached laboratory tests results are considered indicative only of the quality of samples/specimens that were actually tested. The appropriate test methods hereby employed are based on the current and accepted industry practices. TRI neither accepts responsibility for nor makes claims to the intended final use and purpose of the material. The test data and all associated project information shall be held confidential and not to be reproduced and/or disclosed to other parties except in full and with prior written approval from pertinent entity duly authorized by the respective client or from the client itself. It is our policy to keep physical records of each job for two (2) years commencing from the date of receipt of the samples and keep its corresponding electronic file for seven (7) years. *Failed seam samples are kept for two* (2) years and good seam samples are disposed of after two (2) weeks. On the other hand, should you need us to keep them at a longer period, please advise us in writing.

4 Pages Total (including this sheet)



TESTING, RESEARCH, CONSULTING AND FIELD SERVICES

GAI-LAF

Austin, TX - USA | Anaheim, CA - USA | Anderson, SC - USA | Gold Coast - Australia | Suzhou - China

CLIENT: GeoEngineers PROJECT: Go East Landfill Closure DATE REC'D: 18-Feb-22

MATERIAL: 40mil LLDPE SEAM SEAM TYPE: Fusion Weld TRI JOB #: CA220150

Maria Espitia QC'd By: TEST METHOD: ASTM D6392 DATE REPORT: 18-Feb-22

Crosshead Speed	1: 20 in/min					Crosshead Sp	eed: 20 in/min				
			SHEAR EVALUATION			PEEL EVALUATION					
		MAXIMUM	Elongation	Locus	PROJECT		MAXIMUM	%	LOCUS	PROJECT	
SAMPLE	TRI	STRENGTH	Run up to	of	SPEC.	SPECIMEN	STRENGTH	INCURSION	OF	SPEC.	
ID	CONTROL #	(lb/in width)		Break	(lb/in width)	NUMBER	(lb/in width)	(%)	BREAK	(Ib/in width)	
DS- 21	161754	137	>50%	SE1		1 Outside	94	0	SE1		
P133/ P134		137	>50%	SE1		2 Outside	102	0	SE1		
		138	>50%	SE1		3 Outside	101	0	SE1		
		137	>50%	SE1		4 Outside	84	0	SE1		
		136	>50%	SE1		5 Outside	108	0	SE1		
						AVG:	98	-		50	
						STD. DEV.	9				
						1 Inside	98	0	SE1		
						2 Inside	112	0 0	SE1		
						3 Inside	109	0	SE1		
							109	0	SE1		
						4 Inside		-	SE1		
	AVG.	407				5 Inside	105	0	SET	50	
	STD. DEV.	137			60	AVG:	106			50	
DO 00		1	. 500/	054	1	STD. DEV.	5		054		
DS- 22	161755	137	>50%	SE1		1 Outside	108	0	SE1		
P135/ P136		139	>50%	SE1		2 Outside	105	0	SE1		
		136	>50%	SE1		3 Outside	109	0	SE1		
		141	>50%	SE1		4 Outside	114	0	SE1		
		138	>50%	SE1		5 Outside	106	0	SE1		
						AVG:	108			50	
						STD. DEV.	3				
						1 Inside	104	0	SE1		
						2 Inside	111	0	SE1		
						3 Inside	102	0	SE1		
						4 Inside	119	0	SE1		
						5 Inside	103	0	SE1		
	AVG:	138			60	AVG:	108			50	
	STD. DEV.	2				STD. DEV.	7				
REAK DESCRIPTIO	N (ASTM D6392 F	USION):		EXTRUSION:	AD1	ADHESION FAILURE. SPECIMENS DELAMINATED UNDER THE BEAD.					
AD ADHESION FAILURE.					AD2	ADHESION FAILURE.					
RK	BREAK IN SHEET	ING.			AD-WLD	BREAK THROUG	H THE FILLET.				
E1	BREAK AT OUTE	R EDGE OF SEAM.			SE1	BREAK AT BOTT	OM EDGE OF SEA	И.			
E2	BREAK AT INNEF	INNER EDGE OF SEAM. SE2				BREAK AT TOP EDGE OF SEAM.					
D-BRK		SEAM AFTER SOM		JRE.	SE3	BREAK AT BOTTOM EDGE OF SEAM (for PEEL only)					
IP	SEPARATION IN	THE PLANE OF THE	E SHEET.		BRK1	BREAK IN BOTT					
					BRK2	BREAK IN TOP S					
					AD-BRK HT	BREAK IN FIRST		IE ADHESION FAILUF	KE.		
					SIP		THE PLANE OF TH	E SHEET.			
	·- · · · ·										

(End of Table 1)

(Sheet 1 of 1)



TESTING, RESEARCH, CONSULTING AND FIELD SERVICES Austin, TX - USA | Anaheim, CA - USA | Anderson, SC - USA | Gold Coast - Australia | Suzhou - China TABLE 2.

GAI-LAP

VIRONME	NTAL		SI		TABLE 2. AND SHEAR T	EST RESUL	TS			V · o el:	
	GeoEngine Go East La 18-Feb-22	ers ndfill Closure	-		MATERIAL: SEAM TYPE:	40mil LLDF Fusion We CA220150	PE SEAM		QC'd By: TEST METHOD: DATE REPORT:	Maria Cipitia ASTM D6392 18-Feb-2	
rosshead Speed	: 20 in/min					Crosshead Sp	eed: 20 in/min				
			SHEAF	R EVALUAT	ION			PEEL E	VALUATION		
		MAXIMUM	Elongation	Locus	PROJECT		MAXIMUM	%	LOCUS	PROJECT	
SAMPLE	TRI	STRENGTH	Run up to	of	SPEC.	SPECIMEN	STRENGTH	INCURSION	OF	SPEC.	
ID	CONTROL #	(lb/in width)		Break	(lb/in width)	NUMBER	(lb/in width)	(%)	BREAK	(Ib/in width)	
DS- 23	161756	141	>50%	SE1		1 Outside	102	0	SE1		
P141/ P142		141	>50%	SE1		2 Outside	97	0	SE1		
		138	>50%	SE1		3 Outside	113	0	SE1		
		141	>50%	SE1		4 Outside	115	0	SE1		
		140	>50%	SE1		5 Outside	106	0	SE1		
						AVG:	107			50	
						STD. DEV.	8				
						1 Inside	115	0	SE1		
						2 Inside	105	0	SE1		
						3 Inside	112	0	SE1		
						4 Inside	119	0	SE1		
						5 Inside	116	0	SE1		
	AVG.	140			60	AVG:	113			50	
	STD. DEV.	1				STD. DEV.	5				
DS- 26	161757	94	>50%	SE1		1 Outside	75	0	SE1		
P162/ P163		95	>50%	SE1		2 Outside	81	0	SE1		
		93	>50%	SE1		3 Outside	80	0	SE1		
		93	>50%	SE1		4 Outside	77	0	SE1		
		94	>50%	SE1		5 Outside	80	0	SE1		
		01		021		AVG:	79		021	50	
						STD. DEV.	3			00	
						1 Inside	79	0	SE1		
						2 Inside	82	0	SE1		
						3 Inside	78	0	SE1		
						4 Inside	83	0	SE1		
						5 Inside	79	0	SE1		
	AVG:	94			60	AVG:	80	0	JEI	50	
	STD. DEV.				00	STD. DEV.	2			50	
REAK DESCRIPTIO		-		EXTRUSION:	AD1		=	L DELAMINATED UND			
)		EATROSION.	AD1 AD2	ADHESION FAIL			LK THE BEAD.				
, RK	ADHESION FAILU BREAK IN SHEET				AD-WLD		ADRESION FAILURE. BREAK THROUGH THE FILLET.				
1		R EDGE OF SEAM.			SE1	BREAK AT BOTTOM EDGE OF SEAM.					
2		REDGE OF SEAM.			SE2	BREAK AT TOP EDGE OF SEAM.					
D-BRK		SEAM AFTER SOM	E ADHESION FAILU	RE.	SE3		OM EDGE OF SEA	(for PEEL only)			
P	SEPARATION IN	THE PLANE OF THE	E SHEET.		BRK1	BREAK IN BOTT					
					BRK2	BREAK IN TOP S					
					AD-BRK HT	BREAK IN FIRST BREAK AT EDGE		IE ADHESION FAILU	KE.		
					SIP		THE PLANE OF TH	E SHEET.			
	(End of Tob	lo 2)						(Cheet 1 of 1)			

(End of Table 2)

(Sheet 1 of 1)



TESTING, RESEARCH, CONSULTING AND FIELD SERVICES Austin, TX - USA | Anaheim, CA - USA | Anderson, SC - USA | Gold Coast - Australia | Suzhou - China TABLE 3



NVIRONME	INTAL				TABLE 3.					1
			S	EAM PEEL A	ND SHEAR T	EST RESUL	TS			Maria Expetia
PROJECT:	GeoEngine Go East La 18-Feb-22	ers ndfill Closure	I.		SEAM TYPE:	40mil LLDF Fusion We CA220150			QC'd By:	ASTM D6392 18-Feb-22
Crosshead Speed	l: 20 in/min					Crosshead Sp	eed: 20 in/min			
			SHEA	R EVALUATI	ON			PEEL E	VALUATION	
		MAXIMUM	Elongation	Locus	PROJECT		MAXIMUM	%	LOCUS	PROJECT
SAMPLE	TRI	STRENGTH	Run up to	of	SPEC.	SPECIMEN	STRENGTH	INCURSION	OF	SPEC.
ID	CONTROL #	(lb/in width)		Break	(lb/in width)	NUMBER	(lb/in width)	(%)	BREAK	(Ib/in width)
DS- 27	161758	107	>50%	SE1		1 Outside	70	0	SE1	
P177/ P179		106	>50%	SE1		2 Outside	73	0	SE1	
		100	>50%	SE1		3 Outside	82	0	SE1	
		106	>50%	SE1		4 Outside	83	0	SE1	
		102	>50%	SE1		5 Outside	84	0	SE1	
						AVG:	79			50
						STD. DEV.	7			
						1 Inside	75	0	SE1	
						2 Inside	83	0	SE1	
						3 Inside	53	0	SE1	
						4 Inside	87	0	SE1	
						5 Inside	69	0	SE1	
	AVG.	104			60	AVG:	74			50
	STD. DEV.	3				STD. DEV.	13			

BREAK DESCH	RIPTION (ASTM D6392 FUSION): EX	TRUSION:	AD1	ADHESION FAILURE. SPECIMENS DELAMINATED UNDER THE BEAD.
AD	ADHESION FAILURE.		AD2	ADHESION FAILURE.
BRK	BREAK IN SHEETING.		AD-WLD	BREAK THROUGH THE FILLET.
SE1	BREAK AT OUTER EDGE OF SEAM.		SE1	BREAK AT BOTTOM EDGE OF SEAM.
SE2	BREAK AT INNER EDGE OF SEAM.		SE2	BREAK AT TOP EDGE OF SEAM.
AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.		SE3	BREAK AT BOTTOM EDGE OF SEAM (for PEEL only)
SIP	SEPARATION IN THE PLANE OF THE SHEET.		BRK1	BREAK IN BOTTOM SHEETING.
			BRK2	BREAK IN TOP SHEETING.
			AD-BRK	BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.
			HT	BREAK AT EDGE OF HOT TACK
			SIP	SEPARATION IN THE PLANE OF THE SHEET.

(End of Table 3)

(Sheet 1 of 1)

APPENDIX C Dynamic Compaction Summary Letter



17425 NE Union Hill Road, Suite 250 Redmond, Washington 98052 425.861.6000

February 11, 2022

PACE Engineers, Inc. 11255 Kirkland Way, Suite 300 Kirkland, Washington 98033

Attention: Marty Penhallegon

Subject: Summary Letter Deep Dynamic Compaction Construction Observation Go East Landfill Closure Snohomish County, Washington File No. 6694-002-02

This letter presents a summary of Geoengineers' construction observation services during deep dynamic compaction activities for the Go East Landfill Closure (LDA #1) project located in Snohomish County, Washington. The projects consist of the closure of the Go East Landfill by consolidating approximately 45,000 cubic yards of landfill material prior to capping the landfill footprint and constructing a development around the closed landfill. Deep dynamic compaction was completed at the location of the future detention ponds. The deep dynamic compaction was completed to reduce potential long-term settlement under the future detention ponds by compacting landfill debris beneath the ponds.

OBSERVATIONS

GeoEngineers visited the site on a full-time basis on three occasions between April 21 and April 23, 2021 to observe the deep dynamic compaction activities. Detailed reports of our construction observation services are presented in our daily field reports for the project, numbers GT-003 (Revised) through GT-005 (Revised). Copies of these field reports were provided to PACE Engineers, AERO Construction, Snohomish County and others during construction. The field reports are provided in Appendix A.

The deep dynamic compaction process consisted of 297 drop point locations spaced at 12-feet on-center in an equilateral triangle spacing within in the detention pond footprint. A track-mounted crane (Liebherr HS 885 HD) with a 25-ton 6-foot-high by 8-foot-diameter tamper was used to complete the dynamic compaction.

The deep dynamic compaction was performed by raising the 25-ton tamper to a height of 40 feet above the working pad (1-foot-thick quarry spalls) and dropping it at the specified drop point location. The tamper was dropped at each drop point location at least four times. Compaction of the drop point craters generally decreased significantly on the final two drops, indicating the material beneath it was compacting as



planned. Crater depths typically ranged from 3 to 6 feet deep and were based on observations during the compaction process and were estimated to the nearest quarter foot. Additional drops were added at drop point locations where the craters did not significantly decrease in depth on the final two drops.

CONCLUSIONS

Based on our observations of the deep dynamic compaction process completed for the project, we conclude that the work discussed herein for the Go East Landfill Closure (LDA #1) project has been completed in accordance with the intent of our recommendations and the approve project plans and specifications.

We trust this letter meets your current needs. Please call if you have any questions regarding this letter.

Respectfully submitted, GeoEngineers, Inc.

Colton W. McInelly, PE Geotechnical Engineer

Set a rulate

Robert C. Metcalfe, PE, LEG Principal

CWM:RCM:nld

Attachments: Appendix A. Deep Dynamic Compaction Field Reports GT-003 (revised), GT-004 (revised), GT-005 (revised)

Disclaimer: Any electronic form, facsimile or hard copy of the original document (email, text, table, and/or figure), if provided, and any attachments are only a copy of the original document. The original document is stored by GeoEngineers, Inc. and will serve as the official document of record.





APPENDIX A Deep Dynamic Compaction Field Reports

	Geotechnical Field	d Report	File Number: 6694-002-02
17425 NE Union Hill Road, Suite 250	Project: Go East Landfill Closure – LDA #1		Date: 4/21/2021
Redmond, WA 98052 425.861.6000	^{Owner:} P&GE, LLC	Time of Arrival: 1000	Report Number: GT-003 (Revised)
Prepared by:	Location:	Time of Departure:	Page:
James Eng	4330 108 th Street SE, Everett, WA	1500	1 of 4
Purpose of visit:	Weather:	Travel Time:	Permit Number:
Dynamic Compaction Monitoring	Sunny; 70s °F	~1.5 hrs.	20-118246 LDA
	Yes or Referred to Site Safety Plan and Safety Tailgate nstruction and Equipment Hazards Other (describe): PPE	if applicable	

A site visit was made today to observe deep dynamic compaction activities at the Go East Landfill Closure – LDA #1 project located at 4330 108th Street SE in Everett, Washington. During the site visit we met with representatives of the general contractor (Aero Construction) and the deep dynamic compaction contractor (Malcolm). Colton McInelly (GeoEngineers) was also on site today. The following is a summary of our observations:

Deep Dynamic Compaction

The deep dynamic compaction (DDC) contractor (Malcolm) completed 51 drop points in the northeast area of the detention pond today (see attached site plan). The contractor used a track-mounted crane (Liebherr HS 885 HD) with a 25-ton, 6-foot-high by 8-foot-diameter tamper to complete the dynamic compaction.

Offset survey hubs were located along the east and west ends of each drop point row. The contractor ran a string between the two survey hubs and measured off them to determine the location of each drop point. The drop points were spaced at 12 feet on center in an equilateral triangular spacing, as specified in the plans and specifications.

The deep dynamic compaction was performed by raising the 25-ton tamper to a height of 40 feet above the working pad (1-foot-thick quarry spalls) and dropping it at the specified drop point. The tamper was dropped at each drop point



Dynamic compaction at northeast end of detention pond. Looking east.

location at least 4 times as summarized in the table below. Compaction of the drop point craters generally decreased significantly on the final two drops, indicating that the material beneath it was compacting to the extent possible. Crater depths ranged from 3 to 4.5 feet deep. These were based on visual estimates during the compaction process and are estimated to the nearest quarter foot.

The table below summarizes the deep dynamic compaction completed today.

THIS FIELD REPORT IS PRELIMINARY A preliminary report is provided solely as evidence that field observation was performed. Observations		DATE 4/21/21
and/or conclusions and/or recommendations conveyed in the final report may vary from and shall take precedence over those indicated in a preliminary report.	REVIEWED BY	DATE
THIS FIELD REPORT IS FINAL A final report is an instrument of professional service. Any conclusions drawn from this report should be discussed with and evaluated by the professional involved.		5/4/21

This report presents opinions formed as a result of our observation of activities relating to our services only. We rely on the contractor to comply with the plans and specification throughout the duration of the project irrespective of the presence of our representative. Our work does not include supervision or direction of the work of others. Our firm will not be responsible for job or site safety of others on this project. DISCLAIMER: Any electronic form, facsimile or hard copy of the original document (email, text, table, and/or figure), if provided, and any attachments are only a copy of the original document. The original document is stored by GeoEngineers, Inc. and will serve as the official document of record.

Attachment: Site Plan

Distribution: PACE Engineers, AERO Construction, Malcolm, Snohomish County, File

Page 2				
Drop	Number of	Crotor Dopth		
Point ID	Number of Drops	Crater Depth (ft)	Crater Depth After Each Drop (ft)	Comments
1	4	3	1.5, 2.5, 3, 3	
2	4	3	1.5, 2.5, 3, 3	
3	4	3.5	2, 3, 3.5, 3.5	
4	4	3.5	1.5, 3, 3.5, 3.5	
5	4	3.5	1.5, 2.5, 3.5, 3.5	
6	4	3.5	1.5, 3, 3.25, 3.5	
7	4	3.5	2, 3, 3.5, 3.5	
8	4	3	1.5, 3, 3, 3	
9	4	3.5	1.5, 2.5, 3.25, 3.5	
10	4	3	1.5, 2.5, 3, 3	
11	4	3	2, 2.5, 3, 3	
12	4	3	1.5, 3, 3, 3	
13	4	3	1.5, 2, 3, 3	
14	4	3	1, 2, 3, 3	
15	4	3	1, 2.5, 3, 3	
16	4	3.5	2, 3, 3.5, 3.5	
17	4	3	2, 2.5, 3, 3	
18	4	3.5	1.5, 3, 3.5, 3.5	
19	4	3	2, 2.5, 3, 3	
20	4	3	1.5, 3, 3, 3	
21	4	3	1.5, 2.5, 3, 3	
22	4	3	1, 2, 3, 3	
23	4	3	1.5, 3, 3, 3	
24	4	3.5	2, 3, 3.5, 3	
25	4	3	2, 2.5, 3, 3	
26	4	3.5	1.5, 3, 3.5, 3.5	
27	4	3.5	1.5, 2.5, 3.25, 3.5	
28	4	3.5	1.25, 2.75, 3.5, 3.5	
29	4	3.5	1.5, 3, 3.5, 3.5	
30	4	3.5	2, 3, 3.5, 3.5	
31	4	3.5	1.5, 3, 3.5, 3.5	
32	4	3.5	1.5, 2.5, 3.25, 3.5	
33	4	3	2, 3, 3, 3	
34	4	3	1.5, 2.5, 3, 3	
35	4	3	1.5, 3, 3, 3	
36	4	3	1, 2, 3, 3	
37	4	3	1.5, 2.5, 3, 3	
38	4	4	1.5, 3, 3.75, 4	Potential extra drop needed
39	4	4	2, 3.5, 3.75, 4	Potential extra drop needed
40	4	3.5	1.5, 3, 3.5, 3.5	
41	4	4.5	1.5, 3, 4, 4.5	Potential extra drop needed
42	4	4	1.5, 3.5, 4, 4	. etential extra drop needed
43	4	3	1.5, 2.5, 3, 3	
44	4	3.5	2, 2.5, 3.5, 3.5	
45	4	3.5	1.5, 3, 3.5, 3.5	
46	4	3.5	1.5, 2.5, 3.5, 3.5	
47	4	3	1.5, 3, 3, 3	
48	4	3	1.5, 2.5, 3, 3	
49	4	3	1.5, 3, 3, 3	
50	4	3	1.5, 2, 3, 3	
		. .	1.0, 2, 0, 0	

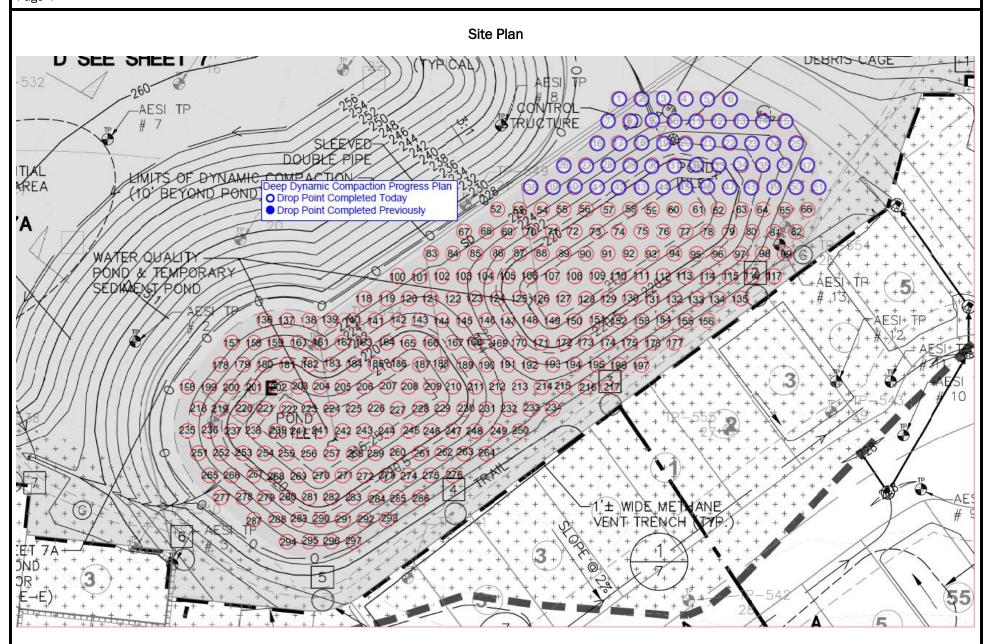
Drop Point ID	Number of Drops	Crater Depth (ft)	Crater Depth After Each Drop (ft)	Comments
51	4	3	1.5, 2.5, 3, 3	

Based on our observations, it is our opinion that the deep dynamic compaction was completed in general accordance with the geotechnical aspects of the project plans and specifications, and our recommendations.

Vibration Monitoring

Vibration monitoring equipment was previously set up at the site to monitor vibrations during construction. Two vibration monitoring stations were set up and are located near the north and northwest property lines and adjacent to the closest residential homes. Based on review of the vibration monitoring data today, peak particle velocities (PPVs) did not exceed 0.035 inches/second.

We also stood near the northern vibration monitoring equipment during deep dynamic compaction and we could not perceive any vibrations. The noise of each dynamic compaction drop was also relatively minor.



	Geotechnical Field	d Report	File Number: 6694-002-02
17425 NE Union Hill Road, Suite 250	Project: Go East Landfill Closure – LDA #1		Date: 4/22/2021
Redmond, WA 98052	^{Owner:}	Time of Arrival:	Report Number:
425.861.6000	P&GE, LLC	800	GT-004 (Revised)
Prepared by:	Location:	Time of Departure:	Page:
James Eng	4330 108 th Street SE, Everett, WA	1700	1 of 5
Purpose of visit:	Weather:	Travel Time:	Permit Number:
Dynamic Compaction Monitoring	Sunny; 70s °F	~1.5 hrs.	20-118246 LDA
Upon arrival to the site, I assessed personal safety hazards. Safety Hazards Were Addressed by : X Staving Alert to Co	 Yes or Referred to Site Safety Plan and Safety Tailgate nstruction and Equipment Hazards Other (describe): PPE 	if applicable.	1

A site visit was made today to observe deep dynamic compaction activities at the Go East Landfill Closure – LDA #1 project located at 4330 108th Street SE in Everett, Washington. During the site visit we met with representatives of the general contractor (Aero Construction) and the deep dynamic compaction contractor (Malcolm). The following is a summary of our observations:

Deep Dynamic Compaction

The deep dynamic compaction (DDC) contractor (Malcolm) completed 126 drop points in the detention pond footprint today (see attached site plan). The contractor used a track-mounted crane (Liebherr HS 885 HD) with a 25-ton, 6-foothigh by 8-foot-diameter tamper to complete the dynamic compaction.

Offset survey hubs were located along the east and west ends of each drop point row. The contractor ran a string between the two survey hubs and measured off them to determine the location of each drop point. The drop points were spaced at 12 feet on center in an equilateral triangular spacing, as specified in the plans and specifications.

The deep dynamic compaction was performed by raising the 25-ton tamper to a height of 40 feet above the working pad (1-foot-thick quarry spalls) and dropping it at the specified drop point. The tamper was dropped at each drop point



Dynamic compaction at north end of detention pond. Looking southwest.

location at least 4 times as summarized in the table below. Compaction of the drop point craters generally decreased significantly on the final two drops, indicating that the material beneath it was compacting to the extent possible. Crater depths ranged from 3 to 6 feet deep. These were based on visual estimates during the compaction process and are estimated to the nearest quarter foot.

The table below summarizes the deep dynamic compaction completed today.

THIS FIELD REPORT IS PRELIMINARY A preliminary report is provided solely as evidence that field observation was performed. Observations and/or conclusions and/or recommendations conveyed in the final report may vary from and shall take precedence over those indicated in a preliminary report.		DATE 4/22/21
THIS FIELD REPORT IS FINAL A final report is an instrument of professional service. Any conclusions drawn from this report should be discussed with and evaluated by the professional involved.	REVIEWED BY Colton W. McInelly, PE	DATE 5/4/21

This report presents opinions formed as a result of our observation of activities relating to our services only. We rely on the contractor to comply with the plans and specification throughout the duration of the project irrespective of the presence of our representative. Our work does not include supervision or direction of the work of others. Our firm will not be responsible for job or site safety of others on this project. DISCLAIMER: Any electronic form, facsimile or hard copy of the original document (email, text, table, and/or figure), if provided, and any attachments are only a copy of the original document. The original document is stored by GeoEngineers, Inc. and will serve as the official document of record.

