NIVI5 GEOSPATIAL

SAN JOAQUIN WU 300028 LIDAR PROCESSING REPORT

Project ID: 217611 Work Unit: 300028

Prepared for:



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2022

Submitted: October 19, 2022

Prepared by:





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1. Summary / Scope

1.1. Summary

This report contains a summary of the San Joaquin, Work Unit 6 lidar acquisition task order, issued by USGS under their Cooperative Agreement number: G21AC10232-00. The task order yielded a project area covering 11,623 square miles over California. The intent of this document is only to provide specific validation information for the data acquisition/collection, processing, and production of deliverables completed as specified in the task order.

1.2. Scope

Aerial topographic lidar was acquired using state of the art technology along with the necessary surveyed ground control points (GCPs) and airborne GPS and inertial navigation systems. The aerial data collection was designed with the following specifications listed in Table 1 below.

Table 1. Originally Planned Lidar Specifications

Average Point Density	Flight Altitude (AGL)	Field of View	Minimum Side Overlap	RMSEz
10 pts / m2	1600 m	40°	30%	≤ 10 cm

1.3. Coverage

The work unit boundary covers 1,455 square miles over California. Work Unit extent are shown in Figure 1.

1.4. Duration

Lidar data was acquired from Febuary 21, 2021 to April 30, 2021 in 52 total lifts.

1.5. Issues

There were no issues to report.

San Joaquin Work Unit 300028 Projected Coordinate System: State Plane Horizontal Datum: NAD83 (2011) Vertical Datum: NAVD88 (GEOID 18) Units: US Survey Feet		
Lidar Point Cloud	Classified Point Cloud in .LAS 1.4 format	
Rasters	 1-foot Hydro-flattened Bare Earth Digital Elevation Model (DEM) in GeoTIFF format 1-foot Intensity images in GeoTIFF format 	
Vectors	 Shapefiles (*.shp) Project Boundary Lidar Tile Index Calibration and QC Checkpoints (NVA/VVA) Flightline Swaths Geodatabase (*.gdb) Continuous Hydro-flattened Breaklines 	
Reports	 Reports in PDF format Focus on Delivery Focus on Accuracy Survey Report Processing Report 	
Metadata	 XML Files (*.xml) Breaklines Classified Point Cloud DEM Intensity Imagery 	

San Joaquin Work Unit 30028 Boundary

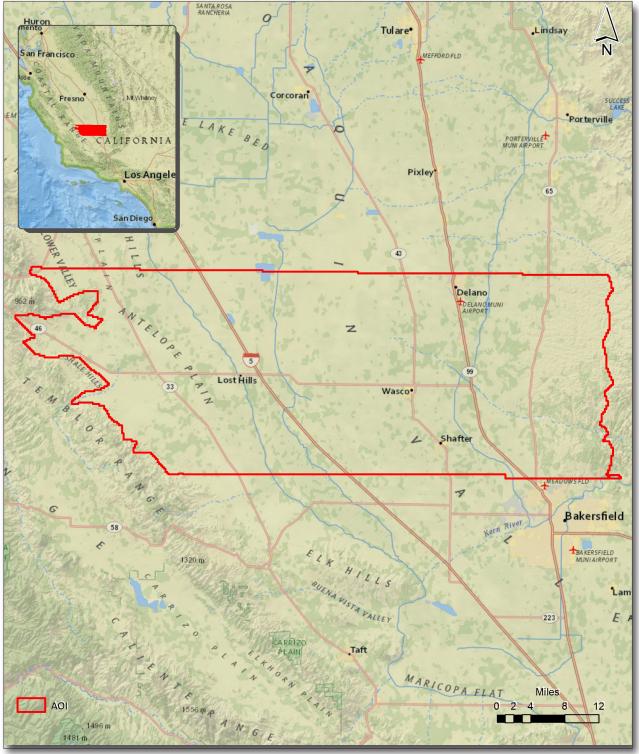


Figure 1. Work Unit Boundary

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2. Planning / Equipment

2.1. Flight Planning

Flight planning was based on the unique project requirements and characteristics of the project site. The basis of planning included: required accuracies, type of development, amount / type of vegetation within project area, required data posting, and potential altitude restrictions for flights in project vicinity.

Detailed project flight planning calculations were performed for the project by Towell Inc. using planning software.

2.2. Lidar Sensor

Towell Inc. utilized Optech Galaxy Prime lidar sensors (Figure 2), serial number(s) 5060411, for data acquisition.

These systems are capable of collecting data at a maximum frequency of 550 kHz. These systems utilize a Multi-Pulse in the Air option (MPIA). These sensors are also equipped with the ability to measure up to 8 returns per outgoing pulse

A brief summary of the aerial acquisition parameters for the project are shown in the lidar System Specifications in Table 2.

		Optech Galaxy Prime
Terrain and	Flying Height	1600 m
Aircraft Scanner	Recommended Ground Speed	125 kts
	Field of View	40°
Scanner	Scan Rate Setting Used	100 Hz
Laser	Laser Pulse Rate Used	1000 kHz
C	Full Swath Width	1165 m
Coverage	Line Spacing	815.29 m
Point Spacing	Average Point Spacing	0.3 m
and Density	Average Point Density	13.35 pts / m ²

Table 2. Lidar System Specifications

Figure 2. Optech Galaxy Lidar Sensor



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2.3. Aircraft

All flights for the project were accomplished through the use of Aspen Partenavia planes. Plane type and tail numbers are listed below.

Lidar Collection Planes

• Aspen Partenavia P-68, Tail Numbers: 300LF, N68VA

These aircraft provided an ideal, stable aerial base for lidar acquisition. These aerial platforms have relatively fast cruise speeds, which are beneficial for project mobilization / demobilization while maintaining relatively slow stall speeds, proving ideal for collection of high-density, consistent data posting using a state-of-the-art Optech lidar system.

3. Processing Summary

3.1. Flight Logs

Flight logs were completed by Lidar sensor technicians for each mission during acquisition. These logs depict a variety of information, including:

- Job / Project #
- Flight Date / Lift Number
- FOV (Field of View)
- Scan Rate (HZ)
- Pulse Rate Frequency (Hz)
- Ground Speed
- Altitude
- Base Station
- PDOP avoidance times
- Flight Line #
- Flight Line Start and Stop Times
- Flight Line Altitude (AMSL)
- Heading
- Speed
- Returns
- Crab

Notes: (Visibility, winds, ride, weather, temperature, dew point, pressure, etc). Project specific flight logs for each sortie are available in Appendix A.

3.2. Lidar Processing

Applanix + POSPac software was used for post-processing of airborne GPS and inertial data (IMU), which is critical to the positioning and orientation of the lidar sensor during all flights. Applanix POSPac combines aircraft raw trajectory data with stationary GPS base station data yielding a "Smoothed Best Estimate Trajectory" (SBET) necessary for additional post processing software to develop the resulting geo-referenced point cloud from the lidar missions.

During the sensor trajectory processing (combining GPS & IMU datasets) certain statistical graphs and tables are generated within the Applanix POSPac processing environment which are commonly used as indicators of processing stability and accuracy. This data for analysis include: max horizontal / vertical GPS variance, separation plot, altitude plot, PDOP plot, base station baseline length, processing mode, number of satellite vehicles, and mission trajectory.

Point clouds were created using the Optech LMS software. The generated point cloud is the mathematical three dimensional composite of all returns from all laser pulses as determined from the aerial mission. The point cloud is imported into GeoCue distributive processing software. Imported data is tiled and then calibrated using TerraMatch and proprietary software. Using TerraScan, the vertical accuracy of the surveyed ground control is tested and any bias is removed from the data. TerraScan and TerraModeler software packages are then used for automated data classification and manual cleanup. The data are manually reviewed and any remaining artifacts removed using functionality provided by TerraScan and TerraModeler.

DEMs and Intensity Images are then generated using proprietary software. In the bare earth surface model, above-ground features are excluded from the data set. Global Mapper is used as a final check of the bare earth dataset.

Software	Version
Optech LMS	4.4
Applanix + POSPac	8.6
GeoCue	2020.1.22.1
Global Mapper	19.1;20.1
TerraModeler	21.008
TerraScan	21.016
TerraMatch	21.007

Finally, proprietary software is used to perform statistical analysis of the LAS files.