Attachment: Site Plan

Distribution: PACE Engineers, AERO Construction, Malcolm, Snohomish County, File

Drop Point ID 38 39	Number of Drops	Crater Depth (ft)	Crater Depth After Each Drop (ft)	Comments
39	1			commona
		4.25	4.25	Additional drop added to drop point yesterday
	1	4.25	4.25	Additional drop added to drop point yesterday
41	1	4.75	4.75	Additional drop added to drop point yesterday
52	4	3	1.5, 2.5, 3, 3	
53	4	3	1.5, 2.5, 3, 3	
54	4	3	1.5, 2.5, 3, 3	
55	4	3.25	1.5, 2.5, 3, 3.25	
56	4	3.25	1.5, 2.5, 3, 3.25	
57	4	3.25	1.5, 2.5, 3, 3.25	
58	4	3.25	1.5 ,2.5, 3, 3.25	
59	4	3.25	1.5, 2.5, 3, 3.25	
60	4	3.25	1.5, 2.5, 3, 3.25	
61	4	3.25	1.5, 2.5, 3, 3.25	
62	4	3.25	1.5, 2.5, 3, 3.25	
63	4	3.25	1.5, 2.5, 3, 3.25	
64	4	3.25	1.5, 2.5, 3, 3.25	
65	4	3.25	1.5, 2.5, 3, 3.25	
66	4	3.25	1.5, 2.5, 3, 3.25	
67	4	3.25	1.5, 2.5, 3, 3.25	
68	4	3.25	1.5, 2.5, 3, 3.25	
69	4	3.25	1.5, 2.5, 3, 3.25	
70	4	3.25	1.5, 2.5, 3, 3.25	
71	4	3.25	1.5, 2.5, 3, 3.25	
72	4	3.25	1.5, 2.5, 3, 3.25	
73	4	3.25	1.5, 2.5, 3, 3.25	
74	4	3.25	1.5, 2.5, 3, 3.25	
75	4	3.25	1.5, 2.5, 3, 3.25	
76	4	3.25	1.5, 2.5, 3, 3.25	
77	4	3.25	1.5, 2.5, 3, 3.25	
78	4	3.25	1.5, 2.5, 3, 3.25	
79	4	3.25	1.5, 2.5, 3, 3.25	
80	4	3	1.5, 2.5, 3, 3	
81	4	3	1.5, 2.5, 3, 3	
82	4	3	1.5, 2.5, 3, 3	
83	4	3.25	1.5, 2.5, 3, 3.25	
84	4	3.25	1.5, 2.5, 3, 3.25	
85	4	3.25	1.5, 2.5, 3, 3.25	
86	4	3.25	1.5, 2.5, 3, 3.25	
87	4	3.25	1.5, 2.5, 3, 3.25	
88	4	3.25	1.5, 2.5, 3, 3.25	
89	4	3.25	1.5, 2.5, 3, 3.25	
90	4	3.25	1.5, 2.5, 3, 3.25	
91	4	3.25	1.5, 2.5, 3, 3.25	
92	4	3.5	1.5, 2.5, 3.25, 3.5	
93	4	3.5	1.5, 2.5, 3.25, 3.5	
94	4	3.25	1.5, 2.5, 3, 3.25	
95	4	3.25	1.5, 2.5, 3, 3.25	

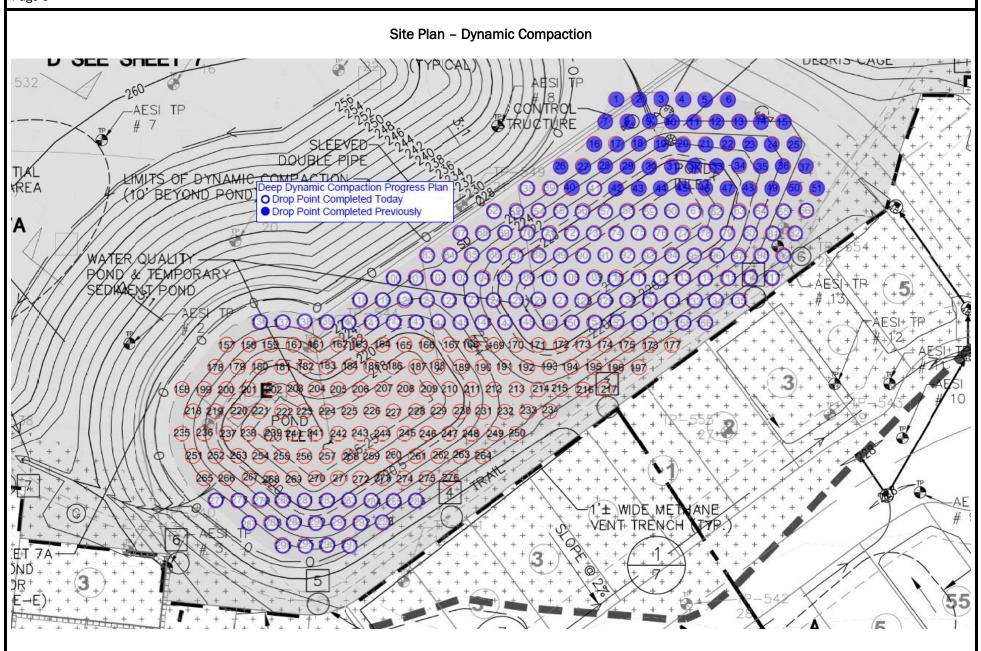
Page 3				
Drop Point ID	Number of Drops	Crater Depth (ft)	Crater Depth After Each Drop (ft)	Comments
96	4	3.25	1.5, 2.5, 3, 3.25	
97	4	3.25	1.5, 2.5, 3, 3.25	
98	4	3.25	1.5, 2.5, 3, 3.25	
99	4	3.25	1.5, 2.5, 3, 3.25	
100	4	3.25	1.5, 2.5, 3.25, 3.25	
101	4	3.25	1.5, 2.5, 3.25, 3.25	
102	4	3.25	1.5, 2.5, 3, 3.25	
103	4	3	1.5, 2.5, 3, 3	
104	4	3.25	1.5, 2.5, 3, 3.25	
105	4	3	1.5, 2.5, 3, 3	
106	4	3	1.5, 2.5, 3, 3	
107	4	3	1.5, 2.5, 3, 3	
108	4	3.25	1.5, 2.5, 3, 3.25	
109	4	3.25	1.5, 2.5, 3, 3.25	
110	4	3.5	1.5, 2.5, 3.25, 3.5	
111	4	3.5	1.5, 2.5, 3.25, 3.5	
112	4	3.25	1.5, 2.5, 3, 3.25	
113	4	3.25	1.5, 2.5, 3, 3.25	
114	4	3.25	1.5, 2.5, 3, 3.25	
115	4	3.25	1.5, 2.5, 3, 3.25	
116	4	3.25	1.5, 2.5, 3, 3.25	
117	4	3.25	1.5, 2.5, 3, 3.25	
118	4	3.5	1.5, 2.5, 3.25, 3.5	
119	4	3.5	1.5, 2.5, 3.25, 3.5	
120	4	3.25	1.5, 2.5, 3, 3.25	
120	4	3.25	1.5, 2.5, 3, 3.25	
121	4	3.25	1.5, 2.5, 3, 3.25	
122	4	3.25	1.5, 2.5, 3, 3.25	
123	4	3	1.5, 2.5, 3, 3	
124	4	3.5	1.5, 2.5, 3, 5	
125	4 4	3.5		
	4 4		1.5, 2.5, 3.25, 3.5	
127	4 4	3.5	1.5, 2.5, 3.25, 3.5	
128	5	3.5 5.5	1.5, 2.5, 3.25, 3.5	Additional drap addad
129	5		2, 4, 4.5, 5.25, 5.5	Additional drop added
130	5 4	5	2, 3.5, 4.5, 4.75, 5	Additional drop added
131 132	4 4	3.5 3.5	1.5, 2.5, 3.25, 3.5	
	4	3.5	1.5, 2.5, 3.25, 3.5	
133	4 4	3.5	1.5, 2.5, 3.25, 3.5	
134 135	4 4	3.5	1.5, 2.5, 3.25, 3.5	
	4 4		1.5, 2.5, 3.25, 3.5	
136		3.5	1.5, 2.5, 3.25, 3.5	Additional dram addad
137	<u>5</u>	6	2, 4, 5, 5.75, 6	Additional drop added
138	<u> </u>	6	2, 4, 5, 5.75, 6	Additional drop added
139		3.5	1.5, 2.5, 3.25, 3.5	
140	4	3.5	1.5, 2.5, 3.25, 3.5	
141	4	3.5	1.5, 2.5, 3.25, 3.5	
142	4	3.5	1.5, 2.5, 3.25, 3.5	
143	4	3.5	1.5, 2.5, 3.25, 3.5	
144	4	3.5	1.5, 2.5, 3.25, 3.5	
145	4	3.5	1.5, 2.5, 3.25, 3.5	

Drop Point ID	Number of Drops	Crater Depth (ft)	Crater Depth After Each Drop (ft)	Comments
146	4	3.5	1.5, 2.5, 3.25, 3.5	
147	4	3.5	1.5, 2.5, 3.25, 3.5	
148	4	3.5	1.5, 2.5, 3.25, 3.5	
149	4	3	1.5, 2.5, 3, 3	
150	5	5.5	2, 4, 4.5, 5.25, 5.5	Additional drop added
151	4	3.5	1.5, 2.5, 3.25, 3.5	
152	4	3.5	1.5, 2.5, 3.25, 3.5	
153	4	3.5	1.5, 2.5, 3.25, 3.5	
154	4	3.5	1.5, 2.5, 3.25, 3.5	
155	4	3.5	1.5, 2.5, 3.25, 3.5	
156	4	3.5	1.5, 2.5, 3.25, 3.5	
277	4	3.5	1.5, 2.5, 3.25, 3.5	
278	4	3.5	1.5, 2.5, 3.25, 3.5	
279	4	3.5	1.5, 2.5, 3.25, 3.5	
280	4	4	2, 3, 3.75, 4	
281	5	5.5	2, 4, 4.5, 5.25, 5.5	Additional drop added
282	5	5.5	2, 4, 4.5, 5.25, 5.5	Additional drop added
283	4	4	2, 3, 3.75, 4	
284	4	3.5	1.5, 2.5, 3.25, 3.5	
285	4	3.5	1.5, 2.5, 3.25, 3.5	
286	4	3.5	1.5, 2.5, 3.25, 3.5	
287	4	4	2, 3, 3.75, 4	
288	4	4	2, 3, 3.75, 4	
289	4	4	2, 3, 3.75, 4	
290	4	4	2, 3, 3.75, 4	
291	4	4	2, 3, 3.75, 4	
292	4	4	2, 3, 3.75, 4	
293	4	4	2, 3, 3.75, 4	
294	5	6	2, 4, 5, 5.75, 6	Additional drop added
295	5	5	2, 3.5, 4.5, 4.75, 5	Additional drop added
296	5	5	2, 3.5, 4.5, 4.75, 5	Additional drop added
297	4	4	2, 3, 3.75, 4	

Based on our observations, it is our opinion that the deep dynamic compaction was completed in general accordance with the geotechnical aspects of the project plans and specifications, and our recommendations.

Vibration Monitoring

Vibration monitoring equipment was previously set up at the site to monitor vibrations during construction. Two vibration monitoring stations were set up and are located near the north and northwest property lines and adjacent to the closest residential homes. Based on review of the vibration monitoring data today, peak particle velocities (PPVs) did not exceed 0.105 inches/second.



	Geotechnical Field	d Report	File Number: 6694-002-02
17425 NE Union Hill Road, Suite 250	Project: Go East Landfill Closure – LDA #1		Date: 4/23/2021
Redmond, WA 98052	^{Owner:}	Time of Arrival:	Report Number:
425.861.6000	P&GE, LLC	800	GT-005 (Revised)
Prepared by:	Location:	Time of Departure:	Page:
James Eng	4330 108 th Street SE, Everett, WA	1400	1 of 6
Purpose of visit:	Weather:	Travel Time:	Permit Number:
Dynamic Compaction Monitoring	Sunny; 70s °F	~1.5 hrs.	20-118246 LDA
Upon arrival to the site, I assessed personal safety hazards: Safety Hazards Were Addressed by : 🛛 Staying Alert to Con	Yes or Referred to Site Safety Plan and Safety Tailgate nstruction and Equipment Hazards Ø Other (describe): PPE	if applicable.	

A site visit was made today to observe deep dynamic compaction activities at the Go East Landfill Closure – LDA #1 project located at 4330 108th Street SE in Everett, Washington. During the site visit we met with representatives of the general contractor (Aero Construction) and the deep dynamic compaction contractor (Malcolm). Bob Metcalfe (GeoEngineers) was also on site. The following is a summary of our observations:

Deep Dynamic Compaction

The deep dynamic compaction (DDC) contractor (Malcolm) completed the final 120 drop points in the detention pond footprint today (see attached site plan). The contractor used a track-mounted crane (Liebherr HS 885 HD) with a 25-ton, 6-foot-high by 8-foot-diameter tamper to complete the dynamic compaction.

Offset survey hubs were located along the east and west ends of each drop point row. The contractor ran a string between the two survey hubs and measured off them to determine the location of each drop point. The drop points were spaced at 12 feet on center in an equilateral triangular spacing, as specified in the plans and specifications.

The deep dynamic compaction was performed by raising the 25-ton tamper to a height of 40 feet above the working pad (1-foot-thick quarry spalls) and dropping it at the specified drop point. The tamper was dropped at each drop point



Dynamic compaction at southeast end of detention pond. Looking northwest.

location at least 4 times as summarized in the table below. Compaction of the drop point craters generally decreased significantly on the final two drops, indicating that the material beneath it was compacting to the extent possible. Crater depths ranged from 3 to 6 feet deep. These were based on visual estimates during the compaction process and are estimated to the nearest quarter foot.

The table below summarizes the deep dynamic compaction completed today.

THIS FIELD REPORT IS PRELIMINARY	FIELD REPRESENTATIVE	DATE
A preliminary report is provided solely as evidence that field observation was performed. Observations and/or conclusions and/or recommendations conveyed in the final report may vary from and shall take precedence over those indicated in a preliminary report.	James Y. Eng	4/23/21
THIS FIELD REPORT IS FINAL A final report is an instrument of professional service. Any conclusions drawn from this report should be discussed with and evaluated by the professional involved.	REVIEWED BY Colton W. McInelly, PE	DATE 5/4/21

This report presents opinions formed as a result of our observation of activities relating to our services only. We rely on the contractor to comply with the plans and specification throughout the duration of the project irrespective of the presence of our representative. Our work does not include supervision or direction of the work of others. Our firm will not be responsible for job or site safety of others on this project. DISCLAIMER: Any electronic form, facsimile or hard copy of the original document (email, text, table, and/or figure), if provided, and any attachments are only a copy of the original document. The original document is stored by GeoEngineers, Inc. and will serve as the official document of record.

Attachment: Site Plans

Distribution: PACE Engineers, AERO Construction, Malcolm, Snohomish County, File

157442,3,3.75,4 159 442,3,3.75,4 160 43 161 43.5 162 44 $2,3,3.75,4$ 163 5 5.5 2,4,4.5,5.25,5.5 164 4 $2,3,3.75,4$ 163 5 5.5 2,4,4.5,5.25,5.5 164 4 3.5 $1.5,2.5,3.25,3.5$ 166 4 4 2,3,3.75,4 167 4 4 2,3,3.75,4 168 4 $4,5.5$ $15,2.5,3.25,3.5$ 169 4 3.5 $1.5,2.5,3.25,3.5$ 170 4 4 $2,3,3.75,4$ 171 4 3.5 $1.5,2.5,3.25,3.5$ 172 4 3.5 $1.5,2.5,3.25,3.5$ 173 4 4 $2,3,3.75,4$ 174 4 4 $2,3,3.75,4$ 177 5 5 $2,3.5,4.5,4.75,5$ 178 4 3.5 $1.5,2.5,3.25,3.5$ 180 4 3.5 $1.5,2.5,3.25,3.5$ 181 4 4 $2,3.3.75,4$ 184 4 4 $2,3.3.75,4$ 179 4 3.5 $1.5,2.5,3.25,3.5$ 183 4 4 $2,3.3.75,4$ 184 4 4 $2,3.3.75,4$ 184 4 4 $2,3.3.75,4$	Drop Point ID	Number of Drops	Crater Depth (ft)	Crater Depth After Each Drop (ft)	Comments
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203 4 3 1.5, 2.5, 3, 3					
	204	4	4	2, 3, 3.75, 4	
205 4 4 2, 3, 3.75, 4 206 4 4 2, 3, 3.75, 4					

Page 3				
Drop Point ID	Number of Drops	Crater Depth (ft)	Crater Depth After Each Drop (ft)	Comments
207	4	3.5	1.5, 2.5, 3.25, 3.5	
208	4	4	2, 3, 3.75, 4	
209	4	3.5	1.5, 2.5, 3.25, 3.5	
210	4	4	2, 3, 3.75, 4	
211	4	4	2, 3, 3.75, 4	
212	4	4	2, 3, 3.75, 4	
213	4	3.5	1.5, 2.5, 3.25, 3.5	
214	4	3.5	1.5, 2.5, 3.25, 3.5	
215	4	4	2, 3, 3.75, 4	
216	4	3.5	1.5, 2.5, 3.25, 3.5	
217	4	4	2, 3, 3.75, 4	
218	4	3.5	1.5, 2.5, 3.25, 3.5	
210	4	3.5	1.5, 2.5, 3.25, 3.5	
210	4	3.5	1.5, 2.5, 3.25, 3.5	
220	4	3.5	1.5, 2.5, 3.25, 3.5	
221	4	3.5	1.5, 2.5, 3.25, 3.5	
222	4	4	2, 3, 3.75, 4	
223	4	4	2, 3, 3.75, 4	
224	4	4	2, 3, 3.75, 4	
225	4	4	2, 3, 3.75, 4	
220	4	4	2, 3, 3.75, 4	
227	4	4	2, 3, 3.75, 4	
228	4	4	2, 3, 3.75, 4	
229	4	4 4	2, 3, 3.75, 4	
230	4 4	4	2, 3, 3.75, 4	
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232	4 4	4 4	2, 3, 3.75, 4	
233	5	6	2, 3, 3.75, 4	Additional drop added
234	4	4	2, 4, 5, 5.75, 6	Additional drop added
235	4 4	4 4	2, 3, 3.75, 4	
230	4	4	2, 3, 3.75, 4	
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241	4 4	3.5	1.5, 2.5, 3.25, 3.5	
242		4	2, 3, 3.75, 4	
243	4 4	4	2, 3, 3.75, 4	
244		4	2, 3, 3.75, 4	
245	4	4	2, 3, 3.75, 4	
246	4 4	4	2, 3, 3.75, 4	
247		4	2, 3, 3.75, 4	
248	4	4	2, 3, 3.75, 4	
249	<u>4</u> 5	4	2, 3, 3.75, 4	Additional dram - d-tl
250		5.5	2, 4, 4.5, 5.25, 5.5	Additional drop added
251	4	3.5	1.5, 2.5, 3.25, 3.5	
252	4	3.5	1.5, 2.5, 3.25, 3.5	
253	4	3.5	1.5, 2.5, 3.25, 3.5	
254	4	4	2, 3, 3.75, 4	
255	4	4	2, 3, 3.75, 4	
256	4	4	2, 3, 3.75, 4	

Page 4				
Drop Point ID	Number of Drops	Crater Depth (ft)	Crater Depth After Each Drop (ft)	Comments
257	4	4	2, 3, 3.75, 4	
258	4	4	2, 3, 3.75, 4	
259	4	4	2, 3, 3.75, 4	
260	4	4	2, 3, 3.75, 4	
261	4	4	2, 3, 3.75, 4	
262	4	4	2, 3, 3.75, 4	
263	4	4	2, 3, 3.75, 4	
264	5	6	2, 4, 5, 5.75, 6	Additional drop added
265	4	4	2, 3, 3.75, 4	
266	4	4	2, 3, 3.75, 4	
267	4	4	2, 3, 3.75, 4	
268	4	4	2, 3, 3.75, 4	
269	4	4	2, 3, 3.75, 4	
270	5	5	2, 3.5, 4.5, 4.75, 5	Additional drop added
271	4	4	2, 3, 3.75, 4	
272	4	4	2, 3, 3.75, 4	
273	4	4	2, 3, 3.75, 4	
274	4	4	2, 3, 3.75, 4	
275	4	4	2, 3, 3.75, 4	
276	5	6	2, 4, 5, 5.75, 6	Additional drop added

Based on our observations, it is our opinion that the deep dynamic compaction was completed in general accordance with the geotechnical aspects of the project plans and specifications, and our recommendations.

We understand that Malcolm plans to demobilize the dynamic compaction equipment from the site on Monday.

Vibration Monitoring

Vibration monitoring equipment was previously set up at the site to monitor vibrations during construction. Two vibration monitoring stations were set up and are located near the north and northwest property lines and adjacent to the closest residential homes. Based on review of the vibration monitoring data today, peak particle velocities (PPVs) did not exceed 0.035 inches/second.

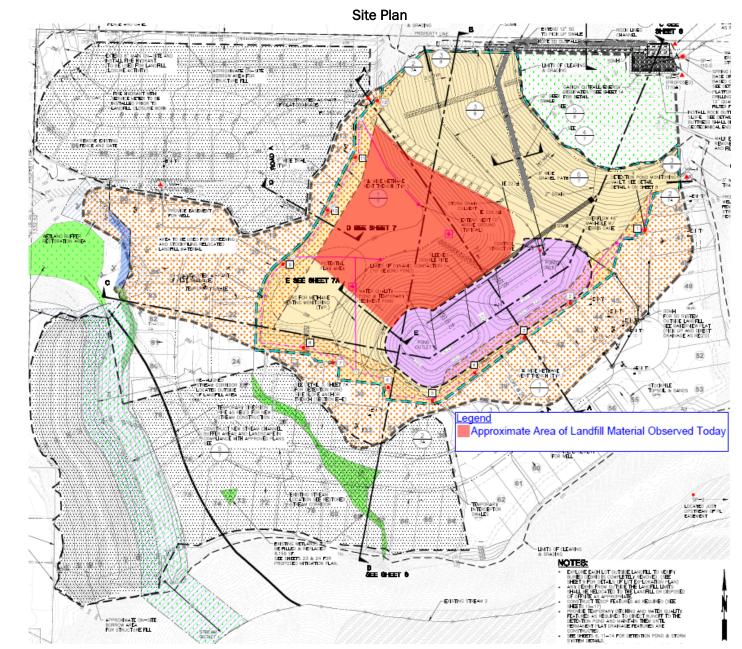
Landfill Material Relocation

The contractor began grading and compacting landfill surface located north of the detention ponds today (see attached site plan). The contractor graded the landfill surface using a Cat D9 dozer before compacting the surface using an Ingersoll Rand 100D landfill roller compactor. The compactor made a minimum of 4 passes over the prepared landfill surface while in vibratory mode to compact the material.

Once the landfill surface was prepared, the contractor began spreading landfill material generated from the detention pond excavation for the dynamic compaction pad. The material was spread in approximately 10- to 12-inch-thick loose level lifts. After each lift was spread out, the landfill compactor made a minimum of 4 passes over each lift while in vibratory mode. The landfill elevation ranged from about 234 to 235 feet.

Based on our observations, the landfill material observed today has been placed and compacted in general accordance with the project plans and specifications, and our recommendations.





APPENDIX D Vibration Monitoring Summary Letter



17425 NE Union Hill Road, Suite 250 Redmond, Washington 98052 425.861.6000

May 26, 2021

PACE Engineers, Inc. 11255 Kirkland Way, Suite 300 Kirkland, Washington 98033

Attention: Marty Penhallegon

Subject: Summary Letter Vibration Monitoring Services Go East Landfill Closure and Bakerview Development Snohomish County, Washington File No. 6694-002-02

This letter presents a summary of Geoengineers' review of the vibration monitoring data for the Go East Landfill Closure (LDA #1) and Bakerview Residential Development (LDA #2) projects located in Snohomish County, Washington. The projects consist of the closure of the Go East Landfill by consolidating approximately 45,000 cubic yards of landfill material prior to capping the landfill footprint and constructing a development around the closed landfill. Vibration monitoring equipment was installed at two locations along the north and northwest property lines, as shown on the attached Site Plan. Vibration monitoring station M1 was installed adjacent to Lot 64 and vibration monitoring station M2 was installed adjacent to Lot 23. Vibrations were monitored from March 29 to May 17, 2021. The primary purpose of the vibration monitoring program was to measure vibrations to assess potential impacts from deep dynamic compaction activities on the nearby residences located closest to where deep dynamic compaction was planned.

BACKGROUND

Many studies have been completed to assess potential damage to structures resulting from vibrations during construction. For this study, published vibration monitoring thresholds from the Transportation and Construction Vibration Guidance Manual (Caltrans 2013) were used to interpret the vibration monitoring data obtained for the project. The 2013 Caltrans manual summarizes a compilation of vibration studies that have been performed as well as guidelines in evaluating construction vibrations. Peak particle velocity (PPV) thresholds have been developed from studies by:

- Chae, 1978,
- Dowding, 1996, and
- AASHTO, 1990.

The PPV thresholds for damage to residential buildings range from 0.4 to 2 inches per second (in/sec). The low threshold (0.4 in/sec) is generally used for poor construction and the high threshold (2 in/sec) is generally used for new sound construction. The threshold range represents vibrations that may begin to cause very minor damage to a structure, although for many structures damage still may not occur.

OBSERVATIONS

The vibration monitoring stations (M1 and M2) were located adjacent to Lots 64 and 23, respectively (see attached Site Plan). M1 and M2 were located approximately 645 feet northwest and 450 feet north of the deep dynamic compaction area, respectively. The equipment monitored vibrations continuously from March 29 to May 17, 2021. Deep dynamic compaction activities were performed from April 21 through April 23, 2021. Other construction activities including site clearing and grading, landfill material relocation, wedge excavation, and wedge backfilling commenced on April 27, 2021 and are ongoing. In general, vibration levels were at non-detect levels during most all construction activities each day, with the exception of some 5- to 60-minute intervals where vibrations were recorded. The typical peak particle velocity range during these short periods indicate PPV between 0.01 and 0.185 in/sec at the monitoring stations. The vibration monitoring data is included in Appendix A.

Measured peak particle velocity values above the typical range were detected on April 14 and May 10, 2021 at station M1 and April 9 and May 13, 2021 at station M2. The dates at station M1 coincide with falling trees (part of clearing for the site) and augering and installing a new fence about 10 feet from the station (including driving and laying down equipment immediately adjacent to the station). The dates at station M2 coincide with falling trees and operating excavators and dozers immediately adjacent to the monitoring equipment. Each of these activities were expected to cause vibrations at the monitoring stations because of the proximity of the construction work to the monitoring stations. The vibration equipment measured peak velocities of 0.26 and 10.0 in/sec at M1 and 0.205 and 0.57 in/sec at M2. These PPVs were all measured for less than 4 seconds (single-event source). The peak velocity of 10.0 in/sec is associated with the fence installation and includes vehicles and equipment that were driven and placed within a couple of feet of the vibration monitoring station.

Vibrations attenuate (reduce in amplitude) with distance. The closest residence is about 40 feet west and 50 feet north of monitoring stations M1 and M2, respectively. Given the distance between the residences and the location where the monitoring stations, the vibrations at the residences will be much lower than where measured. The Transportation and Construction Vibration Guidance Manual suggests that potential vibrations experienced at the residences were likely at least 50 to 60 percent lower than recorded at the monitoring instrument. Potential vibrations experienced at the residences were likely adjacent to the monitoring stations, on the order of 80 to 90 percent. We estimate that the maximum PPV at the closest residence was between 0.11 and 2 in/sec during the monitoring period. The upper values may be even lower at the residence considering the proximity of the falling trees and the construction of the fence directly adjacent to the vibration monitoring stations.



CONCLUSIONS

The vibration monitoring data, and extrapolations from the data, demonstrate that the potential maximum PPV experienced at the closest residence was likely between 0.11 and 2 in/sec during the construction for the monitoring period. These vibrations are below the range of vibrations (0.4 to 2 in/sec) that adversely impact residential buildings. In addition, deep dynamic compaction activities in the detention pond area did not produce any vibrations that were detected at the monitoring stations.

REFERENCES

- American Association of State Highway and Transportation Officials (AASHTO), 1993, "AASHTO Guide for Design of Pavement Structures."
- California Department of Transportation, 2013, "Transportation and Construction Vibration Guidance Manual."
- Chae, Y.S., 1978. Design of Excavation Blasts to Prevent Damage," Civil Engineering, ASCE, Vol. 48, No. 4, pp. 77-79

Dowding, C.H., 1996. Construction Vibrations, Prentice-Hall.

We trust this letter meets your current needs. Please call if you have any questions regarding this letter.

Respectfully submitted, GeoEngineers, Inc.

Colton W. McInelly, PE Geotechnical Engineer

Met

Robert C. Metcalfe, PE, LEG Principal

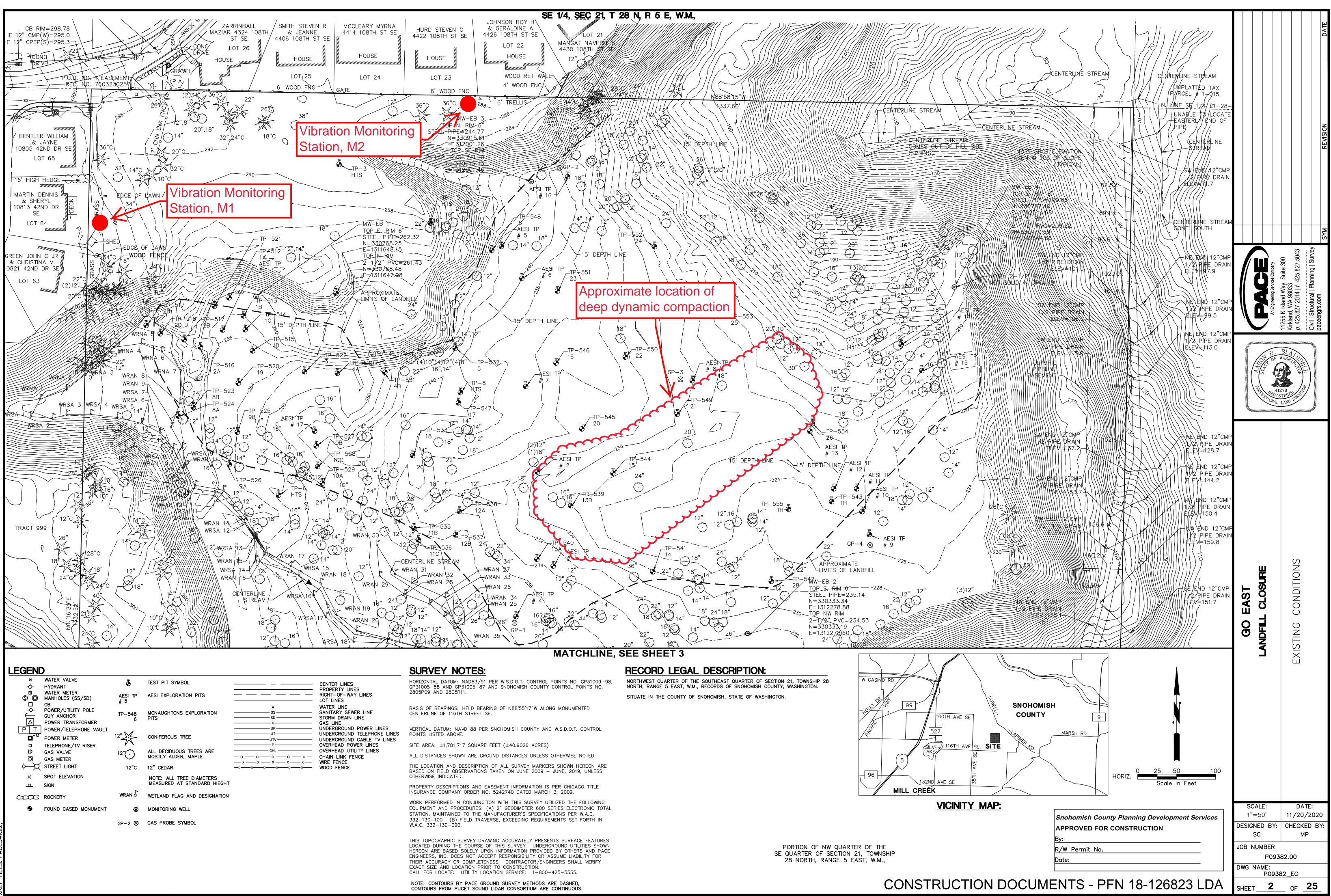
CWM:RCM:nld

Attachments: Site Plan Appendix A. Vibration Monitoring Results



Disclaimer: Any electronic form, facsimile or hard copy of the original document (email, text, table, and/or figure), if provided, and any attachments are only a copy of the original document. The original document is stored by GeoEngineers, Inc. and will serve as the official document of record.

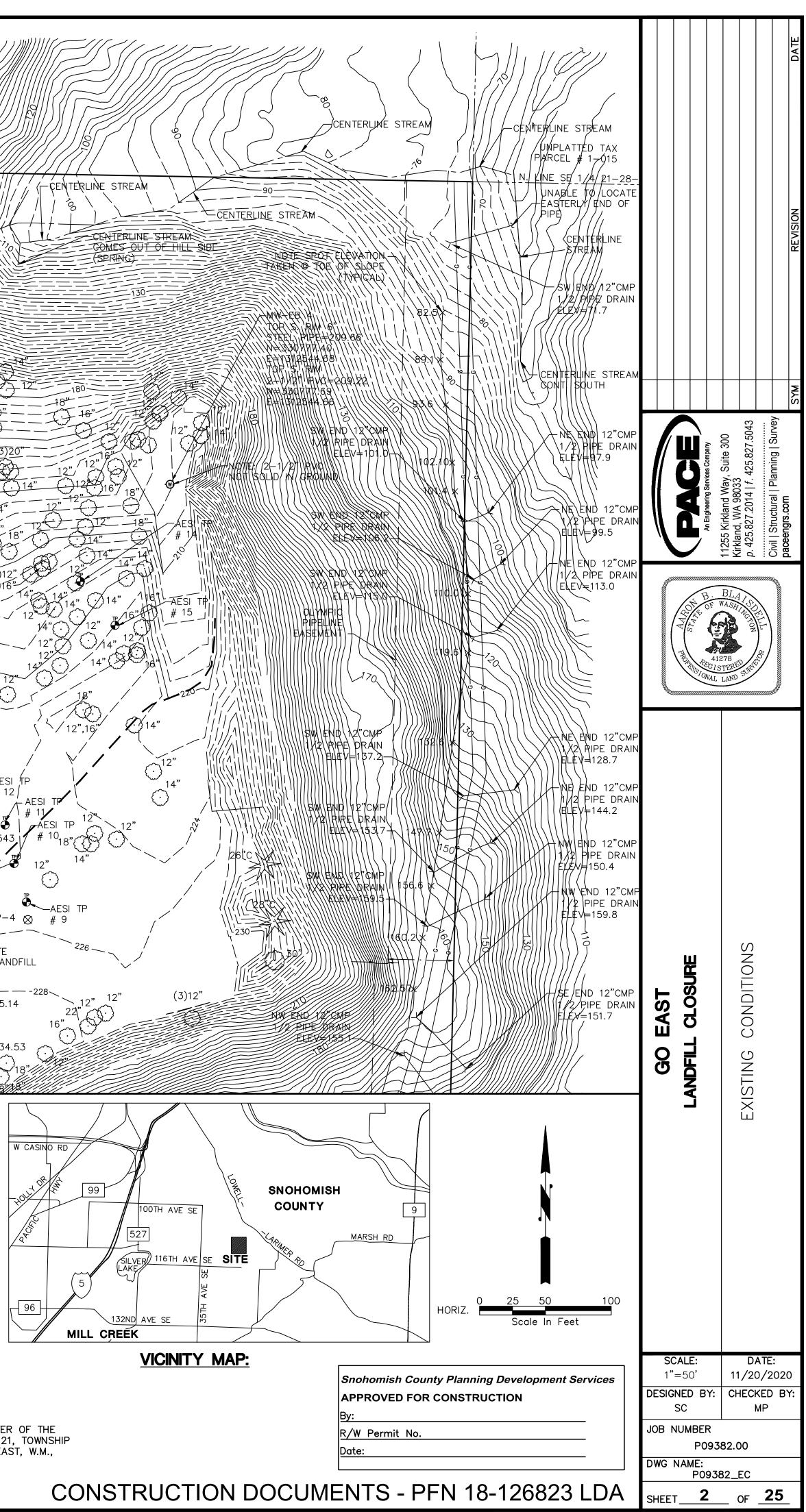




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APPENDIX A Vibration Monitoring Results



This Report Generated From The World's Most Trusted Vibration Monitors www.MyDataView.com on March 30, 2021, 1:12

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USBM RI8507 And OSMRE



Serial Number BE11440 V 10.72-8.17 MiniMate Plus 13:57:32 March 29, 2021 01:10:01 March 30, 2021 Battery Level 7.0 Volts 2690.00 At 15 seconds Unit Calibration October 6, 2020 by Instantel Geo 10.00 in/s M440IMM8.RWOH File Name Sample Rate 1024 Sps Post Event Notes

Notes Location: Everett, WA Client: PACE Engineering Monitored By: SubTerra, Inc. 425-888-5425 Unit LocationI: Everett- M1

Extended Notes

Start

Finish

Range

Intervals

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Time(Seconds)5 minutes/div Amplitude Geo: 0.0500 in/s/div

Created: March 30, 2021 (V - 10.40) Format(c) 2006-2012 Xmark Corporation



This Report Generated From www.MyDataView.com on April 1, 2021, 1:12 am





Start 01:12:42 March 31, 2021 Serial Number BE11440 V 10.72-8.17 MiniMate Plus Finish 01:10:01 April 1, 2021 Battery Level 7.0 Volts 5750.00 At 15 seconds Unit Calibration October 6, 2020 by Instantel Intervals Geo 10.00 in/s M4401M/W.P60H File Name Range Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering Monitored By: SubTerra, Inc. 425-888-5425 Unit LocationI: Everett- M1 Extended Notes **USBM RI8507 And OSMRE** 10 Tran Vert Long 5 No velocity above 0.04 in/s PPV 0.0250 0.0200 0.0200 in/s ZC Freq 21 18 23 Hz Mar 31 /21 Mar 31 /21 Date Mar 31 /21 2 Time 09:24:12 09:24:12 09:24:12 Velocity (in/s) Sensor Check Passed Passed Passed 1 Peak Vector Sum 0.0320 in/s on March 31, 2021 At 09:24:12 0.5 0.2 0.1 0.05 0.04 > 20 100 2 10 50 Frequency (Hz) Tran: + Vert: × Long: 5 0.0 Long Vert 0.0 Tran 0.0 05:22:42 17:22:42 21:22:42 01:22:42 09:22:42 13:22:42 01:10:01 Mar 31/21 Mar 31/21 Mar 31/21 Mar 31/21 Mar \$1/21 Mar \$1/21 Apr 1/21

Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 1, 2021 (V - 10.48)

Format (c) 2006-2012 Xmark Corporation



01:12:46 April 1, 2021

01:10:01 April 2, 2021

5749.00 At 15 seconds

Geo 10.00 in/s

This Report Generated From www.MyDataView.com on April 2, 2021, 1:12 am





Serial Number BE11440 V 10.72-8.17 MiniMate Plus Battery Level 7.0 Volts Unit Calibration October 6, 2020 by Instantel M440IXOR.DAOH File Name

USBM RI8507 And OSMRE

Post Event Notes

Notes Location: Everett, WA PACE Engineering Client: Monitored By: SubTerra, Inc. 425-888-5425 Unit LocationI: Everett- M1

Sample Rate 1024 Sps

Extended Notes

Start

Finish

Range

Intervals

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Created: April 2, 2021 (V - 10.40) Format (c) 2006-2012 Xmark Corporation



This Report Generated From www.MyDataView.com on April 3, 2021, 1:12 am

Battery Level 7.0 Volts

File Name

Unit Calibration October 6, 2020 by Instantel

M440IX2M.1B0H



on April 3, 2021, 1:12 World Class Instrumentation Support

Start 01:12:47 April 2, 2021 Finish 01:10:01 April 3, 2021 5749.00 At 15 seconds Intervals Geo 10.00 in/s Range Sample Rate 1024 Sps Notes Location: Everett, WA PACE Engineering Client: Monitored By: SubTerra, Inc. 425-888-5425 Unit LocationI: Everett- MI

Post Event Notes

USBM RI8507 And OSMRE

Extended Notes

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01:12:48 April 3, 2021

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Geo 10.00 in/s

Everett, WA PACE Engineering

Monitored By: SubTerra, Inc. 425-888-5425

This Report Generated From www.MyDataView.com on April 4, 2021, 1:12 am





Serial Number BE11440 V 10.72-8.17 MiniMate Plus Battery Level 7.0 Volts

Unit Calibration October 6, 2020 by Instantel M440IX4G.PCOH

USBM RI8507 And OSMRE

File Name

Post Event Notes

Unit LocationI: Everett- MI

Sample Rate 1024 Sps

Extended Notes

Start

Finish

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Created: April 4, 2021 (V - 10.40)

Format(c)2006-2012 Xmark Corporation



01:12:46 April 4, 2021

01:10:01 April 5, 2021

5749.00 At 15 seconds

Geo 10.00 in/s

This Report Generated From www.MyDataView.com on April 5, 2021, 1:12 am





Serial Number BE11440 V 10.72-8.17 MiniMate Plus Battery Level 7.0 Volts Unit Calibration October 6, 2020 by Instantel M440IX6B.DAOH File Name

USBM RI8507 And OSMRE

Post Event Notes

Sample Rate 1024 Sps Notes Location: Everett, WA PACE Engineering Client: Monitored By: SubTerra, Inc. 425-888-5425 Unit LocationI: Everett- MI

Extended Notes

Start

Finish

Range

Intervals

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Format(c) 2006-2012 Xmark Corporation

Created: April 5, 2021 (V - 10.40)



01:12:48 April 5, 2021

01:10:01 April 6, 2021

5749.00 At 15 seconds

Geo 10.00 in/s

PACE Engineering SubTerra, Inc. 425-888-5425

1024 Sps

Everett, WA

Everett- M1

This Report Generated From www.MyDataView.com on April 6, 2021, 1:12





am

File Name

Serial Number BE11440 V 10.72-8.17 MiniMate Plus Battery Level 7.0 Volts October 6, 2020 by Instantel Unit Calibration M440IX86.1A0H

USBM RI8507 And OSMRE

Post Event Notes

Extended Notes

Start

Finish

Range Sample Rate

Notes

Client:

Location:

Monitored By: Unit LocationI:

Intervals

10 1 111 Tran Vert Long 5 No velocity above 0.04 in/s PPV 0.0250 0.0300 0.0250 in/s ZC Freq 26 39 47 Hz Apr 5 /21 Date Apr 5 /21 Apr 5 /21 2 Time 13:44:46 13:58:01 13:17:46 Sensor Check Passed Passed Passed Velocity (in/s) 1 Peak Vector Sum 0.0391 in/s on April 5, 2021 At 13:58:01 0.5 0.2 0.1 0.05 0.04 10 20 50 100 2 Frequency (Hz) Tran: + Vert: × Long: ø 0.0 Long Vert 0.0 Tran 0.0 01:22:46 05:22:46 09:22:46 13:22:46 17:22:46 21:22:46 01:10:01 Apr 5 /21 Apr 5 /21 Apr 5 /21 Apr 5 /21 ADT 5 /21 Apr 6 /21 Apr 5 /21 Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Format (c) 2006-2012 Xmark Corporation Created: April 6, 2021 (V - 10.40)



01:12:48 April 6, 2021

Geo 10.00 in/s

01:10:01 April 7, 2021

5749.00 At 15 seconds

This Report Generated From www.MyDataView.com on April 7, 2021, 1:12





am

Serial Number BE11440 V 10.72-8.17 MiniMate Plus Battery Level 7.0 Volts Unit Calibration October 6, 2020 by Instantel M440IXA0.PCOH

USBM RI8507 And OSMRE

Post Event Notes

File Name

Location: Everett, WA PACE Engineering Client: Monitored By: SubTerra, Inc. 425-888-5425 Unit LocationI: Everett- MI

Sample Rate 1024 Sps

Extended Notes

Start Finish

Intervals

Range

Notes

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Created: April 7, 2021 (V - 10.40) Format (c) 2006-2012 Xmark Corporation



01:12:47 April 7, 2021

01:10:01 April 8, 2021

5749.00 At 15 seconds

This Report Generated From www.MyDataView.com on April 8, 2021, 1:12





am Serial Number BE11440 V 10.72-8.17 MiniMate Plus

Battery Level 7.0 Volts Unit Calibration October 6, 2020 by Instantel M440IXBV.DBOH

USBM RI8507 And OSMRE

Post Event Notes

File Name

Geo 10.00 in/s Sample Rate 1024 Sps Notes Location: Everett, WA PACE Engineering Client: Monitored By: SubTerra, Inc. 425-888-5425 Unit LocationI: Everett- MI

Extended Notes

Start Finish

Intervals

Range

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Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 5, 2021 (V - 10.40) Format (c) 2006-2012 Xmark Corporation



01:12:47 April 8, 2021

01:10:01 April 9, 2021

Start

Finish

Range

Notes

Client:

PPV

Date

Time

Long

Vert

Tran

ZC Freq

Location:

Intervals

This Report Generated From www.MyDataView.com on April 9, 2021, 1:12



BE11440 V 10.72-8.17 MiniMate Plus

7.0 Volts



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Serial Number

Unit Calibration

Battery Level

October 6, 2020 by Instantel 5749.00 At 15 seconds Geo 10.00 in/s File Name M440IXDQ.1B0H Sample Rate 1024 Sps Post Event Notes Everett, WA PACE Engineering SubTerra, Inc. 425-888-5425 Monitored By: Unit LocationI: Everett- M1 USBM RI8507 And OSMRE Extended Notes 10 1 111 Tran Vert Long 5 No velocity above 0.04 in/s 0.0300 0.0250 0.0250 in/s 19 26 26 Hz Apr 8 /21 Apr 8 /21 Apr 8 /21 2 08:28:02 08:25:47 08:25:47 Sensor Check Passed Passed Passed Velocity (in/s) 1 Peak Vector Sum 0.0354 in/s on April 8, 2021 At 08:25:47 0.5 0.2 0.1 0.05 0.04 10 20 50 Frequency (Hz) Tran: + Vert: × Long: ø 01:22:47 05:22:47 09:22:47 13:22:47 17:22:47 21:22:47 01:10:01 Apr 3 /21 Apra /21 Aprs /21 ADT 8 /21 ADT 8 /21 ADT 8 /21 Apr 9 /21

Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 5, 2021 (V - 10.40) Format (c) 2006-2012 Xmark Corporation



01:12:44 April 9, 2021

01:10:01 April 10, 2021

5750.00 At 15 seconds

Geo 10.00 in/s

Everett, WA PACE Engineering

Monitored By: SubTerra, Inc. 425-888-5425

This Report Generated From www.MyDataView.com on April 10, 2021, 1:12





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Serial Number BE11440 V 10.72-8.17 MiniMate Plus Battery Level 7.0 Volts Unit Calibration October 6, 2020 by Instantel M440IXFK.P80H

USBM RI8507 And OSMRE

File Name

Post Event Notes

Extended Notes

Sample Rate 1024 Sps

Unit LocationI: Everett- MI

Start

Finish

Range

Notes

Client:

Location:

Intervals

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Created: April 10, 2021 (V - 10.40) Format (c) 2006-2012 Xmark Corporation



This Report Generated From





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The World's Most Trusted Vibration Monitors www.MyDataView.com on April 11, 2021, 1:12 am Start 01:12:47 April 10, 2021 Serial Number BE11440 V 10.72-8.17 MiniMate Plus Finish 01:10:01 April 11, 2021 Battery Level 7.0 Volts 5749.00 At 15 seconds October 6, 2020 by Instantel Intervals Unit Calibration Geo 10.00 in/s File Name M440IXHF.DBOH Range Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering SubTerra, Inc. 425-888-5425 Monitored By: Unit LocationI: Everett- MI Extended Notes **USBM RI8507 And OSMRE** 10 Tran Vert Long 5 PPV 0.0450 0.0750 0.0600 in/s ZC Freq 34 23 37 Hz Date Apr 10 /21 Apr 10 /21 Apr 10 /21 2 Time 11:50:47 11:52:32 11:50:47 Sensor Check Passed Passed Passed Velocity (in/s) 4 Peak Vector Sum 0.0873 in/s on April 10, 2021 At 11:52:32 0.5 0.2 0.1 0.05 0.04 Frequency (Hz) Tran: + Vert: × Long: 5 Long

0.0 Vert 0.0 Tran 0.0 01:22:47 05:22:47 09:22:47 13:22:47 17:22:47 21:22:47 01:10:01 Apr 10 /21 Apr 10 /21 Apr 10 /21 ADT 10 /21 Apr 10 /21 ADF 10 /21 Apr 11/21

Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 11, 2021 (V - 10.48)

Format(c)2006-2012 Xmark Corporation



This Report Generated From www.MyDataView.com on April 12, 2021, 1:12 am





Start 01:12:46 April 11, 2021 Serial Number BE11440 V 10.72-8.17 MiniMate Plus Finish 01:10:01 April 12, 2021 Battery Level 7.0 Volts 5749.00 At 15 seconds October 6, 2020 by Instantel Intervals Unit Calibration Geo 10.00 in/s File Name M440IXJA.1A0H Range Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering SubTerra, Inc. 425-888-5425 Monitored By: Unit LocationI: Everett- M1 **USBM RI8507 And OSMRE** Extended Notes 10 Tran Vert Long 5 No velocity above 0.04 in/s PPV 0.0150 0.0150 0.01000 in/s ZC Freq >100 >100 >100 Hz Apr 11 /21 Date Apr 11 /21 Apr 11 /21 2 Time 05:35:01 05:09:01 01:14:31 Sensor Check Passed Passed Passed Velocity (in/s) 1 Peak Vector Sum 0.0212 in/s on April 11, 2021 At 06:57:01 0.5 0.2 0.1 0.05 0.04 20 100 1 Frequency (Hz) Tran: + Vert: × Long: 5 Long 0.0 Vert 0.0 Tran 0.0 01:22:46 05:22:46 09:22:46 13:22:46 17:22:46 21:22:46 01:10:01 Apr 11/21 Apr 11/21 Apr 11/21 ADT 11/21 Apr 12 /21 ADT 11/21 ADT 11/21

Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 12, 2021 (V - 10.40) Format (c) 2006-2012 Xmark Corporation



This Report Generated From www.MyDataView.com on April 13, 2021, 1:12 am





Serial Number BE11440 V 10.72-8.17 MiniMate Plus Start 01:12:46 April 12, 2021 Finish 01:10:01 April 13, 2021 Battery Level 7.0 Volts 5749.00 At 15 seconds Unit Calibration October 6, 2020 by Instantel Intervals Geo 10.00 in/s M440IXL4.PAOH Range File Name Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering Monitored By: SubTerra, Inc. 425-888-5425 Unit LocationI: Everett- M1

Extended Notes

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Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 13, 2021 (V - 10.40)

Format (c) 2006-2012 Xmark Corporation

USBM RI8507 And OSMRE



This Report Generated From www.MyDataView.com on April 14, 2021, 1:12 am





Serial Number BE11440 V 10.72-8.17 MiniMate Plus Start 01:12:42 April 13, 2021 Finish 01:10:01 April 14, 2021 Battery Level 7.0 Volts 5750.00 At 15 seconds Unit Calibration October 6, 2020 by Instantel Intervals Geo 10.00 in/s M440IXMZ.D60H Range File Name Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering Monitored By: SubTerra, Inc. 425-888-5425 Unit LocationI: Everett- MI

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ime	10:09:42	10:09:42	07:53:27				11	
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Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 14, 2021 (V - 10.48)