3.3. LAS Classification Scheme

The classification classes are determined by Lidar Base Specifications 2020 Rev. A and are an industry standard for the classification of lidar point clouds. All data starts the process as Class 1 (Unclassified), and then through automated classification routines, the classifications are determined using TerraScan macro processing.

The classes used in the dataset are as follows and have the following descriptions:

	Classification Name	Description
1	Processed, but Unclassified	Laser returns that are not included in the ground class, or any other project classification
2	Bare earth	Laser returns that are determined to be ground using automated and manual cleaning algorithms
7	Low Noise	Laser returns that are often associated with scattering from reflective surfaces, or artificial points below the ground surface
8	Model Key Points	Educated thinned dataset of the Class 2 ground class used to create the contours
9	Water	Laser returns that are found inside of hydro features
17	Bridge Deck	Laser returns falling on bridge decks
18	High Noise	Laser returns that are often associated with birds or artificial points above the ground surface
20	Ignored Ground	Ground points that fall within the given threshold of a collected hydro feature.

Table 3. LAS Classifications

3.4. Classified LAS Processing

The bare earth surface is then manually reviewed to ensure correct classification on the Class 2 (Ground) points. After the bare- earth surface is finalized; it is then used to generate all hydro-breaklines through heads-up digitization.

All ground (ASPRS Class 2) lidar data inside of the Lake Pond and Double Line Drain hydro flattening breaklines were then classified to water (ASPRS Class 9) using proprietary tools. A buffer of 1.5 feet was also used around each hydro flattened feature to classify these ground (ASPRS Class 2) points to Ignored ground (ASPRS Class 20). All Lake Pond Island and Double Line Drain Island features were checked to ensure that the ground (ASPRS Class 2) points were reclassified to the correct classification after the automated classification was completed.

Any noise that was identified either through manual review or automated routines was classified to the appropriate class (ASPRS Class 7 and/or ASPRS Class 18) followed by flagging with the withheld bit.

All data was manually reviewed and any remaining artifacts removed using functionality provided by TerraScan and TerraModeler. Global Mapper is used as a final check of the bare earth dataset. GeoCue was then used to create the deliverable industry-standard LAS files for all point cloud data. NV5 Geospatial's proprietary software was used to perform final statistical analysis of the classes in the LAS files, on a per tile level to verify final classification metrics and full LAS header information.

3.5. Hydro-Flattened Breakline Processing

Class 2 lidar was used to create a bare earth surface model. The surface model was then used to heads-up digitize 2D breaklines of Inland Streams and Rivers with a 100 foot nominal width and Inland Ponds and Lakes of 2 acres or greater surface area.

Elevation values were assigned to all Inland streams and rivers using NV5 Geospatial's proprietary software.

All ground (ASPRS Class 2) lidar data inside of the collected inland breaklines were then classified to water (ASPRS Class 9) using TerraScan macro functionality. A buffer of 1.5 feet was also used around each hydro-flattened feature. These points were moved from ground (ASPRS Class 2) to Ignored Ground (ASPRS Class 20).

The breakline files were then translated to Esri file geodatabase format using Esri conversion tools.

Breaklines are reviewed against lidar intensity imagery to verify completeness of capture. All breaklines are then compared to TINs (triangular irregular networks) created from ground only points prior to water classification. The horizontal placement of breaklines is compared to terrain features and the breakline elevations are compared to lidar elevations to ensure all breaklines match the lidar within acceptable tolerances. Some deviation is expected between breakline and lidar elevations due to monotonicity, connectivity, and flattening rules that are enforced on the breaklines. Once completeness, horizontal placement, and vertical variance is reviewed, all breaklines are reviewed for topological consistency and data integrity using a combination of Esri Data Reviewer tools and proprietary tools.

3.6. Hydro-Flattened Raster DEM Processing

Hydro-Flattened DEMs (topographic) represent a lidar-derived product illustrating the grounded terrain and associated breaklines (as described above) in raster form. NV5 Geospatial's proprietary software was used to take all input sources (bare earth lidar points, bridge and hydro breaklines, etc.) and create a Triangulated Irregular Network (TIN) on a tile-by-tile basis. Data extending past the tile edge is incorporated in this process so that proper triangulation can occur. From the TIN, linear interpolation is used to calculate the cell values for the raster product. The raster product is then clipped back to the tile edge so that no overlapping cells remain across the project area. A 32-bit floating point GeoTIFF DEM was generated for each tile with a pixel size of value-units. NV5 Geospatial's proprietary software was used to write appropriate horizontal and vertical projection information as well as applicable header values into the file during product generation. Each DEM is reviewed in Global Mapper to check for any surface anomalies and to ensure a seamless dataset. NV5 Geospatial ensures there are no void or no-data values (-999999) in each derived DEM. This is achieved by

using propriety software checking all cell values that fall within the project boundary. NV5 Geospatial uses a proprietary tool called FOCUS on Delivery to check all formatting requirements of the DEMs against what is required before final delivery.

3.7. Swath Separation Raster Processing

Swath Separation Images are rasters that represent the interswath alignment between flight lines and provide a qualitative evaluation of the positional quality of the point cloud. NV5 Geospatial proprietary software generated 1-foot raster images in GeoTIFF format using last returns, excluding points flagged with the withheld bit, and using a point-in-cell algorithm. Images are generated with a 75% intensity opacity and (4) absolute 8-cm intervals, see below for interval coloring. Intensity images are linearly scaled to a value range specific to the project area to standardize the images and reduce differences between individual tiles. Appropriate horizontal projection information as well as applicable header values are written to the file during product generation. NV5 Geospatial uses a proprietary tool called FOCUS on Delivery to check all formatting requirements of the images against what is required before final delivery.

0-8cm
8-16cm
16-24cm
>24cm

3.8. Top of Canopy DSM Processing

First-return highest hit lidar points from the vegetation class were used to create a 1 foot raster DSM. Using automated scripting routines within proprietary software, TIF files were created for each tile. Each surface is reviewed using Global Mapper to check for any surface anomalies or incorrect elevations found within the surface.

3.9. Raster DSM Processing

A normalized digital surface model was created by removing the DEM surface from the DSM surface. This allows for the visualization of all features (cars, trees, buildings, etc.) that are above the ground level. Each surface is reviewed using Global Mapper to check for any surface anomalies or incorrect elevations found within the surface.

San Joaquin Work Unit 300028 Tile Layout

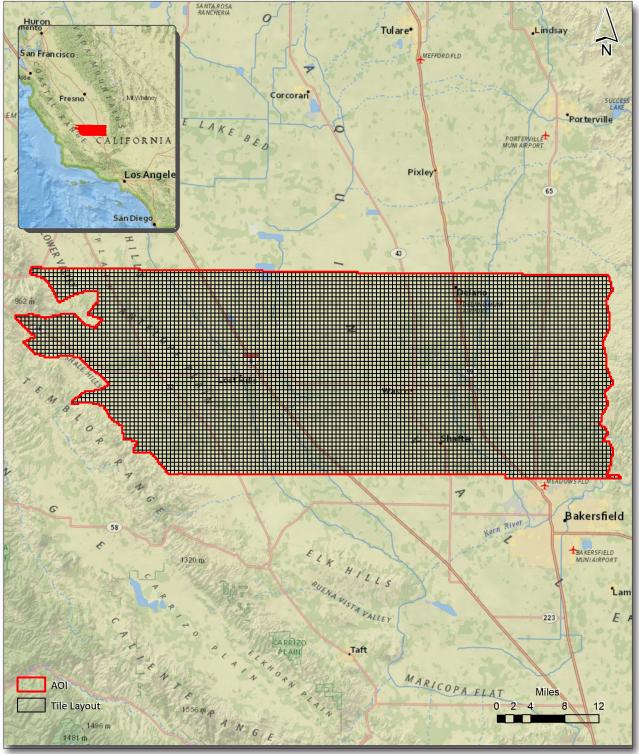


Figure 3. Lidar Tile Layout

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4. Project Coverage Verification

Coverage verification was performed by comparing coverage of processed .LAS files captured during project collection to generate project shape files depicting boundaries of specified project areas. Please refer to Figure 4.

San Joaquin Work Unit 300028 Lidar Coverage

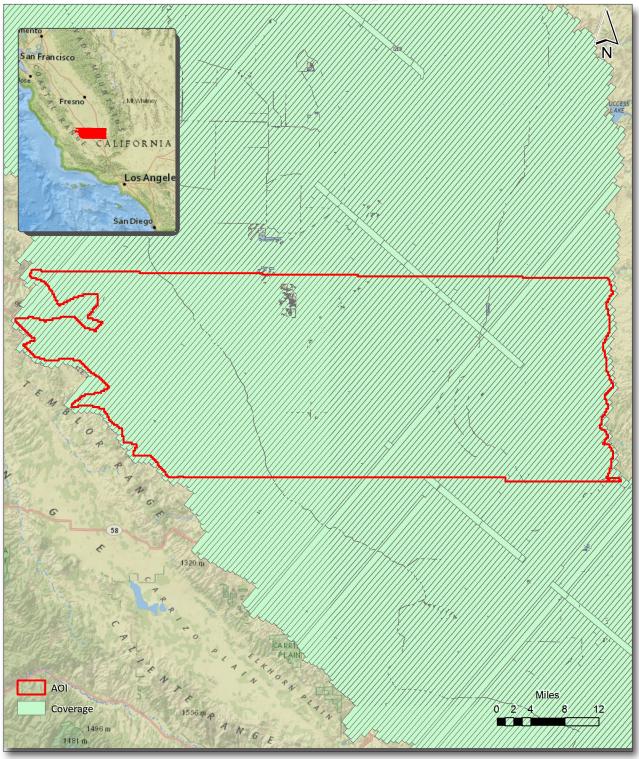


Figure 4. Lidar Coverage

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5. Geometric Accuracy

5.1. Horizontal Accuracy

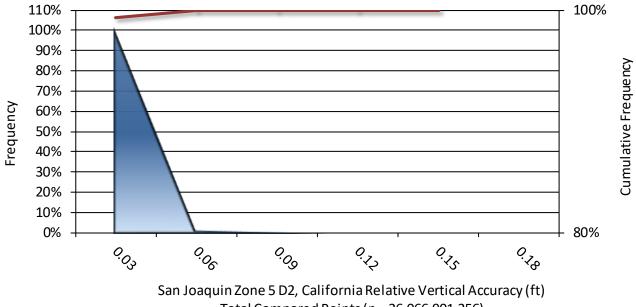
Lidar horizontal accuracy is a function of Global Navigation Satellite System (GNSS) derived positional error, flying altitude, and INS derived attitude error. The obtained RMSE, value is multiplied by a conversion factor of 1.7308 to yield the horizontal component of the National Standards for Spatial Data Accuracy (NSSDA) reporting standard where a theoretical point will fall within the obtained radius 95% of the time. Based on a flying altitude of 1,600 meters, an IMU error of 0.002 decimal degrees, and a GNSS positional error of 0.015 meters, this project was compiled to meet 0.23 meter horizontal accuracy at the 95% confidence level. A summary is shown below.

Horizontal Accuracy	
RMSE _r	0.33 ft
	0.101 m
ACC _r	0.57 ft
	0.17 m

5.2. Relative Vertical Accuracy

Relative vertical accuracy refers to the internal consistency of the data set as a whole: the ability to place an object in the same location given multiple flight lines, GPS conditions, and aircraft attitudes. When the lidar system is well calibrated, the swath-to-swath vertical divergence is low (<0.10 meters). The relative vertical accuracy was computed by comparing the ground surface model of each individual flight line with its neighbors in overlapping regions. The average (mean) line to line relative vertical accuracy for the San Joaquin project was 0.022 feet (0.007 meters). A summary is shown below.

Relative Vertical Accuracy		
Sample	143 flight line surfaces	
Average	0.022 ft	
Average	0.007 m	
Median	0.022 ft	
	0.007 m	
DMCE	0.022 ft	
RMSE	0.007 m	
Standard Deviation (1g)	0.002 ft	
Standard Deviation (1σ)	0.001 m	
1.96σ	0.003 ft	
	0.001 m	



Total Compared Points (n = 26,066,901,256)

Project Report Appendices

The following section contains the appendices as listed in the San_Joaquin WU300028 Lidar Project Report.

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Appendix A

Flight Logs

San_Joaquin Lidar Project - Work Unit 300028

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October 19, 2022

	N.		
TTOWILL	LIDAR FLIGHT LOG	Date: 2 = 21 - 21	1
SURVEYING MAPPING GIS		Mission(s):	•

Survey Information	052A	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147		Station Name: NA
Flight Vendor / Tail No: ASPEN / 300LF		Receiver Type & SN: Tem 5700 / #7248
Airport Start/End: KBFL -		Antenna & Measurement Type: Zephyr
Time of T/O: 9:50AM Time of Landing:	3:10 pm	Antenna Height – meters: 1.274
General Weather Conditions: CLEAR		Antenna Height – feet: 4.180 Checks

	Survey Information	Base Station Da	ata
Project Name: DWR Sa	n Joaquin Valley 14750-147	Station Name:	
Flight Vendor / Tail No:		Receiver Type & SN:	
Airport Start/End:		Antenna & Measurement Type:	
Time of T/O:	Time of Landing:	Antenna Height – meters:	
General Weather Cond	litions:	Antenna Height – feet:	Checks?

Comments (notable inflight disturbances, head/tail/crosswinds, instrument anomolies, etc.):	OSZA-STARTED	250- END L	37, HOBB5	
				5.4

Optech Galaxy Prime s/n 5060411 Last manufacturer service date: July 30, 2020

est for ceneinsteres	OS3A_L37-L ¹ 226, ^V 255 ^L 51 Verp Rouse mining over to the west fo flight	Comments (notable inflight disturbances, head/tail/crosswinds, $OS3$ instrument anomolies, etc.):
Checks?	Antenna Height – feet:	General Weather Conditions:
	Antenna Height – meters:	Time of T/O: Time of Landing:
	Antenna & Measurement Type:	Airport Start/End:
	Receiver Type & SN:	Flight Vendor / Tail No:
	Station Name:	Project Name: DWR San Joaquin Valley 14750-147
	a second and a second	Survey Information
Checks?	Antenna Height – feet: リ.	eneral Weather Conditions: こしじんに
Checks?	<u> </u>	Time of T/O: フ: 20AM Time of Landing: 12:45 pm General Weather Conditions: としじんに
Checks?	Antenna & Measurement Type: <i>Zehyr</i> Antenna Height – meters: ア 365 ~ Antenna Height – feet: <i>リ y 80 f f</i> Base Station Data	Ind: KBFL - KBFL 7:20AM Time of Landing: 12:4 Ither Conditions: CLEAR
	200 / 200 / 200 / 1	INO: ASPEN/N300LF KBFL - KBFL 1:20AM Time of Landing: 12:4 Conditions: CLEAR
	Station Name: M Receiver Type & SN: Tarn 5700 / # 7248 Antenna & Measurement Type: Zehryr Antenna Height – meters: 1, 365 ~ Antenna Height – feet: 4, 480 ft Antenna Height – feet: 4, 480 ft	Joaquin Valley 14750-147 ASPEN/N300LF BFL - KBFL AM Time of Landing: 12:4 tions: CLEAR
		Survey Information DWR San Joaquin Valley 14750-147 Tail No: ASPEN/N300LF nd: KBFL - KBFL 7: 20AM Time of Landing: 12:4 her Conditions: CLEAR
	Indication I Date: Date: Date: Date: Mission Base Station I Date: Mission Base Station I Date: Mission Date: Mission Date: Mission Date: Mission Date: Data: Date: Data: Date: Data: Date: Data: Data: Date: Data: Data	ELDA EYING MAPPING GIS Burvey Information Burvey Information DWR San Joaquin Valley 14750-147 Tail No: ASPEN/N300LF nd: KBFL - KBFL nd: KBFL - KBFL nd: YBFL - KBFL nd: CDAM
	In the set of the seto	Survey Information Survey Information DWR San Joaquin Valley 14750-147 Tail No: ASPEN/N30 Id: KBFL - KGFL Id: KBFL - KGFL Id: ZOAM Time of Landing: 7:20AM Time of Landing: Der Conditions: CLEAR