Vert

This Report Generated From www.MyDataView.com on April 15, 2021, 1:12 am





100

0.0

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Start 01:12:45 April 14, 2021 Serial Number BE11440 V 10.72-8.17 MiniMate Plus Finish 01:10:01 April 15, 2021 Battery Level 7.0 Volts 5750.00 At 15 seconds October 6, 2020 by Instantel Intervals Unit Calibration Geo 10.00 in/s File Name M440IXOU.190H Range Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering SubTerra, Inc. 425-888-5425 Monitored By: Unit LocationI: Everett- M1 Extended Notes USBM RI8507 And OSMRE 10 Tran Vert Long 5 PPV 0.260 0.110 0.185 in/s ZC Freq 20 51 32 Hz Date Apr 14/21 Apr 14 /21 Apr 14 /21 2 Time 08:00:30 09:03:00 08:09:45 Sensor Check Passed Passed Passed Velocity (in/s) 1 Peak Vector Sum 0.320 in/s on April 14, 2021 At 08:00:30 0.5 0.2 0.1 0.05 0.04 10 20 50 Frequency (Hz) Tran: + Vert: × Long: s Long

Tran 21:22:45 01:22:45 05:22:45 09:22:45 13:22:45 17:22:45 01:10:01 ADF 14/21 Apr 14/21 Apr 14/21 Apr 14/21 ADT 14/21 ADT 14/21 Apr 15 /21 Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 15, 2021 (V - 10.40) Format (c) 2006-2012 Xmark Corporation



PACE Engineering SubTerra, Inc. 425-888-5425

This Report Generated From www.MyDataView.com on April 16, 2021, 1:12 am



USBM RI8507 And OSMRE



Serial Number BE11440 V 10.72-8.17 MiniMate Plus 01:12:51 April 15, 2021 Finish 01:10:01 April 16, 2021 Battery Level 6.9 Volts 5749.00 At 15 seconds Unit Calibration October 6, 2020 by Instantel Intervals Geo 10.00 in/s M440IXQO.PFOH Range File Name Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA

Extended Notes

Unit LocationI: Everett- M1

Monitored By:

Start

Client:

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ak Vect	or Sum	0.0180	in/s on April	15, 2021 At	05:23:06	Velocity (in/s)	0.5	/							
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							0.05								+
						3	0.04		+ + +	+++++		1	+ +	++++	+
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Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 16, 2021 (V - 10.48)



This Report Generated From www.MyDataView.com on April 17, 2021, 1:12





am Start 01:12:43 April 16, 2021 Serial Number BE11440 V 10.72-8.17 MiniMate Plus Finish 01:10:01 April 17, 2021 Battery Level 6.9 Volts October 6, 2020 by Instantel 5750.00 At 15 seconds Intervals Unit Calibration Geo 10.00 in/s File Name M440IXSJ.D70H Range Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering SubTerra, Inc. 425-888-5425 Monitored By: Unit LocationI: Everett- M1 **USBM RI8507 And OSMRE** Extended Notes 10 Tran Vert Long 5 No velocity above 0.04 in/s PPV 0.01000 0.0150 0.01000 in/s ZC Freq >100 18 >100 Hz Apr 16 /21 Apr 16 /21 Date Apr 16 /21 2 Time 01:12:58 13:59:13 02:17:28 Sensor Check Passed Passed Passed Velocity (in/s) 1 Peak Vector Sum 0.0173 in/s on April 16, 2021 At 13:59:13 0.5 0.2 0.1 0.05 0.04 20 100 1 Frequency (Hz) Tran: + Vert: × Long: 5 0.0 Long Vert 0.0 Tran \ 0.0 05:22:43 17:22:43 21:22:43 01:22:43 09:22:43 13:22:43 01:10:01 ADF 16 /21 Apr 16 /21 Apr 16 /21 ADT 16 /21 ADT 16 /21 Apr 17 /21 ADT 16 /21

Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 17, 2021 (V - 10.40)

Page 1/1



This Report Generated From www.MyDataView.com on April 18, 2021, 1:12





am Start 01:12:42 April 17, 2021 Serial Number BE11440 V 10.72-8.17 MiniMate Plus Finish 01:10:01 April 18, 2021 Battery Level 6.9 Volts October 6, 2020 by Instantel 5750.00 At 15 seconds Intervals Unit Calibration Geo 10.00 in/s File Name M440IXUE.160H Range Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering SubTerra, Inc. 425-888-5425 Monitored By: Unit LocationI: Everett- M1 **USBM RI8507 And OSMRE** Extended Notes 10 Tran Vert Long 5 No velocity above 0.04 in/s PPV 0.0150 0.01000 0.0150 in/s ZC Freq >100 18 15 Hz Apr 17 /21 Apr 17 /21 Date Apr 17 /21 2 Time 12:01:57 01:12:57 12:57:12 Sensor Check Passed Passed Passed Velocity (in/s) 1 Peak Vector Sum 0.0187 in/s on April 17, 2021 At 12:57:12 0.5 0.2 0.1 0.05 0.04 20 100 1 Frequency (Hz) Tran: + Vert: × Long: 5 0.0 Long Vert 0.0 Tran 0.0 05:22:42 21:22:42 01:22:42 09:22:42 13:22:42 17:22:42 01:10:01 Apr 17 /21 ADF 17 /21 Apr 17 /21 Apr 17 /21 Apr 17 /21 ADT 17 /21 Apr 18 /21

Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 18, 2021 (V - 10.40)



This Report Generated From www.MyDataView.com on April 19, 2021, 1:12 am





Start 01:12:43 April 18, 2021 Serial Number BE11440 V 10.72-8.17 MiniMate Plus Finish 01:10:01 April 19, 2021 Battery Level 6.9 Volts 5750.00 At 15 seconds October 6, 2020 by Instantel Intervals Unit Calibration Geo 10.00 in/s File Name M440IXW8.P70H Range Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering SubTerra, Inc. 425-888-5425 Monitored By: Unit LocationI: Everett- M1 **USBM RI8507 And OSMRE** Extended Notes 10 Tran Vert Long 5 No velocity above 0.04 in/s PPV 0.0150 0.01000 0.01000 in/s ZC Freq 85 >100 >100 Hz Apr 18 /21 Apr 18 /21 Date Apr 18 /21 2 Time 21:33:13 01:12:58 01:31:28 Sensor Check Passed Passed Passed Velocity (in/s) 1 Peak Vector Sum 0.0158 in/s on April 18, 2021 At 21:33:13 0.5 0.2 0.1

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Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 19, 2021 (V - 10.40)







This Report Generated From The World's Most Trusted Vibration Monitors World Class Instrumentation Support www.MyDataView.com on April 19, 2021, 11:49 am Start 01:12:45 April 19, 2021 Serial Number BE11440 V 10.72-8.17 MiniMate Plus Finish 10:56:31 April 19, 2021 Battery Level 6.8 Volts 2335.00 At 15 seconds October 6, 2020 by Instantel Intervals Unit Calibration Geo 10.00 in/s File Name M440IXY3.D90H Range Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering SubTerra, Inc. 425-888-5425 Monitored By: Unit LocationI: Everett- M1 **USBM RI8507 And OSMRE** Extended Notes 10 Tran Vert Long 5 No velocity above 0.04 in/s PPV 0.0250 0.0250 0.0200 in/s ZC Freq 57 21 13 Hz Apr 19 /21 Date Apr 19 /21 Apr 19 /21 2 Time 10:56:30 07:40:15 07:40:15 Sensor Check Passed Passed Passed Velocity (in/s) 1 Peak Vector Sum 0.0269 in/s on April 19, 2021 At 07:40:15 0.5 0.2 0.1 0.05 0.04 20 100 1 Frequency (Hz) Tran: + Vert: × Long: 5 0.0 Long 0.0 Vert



Time(Seconds)5 minutes/div Amplitude Geo: 0.0500 in/s/div

Format (c) 2006-2012 Xmark Corporation Created: April 19, 2021 (V - 10.40)



This Report Generated From www.MyDataView.com on April 20, 2021, 1:12 am





Serial Number BE11440 V 10.72-8.17 MiniMate Plus 12:06:00 April 19, 2021 01:10:01 April 20, 2021 Battery Level 6.9 Volts 3137.00 At 15 seconds Unit Calibration October 6, 2020 by Instantel Geo 10.00 in/s M440IXYX.M00H File Name Sample Rate 1024 Sps Post Event Notes

Notes Location: Everett, WA Client: PACE Engineering Monitored By: SubTerra, Inc. 425-888-5425 Unit LocationI: Everett- M1

Extended Notes

Start

Finish

Range

Intervals

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Created: April 20, 2021 (V - 10.40)

Format (c) 2006-2012 Xmark Corporation

USBM RI8507 And OSMRE



This Report Generated From www.MyDataView.com on April 21, 2021, 1:12 am





Start 01:12:15 April 20, 2021 Serial Number BE11440 V 10.72-8.17 MiniMate Plus Finish 01:10:01 April 21, 2021 Battery Level 6.9 Volts 5752.00 At 15 seconds October 6, 2020 by Instantel Intervals Unit Calibration Geo 10.00 in/s File Name M440IXZY.OFOH Range Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering SubTerra, Inc. 425-888-5425 Monitored By: Unit LocationI: Everett- M1 **USBM RI8507 And OSMRE** Extended Notes 10 Tran Vert Long 5 No velocity above 0.04 in/s PPV 0.0150 0.01000 0.01000 in/s ZC Freq 51 >100 >100 Hz Apr 20 /21 Apr 20 /21 Date Apr 20 /21 2 Time 08:31:45 01:12:30 01:49:00 Sensor Check Passed Passed Passed Velocity (in/s) 1 Peak Vector Sum 0.0166 in/s on April 20, 2021 At 08:33:15 0.5 0.2 0.1 0.05 0.04 20 1 Frequency (Hz) Tran: + Vert: × Long: 5 0.0 Long Vert 0.0 Tran 0.0 01:22:15 05:22:15 09:22:15 13:22:15 17:22:15 21:22:15 01:10:01 Apr 20 /21 Apr 20 /21 Apr 20 /21 ADT 20 /21 Apr 21/21 Apr 20 /21 ADF 20 /21

Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 21, 2021 (V - 10.40)



This Report Generated From www.MyDataView.com on April 22, 2021, 1:12 am





Serial Number BE11440 V 10.72-8.17 MiniMate Plus Start 01:12:45 April 21, 2021 Finish 01:10:01 April 22, 2021 Battery Level 6.9 Volts 5750.00 At 15 seconds Unit Calibration October 6, 2020 by Instantel Intervals Geo 10.00 in/s M440IY1S.P90H Range File Name Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering Monitored By: SubTerra, Inc. 425-888-5425 Unit LocationI: Everett- M1 **USBM RI8507 And OSMRE** Extended Notes

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Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 22, 2021 (V - 10.48)



This Report Generated From www.MyDataView.com on April 23, 2021, 1:12 am





Start 01:12:43 April 22, 2021 Serial Number BE11440 V 10.72-8.17 MiniMate Plus Finish 01:10:01 April 23, 2021 Battery Level 6.9 Volts 5750.00 At 15 seconds October 6, 2020 by Instantel Unit Calibration Intervals Geo 10.00 in/s M440IY3N.D70H File Name Range Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering SubTerra, Inc. 425-888-5425 Monitored By: Unit LocationI: Everett- M1 Extended Notes USBM RI8507 And OSMRE 10 Tran Vert Long 5 PPV 0.105 0.0550 0.0900 in/s ZC Freq 34 43 39 Hz Apr 22 /21 Date Apr 22 /21 Apr 22 /21 2 Time 09:04:58 09:04:58 09:04:58 Sensor Check Passed Passed Passed Velocity (in/s) 1 Peak Vector Sum 0.123 in/s on April 22, 2021 At 09:04:58 0.5 0.2 0.1 0.05 0.04 10 20 100 58 Frequency (Hz) Tran: + Vert: × Long: s 0.0 Long Vert 0.0 Tran 0.0 05:22:43 21:22:43 01:22:43 09:22:43 13:22:43 17:22:43 01:10:01 Apr 23 /21 ADE 22 /21 Apr 22 /21

Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 23, 2021 (V = 10.48)



Everett, WA PACE Engineering

Monitored By: SubTerra, Inc. 425-888-5425

This Report Generated From www.MyDataView.com on April 24, 2021, 1:12 am



USBM RI8507 And OSMRE



Serial Number BE11440 V 10.72-8.17 MiniMate Plus 01:12:49 April 23, 2021 01:10:01 April 24, 2021 Battery Level 6.9 Volts 5749.00 At 15 seconds Unit Calibration October 6, 2020 by Instantel Intervals Geo 10.00 in/s M440IY5I.1D0H File Name Sample Rate 1024 Sps

Post Event Notes

Extended Notes

Unit LocationI: Everett- M1

Start

Finish

Range

Notes

Client:

Location:

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Created: April 24, 2021 (V - 10.40)



This Report Generated From www.MyDataView.com on April 25, 2021, 1:12 am





Start 01:12:43 April 24, 2021 Serial Number BE11440 V 10.72-8.17 MiniMate Plus Finish 01:10:01 April 25, 2021 Battery Level 7.0 Volts 5750.00 At 15 seconds Intervals Unit Calibration October 6, 2020 by Instantel Geo 10.00 in/s File Name M440IY7C.P70H Range Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering SubTerra, Inc. 425-888-5425 Monitored By: Unit LocationI: Everett- M1 **USBM RI8507 And OSMRE** Extended Notes 10 Tran Vert Long 5 No velocity above 0.04 in/s PPV 0.01000 0.01000 0.01000 in/s ZC Freq >100 >100 >100 Hz Apr 24 /21 Apr 24 /21 Apr 24 /21 Date 2 Time 01:12:58 01:12:58 01:24:58 Sensor Check Passed Passed Passed Velocity (in/s) 1 Peak Vector Sum 0.0150 in/s on April 24, 2021 At 02:25:58 0.5 0.2 0.1 0.05 0.04 20 100 1 Frequency (Hz) Tran: + Vert: × Long: 5 0.0 Long Vert 0.0 Tran 0.0 05:22:43 17:22:43 21:22:43 01:22:43 09:22:43 13:22:43 01:10:01 ADE 24 /21 ADF 24 /21 Apr 24/21 ADT 24 /21 Apr 25 /21 ADF 24 /21 ADT 24 /21

Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 25, 2021 (V - 10.40) Format (c) 2006-2012 Xmark Corporation



This Report Generated From www.MyDataView.com on April 26, 2021, 1:12 am





Start 01:12:52 April 25, 2021 Serial Number BE11440 V 10.72-8.17 MiniMate Plus Finish 01:10:01 April 26, 2021 Battery Level 7.0 Volts 5749.00 At 15 seconds Intervals Unit Calibration October 6, 2020 by Instantel Geo 10.00 in/s File Name M440IY97.DGOH Range Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering SubTerra, Inc. 425-888-5425 Monitored By: Unit LocationI: Everett- M1 **USBM RI8507 And OSMRE** Extended Notes 10 Tran Vert Long 5 No velocity above 0.04 in/s PPV 0.01000 0.01000 0.01000 in/s ZC Freq >100 >100 >100 Hz Apr 25 /21 Apr 25 /21 Apr 25 /21 Date 2 Time 01:13:07 01:13:07 01:16:37 Sensor Check Passed Passed Passed Velocity (in/s) 1 Peak Vector Sum 0.0150 in/s on April 25, 2021 At 01:18:22 0.5 0.2 0.1 0.05 0.04 20 100 1 Frequency (Hz) Tran: + Vert: × Long: 5 0.0 Long Vert 0.0 Tran 0.0 05:22:52 01:22:52 09:22:52 13:22:52 17:22:52 21:22:52 01:10:01 Apr 26 /21 ADT 25 /21 ADT 25 /21 Apr 25 /21 ADT 25 /21 ADT 25 /21 ADT 25 /21

Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 26, 2021 (V - 10.40) Format (c) 2006-2012 Xmark Corporation



This Report Generated From www.MyDataView.com on April 27, 2021, 1:12





am Start 01:12:45 April 26, 2021 Serial Number BE11440 V 10.72-8.17 MiniMate Plus Finish 01:10:01 April 27, 2021 Battery Level 7.0 Volts 5750.00 At 15 seconds October 6, 2020 by Instantel Intervals Unit Calibration Geo 10.00 in/s File Name M440IYB2.190H Range Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering SubTerra, Inc. 425-888-5425 Monitored By: Unit LocationI: Everett- MI Extended Notes **USBM RI8507 And OSMRE** 10 Tran Vert Long 5 PPV 0.0250 0.0400 0.0300 in/s ZC Freq 57 57 73 Hz Date Apr 26 /21 Apr 26 /21 Apr 26 /21 2 Time 08:43:30 08:43:30 08:43:30 Sensor Check Passed Passed Passed Velocity (in/s) 4 Peak Vector Sum 0.0474 in/s on April 26, 2021 At 08:43:30 0.5 0.2 0.1 0.05 0.04 20 100 1 Frequency (Hz) Tran: + Vert: × Long: 5 0.0 Long Vert 0.0 Tran 0.0 01:22:45 05:22:45 09:22:45 13:22:45 17:22:45 21:22:45 01:10:01 Apr 27 /21 Apr 26 /21 Apr 26 /21 Apr 26 /21 Apr 26 /21 ADT 26 /21 ADT 26 /21 Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 27, 2021 (V - 10.48) Format (c) 2006-2012 Xmark Corporation



Everett, WA PACE Engineering

Monitored By: SubTerra, Inc. 425-888-5425

This Report Generated From www.MyDataView.com on April 28, 2021, 1:12 am



USBM RI8507 And OSMRE



01:12:45 April 27, 2021 Serial Number BE11440 V 10.72-8.17 MiniMate Plus 01:10:01 April 28, 2021 Battery Level 6.9 Volts 5750.00 At 15 seconds Unit Calibration October 6, 2020 by Instantel Geo 10.00 in/s M440IYCW.P90H File Name Sample Rate 1024 Sps

Post Event Notes

Extended Notes

Unit LocationI: Everett- M1

Start Finish

Intervals

Range

Notes

Client:

Location:

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Format(c)2006-2012 Xmark Corporation Created: April 28, 2021 (V - 10.40)



This Report Generated From www.MyDataView.com on April 29, 2021, 1:13 am





Start 01:12:52 April 28, 2021 Serial Number BE11440 V 10.72-8.17 MiniMate Plus Finish 01:10:01 April 29, 2021 Battery Level 6.9 Volts 5749.00 At 15 seconds Intervals Unit Calibration October 6, 2020 by Instantel Geo 10.00 in/s File Name M440IYER.DGOH Range Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering SubTerra, Inc. 425-888-5425 Monitored By: Unit LocationI: Everett- M1 **USBM RI8507 And OSMRE** Extended Notes 10 Tran Vert Long 5 No velocity above 0.04 in/s PPV 0.01000 0.0150 0.0150 in/s ZC Freq >100 19 24 Hz Apr 28 /21 Date Apr 28 /21 Apr 28 /21 2 Time 01:13:07 13:35:07 13:36:07 Sensor Check Passed Passed Passed Velocity (in/s) 1 Peak Vector Sum 0.0206 in/s on April 28, 2021 At 13:36:07 0.5 0.2 0.1 0.05 0.04 20 1 Frequency (Hz) Tran: + Vert: × Long: 5 0.0 Long Vert 0.0 Tran 0.0 05:22:52 01:22:52 09:22:52 13:22:52 17:22:52 21:22:52 01:10:01 ADF 28 /21 ADF 25 /21 Apr 28 /21 Apr 28 /21 ADT 28 /21 Apr 28 /21 Apr 29 /21

Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 29, 2021 (V - 10.40)



This Report Generated From www.MyDataView.com on April 30, 2021, 1:12 am





Start 01:13:29 April 29, 2021 Serial Number BE11440 V 10.72-8.17 MiniMate Plus Finish 01:10:01 April 30, 2021 Battery Level 6.9 Volts 5747.00 At 15 seconds Intervals Unit Calibration October 6, 2020 by Instantel Geo 10.00 in/s File Name M440IYGM.2H0H Range Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering SubTerra, Inc. 425-888-5425 Monitored By: Unit LocationI: Everett- M1 **USBM RI8507 And OSMRE** Extended Notes 10 Tran Vert Long 5 No velocity above 0.04 in/s PPV 0.01000 0.0150 0.01000 in/s ZC Freq >100 >100 >100 Hz Apr 29 /21 Apr 29 /21 Apr 29 /21 Date 2 Time 01:13:44 12:51:44 02:30:59 Sensor Check Passed Passed Passed Velocity (in/s) 1 Peak Vector Sum 0.0166 in/s on April 29, 2021 At 12:51:44 0.5 0.2 0.1 0.05 0.04 20 100 1 Frequency (Hz) Tran: + Vert: × Long: 5 0.0 Long Vert 0.0 Tran 0.0 21:23:23 01:23:29 05:23:29 09:23:25 13:23:25 17:23:23 01:10:01 ADE 25 /21 ADF 25 /21 Apr 25 /21 ADT 29 /21 ADT 29 /21 Apr 30 /21 ADT 29 /21

Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 30, 2021 (V - 10.40)



Sample Rate 1024 Sps

Unit LocationI: Everett- M1

01:12:45 April 30, 2021

01:10:01 May 1, 2021

5750.00 At 15 seconds

Geo 10.00 in/s

Everett, WA

PACE Engineering Monitored By: SubTerra, Inc. 425-888-5425

This Report Generated From The World's Most Trusted Vibration Monitors www.MyDataView.com on May 1, 2021, 1:13 am



Serial Number BE11440 V 10.72-8.17 MiniMate Plus Battery Level 6.9 Volts Unit Calibration October 6, 2020 by Instantel M440IYIG.P90H File Name

Post Event Notes

Extended Notes

Start

Finish

Range

Notes

Client:

Location:

Intervals

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Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: Ma; 1, 2021 (V - 10.40)

Format (c) 2006-2012 Xmark Corporation

USBM RI8507 And OSMRE



This Report Generated From The World's Most Trusted Vibration Monitors www.MyDataView.com on May 2, 2021, 1:12 am





Start 01:13:31 May 1, 2021 Serial Number BE11440 V 10.72-8.17 MiniMate Plus Finish 01:10:01 May 2, 2021 Battery Level 6.9 Volts 5746.00 At 15 seconds Unit Calibration October 6, 2020 by Instantel Intervals Geo 10.00 in/s M440IYKB.EJOH Range File Name Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering SubTerra, Inc. 425-888-5425 Monitored By: Unit LocationI: Everett- M1 Extended Notes USBM RI8507 And OSMRE 10 ++++ Tran Vert Long No velocity above 0.04 in/s 5 PPV 0.01000 0.01000 0.01000 in/s ZC Freq >100 >100 >100 Hz Date May 1 /21 May 1 /21 May 1/21 2 Time 01:13:46 01:13:46 02:14:16 Sensor Check Passed Passed Passed Velocity (in/s) 1 Peak Vector Sum 0.0150 in/s on May 1, 2021 At 02:03:48 0.5 0.2 0.1 0.05 0.04 4 20 Frequency (Hz) Tran: + Vert: × Long: s Long 0.0 Vert 0.0 Tran 0.0 01:23:31 05:23:31 09:23:31 13:23:31 17:23:31 21:23:31 01:10:01 Ma; 1/21 Ma; 1/21 Ma; 1/21 Ma; 1/21 Ma; 2 /21 Ma; 1/21 Ma; 1/21

Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: Ma; 2, 2021 (V = 10.40) Format (c) 2006-2012 Xmark Corporation



This Report Generated From The World's Most Trusted Vibration Monitors www.MyDataView.com on May 3, 2021, 1:12 am





01:12:50 May 2, 2021 Start Serial Number BE11440 V 10.72-8.17 MiniMate Plus Finish 01:10:01 May 3, 2021 Battery Level 7.0 Volts 5749.00 At 15 seconds October 6, 2020 by Instantel Intervals Unit Calibration Geo 10.00 in/s M440IYM6.1E0H Range File Name Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering SubTerra, Inc. 425-888-5425 Monitored By: Unit LocationI: Everett- M1 Extended Notes USBM RI8507 And OSMRE 10 1111 Tran Vert Long No velocity above 0.04 in/s 5 PPV 0.01000 0.01000 0.01000 in/s ZC Freq >100 >100 >100 Hz May 2 /21 Date May 2 /21 May 2 /21 2 Time 01:13:05 01:13:05 01:16:35 Sensor Check Passed Passed Passed Velocity (in/s) 1 Peak Vector Sum 0.0150 in/s on May 2, 2021 At 01:17:50 0.5 0.2 0.1 0.05 0.04 4 20 Frequency (Hz) Tran: + Vert: × Long: s Long 0.0 Vert 0.0 Tran 0.0 01:22:50 05:22:50 09:22:50 13:22:50 17:22:50 21:22:50 01:10:01 Ma; 2 /21 Ma; 2 /21 Ma; 2 /21 Ma; 2 /21 Ma; 3 /21 Ma; 2 /21 Ma; 2 /21

Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: Ma; 3, 2021 (V - 10.40)



This Report Generated From The World's Most Trusted Vibration Monitors www.MyDataView.com on May 4, 2021, 1:12 am



01:12:44 May 3, 2021 Start Serial Number BE11440 V 10.72-8.17 MiniMate Plus Finish 01:10:01 May 4, 2021 Battery Level 6.9 Volts 5750.00 At 15 seconds Unit Calibration October 6, 2020 by Instantel Intervals Geo 10.00 in/s M440IY00.P80H Range File Name Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering SubTerra, Inc. 425-888-5425 Monitored By: Unit LocationI: Everett- M1 Extended Notes USBM RI8507 And OSMRE 10 1111 Tran Vert Long No velocity above 0.04 in/s 5 PPV 0.01000 0.01000 0.01000 in/s ZC Freq >100 >100 >100 Hz May 3 /21 Date May 3 /21 May 3 /21 2 Time 01:12:59 01:12:59 02:14:14 Sensor Check Passed Passed Passed Velocity (in/s) 1 Peak Vector Sum 0.0150 in/s on May 3, 2021 At 01:27:14 0.5 0.2 0.1 0.05 0.04 4 20 Frequency (Hz) Tran: + Vert: × Long: s Long 0.0 Vert 0.0 Tran 0.0 01:22:44 05:22:44 09:22:44 13:22:44 17:22:44 21:22:44 01:10:01 Ma; 3 /21 Ma; 4/21

Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: May 4, 2021 (V - 10.40)



01:12:48 May 4, 2021

01:10:01 May 5, 2021

5749.00 At 15 seconds

Geo 10.00 in/s

PACE Engineering SubTerra, Inc. 425-888-5425

1024 Sps

Everett, WA

Everett- M1

This Report Generated From The World's Most Trusted Vibration Monitors www.MyDataView.com on May 5, 2021, 1:12 am