SURVEYING MAPPING GIS LIDAR FLIGHT LOG	T LOG Date: 2-23-2021 Mission(s): A
Survey Information	Base Station Data
	Station Name: $2/A$
Flight Vendor / Tail No: ASPEN / N300 LF / P-68 R	Receiver Type & SN: TRM 5700 / # 7248
Airport Start/End: K&FL - K&FL	Antenna & Measurement Type: בפראיז
anding: 12:35pm	Antenna Height – meters: ぬががな 1.307.
s: CLEAR	Antenna Height – feet: イ.29の仔
Survey Information	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name:
Flight Vendor / Tail No:	Receiver Type & SN:
Airport Start/End:	Antenna & Measurement Type:
Time of T/O: Time of Landing: A	Antenna Height – meters:
General Weather Conditions: A	Antenna Height – feet:

SURVEYING MAPPING GIS	HT LOG Date: 2-24-2021 Mission(s): A
Survey Information 055 A	Base Station Data
² roject Name: DWR San Joaquin Valley 14750-147	Station Name: NA
Flight Vendor / Tail No: ASPEN / N 300LF / P-68	Receiver Type & SN: 7RM 5700/# 7248
	Antenna & Measurement Type: Zephyr
Time of T/O: 11:45 m Time of Landing: 3:30 ρ m	Antenna Height – meters: /, 333 "
General Weather Conditions: CLEAP	Antenna Height – feet: 4.375 f×
Survey Information	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name:
Flight Vendor / Tail No:	Receiver Type & SN:
Airport Start/End:	Antenna & Measurement Type:
Time of T/O: Time of Landing:	Antenna Height – meters:
General Weather Conditions:	Antenna Height – feet:
Comments (notable inflight disturbances, head/tail/crosswinds, MX instrument anomolies, etc.):	<
	Optech Galaxy Prime s/n 5060411 Last manufacturer service date: July 30, 2020

SURVEYING MAPPING GIS LIDAR FLIGHT LOG	HT LOG Date: 2-25-2021 Mission(s): A
Survey Information 056A	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name: <i>V/</i> A
Flight Vendor / Tail No: ASEN	Receiver Type & SN: Tem 5700 /#7248
Airport Start/End: KBFL - KBFL	14
Time of T/O: フデ 3 ひんへ Time of Landing: 2: 30 pm	
General Weather Conditions: CLEAR	Antenna Height – feet: 4.525 ft Checks?
Survey Information	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name:
Flight Vendor / Tail No:	Receiver Type & SN:
Airport Start/End:	Antenna & Measurement Type:
Time of T/O: Time of Landing:	Antenna Height – meters:
General Weather Conditions:	Antenna Height – feet:
Comments (notable inflight disturbances, head/tail/crosswinds, (instrument anomolies, etc.):	$165 - 1^{12}77$
	sent map to : evanielle gerrelle taa.gov
	Optech Galaxy Prime s/n 5060411 Last manufacturer service date: July 30, 2020

SURVEYING MAPPING GIS CIDAR FLIGHT LOG	HT LOG Date: 2-26-2921 Mission(s): A
Survey Information	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name: レA
Flight Vendor / Tail No: A SPEN /N 300LF / P-68	Receiver Type & SN: TRM 5700 / # 7248
KBFL	Antenna & Measurement Type: Zephyr / Bottom Notch
Time of T/O: $7:00_{\text{KM}}$ Time of Landing: $1:00_{\text{PM}}$	Antenna Height – meters: し
General Weather Conditions: CLEAR	Antenna Height – feet: ィー、フロのチャ Checks?
Survey Information	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name:
Flight Vendor / Tail No:	Receiver Type & SN:
Airport Start/End:	Antenna & Measurement Type:
Time of T/O: Time of Landing:	Antenna Height – meters:
General Weather Conditions:	Antenna Height – feet:
Comments (notable inflight disturbances, head/tail/crosswinds, $(L/L77 - L/290)$ instrument anomolies, etc.):	1/277 -LV290) 6LAU
	Optech Galaxy Prime s/n 5060411 Last manufacturer service date: July 30, 2020

Survey Information CSBA Survey Information CSBA Station Name: Station Name: Project Name: DWR San Joaquin Valley 14750-147 CSBA Station Name: Flight Vendor / Tail No: AsPEN N 200 LF P- 6 8 Receiver Type & S Airport Start/End: COS K BF L K BF L K BF L Antenna & Measur	Base Station Data
NBFL 058A	ase
NBFL KBFL	
LE/P-68 KBFL	NT
DE KBFL - KBFL	Receiver Type & SN: 7RM 5700 / #7248
	Antenna & Measurement Type: Zephyr / Bottom Noten
Time of	1.335~
ather Conditions: CLEAR	feet: 4_3&Off Ghadish
Survey Information	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147 Station Name:	
Flight Vendor / Tail No:	SN:
Airport Start/End: Antenna & Measurement Type:	urement Type:
Time of T/O: Time of Landing: Antenna Height – meters:	- meters:
General Weather Conditions: Antenna Height – feet:	- feet: Checks?
Comments (notable inflight disturbances, head/tail/crosswinds/ $\sum_{l=0}^{l} \sqrt{2} Q - 9 2$) monitorinstrument anomolies, etc.):	Moving northwest, cloude forming here ! South helf loy complete !
	Optech Galaxy Prime s/n 5060411

Survey Information 059A	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name: NA
Flight Vendor / Tail No: AspEN/N300LF/P-68	Receiver Type & SN: TRM 5700 / # 7248
KBFL	Antenna & Measurement Type: Zephyr/Bothon Natch
me	Antenna Height – meters: /・2 S O ー
General Weather Conditions: High clouds/ OFLON 12K	Antenna Height – feet: 4.100 ft Checks?
Survey Information	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name:
Flight Vendor / Tail No:	Receiver Type & SN:
Airport Start/End:	Antenna & Measurement Type:
Time of T/O: Time of Landing:	Antenna Height – meters:
General Weather Conditions:	Antenna Height – feet:

SURVEYING MAPPING GIS LIDAR FLIGHT LOG	HT LOG Date: 3-1-2021 Mission(s): A
Survey Information	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name: VA
Flight Vendor / Tail No: ASPEN /N 300 LF / P-68	Receiver Type & SN: TRM 5700 / # 7248
	Antenna & Measurement Type: Zephys / B N
Lim	Antenna Height – meters: $1, 295$
General Weather Conditions:	Antenna Height – feet: 4。25の行く Cheate?
Survey Information	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name:
Flight Vendor / Tail No:	Receiver Type & SN:
Airport Start/End:	Antenna & Measurement Type:
Time of T/O: Time of Landing:	Antenna Height – meters:
General Weather Conditions:	Antenna Height – feet:
Comments (notable inflight disturbances, head/tail/crosswinds, (L10 instrument anomolies, etc.):	LIOS - LIIS/Northertel
812	Blais, Petersein
6.0	C. D Mr.S. Optech Galaxy Prime s/h 5060411
	Last manufacturer service date: July 30, 2020

SURVEYING MAPPING GIS	HT LOG Date: 3-2-2021 Mission(s): A
Survey Information 061A	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name:
Flight Vendor / Tail No: ASPEN/N.300LF/P-68	Receiver Type & SN: 7RM 5700 / #7248
-	Antenna & Measurement Type: Z_{ephyr} / BN
4 Q	Antenna Height – meters: 1.333 M
General Weather Conditions: CLEAR	Antenna Height – feet: 4.5405+
Survey Information	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name:
Flight Vendor / Tail No:	Receiver Type & SN:
Airport Start/End:	Antenna & Measurement Type:
Time of T/O: Time of Landing:	Antenna Height – meters:
General Weather Conditions:	Antenna Height – feet:
Comments (notable inflight disturbances, head/tail/crosswinds, (しりくしり のみた ビュチ instrument anomolies, etc.):	S-LII9 Noth Haft Post File: OULA
	Optech Galaxy Prime s/n 5060411 Last manufacturer service date: July 30, 2020

SURVEYING MAPPING GIS LIDAR FLIGHT LOG	GHT LOG Date: 3-3-2021 Mission(s): A
Survey Information 067 A	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name: Λ/A
Flight Vendor / Tail No: Aspen N300LF/P.68	Receiver Type & SN: TRM 5700 / # 7248
KRFL	Antenna & Measurement Type: Z_{ep} L, $f = \mathcal{BN}$
Time	Antenna Height – meters: $\int Sq \int M$
High Our. Cast	Antenna Height – feet: 4, 565 ft Checks?
Survey Information	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name:
Flight Vendor / Tail No:	Receiver Type & SN:
Airport Start/End:	Antenna & Measurement Type:
Time of T/O: Time of Landing:	Antenna Height – meters:
General Weather Conditions:	Antenna Height – feet:
Comments (notable inflight disturbances, head/tail/crosswinds $(L1)9 - L129 NorthHalf$ instrument anomolies, etc.):	7 - LIZ9 WORTH Half
	Ontech Galaxy Prime s/n 5060411
	Last manufacturer service date: July 30, 2020

Optech Galaxy Prime s/n 5060411 Last manufacturer service date: July 30, 2020 OWLY S. DWS, N 300LF MX 100Kr Checks? Checks? Date: 3-4-202 Receiver Type & SN: T_{RM} 5700/#7248 BN Mission(s): A **Base Station Data Base Station Data** Antenna & Measurement Type: $Z_{e\rho}h_{\gamma'}$ Antenna Height – meters: 1.309 m 4.29547 Antenna & Measurement Type: Antenna Height – meters: Antenna Height – feet: AN Antenna Height – feet: Receiver Type & SN: Comments (notable inflight disturbances, head/tail/crosswinds, (L129 – L138NH) Plais, Petersen Station Name: Station Name: LIDAR FLIGHT LOG 10:20 063A 19-68 ASPEN/N300LF, Time of Landing: Time of Landing: CLEAR Survey Information Survey Information Project Name: DWR San Joaquin Valley 14750-147 Project Name: DWR San Joaquin Valley 14750-147 KBFL - KBFL SURVEYING | MAPPING | GIS 3 5:0Jan General Weather Conditions: General Weather Conditions: instrument anomolies, etc.): Flight Vendor / Tail No: Flight Vendor / Tail No: Airport Start/End: Airport Start/End: Time of T/O: Time of T/O:

2		
SURVEYING MAPPING GIS	LIDAR FLIGHT LOG	HT LOG Date: 3/7 21
Survey Information	tion	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	0-147	Station Name: FRESNO
Flight Vendor / Tail No: $A \leq \rho E_N - N$	N 300LF	Receiver Type & SN: STOD / フスチ络
Airport Start/End: FRESNO - FAT		Antenna & Measurement Type: こらりHYR - CM
Time of T/O: 9:00 AM Time of	Time of Landing: ス: スの アル	Antenna Height – meters: 1,478
General Weather Conditions: אַאַאַדעּץ	CLOUPY	Antenna Height – feet: 4.644
Survey Information	ation	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	50-147	Station Name:
Flight Vendor / Tail No:		Receiver Type & SN:
Airport Start/End:		Antenna & Measurement Type:
Time of T/O: Time o	Time of Landing:	Antenna Height – meters:
General Weather Conditions:		Antenna Height – feet:
Control inflicted disturbances	head/tail/crosswinds.	

Comments (notable inflight disturbances, head/tail/crosswinds, instrument anomolies, etc.):

Optech Galaxy Prime s/n 5060411 Last manufacturer service date: July 30, 2020

SURVEYING MAPPING GIS	Mission
Survey Information	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name: FRESNO
Flight Vendor / Tail No: ASPEN / N300LF	Receiver Type & SN: 5700 / 7248
AT	Antenna & Measurement Type: ZEP#Y ペー らく
Time of T/O: 名: 30 Am Time of Landing: 2:30 pm	Antenna Height – meters: $l, 460$
General Weather Conditions: PARTLY LLOUOY	Antenna Height – feet: 4.789
Survey Information	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name:
Flight Vendor / Tail No:	Receiver Type & SN:
Airport Start/End:	Antenna & Measurement Type:
Time of T/O: Time of Landing:	Antenna Height – meters:
General Weather Conditions:	Antenna Height – feet:

SURVEYING MAPPING GIS	Mission(s): $Db $
Survey Information	Bana Station Data
Project Name: DWR San Joaquin Vallev 14750-147	1.1
Flight Vendor / Tail No: A	1. A.
ASPEN ASPEN AS 00 LF	Receiver Type & SN: 5700 / # 7248
Airport Start/End: FRESNO KFAT	Antenna & Measurement Type: <i>云</i> ビャイダス / <i>BN</i>
Time of T/O: \mathcal{L} ; \mathcal{J} , \mathcal{A} , \mathcal{M} Time of Landing: 11 ; $\mathfrak{b}\mathfrak{b}$	Am Antenna Height – meters: ۱. ۲۵
General Weather Conditions: องยี่ผะฤธา	Antenna Height – feet: 4. 80-7
Survey Information	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name:
Flight Vendor / Tail No:	Receiver Type & SN:
Airport Start/End:	Antenna & Measurement Type:
Time of T/O: Time of Landing:	Antenna Height – meters:
General Weather Conditions:	Antenna Height – feet:
Comments (notable inflight disturbances, head/tail/crossw instrument anomolies, etc.):	sswinds,
	Optech Galaxy Prime s/n 5060411
	Last manufacturer service date: July 30, 2020

SURVEYING MAPPING GIS LIDAR FLIGHT LOG	HT LOG Date: 3/13/21 Mission(s): 07&
Survey Information	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name: FREANO
Flight Vendor / Tail No: ASPEN /N300LF	~
Airport Start/End: FRESNO/ KFAT	lent Type: ZFP4
Time of T/O: 역: 00 여씨 Time of Landing: 1 2:00 PM	
General Weather Conditions: PTY 2LOUDY	Antenna Height – feet: $\frac{1}{4}$, $\frac{1}{6}$, $\frac{1}{4}$
Survey Information	Race Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name:
Flight Vendor / Tail No:	Receiver Tvne & SN
Airport Start/End:	Antenna & Measurement Tyme.
Time of T/O: Time of Landing:	Antenna Height – meters:
General Weather Conditions:	
Commonte (metable indiate district distribution di	Cleaks
instrument anomolies, etc.):	
	Optech Galaxy Prime s/n 5060411 Last manufacturer service date: July 30, 2020

SURVEYING MAPPING GIS	Mission(s): 0 /	0
Survey Information	Base Station Data	
Project Name: DWR San Joaquin Valley 14750-147	Station Name: FRESNO	
Flight Vendor / Tail No: $A \Rightarrow P \in W / N \Rightarrow o o L F$	Receiver Type & SN: 5700 /# 7248	
Airport Start/End: FRESNOD K FAT	Antenna & Measurement Type: $\mathbb{Z} \in P + Y \mathbb{R} / B \mathbb{N}$	Ν
Time of T/O: ርქ: 30 Å M Time of Landing: 3, 20 የ M	Antenna Height – meters: 1,	
General Weather Conditions: PTLY CLOUDY	Antenna Height – feet: イ, るらう	L Checks?
Survey Information	Base Station Data	
Project Name: DWR San Joaquin Valley 14750-147	Station Name:	
Flight Vendor / Tail No:	Receiver Type & SN:	
Airport Start/End:	Antenna & Measurement Type:	
Time of T/O: Time of Landing:	Antenna Height – meters:	
General Weather Conditions:	Antenna Height – feet:	Checks ?