Serial Number BE11440 V 10.72-8.17 MiniMate Plus Battery Level 7.0 Volts October 6, 2020 by Instantel Unit Calibration M440IYPV.DCOH

USBM RI8507 And OSMRE

Post Event Notes

File Name

Extended Notes

Start

Finish

Range

Notes

Client:

Location:

Intervals

Sample Rate

Monitored By: Unit LocationI:

10 1111 Tran Vert Long No velocity above 0.04 in/s 5 PPV 0.01000 0.01000 0.01000 in/s ZC Freq >100 >100 >100 Hz May 4 /21 May 4 /21 May 4/21 Date 2 Time 01:13:03 01:13:03 02:01:48 Sensor Check Passed Passed Passed Velocity (in/s) 1 Peak Vector Sum 0.0150 in/s on May 4, 2021 At 02:15:48 0.5 0.2 0.1 0.05 0.04 4 20 Frequency (Hz) Tran: + Vert: × Long: s Long 0.0 Vert 0.0 Tran 0.0 01:22:48 05:22:48 09:22:45 13:22:48 17:22:48 21:22:45 01:10:01 Ma; 4/21 Ma; 4/21 Ma; 4/21 Ma; 4/21 Ma; 4/21 Ma; 4/21 Ma; 5 /21

Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Format (c) 2006-2012 Xmark Corporation Created: Ma; 5, 2021 (V - 10.40)



This Report Generated From The World's Most Trusted Vibration Monitors www.MyDataView.com on May 6, 2021, 1:12 am



01:12:52 May 5, 2021 Start Serial Number BE11440 V 10.72-8.17 MiniMate Plus Finish 01:10:01 May 6, 2021 Battery Level 6.9 Volts 5749.00 At 15 seconds October 6, 2020 by Instantel Intervals Unit Calibration Geo 10.00 in/s File Name M440IYRQ.1G0H Range Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering SubTerra, Inc. 425-888-5425 Monitored By: Unit LocationI: Everett- M1 Extended Notes USBM RI8507 And OSMRE 10 1111 Tran Vert Long No velocity above 0.04 in/s 5 PPV 0.0150 0.0150 0.01000 in/s ZC Freq >100 >100 Hz 18 May 5 /21 May 5 /21 Date May 5 /21 2 Time 11:38:22 05:46:07 01:17:07 Sensor Check Passed Passed Passed Velocity (in/s) 1 Peak Vector Sum 0.0187 in/s on May 5, 2021 At 14:46:52 0.5 0.2 0.1 0.05 0.04 4 20 Frequency (Hz) Tran: + Vert: × Long: s Long 0.0 Vert 0.0 Tran 0.0 01:22:52 05:22:52 09:22:52 13:22:52 17:22:52 21:22:52 01:10:01 Ma; 5 /21 183; 5 /21 Ma; 6 /21

Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: Ma; 6, 2021 (V - 10.40)



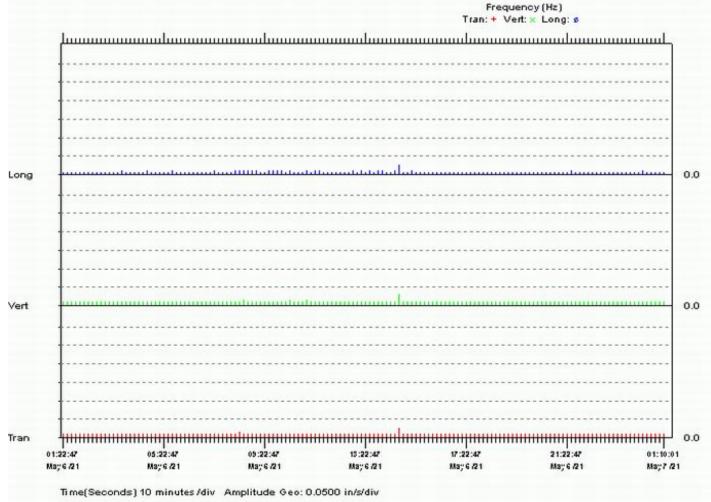
This Report Generated From The World's Most Trusted Vibration Monitors www.MyDataView.com on May 7, 2021, 1:12 am





1

Start 01:12:47 May 6, 2021 Serial Number BE11440 V 10.72-8.17 MiniMate Plus Finish 01:10:01 May 7, 2021 Battery Level 6.9 Volts 5749.00 At 15 seconds Intervals Unit Calibration October 6, 2020 by Instantel Geo 10.00 in/s M440IYTK.PB0H Range File Name Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering SubTerra, Inc. 425-888-5425 Monitored By: Unit LocationI: Everett- M1 Extended Notes USBM RI8507 And OSMRE 10 Tran Vert Long No velocity above 0.04 in/s 5 PPV 0.0250 0.0300 0.0250 in/s ZC Freq 15 Hz 18 18 Date May 6 /21 May 6 /21 May 6 /21 2 Time 14:34:02 14:34:02 14:34:02 Sensor Check Passed Passed Passed Velocity (in/s) 1 Peak Vector Sum 0.0357 in/s on May 6, 2021 At 14:34:02 0.5 0.2 0.1 0.05 0.04 20



Created: Ma;7, 2021 (V - 10.40)



Everett, WA

PACE Engineering Monitored By: SubTerra, Inc. 425-888-5425

This Report Generated From The World's Most Trusted Vibration Monitors www.MyDataView.com on May 8, 2021, 1:12 am



USBM RI8507 And OSMRE



01:12:50 May 7, 2021 Serial Number BE11440 V 10.72-8.17 MiniMate Plus Battery Level 6.9 Volts 01:10:01 May 8, 2021 5749.00 At 15 seconds Unit Calibration October 6, 2020 by Instantel Geo 10.00 in/s M440IYVF.DEOH File Name Sample Rate 1024 Sps

Post Event Notes

Extended Notes

Unit LocationI: Everett- MI

Start

Finish

Range

Notes

Client:

Location:

Intervals

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Time(Seconds) 10 minutes /div Format (c) 2006-2012 Xmark Corporation

Created: Ma; 5, 2021 (V - 10.40)



01:12:49 May 8, 2021

01:10:01 May 9, 2021

5749.00 At 15 seconds

Geo 10.00 in/s

PACE Engineering SubTerra, Inc. 425-888-5425

1024 Sps

Everett, WA

This Report Generated From The World's Most Trusted Vibration Monitors www.MyDataView.com on May 9, 2021, 1:12 am



Serial Number BE11440 V 10.72-8.17 MiniMate Plus Battery Level 7.0 Volts

October 6, 2020 by Instantel Unit Calibration M440IYXA.1DOH

Post Event Notes

File Name

Unit LocationI: Everett- M1

Start

Finish

Range

Notes

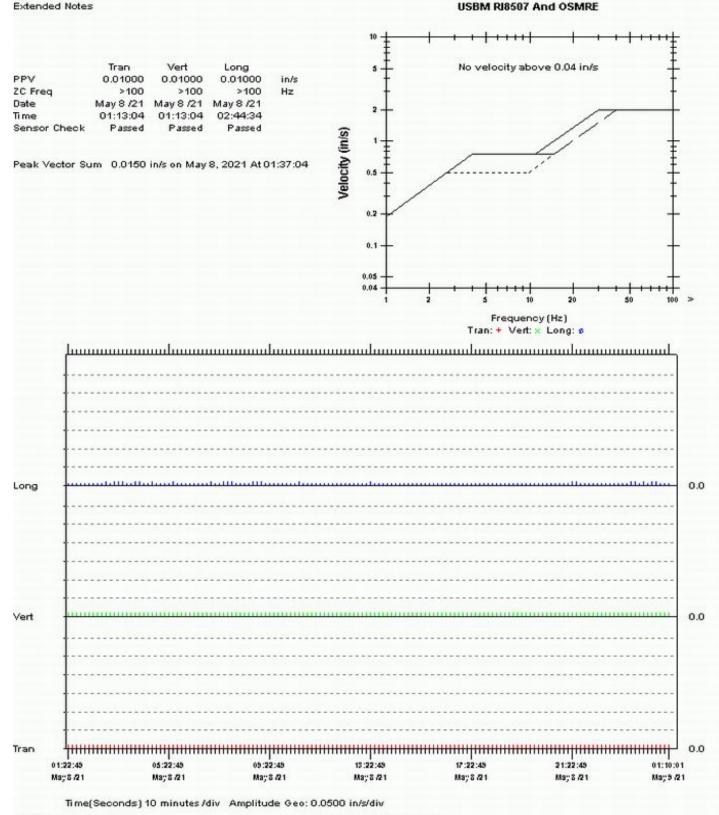
Client:

Location:

Intervals

Sample Rate

Monitored By:



Format (c) 2006-2012 Xmark Corporation Created: Ma; 5, 2021 (V - 10.40)



This Report Generated From www.MyDataView.com on May 10, 2021, 1:12 am



Start 01:12:47 May 9, 2021 Serial Number BE11440 V 10.72-8.17 MiniMate Plus Finish 01:10:01 May 10, 2021 Battery Level 6.9 Volts 5749.00 At 15 seconds October 6, 2020 by Instantel Intervals Unit Calibration Geo 10.00 in/s M440IYZ4.PBOH Range File Name Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering SubTerra, Inc. 425-888-5425 Monitored By: Unit LocationI: Everett- M1 Extended Notes USBM RI8507 And OSMRE 10 1111 Tran Vert Long No velocity above 0.04 in/s 5 PPV 0.0150 0.0150 0.01000 in/s ZC Freq >100 >100 >100 Hz May 9 /21 May 9 /21 May 9 /21 Date 2 Time 20:44:32 04:06:02 01:20:02 Sensor Check Passed Passed Passed Velocity (in/s) 1 Peak Vector Sum 0.0158 in/s on May 9, 2021 At 04:06:02 0.5 0.2 0.1 0.05 0.04 4 20 Frequency (Hz) Tran: + Vert: × Long: s Long 0.0 Vert 0.0

Tran 0.0 01:22:47 05:22:47 09:22:47 13:22:47 17:22:47 21:22:47 01:10:01 Ma; 5 /21 Ma; 5 /21 Ma; 9 /21 Ma; 9 /21 Ma; 10 /21 Ma; 9 /21 Ma; 9 /21

Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: Ma; 10, 2021 (V - 10.40)

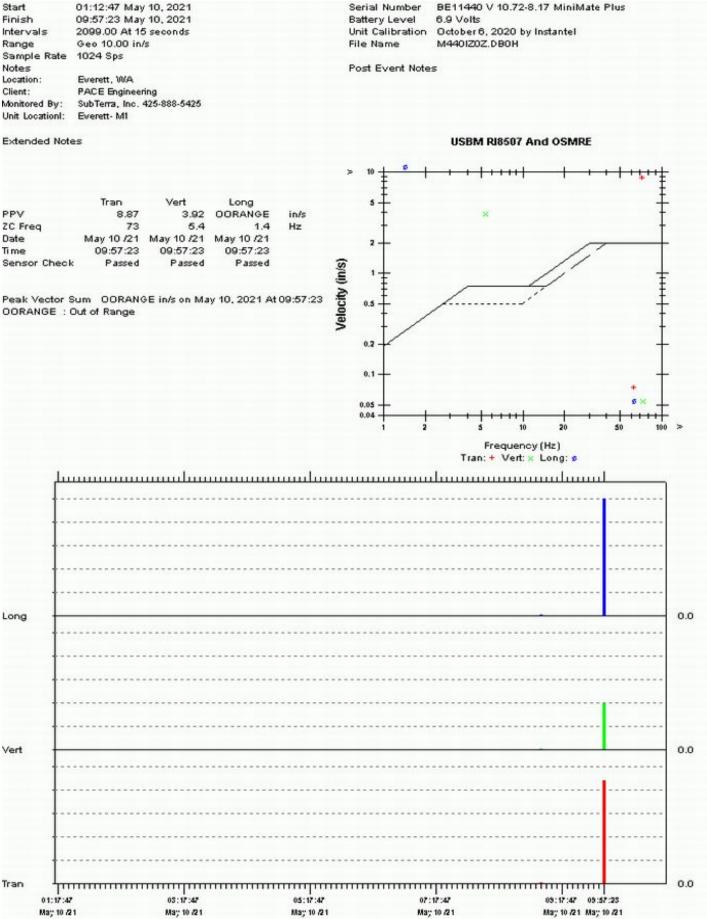


This Report Generated From





The World's Most Trusted Vibration Monitors www.MyDataView.com on May 10, 2021, 10:00 am



Time(Seconds) 5 minutes /div Amplitude Geo: 2.00 in/s/div

Created: Ma; 10, 2021 (V - 10.40)



This Report Generated From





The World's Most Trusted Vibration Monitors www.MyDataView.com on May 10, 2021, 10:00 am

Date/Time Long At 09:57:19 May 10, 2021 Trigger Source Geo: 0.500 in/s Geo: 10.00 in/s Range 4.0 sec. At 1024 Sps Sample Rate Notes Location: Everett, WA Client: PACE Engineering Monitored By: SubTerra, Inc. 425-888-5425

Serial Number BE11440 V 10.72-8.17 MiniMate Plus Battery Level 6.9 Volts October 6, 2020 by Instantel Unit Calibration File Name M440IZ1N.NJOW Post Event Notes

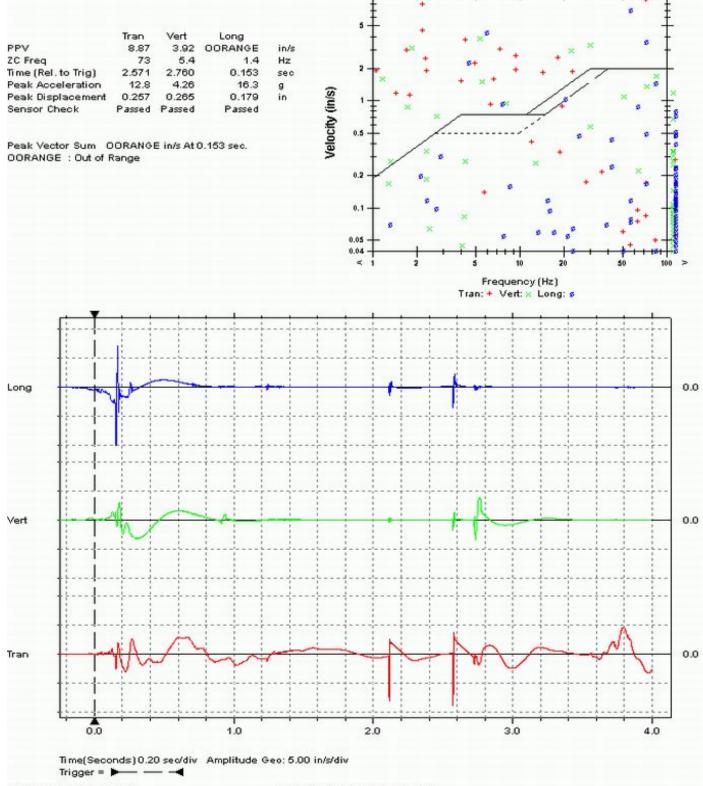
Extended Notes

Unit LocationI:

Combo Mode May 10, 2021 01:12:48

Everett- M1

USBM RI8507 And OSMRE



10

Created: Ma; 10, 2021 (V - 10.40)



This Report Generated From www.MyDataView.com on May 11, 2021, 1:12 am





Start 10:00:28 May 10, 2021 Serial Number BE11440 V 10.72-8.17 MiniMate Plus Finish 01:10:01 May 11, 2021 Battery Level 7.0 Volts 3639.00 At 15 seconds October 6, 2020 by Instantel Intervals Unit Calibration Geo 10.00 in/s M440IZ1N.SSOH Range File Name Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering SubTerra, Inc. 425-888-5425 Monitored By: Unit LocationI: Everett- M1 Extended Notes **USBM RI8507 And OSMRE** 10 Tran Vert Long 5 PPV 0.0750 0.0550 0.01000 in/s ZC Freq 43 57 >100 Hz May 10 /21 May 10 /21 Date May 10 /21 2 Time 14:21:43 10:01:58 12:10:13 Sensor Check Passed Check Check Velocity (in/s) 4 Peak Vector Sum 0.0834 in/s on May 10, 2021 At 14:21:43 0.5 0.2 0.1 0.05 0.04 20 5 Frequency (Hz) Tran: + Vert: × Long: s 0.0 Long Vert 0.0 Tran 0.0 00:05:25 01:10:01 10:05:28 12:05:28 14:05:25 16:05:28 18:05:28 20:05:28 22:05:28 183; 10 /21 Ma; 10 /21 Ma;; 10 /21 Ma; 10 /21 Ma; 10 /21 Ma; 11/21 Ma; 11/21 Ma; 10 /21 Ma; 10 /21

Time(Seconds)5 minutes/div Amplitude Geo: 0.0500 in/s/div

Created: May 11, 2021 (V - 10.40)

Page 1/1



Everett, WA

PACE Engineering Monitored By: SubTerra, Inc. 425-888-5425

This Report Generated From www.MyDataView.com on May 12, 2021, 1:14 am



USBM RI8507 And OSMRE



Serial Number BE11440 V 10.72-8.17 MiniMate Plus 01:12:25 May 11, 2021 01:10:01 May 12, 2021 Battery Level 6.9 Volts 5751.00 At 15 seconds Unit Calibration October 6, 2020 by Instantel Geo 10.00 in/s M440IZ2U.0P0H File Name Sample Rate 1024 Sps

Post Event Notes

Extended Notes

Unit LocationI: Everett- M1

Start

Finish

Range

Notes

Client:

Location:

Intervals

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Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: Ma; 12, 2021 (V - 10.40)



This Report Generated From www.MyDataView.com on May 13, 2021, 1:12 am





Serial Number BE11440 V 10.72-8.17 MiniMate Plus Start 01:15:01 May 12, 2021 Finish 01:10:01 May 13, 2021 Battery Level 6.9 Volts 5740.00 At 15 seconds Unit Calibration October 6, 2020 by Instantel Intervals Geo 10.00 in/s M440IZ40.T10H Range File Name Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering Monitored By: SubTerra, Inc. 425-888-5425 Unit LocationI: Everett- M1 **USBM RI8507 And OSMRE** Extended Notes

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Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: May 15, 2021 (W - 10.40) Format (c) 2006-2012 Xmark Corporation



This Report Generated From www.MyDataView.com on May 14, 2021, 1:12





am Start 01:12:50 May 13, 2021 Serial Number BE11440 V 10.72-8.17 MiniMate Plus Finish 01:10:01 May 14, 2021 Battery Level 6.9 Volts 5749.00 At 15 seconds October 6, 2020 by Instantel Intervals Unit Calibration Geo 10.00 in/s M440IZ6J.DEOH File Name Range Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering SubTerra, Inc. 425-888-5425 Monitored By: Unit LocationI: Everett- M1 **USBM RI8507 And OSMRE** Extended Notes 10 Tran Vert Long 5 No velocity above 0.04 in/s PPV 0.0150 0.0200 0.01000 in/s ZC Freq 16 >100 Hz 51 May 13 /21 May 13 /21 Date May 13 /21 2 Time 08:22:20 08:22:50 02:33:50 Sensor Check Passed Check Check Velocity (in/s) 1 Peak Vector Sum 0.0212 in/s on May 13, 2021 At 08:22:50 0.5 0.2 0.1 0.05 0.04 20 1 Frequency (Hz) Tran: + Vert: × Long: 5 0.0 Long Vert 0.0 Tran 0.0 01:22:50 05:22:50 09:22:50 13:22:50 17:22:50 21:22:50 01:10:01 Ma; 13 /21 183; 13 /21 Ma; 14 /21

Time(Seconds) 10 minutes/div Amplitude Geo: 0.0500 in/s/div

Created: Ma; 14, 2021 (V - 10.40)



This Report Generated From www.MyDataView.com on May 15, 2021, 1:12



am Start 01:12:44 May 14, 2021 Serial Number BE11440 V 10.72-8.17 MiniMate Plus Finish 01:10:01 May 15, 2021 Battery Level 6.9 Volts 5750.00 At 15 seconds Unit Calibration October 6, 2020 by Instantel Intervals Geo 10.00 in/s M440IZ8E.180H File Name Range Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering Monitored By: SubTerra, Inc. 425-888-5425 Unit LocationI: Everett- MI Extended Notes **USBM RI8507 And OSMRE** 10 Tran Vert Long 5 PPV 0.105 0.185 0.0850 in/s ZC Freq >100 73 73 Hz May 14 /21 Date May 14/21 May 14/21 2 Time 12:37:44 12:37:44 12:37:44 Sensor Check Passed Check Check Velocity (in/s) 4 Peak Vector Sum 0.188 in/s on May 14, 2021 At 12:42:14 0.5 0.2 0.1 0.05 0.04 20 Frequency (Hz) Tran: + Vert: × Long: 5 Long 0.0 Vert 0.0



Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: Ma; 15, 2021 (V - 10.40)



Everett, WA PACE Engineering

Monitored By: SubTerra, Inc. 425-888-5425

This Report Generated From www.MyDataView.com on May 16, 2021, 1:14 am



USBM RI8507 And OSMRE



01:12:48 May 15, 2021 Serial Number BE11440 V 10.72-8.17 MiniMate Plus 01:10:01 May 16, 2021 Battery Level 6.9 Volts 5749.00 At 15 seconds Unit Calibration October 6, 2020 by Instantel Geo 10.00 in/s M440IZAS.PCOH File Name Sample Rate 1024 Sps

Post Event Notes

Extended Notes

Unit LocationI: Everett- M1

Start Finish

Intervals

Range

Notes

Client:

Location:

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Created: May 16, 2021 (V - 10.40)



This Report Generated From www.MyDataView.com on May 17, 2021, 1:12 am



Start 01:14:26 May 16, 2021 Serial Number BE11440 V 10.72-8.17 MiniMate Plus Finish 01:10:01 May 17, 2021 Battery Level 6.9 Volts 5743.00 At 15 seconds October 6, 2020 by Instantel Intervals Unit Calibration Geo 10.00 in/s File Name M440IZC3.020H Range Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering SubTerra, Inc. 425-888-5425 Monitored By: Unit LocationI: Everett- M1 **USBM RI8507 And OSMRE** Extended Notes 10 Tran Vert Long 5 No velocity above 0.04 in/s PPV 0.01000 0.01000 0.01000 in/s ZC Freq >100 >100 >100 Hz May 16 /21 May 16 /21 May 16 /21 Date 2 Time 01:14:41 01:14:41 05:27:41 Sensor Check Passed Check Check Velocity (in/s) 1 Peak Vector Sum 0.0150 in/s on May 16, 2021 At 01:32:26 0.5 0.2 0.1 0.05 0.04 20 1 Frequency (Hz) Tran: + Vert: × Long: 5 0.0 Long Vert 0.0 Tran 0.0 01:24:26 05:24:26 09:24:26 13:24:26 17:24:26 21:24:26 01:10:01 Ma;; 16 /21 Ma; 16 /21 Ma; 16 /21 183; 16 /21 Ma; 16 /21 Ma; 16 /21 Ma; 17 /21

Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: Ma; 17, 2021 (V - 10.40)



This Report Generated From www.MyDataView.com on May 17, 2021, 1:34 pm





Start 01:12:43 May 17, 2021 Serial Number BE11440 V 10.72-8.17 MiniMate Plus Finish 13:31:15 May 17, 2021 Battery Level 6.9 Volts Intervals 2954.00 At 15 seconds Unit Calibration October 6, 2020 by Instantel Geo 10.00 in/s M440IZDY.170H Range File Name Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering SubTerra, Inc. 425-888-5425 Monitored By: Unit LocationI: Everett- M1 **USBM RI8507 And OSMRE** Extended Notes 10 Tran Vert Long 5 No velocity above 0.04 in/s PPV 0.0200 0.0300 0.0150 in/s ZC Freq 85 85 >100 Hz May 17 /21 May 17 /21 May 17 /21 Date 2 Time 13:30:28 13:30:28 13:30:28 Sensor Check Passed Check Check Velocity (in/s) 1 Peak Vector Sum 0.0304 in/s on May 17, 2021 At 13:30:28 0.5 0.2 0.1 0.05 0.04 20 1 Frequency (Hz) Tran: + Vert: × Long: s 0.0 Long Vert 0.0 Tran 0.0 07:17:43 01:17:43 03:17:43 05:17:43 09:17:43 11:17:43 13:17:43 Ma; 17 /21 Ma; 17 /21 Ma; 17 /21 Ma; 17 /21 183; 17 /21 Ma; 17 /21 Ma; 17 /21

Time(Seconds) 5 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: Ma; 17, 2021 (V - 10.40)

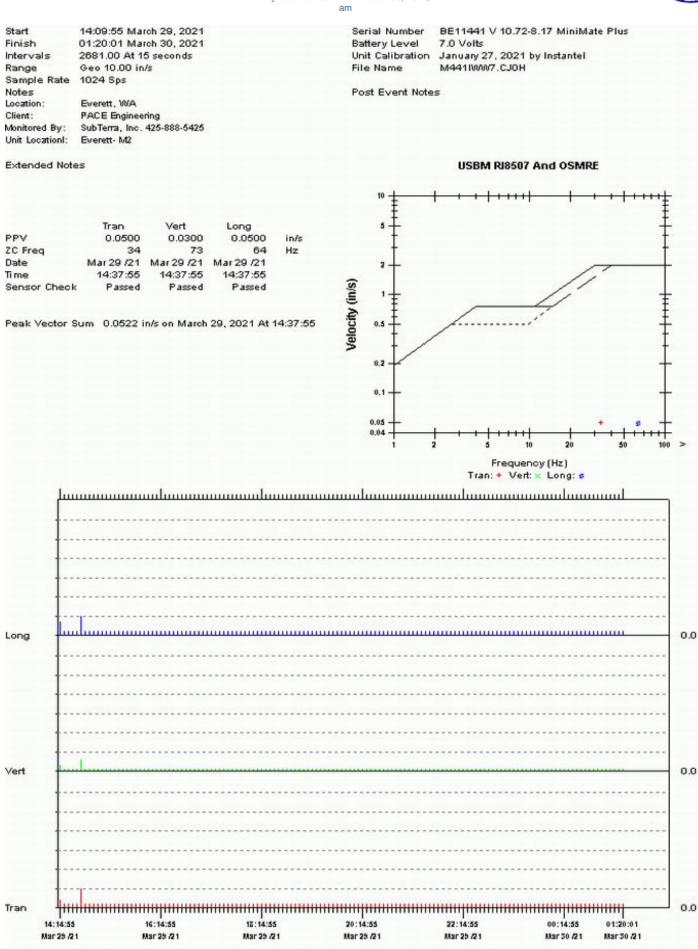
Page 1/1



This Report Generated From The World's Most Trusted Vibration Monitors www.MyDataView.com on March 30, 2021, 1:22



on Support



Time(Seconds)5 minutes/div Amplitude Geo: 0.0500 in/s/div

Created: March 30, 2021 (V - 10.40)

Page 1/1



01:22:45 March 31, 2021

SubTerra, Inc. 425-888-5425

01:20:01 April 1, 2021

5750.00 At 15 seconds

Geo 10.00 in/s

PACE Engineering

1024 Sps

Everett, WA

Everett- M2

Tran

0.0650

Start

Finish

Range Sample Rate

Notes

Client:

PPV

Location:

Monitored By:

Unit LocationI:

Extended Notes

Intervals

This Report Generated From www.MyDataView.com on April 1, 2021, 1:22 am



World Class Instrumentation Support

am

Serial Number BE11441 V 10.72-8.17 MiniMate Plus Battery Level 7.0 Volts Unit Calibration January 27, 2021 by Instantel M44110/YX.5X0H File Name Post Event Notes **USBM RI8507 And OSMRE** 10 Long 5 0.115 in/s 24 Hz

 ZC Freq
 9.7
 12
 24
 Hz

 Date
 Mar 31 /21
 Mar 31 /21
 Mar 31 /21

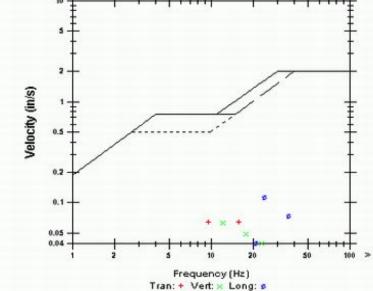
 Time
 17:56:00
 17:56:00
 17:57:16

 Sensor Check
 Passed
 Passed
 Passed

Vert

0.0650

Peak Vector Sum 0.126 in/s on March 31, 2021 At 17:57:15



Long 0.0 Vert 0.0 Tran 0.0 05:32:45 17:32:45 21:32:45 01:32:45 09:32:45 13:32:45 01:20:01 Mar 31/21 Mar 31/21 Mar 31/21 Mar 31/21 Mar \$1/21 Mar \$1/21 Apr 1/21 Time(Seconds) 10 minutes/div Amplitude Geo: 0.0500 in/s/div

Created: April 1, 2021 (V - 10.40)



01:22:44 April 1, 2021

01:20:01 April 2, 2021

5750.00 At 15 seconds

This Report Generated From www.MyDataView.com on April 2, 2021, 1:22 am





Serial Number BE11441 V 10.72-8.17 MiniMate Plus Battery Level 7.0 Volts

File Name

Unit Calibration January 27, 2021 by Instantel M441IXOR.TWOH

USBM RI8507 And OSMRE

Post Event Notes

Geo 10.00 in/s Range Sample Rate 1024 Sps Notes Location: Everett, WA Client: PACE Engineering Monitored By: SubTerra, Inc. 425-888-5425 Unit LocationI: Everett- M2

Extended Notes

Start

Finish

Intervals

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Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 2, 2021 (V - 10.40) Format (c) 2006-2012 Xmark Corporation



This Report Generated From www.MyDataView.com on April 3, 2021, 1:24 am



Serial Number BE11441 V 10.72-8.17 MiniMate Plus

M441IX2M.HVOH

Unit Calibration January 27, 2021 by Instantel

Battery Level 7.0 Volts

File Name

Post Event Notes

Start 01:22:43 April 2, 2021 Finish 01:20:01 April 3, 2021 5750.00 At 15 seconds Intervals Geo 10.00 in/s Range Sample Rate 1024 Sps Notes Location: Everett, WA Client: PACE Engineering Monitored By: SubTerra, Inc. 425-888-5425 Unit LocationI: Everett- M2

PPV Tran Vert Long in/s CFreq 3.1 ± 100 17 Hz Date Apr2.21 Apr2.21 Apr2.21 apr2.21 apr3.22 Apr2.21 4 11:07:13 100:0589 Bansor Check Passed	Tran Vert Long 0.0000 0.01000 0.0200 indicate Apr.2.21 Apr.2.21 Apr.2.21 Apr.2.21 Apr.2.21 1107.11 102.143 1356.58 Indicate Indicate Indicate Check Passed Passed Passed Passed Indicate In		led Note:	5						USBM RI85	07 And OSMRE	
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Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 3, 2021 (V - 10.48) Format (c) 2006-2012 Xmark Corporation



Geo 10.00 in/s

Everett, WA PACE Engineering

Monitored By: SubTerra, Inc. 425-888-5425

This Report Generated From www.MyDataView.com on April 4, 2021, 1:23 am



USBM RI8507 And OSMRE



Serial Number BE11441 V 10.72-8.17 MiniMate Plus 01:23:56 April 3, 2021 01:20:01 April 4, 2021 Battery Level 7.0 Volts Unit Calibration January 27, 2021 by Instantel File Name M4411X4H.7W0H 5745.00 At 15 seconds

Post Event Notes

Unit LocationI: Everett- M2

Start

Finish

Range

Notes

Client:

Location:

Intervals

Extended Notes

Sample Rate 1024 Sps

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Created: April 4, 2021 (V - 10.48) Format (c) 2006-2012 Xmark Corporation



Everett, WA PACE Engineering

Monitored By: SubTerra, Inc. 425-888-5425

This Report Generated From www.MyDataView.com on April 5, 2021, 1:22 am



USBM RI8507 And OSMRE



 01:23:22 April 4, 2021
 Serial Number
 BE11441 V 10.72-8.17 MiniMate Plus

 01:20:01 April 5, 2021
 Battery Level
 7.0 Volts

 5747.00 At 15 seconds
 Unit Calibration
 January 27, 2021 by Instantel

 Geo 10.00 in/s
 File Name
 M441IX6B.UY0H

 1024 Sps
 Seconds
 Seconds

Post Event Notes

Extended Notes

Sample Rate 1024 Sps

Unit LocationI: Everett- M2

Start

Finish

Range

Notes

Client:

Location:

Intervals

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Created: April 5, 2021 (V - 10.40) Format (c) 2006-2012 Xmark Corporation



Geo 10.00 in/s

Everett, WA PACE Engineering

Monitored By: SubTerra, Inc. 425-888-5425

This Report Generated From www.MyDataView.com on April 6, 2021, 1:22 am



USBM RI8507 And OSMRE



01:22:46 April 5, 2021 Serial Number BE11441 V 10.72-8.17 MiniMate Plus 01:20:01 April 6, 2021 Battery Level 7.0 Volts 5749.00 At 15 seconds Unit Calibration January 27, 2021 by Instantel M4411X86.HYOH File Name

Post Event Notes

Extended Notes

Sample Rate 1024 Sps

Unit LocationI: Everett- M2

Start Finish

Range

Notes

Client:

Location:

Intervals

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Created: April 6, 2021 (V - 10.40)



01:22:44 April 6, 2021

Geo 10.00 in/s

Everett, WA PACE Engineering

Monitored By: SubTerra, Inc. 425-888-5425

01:20:01 April 7, 2021

5750.00 At 15 seconds

This Report Generated From www.MyDataView.com on April 7, 2021, 1:22 am



USBM RI8507 And OSMRE



Serial Number BE11441 V 10.72-8.17 MiniMate Plus Battery Level 7.0 Volts Unit Calibration January 27, 2021 by Instantel File Name M441IXA1.5W0H

Post Event Notes

Extended Notes

Sample Rate 1024 Sps

Unit LocationI: Everett- M2

Start Finish

Intervals

Range

Notes

Client:

Location:

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	Tran	Vert	Long		5 -		No veloci	ty above	0.04 in/s		Ŧ
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ne	14:17:44		11:15:29						1		
nsor Check	Passed	Passed	Passed		(s)				//		
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eak Vector S	um 0.0226	9 in/s on Ap	ril 6, 2021 A	t 11:15:29	Velocity (in/s)	/	/		-		+
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Created: April 7, 2021 (V - 10.40) Format (c) 2006-2012 Xmark Corporation



Everett, WA PACE Engineering

Monitored By: SubTerra, Inc. 425-888-5425

This Report Generated From www.MyDataView.com on April 8, 2021, 1:22 am





Serial Number BE11441 V 10.72-8.17 MiniMate Plus 01:22:46 April 7, 2021 01:20:01 April 8, 2021 Battery Level 7.0 Volts Unit Calibration January 27, 2021 by Instantel File Name M4411XBV.TYOH 5749.00 At 15 seconds Geo 10.00 in/s

Post Event Notes

Sample Rate 1024 Sps

Unit LocationI: Everett- M2

Created: April 5, 2021 (V - 10.40)

Start

Finish

Range

Notes

Client:

Location:

Intervals

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This Report Generated From www.MyDataView.com on April 9, 2021, 1:22 am





Serial Number BE11441 V 10.72-8.17 MiniMate Plus 01:22:41 April 8, 2021 01:20:01 April 9, 2021 Battery Level 7.0 Volts 5750.00 At 15 seconds Unit Calibration January 27, 2021 by Instantel Geo 10.00 in/s M441IXDQ.HTOH File Name Sample Rate 1024 Sps Post Event Notes

Notes Location: Everett, WA Client: PACE Engineering Monitored By: SubTerra, Inc. 425-888-5425 Unit LocationI: Everett- M2

Extended Notes

Start

Finish

Range

Intervals

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Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 5, 2021 (V - 10.40)

Format(c) 2006-2012 Xmark Corporation

USBM RI8507 And OSMRE



This Report Generated From www.MyDataView.com on April 10, 2021, 1:22 am



USBM RI8507 And OSMRE



Serial Number BE11441 V 10.72-8.17 MiniMate Plus 01:22:47 April 9, 2021 01:20:01 April 10, 2021 Battery Level 7.0 Volts 5749.00 At 15 seconds Unit Calibration January 27, 2021 by Instantel Geo 10.00 in/s M441IXFL.5Z0H File Name Sample Rate 1024 Sps Post Event Notes

Notes Location: Everett, WA PACE Engineering Client: Monitored By: SubTerra, Inc. 425-888-5425 Unit LocationI: Everett- M2

Extended Notes

Start

Finish

Range

Intervals

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Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 10, 2021 (V - 10.48) Format (c) 2006-2012 Xmark Corporation



This Report Generated From www.MyDataView.com on April 11, 2021, 1:22 am





Serial Number BE11441 V 10.72-8.17 MiniMate Plus Start 01:22:50 April 10, 2021 Finish 01:20:01 April 11, 2021 Battery Level 7.0 Volts Unit Calibration January 27, 2021 by Instantel File Name M4411XHF.U20H 5749.00 At 15 seconds Intervals Geo 10.00 in/s Range Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA PACE Engineering Client: Monitored By: SubTerra, Inc. 425-888-5425 Unit LocationI: Everett- M2 **USBM RI8507 And OSMRE** Extended Notes

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Created: April 11, 2021 (V - 10.49) Format (c) 2006-2012 Xmark Corporation



This Report Generated From www.MyDataView.com on April 12, 2021, 1:23 am





01:22:48 April 11, 2021 Start Serial Number BE11441 V 10.72-8.17 MiniMate Plus Finish 01:20:01 April 12, 2021 Battery Level 7.0 Volts 5749.00 At 15 seconds Intervals Unit Calibration January 27, 2021 by Instantel Geo 10.00 in/s M441IXJA.HYOH File Name Range Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering SubTerra, Inc. 425-888-5425 Monitored By: Unit LocationI: Everett- M2 **USBM RI8507 And OSMRE** Extended Notes 10 Tran Vert Long 5 No velocity above 0.04 in/s PPV 0.01000 0.01000 0.01000 in/s ZC Freq >100 >100 >100 Hz Apr 11 /21 Date Apr 11 /21 Apr 11 /21 2 Time 01:23:01 02:53:01 01:23:01 Sensor Check Passed Passed Passed Velocity (in/s) 1 Peak Vector Sum 0.0150 in/s on April 11, 2021 At 01:29:01 0.5 0.2 0.1 0.05 0.04 20 100 1 Frequency (Hz) Tran: + Vert: × Long: 5 Long 0.0 Vert 0.0 Tran 0.0 21:32:46 01:32:46 05:32:46 09:32:46 13:32:46 17:32:46 01:20:01 Apr 11/21 Apr 11/21 Apr 11/21 ADT 11/21 Apr 12 /21 ADT 11/21 ADT 11/21 Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 12, 2021 (V - 10.40)



This Report Generated From www.MyDataView.com on April 13, 2021, 1:22 am



USBM RI8507 And OSMRE



Serial Number BE11441 V 10.72-8.17 MiniMate Plus 01:23:30 April 12, 2021 01:20:01 April 13, 2021 Battery Level 7.0 Volts Unit Calibration January 27, 2021 by Instantel File Name M4411XL5.760H 5747.00 At 15 seconds Intervals Geo 10.00 in/s Sample Rate 1024 Sps

Post Event Notes

Unit LocationI: Everett- M2 Extended Notes

Everett, WA PACE Engineering

Monitored By: SubTerra, Inc. 425-888-5425

Start

Finish

Range

Notes

Client:

Location:

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Created: April 13, 2021 (V - 10.40)



Everett, WA PACE Engineering

Monitored By: SubTerra, Inc. 425-888-5425

This Report Generated From www.MyDataView.com on April 14, 2021, 1:22 am



USBM RI8507 And OSMRE



Serial Number BE11441 V 10.72-8.17 MiniMate Plus 01:22:49 April 13, 2021 01:20:01 April 14, 2021 Battery Level 6.9 Volts Unit Calibration January 27, 2021 by Instantel File Name M4411XMZ.U10H 5749.00 At 15 seconds Intervals Geo 10.00 in/s Sample Rate 1024 Sps

Post Event Notes

Extended Notes

Unit LocationI: Everett- M2

Start

Finish

Range

Notes

Client:

Location:

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Created: April 14, 2021 (V - 10.40)



Everett, WA

Everett- M2

PACE Engineering SubTerra, Inc. 425-888-5425

This Report Generated From www.MyDataView.com on April 15, 2021, 1:23 am



USBM RI8507 And OSMRE



01:22:46 April 14, 2021 Serial Number BE11441 V 10.72-8.17 MiniMate Plus 01:20:01 April 15, 2021 Battery Level 7.0 Volts 5749.00 At 15 seconds January 27, 2021 by Instantel Unit Calibration Geo 10.00 in/s M441IXOU.HYOH File Name Sample Rate 1024 Sps

Post Event Notes

Extended Notes

Start

Finish

Range

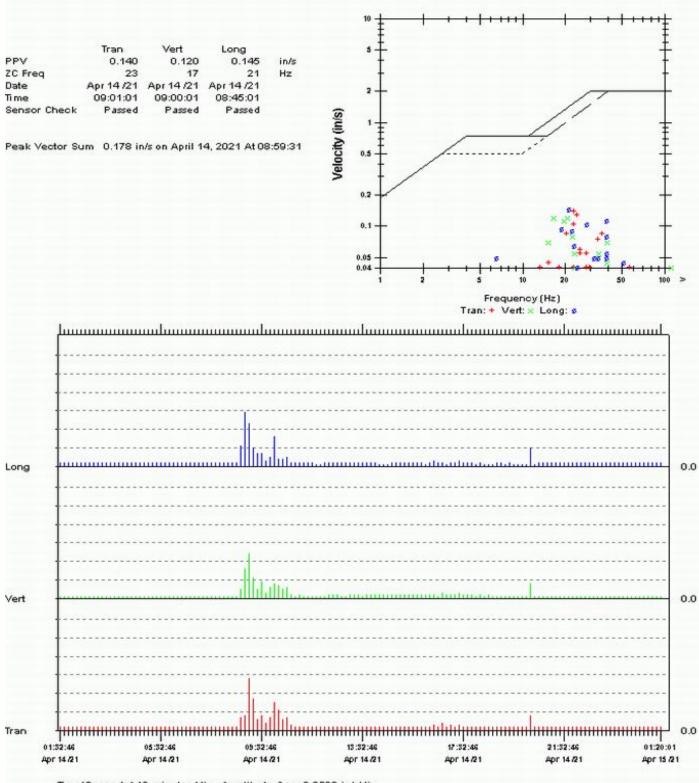
Notes

Client:

Location:

Monitored By: Unit LocationI:

Intervals



Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 15, 2021 (V - 10.48) Format (c) 2006-2012 Xmark Corporation







SubTerra, Inc. This Report Generated From The World's Most Trusted Vibration Monitors World Class Instrumentation Support www.MyDataView.com on April 16, 2021, 1:22 am Start 01:23:09 April 15, 2021 Serial Number BE11441 V 10.72-8.17 MiniMate Plus Finish 01:20:01 April 16, 2021 Battery Level 6.9 Volts 5748.00 At 15 seconds Intervals Unit Calibration January 27, 2021 by Instantel Geo 10.00 in/s M441IXQP.6LOH File Name Range Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering SubTerra, Inc. 425-888-5425 Monitored By: Unit LocationI: Everett- M2 **USBM RI8507 And OSMRE** Extended Notes 10 Tran Vert Long 5 No velocity above 0.04 in/s PPV 0.0200 0.0150 0.0150 in/s ZC Freq 26 37 12 Hz Apr 15 /21 Date Apr 15 /21 Apr 15 /21 2 Time 13:54:09 13:28:09 08:28:09 Sensor Check Passed Passed Passed Velocity (in/s) 1 Peak Vector Sum 0.0218 in/s on April 15, 2021 At 13:54:09 0.5 0.2 0.1 0.05 0.04 20 100 1 Frequency (Hz) Tran: + Vert: × Long: 5 Long 0.0 Vert 0.0

Tran 0.0 01:33:09 05:33:03 09:33:05 13:33:03 17:33:03 21:33:03 01:20:01 ADF 15 /21 ADT 15 /21 Apr 15 /21 ADT 15 /21 ADT 15 /21 Apr 16 /21 ADT 15 /21

Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Format (c) 2006-2012 Xmark Corporation Created: April 16, 2021 (V - 10.40)



Everett, WA

Everett- M2

PACE Engineering SubTerra, Inc. 425-888-5425

This Report Generated From www.MyDataView.com on April 17, 2021, 1:22 am



USBM RI8507 And OSMRE



01:22:45 April 16, 2021 Serial Number BE11441 V 10.72-8.17 MiniMate Plus 01:20:01 April 17, 2021 Battery Level 6.9 Volts 5750.00 At 15 seconds Intervals Unit Calibration January 27, 2021 by Instantel Geo 10.00 in/s M441IXSJ.TXOH File Name Sample Rate 1024 Sps Post Event Notes Location:

Extended Notes

Monitored By: Unit LocationI:

Start

Finish

Range

Notes

Client:

10 Tran Vert Long 5 No velocity above 0.04 in/s PPV 0.0250 0.0250 0.0150 in/s ZC Freq 12 16 13 Hz Date Apr 16 /21 Apr 16 /21 Apr 16 /21 2 Time 14:48:45 14:46:15 07:42:15 Sensor Check Passed Passed Passed Velocity (in/s) 1 Peak Vector Sum 0.0269 in/s on April 16, 2021 At 14:46:45 0.5 0.2 0.1 0.05 0.04 20 1 Frequency (Hz) Tran: + Vert: × Long: 5 Long 0.0 Vert 0.0 Tran 0.0 01:32:45 05:32:45 09:32:45 13:32:45 17:32:45 21:32:45 01:20:01 ADF 16 /21 Apr 16 /21 Apr 16 /21 Apr 16 /21 ADT 16 /21 ADT 16 /21 Apr 17 /21

Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 17, 2021 (V - 10.40) Format (c) 2006-2012 Xmark Corporation



This Report Generated From www.MyDataView.com on April 18, 2021, 1:22 am



USBM RI8507 And OSMRE



Serial Number BE11441 V 10.72-8.17 MiniMate Plus Start 01:22:44 April 17, 2021 Finish 01:20:01 April 18, 2021 Battery Level 6.9 Volts 5750.00 At 15 seconds Unit Calibration January 27, 2021 by Instantel Intervals Geo 10.00 in/s M441IXUE.HWOH Range File Name Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA

Location: Everett, WA Client: PACE Engineering Monitored By: SubTerra, Inc. 425-888-5425 Unit LocationI: Everett- M2

Extended Notes

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Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 18, 2021 (V - 10.40) Format (c) 2006-2012 Xmark Corporation



This Report Generated From www.MyDataView.com on April 19, 2021, 1:22 am



USBM RI8507 And OSMRE



 Start
 01:22:43 April 18, 2021
 Serial Number
 BE11441 V 10.72-8.17 MiniMate Plus

 Finish
 01:20:01 April 19, 2021
 Battery Level
 6.9 Volts

 Intervals
 5750.00 At 15 seconds
 Unit Calibration
 January 27, 2021 by Instantel

 Range
 Geo 10.00 in/s
 File Name
 M4411X009.5V0H

 Sample Rate
 1024 Sps
 Post Event Notes

Location: Everett, WA Client: PACE Engineering Monitored By: SubTerra, Inc. 425-888-5425 Unit LocationI: Everett- M2

Extended Notes

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Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 19, 2021 (V - 10.40) Format (c) 2006-2012 Xmark Corporation







This Report Generated From The World's Most Trusted Vibration Monitors World Class Instrumentation Support www.MyDataView.com on April 20, 2021, 1:22 am Start 01:22:47 April 19, 2021 Serial Number BE11441 V 10.72-8.17 MiniMate Plus Finish 01:20:01 April 20, 2021 Battery Level 6.9 Volts 5749.00 At 15 seconds Intervals Unit Calibration January 27, 2021 by Instantel Geo 10.00 in/s M441IXY3.TZDH File Name Range Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering SubTerra, Inc. 425-888-5425 Monitored By: Unit LocationI: Everett- M2 **USBM RI8507 And OSMRE** Extended Notes 10 Tran Vert Long 5 No velocity above 0.04 in/s PPV 0.0150 0.01000 0.0150 in/s ZC Freq 19 >100 14 Hz Apr 19 /21 Date Apr 19 /21 Apr 19 /21 2 Time 07:35:17 07:34:02 08:08:32 Sensor Check Passed Passed Passed Velocity (in/s) 1 Peak Vector Sum 0.0166 in/s on April 19, 2021 At 07:35:17 0.5 0.2 0.1 0.05 0.04 20 100 1 Frequency (Hz) Tran: + Vert: × Long: 5 Long 0.0 Vert 0.0

Tran 0.0 21:32:47 01:32:47 05:32:47 09:32:47 13:32:47 17:32:47 01:20:01 Apr 20 /21 ADF 15 /21 Apr 15 /21 Apr 15 /21 ADT 19 /21 ADT 19 /21 ADT 19 /21

Format (c) 2006-2012 Xmark Corporation

Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 20, 2021 (V - 10.40)



This Report Generated From www.MyDataView.com on April 21, 2021, 1:22 am





Start 01:22:46 April 20, 2021 Serial Number BE11441 V 10.72-8.17 MiniMate Plus Finish 01:20:01 April 21, 2021 Battery Level 7.0 Volts 5749.00 At 15 seconds Intervals Unit Calibration January 27, 2021 by Instantel Geo 10.00 in/s M441IXZY.HYOH File Name Range Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering SubTerra, Inc. 425-888-5425 Monitored By: Unit LocationI: Everett- M2 **USBM RI8507 And OSMRE** Extended Notes 10 Tran Vert Long 5 No velocity above 0.04 in/s PPV 0.01000 0.01000 0.01000 in/s ZC Freq >100 >100 >100 Hz Apr 20 /21 Apr 20 /21 Apr 20 /21 Date 2 Time 01:23:01 10:25:31 01:23:16 Sensor Check Passed Passed Passed Velocity (in/s) 1 Peak Vector Sum 0.0150 in/s on April 20, 2021 At 03:34:01 0.5 0.2 0.1 0.05 0.04 20 100 1 Frequency (Hz) Tran: + Vert: × Long: 5 Long 0.0 Vert 0.0 Tran 0.0 21:32:46 01:32:46 05:32:46 09:32:46 13:32:46 17:32:46 01:20:01 Apr 20 /21 Apr 20 /21 Apr 20 /21 Apr 20 /21 ADT 20 /21 ADT 20 /21 Apr 21/21 Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 21, 2021 (V - 10.40) Format (c) 2006-2012 Xmark Corporation



This Report Generated From www.MyDataView.com on April 22, 2021, 1:22 am



Start 01:22:49 April 21, 2021 Serial Number BE11441 V 10.72-8.17 MiniMate Plus Finish 01:20:01 April 22, 2021 Battery Level 6.9 Volts 5749.00 At 15 seconds Intervals Unit Calibration January 27, 2021 by Instantel Geo 10.00 in/s M441IY1T.610H File Name Range Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering SubTerra, Inc. 425-888-5425 Monitored By: Unit LocationI: Everett- M2 **USBM RI8507 And OSMRE** Extended Notes 10 Tran Vert Long 5 No velocity above 0.04 in/s PPV 0.0350 0.0350 0.0350 in/s ZC Freq 8.5 8.5 7.3 Hz Apr 21 /21 Date Apr 21 /21 Apr 21 /21 2 Time 13:02:19 12:11:34 11:47:04 Sensor Check Passed Passed Passed Velocity (in/s) 1 Peak Vector Sum 0.0439 in/s on April 21, 2021 At 12:11:34 0.5 0.2 0.1 0.05 0.04 20 100 1 Frequency (Hz) Tran: + Vert: × Long: 5 Long 0.0 Vert 0.0 Tran 0.0 01:32:49 05:32:49 09:32:45 13:32:43 17:32:43 21:32:43 01:20:01 Apr 22 /21 ADF 21/21 ADF 21/21 Apr 21/21 Apr 21/21 ADT 21/21 ADT 21/21

Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 22, 2021 (V - 10.40)



This Report Generated From www.MyDataView.com on April 23, 2021, 1:22 am



USBM RI8507 And OSMRE



Serial Number BE11441 V 10.72-8.17 MiniMate Plus Start 01:22:44 April 22, 2021 Finish 01:20:01 April 23, 2021 Battery Level 6.9 Volts 5750.00 At 15 seconds Unit Calibration January 27, 2021 by Instantel Intervals Geo 10.00 in/s M441IY3N.TWOH Range File Name Sample Rate 1024 Sps Notes Post Event Notes