1 dillo
DAR FLIGHT LOG Date: 3/17/2/ Mission(s): 076A
Base Station Data
Station Name: FREND
Receiver Type & SN: 5700 / # 7248
Antenna & Measurement Type: ご チャャドア ろ BN
Antenna Height – meters: 1 , $1/6$ 9
Antenna Height – feet: 4, 818
Base Station Data
Station Name:
Receiver Type & SN:
Antenna & Measurement Type:
Antenna Height – meters:
Antenna Height – feet:
Optech Galaxy Prime s/n 5060411

Optech Galaxy Prime s/n 5060411 Last manufacturer service date: July 30, 2020 **Checks**? Checks? Mission(s): 077 A BN ā # Tay & **Base Station Data** 18 Antenna & Measurement Type: ZFPHYR **Base Station Data** 3 1.428 4,682 Date: Antenna & Measurement Type: 5700 Antenna Height – meters: FRESNO Antenna Height – meters: Antenna Height – feet: Antenna Height – feet: Receiver Type & SN: Receiver Type & SN: Station Name: Station Name: LIDAR FLIGHT LOG 3:00 pm Comments (notable inflight disturbances, head/tail/crosswinds, FIBEN Time of Landing: Time of Landing: N 300LF KFAT Survey Information Project Name: DWR San Joaquin Valley 14750-147 Survey Information Project Name: DWR San Joaquin Valley 14750-147 General Weather Conditions: CLEAR SURVEYING | MAPPING | GIS Flight Vendor / Tail No: A_{SPEN} Airport Start/End: FRES-10 II MOL General Weather Conditions: instrument anomolies, etc.): Time of T/O: 9:00 AM Flight Vendor / Tail No: Airport Start/End: Time of T/O:

	Date: 3-21-2021
	ni LOG Mission(s):
Survey Information 080A	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name: NA
Flight Vendor / Tail No: ASPEN / N300 LF	Receiver Type & SN: TRm 5700 / # 7248
Airport Start/End: KFAT - KFAT	7
Time of T/O: $8:30_{a,m}$ Time of Landing: $11:50_{a,m}$	Antenna Height – meters: /. 5/5,
General Weather Conditions: Low Building Clonds	Antenna Height – feet: $4.70 ft$ Checks?
Survey Information	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name:
Flight Vendor / Tail No:	Receiver Type & SN:
Airport Start/End:	Antenna & Measurement Type:
Time of T/O: Time of Landing:	Antenna Height – meters:
General Weather Conditions:	Antenna Height – feet: Checks?
Comments (notable inflight disturbances, head/tail/crosswinds, ○8○A instrument anomolies, etc.):	CA START L182 - Complete (S) L183 - Southwest Helf (S) L184 - Southwest Helf (S) L185 - Southwest Helf (S) L185 - Southwest Helf (S) Didde - Southwest Helf (S) CTART (S) of the Line of the Southwest (S) for

SURVEYING MAPPING GIS LIDAR FLIGHT LOG	HT LOG Date: 3-22-2021 Mission(s):
Survey Information	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name: NA
Flight Vendor / Tail No: ASPEN /N 300LF	Receiver Type & SN: 7Rm 5700 / # 7248
Airport Start/End: KFAT - KFAT	Antenna & Measurement Type: Zepuyu/ BN
Time of T/O: く。 <i>40cum</i> Time of Landing: はろの	Antenna Height – meters: 1. 4 56m
General Weather Conditions: CLEAR	Antenna Height – feet: ゖ, 78 の f + Checks?
Survey Information	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name:
Flight Vendor / Tail No:	Receiver Type & SN:
Airport Start/End:	Antenna & Measurement Type:
Time of T/O: Time of Landing:	Antenna Height – meters:
General Weather Conditions:	Antenna Height – feet:
Comments (notable inflight disturbances, head/tail/crosswinds,	RT LIB3-L195
*	S#
6.745	Optech Galaxy Prime s/n 5060411

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SURVEYING MAPPING GIS LIDAR FLIGHT LOG	HT LOG Mission(s):
Survey Information	🗶 Base Station Data 🗶
Project Name: DWR San Joaquin Valley 14750-147	Station Name: AND * No Flight Crew Base *
Flight Vendor / Tail No: ASPEN / N3OOLF	3
Airport Start/End: KOXR - KFAT	Antenna & Measurement Type: Buse Auto for 023
Time of T/O: $q_{3}HO_{\alpha}M$ Time of Landing: $\frac{1}{2}HO_{\alpha}M$	Antenna Height – meters:
General Weather Conditions: SKY CLEAR	Antenna Height – feet:
Survey Information	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name:
Flight Vendor / Tail No:	Receiver Type & SN:
Airport Start/End:	Antenna & Measurement Type:
Time of T/O: Time of Landing:	Antenna Height – meters:
General Weather Conditions:	Antenna Height – feet: Checks?
Comments (notable inflight disturbances, head/tail/crosswinds, ろチっ instrument anomolies, etc.):	TART LI96-L2024 0834

SURVEYING MAPPING GIS	HT LOG Date: 3-25-2021 Mission(s):
Survey Information 084A	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name: $\mathcal{N}\mathcal{A}$
Flight Vendor / Tail No: As PEN	Receiver Type & SN: TRM 5700 / #7248
Airport Start/End: KFAT - KFAT	Antenna & Measurement Type: Zephyr / BN
Time of T/O: $7: 40 \text{ dow}$ Time of Landing: $10:50 \text{ dow}$	Antenna Height – meters: //. 280m
General Weather Conditions: Hエビト DVC	Antenna Height – feet: $4.200 ft$ Checks?
Survey Information	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name:
Flight Vendor / Tail No:	Receiver Type & SN:
Airport Start/End:	Antenna & Measurement Type:
Time of T/O: Time of Landing:	Antenna Height – meters:
General Weather Conditions:	Antenna Height – feet:
Comments (notable inflight disturbances, head/tail/crosswinds $\int_{S} f_{b}^{2}$ instrument anomolies, etc.):	Stort LZOS-LZOB COMPLETE FULL LINES
Te	TRIED LZOG BUT CLOUDS and fires underreth the plane
	In while the later of the control optic the standard sold 11
	Last manufacturer service date. July July 202

LIDAR FLIGHT LOG Date: 3-26-2°2) Mission(s):	ation 085A Base Station Data	Station Name: UA	N 300 LF Receiver Type & SN: 5700 TRM /7248	KFAT Antenna & Measurement Type: Zephyr / BN	Time of Landing: 12:25 Pー Antenna Height – meters: 1, 441 ー	BUT REPORTING CLDS Antenna Height - feet: 4.730 ft Checker	nation Base Station Data	750-147 Station Name: NA	N300LF Receiver Type & SN: TRM5700 /# 7248	χFAT Antenna & Measurement Type: Z_{ePhar} / BN	Time of Landing: $3:25\rho_{M}$ Antenna Height – meters: $1, 441m$	ered North East Half Antenna Height - feet: 4.730ff		ead/tail/crosswinds, 055A 57ART L20 \$ PORTELLO L214 (NE) Southwest here L215 (NE) Southwest hel	and the southwest well only
SURVEYING MAPPING GIS	Survey Information	Project Name: DWR San Joaquin Valley 14750-147	Flight Vendor / Tail No: ASPEN	+ 1	1000	General Weather Conditions: CLEAR	Survey Information	Project Name: DWR San Joaquin Valley 14750-147	Flight Vendor / Tail No: ASPEN /	X	Time of T/O: 2:5 p.m. Time	General Weather Conditions: $S_{c,t}$	05 11	Comments (notable inflight disturbances, head/tail/crosswinds, instrument anomolies, etc.): RETERSEN ? PORTELLO 085B START L219 EU Sourcest hulf only	E

SURVEYING MAPPING GIS	DAR FLIGHT LOG Date: 5-2/-2021 Mission(s):
Survey Information O86A	Base Station Data
	Station Name: NA
Flight Vendor / Tail No: ASPEN / N300LF/P-68	Receiver Type & SN: T _{&m.5} 700 / # 7248
KFAT	1ª
Time of T/O: 7:32am Time of Landing: 1:30pm	
	Antenna Height – feet: 4.700f4 Checks?
Survey Information	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name:
Flight Vendor / Tail No:	Receiver Type & SN:
Airport Start/End:	Antenna & Measurement Type:
Time of T/O: Time of Landing:	Antenna Height – meters:
General Weather Conditions:	Antenna Height – feet:

-

SURVEYING MAPPING GIS	LIDAR FLIGHT LOG	Date: 3-28-2021 Mission(s):
Survey Information	DR7A Base Statio	Station Data
	Station Name: NA	
Flight Vendor / Tail No: ASPEN / N 300 LF	Receiver Type & SN: TRM 5700	/#7248
FAT - KFAT 1:1	5_{PM} Antenna & Measurement Type: Z_{ef}	Zephyr / BN
	Antenna Height – meters: 1.524 m	Hm
General Weather Conditions: こんし	Antenna Height – feet: 5.00	ocoft Checks?
Survey Information	Base Stati	Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name:	
Flight Vendor / Tail No:	Receiver Type & SN:	
Airport Start/End:	Antenna & Measurement Type:	
Time of T/O: Time of Landing:	Antenna Height – meters:	
General Weather Conditions:	Antenna Height – feet:	Checks?
Comments (notable inflight disturbances, head/tail/crosswinds, instrument anomolies, etc.): つぎフム - らてみたげし 246	ids, F - L 280)	
	Ţ	Optech Galaxy Prime s/n 5060411 Last manufacturer service date: July 30, 2020

Survey Information $OggA$ Base Station DataProject Name: DWR San Joaquin Valley 14750-147Station Name: NA Flight Vendor / Tail No: $A_{SPEN} / N_{3} OOLE / P_{-} 68$ Receiver Type & SN: $T_{ROJ} S700 / H_{1}$ Airport Start/End: $KFAT - KFAT$ Antenna & Measurement Type: Z_{PPYY} / L_{1} Airport Start/End: $KFAT - KFAT$ Antenna & Measurement Type: Z_{PPYY} / L_{1} Airport Start/End: $Y_{22\Delta,m}$ Time of Landing: 1:05 pmAntenna & Measurement Type: Z_{PPYY} / L_{1} Time of T/O: $\gamma_{122\Delta,m}$ Time of Landing: 1:05 pmAntenna Height - meters: $[-4, 770ft]$ General Weather Conditions:Antenna Height - feet: $y_{*} 770ft]$ Survey InformationRaten Base Station DataStation Name:Project Name: DWR San Joaquin Valley 14750-147Station Name:Antenna & Measurement Type:Flight Vendor / Tail No:Receiver Type & SN:Antenna & Measurement Type:Airport Start/End:Time of Landing:Antenna Height - meters:Airport Start/End:Time of Landing:Antenna Height - meters:Ceneral Weather Conditions:Antenna Height - meters:	Mission(s):
DWR San Joaquin Valley 14750-147Station Name: $\[mu]Ame$ Tail No: $ASPEN / N 3 \odot OLF / P - 68$ Receiver Type & SN: $\[mu]Ame$ nd: $\[mu]XFAT - XFAT$ Antenna & Measuremernd: $\[mu]XFAT - XFAT$ Antenna & Measuremer7: $\[mu]22cm$ Time of Landing: $\[mu]1:OSpm$ Antenna Height - feet:ner Conditions:Antenna Height - feet:Antenna Height - feet:DWR San Joaquin Valley 14750-147Station Name:Antenna & Measuremernd:Time of Landing:Antenna & Measuremernd:Time of Landing:Antenna & Measuremernd:Time of Landing:Antenna Height - feet:ner Conditions:Antenna Height - feet:	Data
N3OUF/P-68 Receiver Type & SN: * - ドモカT Antenna & Measuremer Time of Landing: 1:05 pm Antenna Height – meter Time of Landing: 1:05 pm Antenna Height – feet: Information Antenna Height – feet: Iley 14750-147 Station Name: Iley 14750-147 Station Name: Information Antenna & Measuremei Time of Landing: Itenna & Measuremei Iley 14750-147 Station Name: Iley 14750-147 Station Name: Iley 14750-147 Antenna & Measuremei	
→ K E A T Antenna & Measuremer Time of Landing: 1:05 pm Antenna Height – meter Antenna Height – Teet: Antenna Height – feet: Antenna Height – feet: Isley 14750-147 Station Name: Station Name: Isley 14750-147 Station Name: Antenna & Measuremer Time of Landing: Antenna & Measuremer Antenna & Measuremer Time of Landing: Antenna Height – meter Antenna Height – meter	1#7248
Time of Landing: 1: OS pm Antenna Height – meter Antenna Height – feet: Antenna Height – feet: ey Information Antenna Height – feet: In Valley 14750-147 Station Name: In Valley 14750-147 Station Name: In Valley 14750-147 Antenna & Measureme: In Valley 14750-147 Antenna & Measureme: In Valley 14750-147 Antenna & Measureme: In Valley 14750-147 Antenna A Measureme: In Valley 14750-147 Antenna Height – mete: In Valley 14750-147 Antenna Height – mete:	, IBN
Antenna Height – feet: ey Information Antenna Height – feet: in Valley 14750-147 Station Name: in Valley 14750-147 Receiver Type & SN: Antenna & Measuremel Antenna & Measuremel Time of Landing: Antenna Height – mete Time of Landing: Antenna Height – mete	ν
Receiver Type & SN: Receiver Type & SN: Antenna & Measuremei Antenna Height – metei Antenna Height – feet:	ift Checks?
ding:	Data
Time of Landing:	
Time of Landing:	
Time of Landing:	
	Checks?
ter /	
instrument anomolies, etc.): $O_{ggA} S_{TART} L_{2}I_{4} - L_{2}28$	

SURVEYING MAPPING GIS	HT LOG Date: $3-30-202$ Mission(s): $A + B$
Survey Information	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name: NA
Flight Vendor / Tail No: ASPEN / N300LF/P-68	Receiver Type & SN: TRM 5700/ #7248
	Antenna & Measurement Type: Zephy/ BN
	Antenna Height – meters: $ _{s} 530 \text{ m}$
General Weather Conditions: SKC	Antenna Height – feet: 5.020 ft Checks?
Survey Information	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name: $\mathcal{N} \mathcal{A}$
Flight Vendor / Tail No: Contraction As PEN /N 300LF	Receiver Type & SN: <i>TRM</i> ちつっ /#72 48
	Antenna & Measurement Type: $Z_{er} \vdash_{\mathcal{Y}r} / \mathcal{BN}$
Time of T/O: /2 ころのの Time of Landing: 3:15 pm	Antenna Height – meters: / , こょっ ~
General Weather Conditions: $S KC$	Antenna Height – feet: 5 " 0 20 f + Cheeks?
Comments (notable inflight disturbances, head/tail/crosswinds(<i>S T</i> / instrument anomolies, etc.):	START L229 - L236/2 J039A) 89B-START L236/2 NE) - L239'2 (5W)
	Optech Galaxy Prime s/n 5060411
	Last manuactural service and service and service

SURVEYING MAPPING GIS	LIDAR FLIGHT LOG Date: 3-31-2021 Mission(s):
Survey Information	DA Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name: NA
Flight Vendor / Tail No: ASPEN / N300LF /P. 6	68 Receiver Type & SN: TRM5700/ #7248
Airport Start/End: KFAT - 12 FAT	Antenna & Measurement Type: Zepトyr / BM
Time of Landing: 1:25	P Antenna Height – meters: $l. H60 m$
General Weather Conditions: \mathcal{SKC}	Antenna Height – feet: Gイ、フタの仔 CheckSV
o	Base Station Data
	Station Name.
Project Name: DWK San Joaquin Valley 14/50-14/	
Flight Vendor / Tail No:	Receiver Type & SN:
Airport Start/End:	Antenna & Measurement Type:
Time of T/O: Time of Landing:	Antenna Height – meters:
General Weather Conditions:	Antenna Height – feet:

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SURVEYING MAPPING GIS LIDAR FLIGHT LOG	SHT LOG Date: 4 - 1 - 2º 2.1 Mission(s):
Cimeral Le	otellar Data
Survey Information D91A	Base Station Data
Joaquin Valley 14750-147	Station Name: NA
Flight Vendor / Tail No: ASPEN / N 300LF/ P-68	Receiver Type & SN: 7RM 5700 仲72 48
Airport Start/End: KFAT - KFAT	Antenna & Measurement Type: $Z_{c,\rho,h,\gamma'} / B N$
Time of T/O: ۲:40 مس Time of Landing: 12:40 مس	Antenna Height – meters: $1, 463$ m
SKC	Antenna Height – feet: 4.800ft
Survey Information	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name:
Flight Vendor / Tail No:	Receiver Type & SN:
Airport Start/End:	Antenna & Measurement Type:
Time of T/O: Time of Landing:	Antenna Height – meters:
General Weather Conditions:	Antenna Height – feet:
Comments (notable inflight disturbances, head/tail/crosswinds,	ART LZ40 200 - 252 AN WORLETE
	Optech Galaxy Prime s/n 5060411 Last manufacturer service date: July 30, 2020