Location: Everett, WA Client: PACE Engineering Monitored By: SubTerra, Inc. 425-888-5425 Unit LocationI: Everett- M2

Extended Notes

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						Velocity (in/s)	ŧ		_		/		ŧ
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		12:39:44	Apr 22 /21 10:46:14	Apr 22 /21 10:23:59			2 -				1	/	+
ne		6.7	5.8	7.1	Hz		t						t
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Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 23, 2021 (V = 10.40) Format (c) 2006-2012 Xmark Corporation



This Report Generated From www.MyDataView.com on April 24, 2021, 1:22 am



USBM RI8507 And OSMRE



Serial Number BE11441 V 10.72-8.17 MiniMate Plus Start 01:22:48 April 23, 2021 Finish 01:20:01 April 24, 2021 Battery Level 6.9 Volts 5749.00 At 15 seconds Unit Calibration January 27, 2021 by Instantel Intervals Geo 10.00 in/s M4411Y51.00H Range File Name Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client:

Client: PACE Engineering Monitored By: SubTerra, Inc. 425-888-5425 Unit LocationI: Everett- M2

Extended Notes

						Frequency () :+ Vert: × L	ong: s	
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					1		S16 1025	
				0.05				
				0.1				-
				0.2				-
				Velo	/			
Sum 0.0367	in/s on April	23, 2021 At 1	1:50:03		<i>[</i>		/	
Passed		Passed		(Su 1		,	//	
Apr 23 /21	Apr 23 /21	Apr 23 /21		2 -			~	
0.0250	0.0250	0.0350	in/s Hz	ţ			0.04	
Tran	Vert	Long		•±	No ve	locity above	0.04 in/s	
	6.2 Apr 23 /21 10:27:48 Passed	0.0250 0.0250 6.2 8.3 Apr 23 /21 Apr 23 /21 10:27:48 13:08:48 Passed Passed	0.0250 0.0250 0.0350 6.2 8.3 6.2 Apr 23 /21 Apr 23 /21 Apr 23 /21 10:27:48 13:08:48 11:50:03 Passed Passed Passed	0.0250 0.0250 0.0350 in/s 6.2 8.3 6.2 Hz Apr 23 /21 Apr 23 /21 Apr 23 /21 10:27:48 13:08:48 11:50:03	0.0250 0.0250 0.0350 in/s 6.2 8.3 6.2 Hz Apr 23 /21 Apr 23 /21 Apr 23 /21 10:27:48 13:08:48 11:50:03 Passed Passed Passed Sum 0.0367 in/s on April 23, 2021 At 11:50:03 0.5 0.5 0.5 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2	0.0250 0.0250 0.0350 in/s 6.2 8.3 6.2 Hz Apr 23 /21 Apr 23 /21 Apr 23 /21 10:27:48 13:08:48 11:50:03 Passed Passed Passed Sum 0.0367 in/s on April 23, 2021 At 11:50:03 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5	0.0250 0.0250 0.0350 in/s 6.2 8.3 6.2 Hz Apr 23 /21 Apr 23 /21 Apr 23 /21 10:27:48 13:08:48 11:50:03 Passed Passed Passed Sum 0.0367 in/s on April 23, 2021 At 11:50:03 0.5 0.2	0.0250 0.0250 0.0350 in/s 6.2 8.3 6.2 Hz Apr 23 /21 Apr 23 /21 Apr 23 /21 10:27:48 13:08:48 11:50:03 Passed Passed Passed Sum 0.0367 in/s on April 23, 2021 At 11:50:03 0.5 0.1

Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 24, 2021 (V - 10.48)



This Report Generated From www.MyDataView.com on April 25, 2021, 1:22 am



Start 01:22:47 April 24, 2021 Serial Number BE11441 V 10.72-8.17 MiniMate Plus Finish 01:20:01 April 25, 2021 Battery Level 7.0 Volts 5749.00 At 15 seconds Intervals Unit Calibration January 27, 2021 by Instantel Geo 10.00 in/s M441IY7D.5Z0H File Name Range Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering SubTerra, Inc. 425-888-5425 Monitored By: Unit LocationI: Everett- M2 **USBM RI8507 And OSMRE** Extended Notes 10 Tran Vert Long 5 No velocity above 0.04 in/s PPV 0.01000 0.00500 0.01000 in/s ZC Freq >100 >100 >100 Hz Apr 24 /21 Apr 24 /21 Apr 24 /21 Date 2 Time 01:23:02 01:23:02 01:25:32 Sensor Check Passed Passed Passed Velocity (in/s) 1 Peak Vector Sum 0.0150 in/s on April 24, 2021 At 07:29:47 0.5 0.2 0.1 0.05 0.04 20 100 1 Frequency (Hz) Tran: + Vert: × Long: 5 Long 0.0 Vert 0.0 Tran 0.0 21:32:47 01:32:47 05:32:47 09:32:47 13:32:47 17:32:47 01:20:01 Apr 25 /21 ADE 24 /21 ADF 24 /21 Apr 24/21 ADT 24 /21 ADF 24 /21 ADT 24 /21

Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 25, 2021 (V - 10.40)



This Report Generated From





The World's Most Trusted Vibration Monitors World Class Instrumentation Support www.MyDataView.com on April 26, 2021, 1:22 am Start 01:22:49 April 25, 2021 Serial Number BE11441 V 10.72-8.17 MiniMate Plus Finish 01:20:01 April 26, 2021 Battery Level 6.9 Volts 5749.00 At 15 seconds Intervals Unit Calibration January 27, 2021 by Instantel Geo 10.00 in/s M441IY97.U10H File Name Range Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering SubTerra, Inc. 425-888-5425 Monitored By: Unit LocationI: Everett- M2 **USBM RI8507 And OSMRE** Extended Notes 10 Tran Vert Long 5 No velocity above 0.04 in/s PPV 0.01000 0.00500 0.01000 in/s ZC Freq >100 >100 >100 Hz Apr 25 /21 Apr 25 /21 Apr 25 /21 Date 2 Time 01:23:04 01:23:04 01:23:04 Sensor Check Passed Passed Passed Velocity (in/s) 1 Peak Vector Sum 0.0150 in/s on April 25, 2021 At 06:59:34 0.5 0.2 0.1 0.05 0.04 20 100 1 Frequency (Hz) Tran: + Vert: × Long: 5 Long 0.0 Vert 0.0

Tran 0.0 01:32:49 05:32:49 09:32:45 13:32:43 17:32:43 21:32:43 01:20:01 Apr 26 /21 ADF 25 /21 ADT 25 /21 Apr 25 /21 ADT 25 /21 ADT 25 /21 ADT 25 /21

Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 26, 2021 (V - 10.40) Format (c) 2006-2012 Xmark Corporation



This Report Generated From www.MyDataView.com on April 27, 2021, 1:22 am



01:22:48 April 26, 2021 Start Serial Number BE11441 V 10.72-8.17 MiniMate Plus Finish 01:20:01 April 27, 2021 Battery Level 7.0 Volts 5749.00 At 15 seconds Intervals Unit Calibration January 27, 2021 by Instantel Geo 10.00 in/s M441IYB2.HYOH File Name Range Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering SubTerra, Inc. 425-888-5425 Monitored By: Unit LocationI: Everett- M2 **USBM RI8507 And OSMRE** Extended Notes 10 Tran Vert Long 5 No velocity above 0.04 in/s PPV 0.01000 0.01000 0.01000 in/s ZC Freq >100 >100 >100 Hz Apr 26 /21 Apr 26 /21 Apr 26 /21 Date 2 Time 01:23:01 11:08:01 01:25:31 Sensor Check Passed Passed Passed Velocity (in/s) 1 Peak Vector Sum 0.0141 in/s on April 26, 2021 At 05:37:48 0.5 0.2 0.1 0.05 0.04 20 100 1 Frequency (Hz) Tran: + Vert: × Long: 5 Long 0.0 Vert 0.0 Tran 0.0 01:32:46 05:32:46 09:32:46 13:32:46 17:32:46 21:32:46 01:20:01 Apr 27 /21 ADE 26 /21 ADF 26 /21 Apr 26 /21 ADT 26 /21 Apr 26 /21 ADT 26 /21

Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 27, 2021 (V - 10.40)

Page 1/1



This Report Generated From www.MyDataView.com on April 28, 2021, 1:22 am





Start 01:22:49 April 27, 2021 Serial Number BE11441 V 10.72-8.17 MiniMate Plus Finish 01:20:01 April 28, 2021 Battery Level 7.0 Volts 5749.00 At 15 seconds January 27, 2021 by Instantel Intervals Unit Calibration Geo 10.00 in/s M441IYCX.610H File Name Range Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering SubTerra, Inc. 425-888-5425 Monitored By: Unit LocationI: Everett- M2 **USBM RI8507 And OSMRE** Extended Notes 10 Tran Vert Long No velocity above 0.04 in/s 5 PPV 0.0150 0.01000 0.0150 in/s ZC Freq >100 NA 13 Hz Apr 27 /21 Apr 27 /21 Date Apr 27 /21 2 Time 09:37:19 09:34:49 09:34:49 Sensor Check Passed Passed Passed Velocity (in/s) 1 Peak Vector Sum 0.0187 in/s on April 27, 2021 At 09:37:19 0.5 NA: Not Applicable 0.2 0.1 0.05 0.04 20 50 Frequency (Hz) Tran: + Vert: × Long: s 0.0 Long Vert 0.0 Tran 0.0 01:32:49 05:32:49 09:32:45 13:32:43 17:32:43 21:32:43 01:20:01 Apr 28 /21 Apr 27 /21 ADT 27 /21 Apr 27 /21 Apr 27 /21 ADT 27 /21 Apr 27 /21 Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 28, 2021 (V - 10.40) Format (c) 2006-2012 Xmark Corporation



This Report Generated From www.MyDataView.com on April 30, 2021, 1:22 am



Start 01:22:47 April 29, 2021 Serial Number BE11441 V 10.72-8.17 MiniMate Plus Finish 01:20:01 April 30, 2021 Battery Level 6.9 Volts 5749.00 At 15 seconds January 27, 2021 by Instantel Intervals Unit Calibration Geo 10.00 in/s M441IYGM.HZOH File Name Range Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering SubTerra, Inc. 425-888-5425 Monitored By: Unit LocationI: Everett- M2 **USBM RI8507 And OSMRE** Extended Notes 10 Tran Vert Long 5 No velocity above 0.04 in/s PPV 0.0150 0.01000 0.01000 in/s ZC Freq 39 >100 >100 Hz Apr 29 /21 Apr 29 /21 Date Apr 29 /21 2 Time 08:30:17 08:36:17 01:26:47 Sensor Check Passed Passed Passed Velocity (in/s) 1 Peak Vector Sum 0.0166 in/s on April 29, 2021 At 08:30:17 0.5 0.2 0.1 0.05 0.04 20 100 1 Frequency (Hz) Tran: + Vert: × Long: 5 Long 0.0 Vert 0.0 Tran 0.0 01:32:47 05:32:47 09:32:47 13:32:47 17:32:47 21:32:47 01:20:01 ADE 25 /21 ADF 25 /21 Apr 25 /21 ADT 29 /21 ADT 29 /21 Apr 30 /21 ADT 29 /21

Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: April 30, 2021 (V - 10.40)



This Report Generated From The World's Most Trusted Vibration Monitors www.MyDataView.com on May 1, 2021, 1:22 am





Start 01:22:47 April 30, 2021 Serial Number BE11441 V 10.72-8.17 MiniMate Plus Finish 01:20:01 May 1, 2021 Battery Level 6.9 Volts 5749.00 At 15 seconds Intervals Unit Calibration January 27, 2021 by Instantel M4411YIH.5Z0H Geo 10.00 in/s File Name Range Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering SubTerra, Inc. 425-888-5425 Monitored By: Unit LocationI: Everett- M2 **USBM RI8507 And OSMRE** Extended Notes 10 Tran Vert Long 5 No velocity above 0.04 in/s PPV 0.0150 0.01000 0.0200 in/s ZC Freq >100 9.3 12 Hz Apr 30 /21 Date Apr 30 /21 Apr 30 /21 2 Time 09:37:47 11:23:17 14:18:17 Sensor Check Passed Passed Passed Velocity (in/s) 1 Peak Vector Sum 0.0250 in/s on April 30, 2021 At 14:18:17 0.5 0.2 0.1 0.05 0.04 20 100 1 Frequency (Hz) Tran: + Vert: × Long: 5 Long 0.0 Vert 0.0

Tran 0.0 21:32:47 01:32:47 05:32:47 09:32:47 13:32:47 17:32:47 01:20:01 Apr 30 /21 Apr 30 /21 Apr 30 /21 ADT 30 /21 ADT 30 /21 Apr 30 /21 Ma; 1/21

Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: May 1, 2021 (V - 10.40)



This Report Generated From The World's Most Trusted Vibration Monitors www.MyDataView.com on May 2, 2021, 1:23 am





Start 01:22:47 May 1, 2021 Serial Number BE11441 V 10.72-8.17 MiniMate Plus Finish 01:20:01 May 2, 2021 Battery Level 6.9 Volts 5749.00 At 15 seconds Intervals Unit Calibration January 27, 2021 by Instantel M441IYKB.TZOH Geo 10.00 in/s Range File Name Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering SubTerra, Inc. 425-888-5425 Monitored By: Unit LocationI: Everett- M2 Extended Notes USBM RI8507 And OSMRE 10 ++++ Tran Vert Long No velocity above 0.04 in/s 5 PPV 0.01000 0.01000 0.01000 in/s ZC Freq >100 >100 >100 Hz Date May 1/21 May 1 /21 May 1 /21 2 Time 01:23:02 04:45:17 01:24:17 Sensor Check Passed Passed Passed Velocity (in/s) 1 Peak Vector Sum 0.0141 in/s on May 1, 2021 At 04:28:02 0.5 0.2 0.1 0.05 0.04 4 20 Frequency (Hz) Tran: + Vert: × Long: s Long 0.0 Vert 0.0 Tran 0.0 01:32:47 05:32:47 09:32:47 13:32:47 17:32:47 21:32:47 01:20:01 Ma; 2 /21 Ma; 1/21 Ma; 1/21 Ma; 1/21 Ma; 1/21 Ma; 1/21 Ma; 1/21

Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: Ma; 2, 2021 (V - 10.40)



Everett, WA

Everett- M2

PACE Engineering SubTerra, Inc. 425-888-5425

This Report Generated From The World's Most Trusted Vibration Monitors www.MyDataView.com on May 3, 2021, 1:22 am



USBM RI8507 And OSMRE

01:23:26 May 2, 2021 Serial Number BE11441 V 10.72-8.17 MiniMate Plus 01:20:01 May 3, 2021 Battery Level 7.0 Volts 5747.00 At 15 seconds Unit Calibration January 27, 2021 by Instantel M441IYM6.J20H Geo 10.00 in/s File Name Sample Rate 1024 Sps

Post Event Notes

Extended Notes

Start

Finish

Range

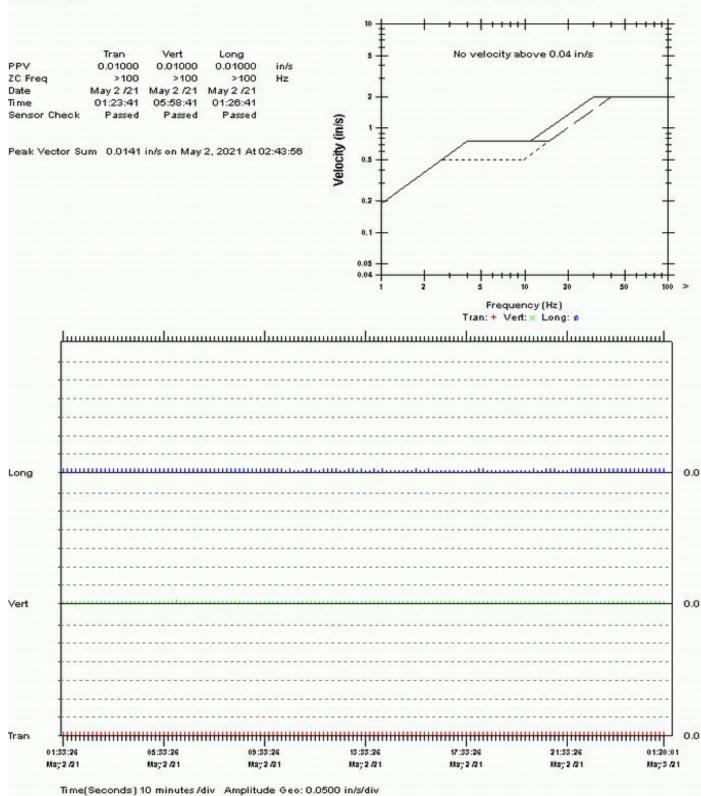
Notes

Client:

Location:

Monitored By: Unit LocationI:

Intervals



Format (c) 2006-2012 Xmark Corporation Created: Ma; 3, 2021 (V - 10.40)



Everett, WA

Everett- M2

PACE Engineering SubTerra, Inc. 425-888-5425

This Report Generated From The World's Most Trusted Vibration Monitors www.MyDataView.com on May 4, 2021, 1:22 am



USBM RI8507 And OSMRE

 01:22:49 May 3, 2021
 Serial Number
 BE11441 V 10.72-8.17 MiniMate Plus

 01:20:01 May 4, 2021
 Battery Level
 6.9 Volts

 5749.00 At 15 seconds
 Unit Calibration
 January 27, 2021 by Instantel

 Geo 10.00 in/s
 File Name
 M4411Y01.610H

 1024 Sps
 Seconds
 Seconds

Post Event Notes

Extended Notes

Start

Finish

Range Sample Rate

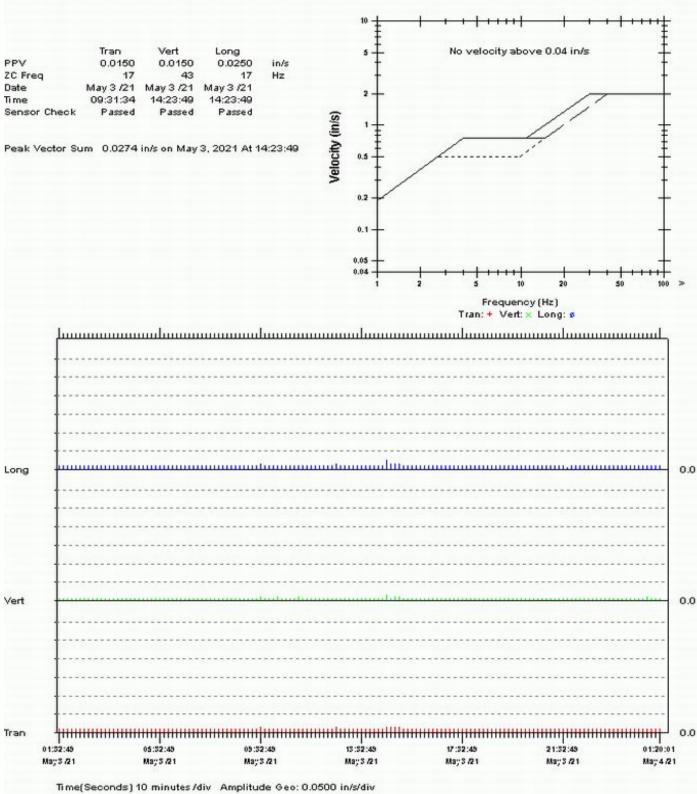
Notes

Client:

Location:

Monitored By: Unit LocationI:

Intervals



Created: Ma; 4, 2021 (V - 10.40) Format (c) 2006-2012 Xmark Corporation



Start

This Report Generated From The World's Most Trusted Vibration Monitors www.MyDataView.com on May 5, 2021, 1:22 am

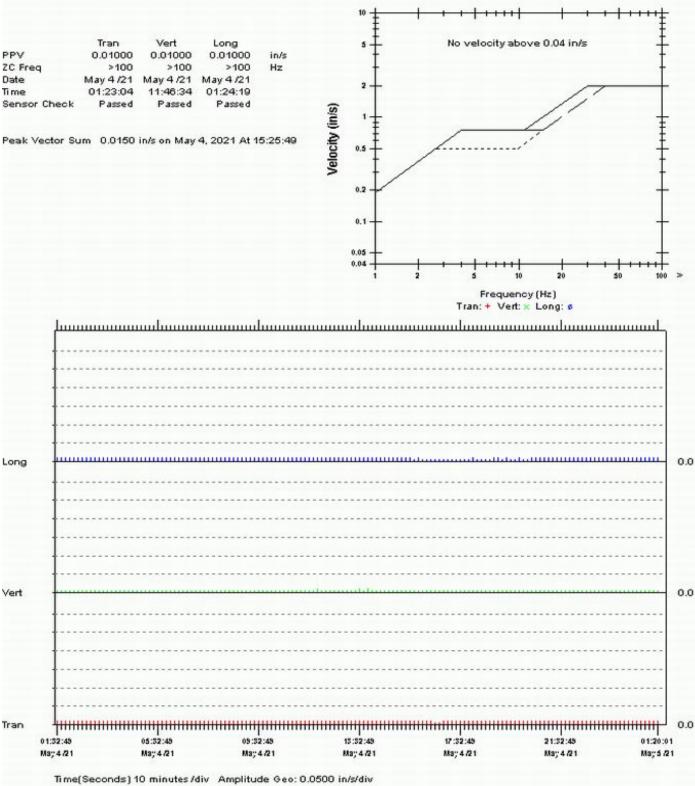


USBM RI8507 And OSMRE



01:22:49 May 4, 2021 Serial Number BE11441 V 10.72-8.17 MiniMate Plus Finish 01:20:01 May 5, 2021 Battery Level 7.0 Volts 5749.00 At 15 seconds Intervals Unit Calibration January 27, 2021 by Instantel M441IYPV.U10H Geo 10.00 in/s Range File Name Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering SubTerra, Inc. 425-888-5425 Monitored By:

Unit LocationI: Everett- M2 Extended Notes



Created: Ma; 5, 2021 (V - 10.40)



This Report Generated From The World's Most Trusted Vibration Monitors www.MyDataView.com on May 6, 2021, 1:22 am





Start 01:22:47 May 5, 2021 Serial Number BE11441 V 10.72-8.17 MiniMate Plus Finish 01:20:01 May 6, 2021 Battery Level 6.9 Volts 5749.00 At 15 seconds Intervals Unit Calibration January 27, 2021 by Instantel M441IYRQ.HZOH Geo 10.00 in/s Range File Name Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering SubTerra, Inc. 425-888-5425 Monitored By: Unit LocationI: Everett- M2 Extended Notes USBM RI8507 And OSMRE 10 1111 Tran Vert Long No velocity above 0.04 in/s 5 PPV 0.0150 0.01000 0.0150 in/s ZC Freq >100 Hz 10 16 May 5 /21 Date May 5 /21 May 5 /21 2 Time 09:38:02 06:10:02 12:38:32 Sensor Check Passed Passed Passed Velocity (in/s) 1 Peak Vector Sum 0.0180 in/s on May 5, 2021 At 09:38:02 0.5 0.2 0.1 0.05 0.04 4 20 Frequency (Hz) Tran: + Vert: × Long: s Long 0.0 Vert 0.0

Tran 0.0 01:32:47 05:32:47 09:32:47 13:32:47 17:32:47 21:32:47 01:20:01 Ma; 5 /21 Ma; 5 /21 Ma; 5 /21 Ma; 5 /21 Ma; 6 /21 Ma; 5 /21 183; 5 /21

Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: Ma; 6, 2021 (V - 10.40)



This Report Generated From The World's Most Trusted Vibration Monitors www.MyDataView.com on May 7, 2021, 1:22 am



01:22:46 May 6, 2021 Start Serial Number BE11441 V 10.72-8.17 MiniMate Plus Finish 01:20:01 May 7, 2021 Battery Level 6.9 Volts 5749.00 At 15 seconds Intervals Unit Calibration January 27, 2021 by Instantel M441IYTL.5YOH Geo 10.00 in/s Range File Name Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA

Client: PACE Engineering Monitored By: SubTerra, Inc. 425-888-5425 Unit LocationI: Everett- M2

Extended Notes

10 1111 Tran Vert Long No velocity above 0.04 in/s 5 PPV 0.0150 0.0150 0.01000 in/s ZC Freq 20 >100 Hz 14 May 6 /21 Date May 6 /21 May 6 /21 2 Time 14:34:01 14:34:01 01:40:16 Sensor Check Passed Passed Passed Velocity (in/s) 1 Peak Vector Sum 0.0187 in/s on May 6, 2021 At 14:34:01 0.5 0.2 0.1 0.05 0.04 4 20 Frequency (Hz) Tran: + Vert: × Long: s Long 0.0 Vert 0.0 Tran 0.0 01:32:46 05:32:46 09:32:46 13:32:46 17:32:46 21:32:46 01:20:01 Ma;7 /21 Ma; 6 /21 Ma; 6 /21 Ma; 6 /21 Ma; 6 /21 Ma; 6 /21 Ma; 6 /21

Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: Ma; 7, 2021 (V - 10.40)

Format (c) 2006-2012 Xmark Corporation

USBM RI8507 And OSMRE



This Report Generated From The World's Most Trusted Vibration Monitors www.MyDataView.com on May 8, 2021, 1:23 am





01:22:44 May 7, 2021 Start Serial Number BE11441 V 10.72-8.17 MiniMate Plus Finish 01:20:01 May 8, 2021 Battery Level 7.0 Volts 5750.00 At 15 seconds January 27, 2021 by Instantel Intervals Unit Calibration M441IYVF.TWOH Geo 10.00 in/s Range File Name Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering SubTerra, Inc. 425-888-5425 Monitored By: Unit LocationI: Everett- M2 Extended Notes USBM RI8507 And OSMRE 10 1111 Tran Vert Long No velocity above 0.04 in/s 5 PPV 0.0200 0.01000 0.0150 in/s ZC Freq 9.1 >100 Hz 15 May 7 /21 Date May 7 /21 May 7 /21 2 Time 08:10:44 02:52:59 08:10:44 Sensor Check Passed Passed Passed Velocity (in/s) 1 Peak Vector Sum 0.0255 in/s on May 7, 2021 At 08:10:44 0.5 0.2 0.1 0.05 0.04 4 20 Frequency (Hz) Tran: + Vert: × Long: s Long 0.0 Vert 0.0 Tran 0.0 01:32:44 05:32:44 09:32:44 13:32:44 17:32:44 21:32:44 01:20:01 Ma;7 /21 Ma;7 /21 Ma;7 /21 Ma;7 /21 Ma;7 /21 Ma;7 /21 Ma; 8 /21

Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: Ma; 5, 2021 (V - 10.40)



Everett, WA

Everett- M2

PACE Engineering SubTerra, Inc. 425-888-5425

This Report Generated From The World's Most Trusted Vibration Monitors www.MyDataView.com on May 9, 2021, 1:22 am



USBM RI8507 And OSMRE

01:24:02 May 8, 2021 Serial Number BE11441 V 10.72-8.17 MiniMate Plus Finish 01:20:01 May 9, 2021 Battery Level 6.9 Volts 5744.00 At 15 seconds Intervals Unit Calibration January 27, 2021 by Instantel M441IYXA.K20H Geo 10.00 in/s Range File Name Sample Rate 1024 Sps Notes

Post Event Notes

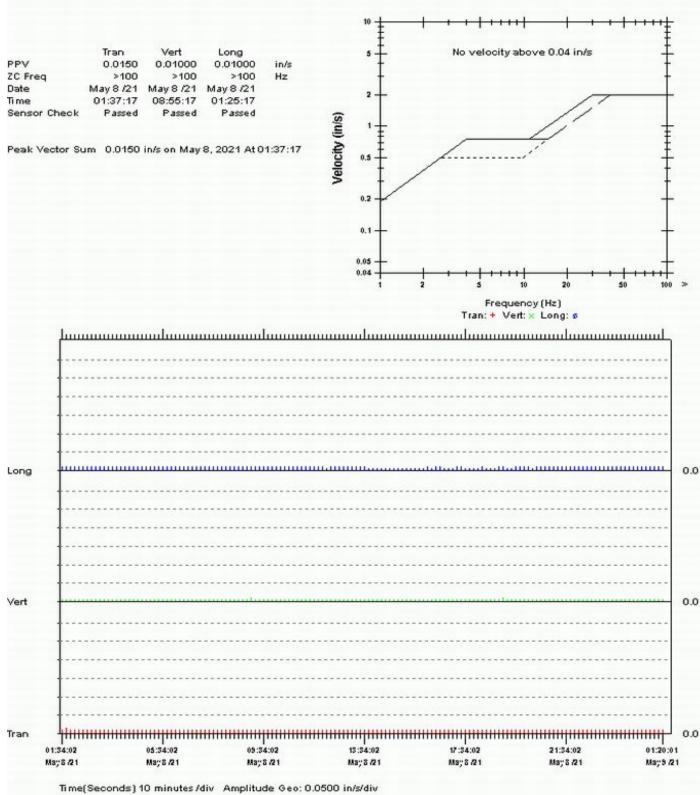
Extended Notes

Start

Location:

Monitored By: Unit LocationI:

Client:



Created: Ma; 5, 2021 (V - 10.40)







0.0

01:20:01

Ma; 10 /21

This Report Generated From The World's Most Trusted Vibration Monitors World Class Instrumentation Support www.MyDataView.com on May 10, 2021, 1:22 am 01:22:44 May 9, 2021 Start Serial Number BE11441 V 10.72-8.17 MiniMate Plus Finish 01:20:01 May 10, 2021 Battery Level 7.0 Volts 5750.00 At 15 seconds Intervals Unit Calibration January 27, 2021 by Instantel M4411YZ5.5W0H Geo 10.00 in/s File Name Range Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering SubTerra, Inc. 425-888-5425 Monitored By: Unit LocationI: Everett- M2 Extended Notes USBM RI8507 And OSMRE 10 1111 Tran Vert Long No velocity above 0.04 in/s 5 PPV 0.01000 0.01000 0.01000 in/s ZC Freq >100 >100 >100 Hz May 9 /21 May 9 /21 May 9 /21 Date 2 Time 01:22:59 03:04:59 01:24:29 Sensor Check Passed Passed Passed Velocity (in/s) 1 Peak Vector Sum 0.0150 in/s on May 9, 2021 At 04:51:44 0.5 0.2 0.1 0.05 0.04 4 20 Frequency (Hz) Tran: + Vert: × Long: s Long 0.0 Vert 0.0

09:32:44

Ma; 9 /21

05:32:44

Ma; 5 /21

Tran

01:32:44

Ma; 5 /21

13:32:44

Ma; 9 /21

17:32:44

Ma; 9 /21

21:32:44

Ma; 9 /21



This Report Generated From www.MyDataView.com on May 11, 2021, 1:23 am





Start 01:22:47 May 10, 2021 Serial Number BE11441 V 10.72-8.17 MiniMate Plus Finish 01:20:01 May 11, 2021 Battery Level 7.0 Volts 5749.00 At 15 seconds January 27, 2021 by Instantel Intervals Unit Calibration Geo 10.00 in/s M441IZ0Z.TZ0H File Name Range Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering Monitored By: SubTerra, Inc. 425-888-5425 Unit LocationI: Everett- M2 Extended Notes **USBM RI8507 And OSMRE**

10 Tran Vert Long 5 PPV 0.0600 0.0600 0.0350 in/s ZC Freq 16 37 Hz 14 May 10 /21 May 10 /21 May 10 /21 Date 2 Time 10:02:32 10:00:02 09:32:32 Sensor Check Passed Passed Passed Velocity (in/s) 4 Peak Vector Sum 0.0648 in/s on May 10, 2021 At 10:02:32 0.5 0.2 0.1 ÷ 0.05 0.04 1 Frequency (Hz) Tran: + Vert: × Long: 5 Long 0.0 Vert 0.0 Tran 0.0 01:32:47 05:32:47 09:32:47 13:32:47 17:32:47 21:32:47 01:20:01 Ma;; 10 /21 Ma; 10 /21 Ma; 11/21 Ma; 10 /21 Ma; 10 /21 Ma; 10 /21 183; 10 /21

Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: May 11, 2021 (V - 10.40)



Start

Notes

Client:

Location:

Monitored By: Unit LocationI:

Extended Notes

This Report Generated From www.MyDataView.com on May 12, 2021, 1:22 am





01:23:31 May 11, 2021 Serial Number BE11441 V 10.72-8.17 MiniMate Plus Finish 01:20:01 May 12, 2021 Battery Level 6.9 Volts 5746.00 At 15 seconds Intervals Unit Calibration January 27, 2021 by Instantel Geo 10.00 in/s M441IZ2U.J70H File Name Range Sample Rate 1024 Sps Post Event Notes

Everett, WA PACE Engineering SubTerra, Inc. 425-888-5425

Everett- M2

USBM RI8507 And OSMRE

10 Tran Vert Long 5 No velocity above 0.04 in/s PPV 0.0350 0.0300 0.0350 in/s ZC Freq 32 28 26 Hz May 11/21 May 11 /21 Date May 11 /21 2 Time 08:54:01 08:52:46 08:52:46 Sensor Check Passed Passed Passed Velocity (in/s) 1 Peak Vector Sum 0.0433 in/s on May 11, 2021 At 08:56:01 0.5 0.2 0.1 0.05 0.04 20 1 Frequency (Hz) Tran: + Vert: × Long: 5 Long 0.0 Vert 0.0 Tran 0.0 01:33:31 05:33:31 09:33:31 13:33:31 17:33:31 21:33:31 01:20:01 Ma; 11/21 Ma; 11/21 Ma; 11/21 Ma; 12 /21 Ma; 11/21 Ma; 11/21 183; 11/21

Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: Ma; 12, 2021 (V - 10.40)



This Report Generated From www.MyDataView.com on May 13, 2021, 1:22 am



World Class Instrumentation Support

Start 01:22:44 May 12, 2021 Serial Number BE11441 V 10.72-8.17 MiniMate Plus Finish 01:20:01 May 13, 2021 Battery Level 6.9 Volts 5750.00 At 15 seconds Intervals Unit Calibration January 27, 2021 by Instantel Geo 10.00 in/s M441IZ4P.5W0H File Name Range Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering Monitored By: SubTerra, Inc. 425-888-5425 Unit LocationI: Everett- M2 Extended Notes **USBM RI8507 And OSMRE** 10 Tran Vert Long 5 PPV 0.0450 0.0300 0.0400 in/s ZC Freq 37 34 Hz 21 May 12 /21 May 12 /21 Date May 12 /21 2 Time 10:59:59 16:43:59 11:00:59 Sensor Check Passed Passed Passed Velocity (in/s) 4 Peak Vector Sum 0.0492 in/s on May 12, 2021 At 10:59:59 0.5 0.2 0.1 0.05 0.04 20 1 Frequency (Hz) Tran: + Vert: × Long: 5 Long 0.0 0.0 Vert Tran 0.0 01:32:44 05:32:44 09:32:44 13:32:44 17:32:44 21:32:44 01:20:01 Ma; 12 /21 Ma; 12 /21 Ma; 12 /21 Ma; 13 /21 Ma; 12 /21 Ma; 12 /21 183; 12 /21

Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: Ma; 13, 2021 (V - 10.40)



This Report Generated From www.MyDataView.com on May 13, 2021, 3:20



pm Start 01:22:44 May 13, 2021 Serial Number BE11441 V 10.72-8.17 MiniMate Plus Finish 15:17:54 May 13, 2021 Battery Level 6.6 Volts 3341.00 At 15 seconds Intervals Unit Calibration January 27, 2021 by Instantel M441IZ6J.TWOH Geo 10.00 in/s File Name Range Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA Client: PACE Engineering SubTerra, Inc. 425-888-5425 Monitored By: Unit LocationI: Everett- M2 Extended Notes **USBM RI8507 And OSMRE** 10 Tran Vert Long 5 PPV 0.245 0.1000 0.570 in/s ZC Freq 47 84 43 Hz May 13 /21 May 13 /21 Date May 13 /21 2 Time 15:17:54 15:17:54 15:17:54 Sensor Check Passed Passed Passed Velocity (in/s) 4 Peak Vector Sum 0.591 in/s on May 13, 2021 At 15:17:54 0.5 0.2 0.1 0.05 0.04 5 Frequency (Hz) Tran: + Vert: × Long: s 0.0 Long Vert 0.0 Tran 0.0 01:27:44 03:27:44 05:27:44 07:27:44 09:27:44 11:27:44 13:27:44 15:17:54 Ma; 13 /21 Ma; 13 /21 Ma; 13 /21 Ma; 13 /21 183; 13 /21 Ma; 13 /21 Ma; 13 /21 Ma; 13 /21

Time(Seconds) 5 minutes /div Amplitude Geo: 0.100 in/s/div

Created: Ma; 15, 2021 (V - 10.40)



This Report Generated From itors www.MyDataView.com on May 13, 2021, 3:20



pm

10

 Serial Number
 BE11441 V 10.72-8.17 MiniMate Plus

 Battery Level
 6.7 Volts

 Unit Calibration
 January 27, 2021 by Instantel

 File Name
 M441IZ7M.HQ0W

 Post Event Notes
 Volts

USBM RI8507 And OSMRE

 Range
 Geo: 10.00 in/s

 Sample Rate
 4.0 sec. At 1024 Sps

 Notes
 Location:

 Location:
 Everett, WA

 Client:
 PACE Engineering

 Monitored By:
 SubTerra, Inc. 425-888-5425

 Unit LocationI:
 Everett- M2

Extended Notes

Date/Time

Trigger Source

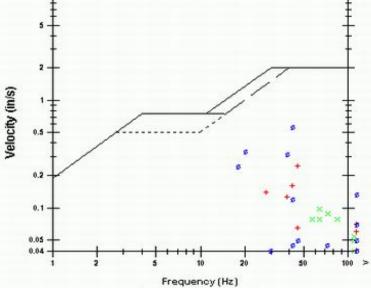
Combo Mode May 13, 2021 01:22:43

	Tran	Vert	Long	
PPV	0.245	0.1000	0.570	in/s
ZC Freq	47	64	43	Hz
Time (Rel. to Trig)	-0.001	0.012	0.002	sec
Peak Acceleration	0.225	0.119	0.371	9
Peak Displacement	0.00083	0.00023	0.00252	in
Sensor Check	Passed	Passed	Passed	

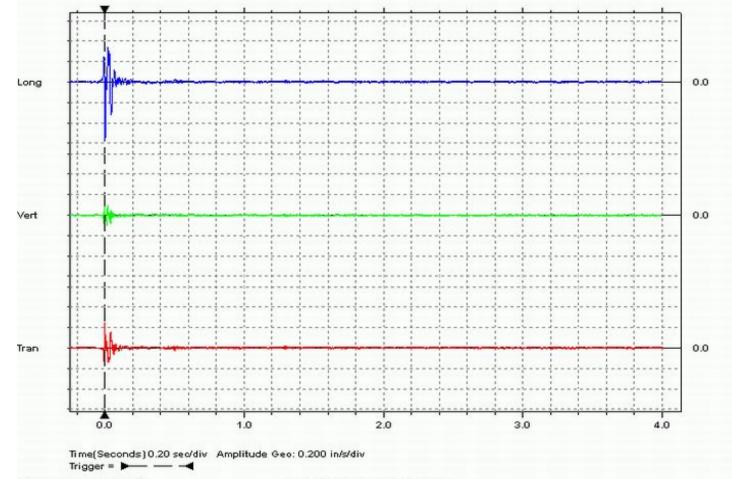
Long At 15:17:50 May 13, 2021

Geo: 0.500 in/s









Created: Ma; 13, 2021 (V - 10.40)



This Report Generated From www.MyDataView.com on May 14, 2021, 1:22 am



Start 15:20:26 May 13, 2021 Serial Number BE11441 V 10.72-8.17 MiniMate Plus Finish 01:20:01 May 14, 2021 Battery Level 6.9 Volts 2399.00 At 15 seconds January 27, 2021 by Instantel Intervals Unit Calibration M441IZ7M.M20H Geo 10.00 in/s File Name Range Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA

Client: PACE Engineering SubTerra, Inc. 425-888-5425 Monitored By: Unit LocationI: Everett- M2

Extended Notes

USBM RI8507 And OSMRE 10 Tran Vert Long 5 PPV 0.0650 0.0400 0.0400 in/s ZC Freq 22 24 51 Hz Date May 13 /21 May 13 /21 May 13 /21 2 Time 15:41:11 15:41:11 15:21:26 Sensor Check Passed Passed Passed Velocity (in/s) 4 Peak Vector Sum 0.0712 in/s on May 13, 2021 At 15:41:11 0.5 0.2 0.1 0.05 0.04 20 5 Frequency (Hz) Tran: + Vert: × Long: 5 Long 0.0 0.0 Vert Tran 0.0 15:25:26 17:25:26 19:25:26 21:25:26 23:25:26 01:20:01 Ma; 13 /21 Ma; 14 /21

Time(Seconds)5 minutes/div Amplitude Geo: 0.0500 in/s/div

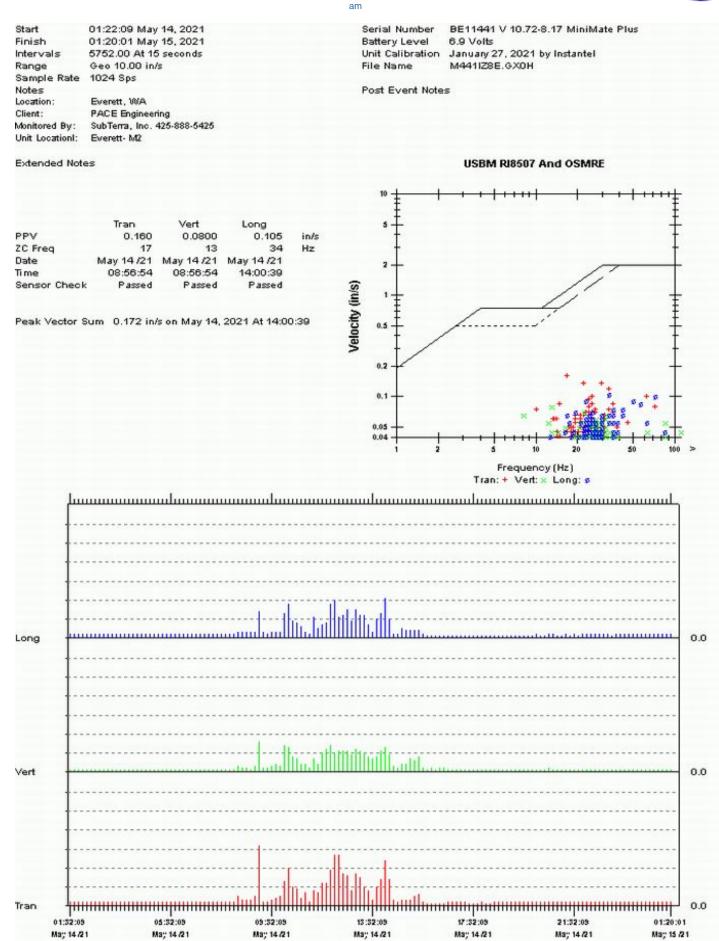
Created: Ma; 14, 2021 (V - 10.40) Format (c) 2006-2012 Xmark Corporation



This Report Generated From www.MyDataView.com on May 15, 2021, 1:22



World Class Instrumentation Support



Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: Ma; 15, 2021 (V - 10.40)



This Report Generated From www.MyDataView.com on May 16, 2021, 1:23 am



Serial Number BE11441 V 10.72-8.17 MiniMate Plus

Battery Level 6.9 Volts

Unit Calibration January 27, 2021 by Instantel File Name M441IZA9.520H

USBM RI8507 And OSMRE

Post Event Notes

Geo 10.00 in/s Sample Rate 1024 Sps Location: Everett, WA PACE Engineering Monitored By: SubTerra, Inc. 425-888-5425 Unit LocationI: Everett- M2

01:22:47 May 15, 2021

01:20:01 May 16, 2021

5749.00 At 15 seconds

Extended Notes

Start

Finish

Range

Notes

Client:

Intervals

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Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: Ma; 16, 2021 (V - 10.40)



This Report Generated From www.MyDataView.com on May 17, 2021, 1:22 am



USBM RI8507 And OSMRE



Serial Number BE11441 V 10.72-8.17 MiniMate Plus Start 01:23:48 May 16, 2021 Finish 01:20:01 May 17, 2021 Battery Level 6.9 Volts 5745.00 At 15 seconds Unit Calibration January 27, 2021 by Instantel Intervals Geo 10.00 in/s M441IZC3.VOOH Range File Name Sample Rate 1024 Sps Notes Post Event Notes

Location: Everett, WA Client: PACE Engineering Monitored By: SubTerra, Inc. 425-888-5425 Unit LocationI: Everett- M2

Extended Notes

Tran Vert Long s No velocity above 0.04 in/s CF Freq >100 >100 Hz Imme 0124003 120003 012233 Jensor Check Passed Passed Passed Peak Vector Sum 0.0122 infs on May 16, 2021 At 012403 Imme 012400 Peak Vector Sum 0.0122 infs on May 16, 2021 At 012403 Imme Imme Imme Original Imme 0.122 infs on May 16, 2021 At 012403 Imme Imme Imme Peak Vector Sum 0.0122 infs on May 16, 2021 At 012403 Imme Imme </th
PV 0.01000 0.01000 0.01000 Hz she May 16 /21 May 16 /21 May 16 /21 me 01:24:03 12:00:03 01:32:33 ensor Check Passed Passed eak Vector Sum 0.0122 in/s on May 16, 2021 At 01:24:03 Frequency (Hz) Tran: + Vert × Long: e
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V 0.01000 0.01000 0.01000 in/s freq >100 >100 Hz te May 16.21 May 18.21 May 16.21 ne 01:24:03 12:00:03 01:32:33 msor Check Passed Passed Passed ak Vector Sum 0.0122 in/s on May 18, 2021 At 01:24:03 Frequency (Hz) Tran: + Vert × Long: s
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V 0.01000 0.01000 in/s Freq >100 >100 Hz ne 01:24:03 12:00:03 01:32:33 nsor Check Passed Passed Passed ak Vector Sum 0.0122 in/s on May 16, 2021 At 01:24:03 0.0122 in/s on May 16, 2021 At 01:24:03 0.0122 in/s on May 16, 2021 At 01:24:03 0.01 Passed Passed Passed Passed Passed ssed 0.02 Passed Passed Passed Passed Passed Passed 0.03 Passed Passed Passed Passed Passed Passed
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V 0.01000 0.01000 in/s Freq >100 >100 Hz ne 01:24:03 12:00:03 01:32:33 nsor Check Passed Passed Passed ak Vector Sum 0.0122 in/s on May 16, 2021 At 01:24:03 0.0122 in/s on May 16, 2021 At 01:24:03 0.0122 in/s on May 16, 2021 At 01:24:03 0.01 Passed Passed Passed Passed Passed ssed 0.02 Passed Passed Passed Passed Passed Passed 0.03 Passed Passed Passed Passed Passed Passed
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v 0.01000 0.01000 0.01000 in/s Freq >100 >100 Hz te May 16 /21 May 16 /21 May 16 /21 ne 01:24:03 12:00:03 01:32:33 nsor Check Passed Passed Passed ak Vector Sum 0.0122 in/s on May 16, 2021 At 01:24:03 0.5 0.4
v 0.01000 0.01000 0.01000 in/s Freq >100 >100 Hz te May 16 /21 May 16 /21 May 16 /21 ne 01:24:03 12:00:03 01:32:33 nsor Check Passed Passed Passed ak Vector Sum 0.0122 in/s on May 16, 2021 At 01:24:03 0.5 0.4
V 0.01000 0.01000 0.01000 in/s Freq >100 >100 Hz the May 16 /21 May 16 /21 May 16 /21 ne 01:24:03 12:00:03 01:32:33 nsor Check Passed Passed Passed ak Vector Sum 0.0122 in/s on May 16, 2021 At 01:24:03 ak Vector Sum 0.0122 in/s on May 16, 2021 At 01:24:03 Frequency (Hz) Tran: + Vert: × Long: s
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V 0.01000 0.01000 0.01000 in/s Freq >100 >100 +100 Hz the May 16 /21 May 16 /21 May 16 /21 the 01:24:03 12:00:03 01:32:33 nsor Check Passed Passed Passed ak Vector Sum 0.0122 in/s on May 16, 2021 At 01:24:03 ak Vector Sum 0.0122 in/s on May 16, 2021 At 01:24:03 Frequency (Hz) Tran: + Vert: × Long: s
V 0.01000 0.01000 0.01000 in/s Freq >100 >100 Hz the May 16 /21 May 16 /21 May 16 /21 the 01:24:03 12:00:03 01:32:33 nsor Check Passed Passed Passed ak Vector Sum 0.0122 in/s on May 16, 2021 At 01:24:03 ak Vector Sum 0.0122 in/s on May 16, 2021 At 01:24:03 Frequency (Hz)
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V 0.01000 0.01000 0.01000 in/s Freq >100 >100 Hz te May 16 /21 May 16 /21 May 16 /21 ne 01:24:03 12:00:03 01:32:33 nsor Check Passed Passed Passed ak Vector Sum 0.0122 in/s on May 16, 2021 At 01:24:03 0.5 0.1 0.05 0.05
2V 0.01000 0.01000 0.01000 in/s 2: Freq >100 >100 Hz ite May 16 /21 May 16 /21 May 16 /21 me 01:24:03 12:00:03 01:32:33 sinsor Check Passed Passed Passed rak Vector Sum 0.0122 in/s on May 16, 2021 At 01:24:03 0.5 0.1 0.1 0.1
2V 0.01000 0.01000 0.01000 in/s 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
2V 0.01000 0.01000 0.01000 in/s 1 100 >100 Hz 1 1 1 1
V 0.01000 0.01000 0.01000 in/s Freq >100 >100 Hz te May 16 /21 May 16 /21 2 ne 01:24:03 12:00:03 01:32:33 nsor Check Passed Passed 1 rak Vector Sum 0.0122 in/s on May 16, 2021 At 01:24:03 0.5
V 0.01000 0.01000 0.01000 in/s - Freq >100 >100 Hz - - te May 16 /21 May 16 /21 2 - - ne 01:24:03 12:00:03 01:32:33 2 - -
V 0.01000 0.01000 0.01000 in/s - Freq >100 >100 Hz - - te May 16 /21 May 16 /21 2 - - ne 01:24:03 12:00:03 01:32:33 2 - -
V 0.01000 0.01000 0.01000 in/s - Freq >100 >100 Hz - - te May 16 /21 May 16 /21 2 - - ne 01:24:03 12:00:03 01:32:33 2 - -
V 0.01000 0.01000 0.01000 in/s Freq >100 >100 Hz te May 16 /21 May 16 /21 2
>V 0.01000 0.01000 0.01000 in/s Freq >100 >100 >100 Hz -
Ŧ

Time(Seconds) 10 minutes /div Amplitude Geo: 0.0500 in/s/div

Created: May 17, 2021 (V - 10.40) Format (c) 2006-2012 Xmark Corporation



PACE Engineering SubTerra, Inc. 425-888-5425

Everett- M2

This Report Generated From www.MyDataView.com on May 17, 2021, 2:20 pm



USBM RI8507 And OSMRE



Start 01:22:45 May 17, 2021 Serial Number BE11441 V 10.72-8.17 MiniMate Plus Finish 14:17:48 May 17, 2021 Battery Level 6.8 Volts 3100.00 At 15 seconds Intervals Unit Calibration January 27, 2021 by Instantel M441IZDY.HX0H Geo 10.00 in/s Range File Name Sample Rate 1024 Sps Notes Post Event Notes Location: Everett, WA

Extended Notes

Client:

Monitored By: Unit LocationI:

10 Tran Vert Long 5 PPV 0.0600 0.0550 0.0400 in/s ZC Freq 30 28 Hz 27 May 17 /21 Date May 17 /21 May 17 /21 2 Time 09:29:45 09:30:30 09:30:15 Sensor Check Passed Passed Passed Velocity (in/s) 4 Peak Vector Sum 0.0682 in/s on May 17, 2021 At 09:30:30 0.5 0.2 0.1 0.05 0.04 1 Frequency (Hz) Tran: + Vert: × Long: 5 analli lata adamati i ta a a a a di bita 0.0 Long Vert 0.0 Tran 0.0 07 :27 :45 01:27:45 03:27:45 05:27:45 09:27:45 11:27:45 13:27:45 Ma; 17 /21 Ma; 17 /21 Ma; 17 /21 183; 17 /21 Ma; 17 /21 Ma; 17 /21 Ma; 17 /21

Time(Seconds)5 minutes/div Amplitude Geo: 0.0500 in/s/div

Created: Ma; 17, 2021 (V - 10.40)