Survey Information Base Station Data Project Name: Dwr San Joaquin Valley 14750-147 Base Station Date Project Name: Dwr San Joaquin Valley 14750-147 Station Name: M ADERA - Flight Vendor / Tail No: AspEw / N Base Station Receiver Type & SN: S-700 / H 72, Airport Start/End: MAE Antenna & Measurement Type: ZEPHVR, Airport Start/End: M ALF Antenna & Measurement Type: ZEPHVR, Time of T/O: 1/ Am Time of Landing: 4/; 3c Antenna Height - meters: 1/479 General Weather Conditions: QLEAK Antenna Height - feet: 4/, 85% Survey Information Base Station Data Project Name: DWR San Joaquin Valley 14750-147 Station Name:	Station Data
イA Station Name: 小ADERA Receiver Type & SN: <i>S</i> -70 Antenna & Measurement Type ding: リ; 3の Antenna Antenna Height – meters: 1, Antenna Height – feet: イ, Antenna Height – feet: イ, Antenna Height – feet: イ, Station Name: Station Name:	
ASPEN / N & AF Receiver Type & SN: S 70 DFRA K M AF Antenna & Measurement Type Time of Landing: リ: 3の Antenna Height - meters: 1, tions: QL EAL Antenna Height - feet: リ, tions: QL EAL Sconset Antenna Height - feet: リ, tions: DL EAL Sconset Antenna Height - feet: 1, Station Valley 14750-147 Station Name:	
K MAF Antenna & Measurement TypeTime of Landing: η' ; 3σ Antenna Height – meters: $QLEAL$ Antenna Height – feet: η' ; $QLEAL$ Antenna Height – feet: η' ; $PLEAL$ Antenna Height – feet: η' ;<	5 / 71 7248
IL Am Time of Landing: ヴ: 3の Antenna Height – meters: J her Conditions: _{CL} ビルト Antenna Height – feet: イ, Antenna Height – feet: イ, Antenna Height – feet: イ, Antenna Height – feet: イ, Survey Information Base Station Name:	EEPHYR BN
QL €A € Antenna Height – feet: 4, 4	479
Base Station Name:	58 L Checks?
	Station Data
Flight Vendor / Tail No: Receiver Type & SN:	1 + Martin 1
Airport Start/End: Antenna & Measurement Type:	
Time of T/O: Time of Landing: Antenna Height – meters:	1
General Weather Conditions: Antenna Height – feet:	Cheoks?
sturbances baadttail/crossinds	5

SURVETING MAPPING GIS	
Survey Information	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147 Station Nam	Station Name: MADFKA
Flight Vendor / Tail No: PSPEN / N &&VA Receiver Ty	Receiver Type & SN: ご700 / # 1248
Airport Start/End: MPD BRA / 大MAE Antenna & I	Antenna & Measurement Type: こよやりアア BN
Time of T/O: $\partial^4 \sigma \partial_{\rho} m$ Time of Landing: $\mu^*_{1,3} \sigma$ Antenna He	Antenna Height – meters: パリイム
ions: CLFAR	Antenna Height – feet: 屮, & ┥
Survey Information	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147 Station Na	Station Name: MADERA
Flight Vendor / Tail No: Aらりビル / いしるくA Receiver	Receiver Type & SN: ごりっつ / # フス46
	Antenna & Measurement Type: $2\epsilon_{\phi}\mu\gamma_{R} eq \beta_{N}$
Time of T/O: L_1 ; $\mathcal{SO}_{\beta}\mathcal{M}$ Time of Landing: \mathcal{C} ; $ \mathcal{S}$ Antenna	Antenna Height – meters:),
General Weather Conditions: こしどみや	Antenna Height – feet: $\eta'_{,}$ & $\eta'_{,}$ = 1.476ν Checks?

	Data: 11/2/11
SURVEYING MAPPING GIS CLIDAR FLIGHT LOG	
Survey Information	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name: MADERA
Flight Vendor / Tail No: たららEN / いしなVA	Receiver Type & SN: デブロロ 🗡 オンチ8
Airport Start/End: MADERA KMAE	Antenna & Measurement Type: $2_{F\beta}HYR \swarrow BN$
Time of T/O: $2:06$ Time of Landing: $g; 00 pm$	Antenna Height – meters:)、 付らし
General Weather Conditions: OLEAR	Antenna Height – feet: 4.851 – 1,481 – Checks?
Survey Information	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name:
Flight Vendor / Tail No:	Receiver Type & SN:
Airport Start/End:	Antenna & Measurement Type:
Time of T/O: Time of Landing:	Antenna Height – meters:
General Weather Conditions:	Antenna Height – feet:

Comments (notable inflight disturbances, head/tail/crosswinds, instrument anomolies, etc.):

Optech Galaxy Prime s/n 5060411 Last manufacturer service date: July 30, 2020

SURVEYING I MAPPING GIS	-IDAR FLIGHT LOG Date: $\frac{1}{6}2$ Mission(s): $096A$
Survey Information	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name: いんのちんる
Flight Vendor / Tail No: ASPEN N68VA	Receiver Type & SN: ST00 / # フス48
Airport Start/End: MADERA / KMAE	Antenna & Measurement Type: こ _F p H YR / G N
Time of T/O: 3: 00 Time of Landing: 4:30	Antenna Height – meters: \int_{1} , $\frac{1}{2}$, 7
General Weather Conditions: ことビタ C	Antenna Height – feet: リ, レ & ス – 1, リ スフ ~ Checks?
Survey Information	Base Station Data
Droiect Name: DWB San Ioacuin Vallav 14750-147	Station Name.
Flight Vendor / Tail No:	Receiver Type & SN:
Airport Start/End:	Antenna & Measurement Type:
Time of T/O: Time of Landing:	Antenna Height – meters:
General Weather Conditions:	Antenna Height – feet: Ohecks?
Comments (notable inflight disturbances, head/tail/crosswinds, instrument anomolies, etc.):	
	Optech Galaxy Prime s/n 5060411 Last manufacturer service date: July 30, 2020

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SURVEYING MAPPING GIS	IDAR FLIGHT LOG	LOG Date: 7/1/21 Mission(s): 097A
Survey Information		Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Stat	Station Name: MADE&A
Flight Vendor / Tail No: ASPEW / NももとA		Receiver Type & SN: ST 00 / オ フ248
Airport Start/End: MADERA / KMAE	Ante	Antenna & Measurement Type: Z E PHR / BN
Time of T/O: 2, 00 Time of Landing:	5:30	Antenna Height – meters: 」, ろえつ
General Weather Conditions: と∟⊭คR	Ant	Antenna Height – feet: 4 , $985 - 1$, 519 Checks
Survey Information		Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Sta	Station Name:
Flight Vendor / Tail No:	Re	Receiver Type & SN:
Airport Start/End:	An	Antenna & Measurement Type:
Time of T/O: Time of Landing:		Antenna Height – meters:
General Weather Conditions:	Ar	Antenna Height – feet:

Survey Information	
	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147 Station Name:	e: MERCED
Flight Vendor / Tail No: AS℣EN / 刈 らなくA Receiver Type {	Receiver Type & SN: 5700/ サフダイ&
Airport Start/End: MERCED Antenna & Mea	Antenna & Measurement Type: こ ビビタサャス / BN
Time of T/O: $1: \sqrt{5}$ Time of Landing: $5: 0 \circ$ Antenna Height – meters:	1.463
General Weather Conditions: こ _{レぞみ} R. Antenna Height – feet:	jht-feet:
Survey Information	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147 Station Name:	i
Flight Vendor / Tail No: Receiver Type & SN:	be & SN:
Airport Start/End: Antenna & Mea	Antenna & Measurement Type:
Time of T/O: Time of Landing: Antenna Height – meters:	ght – meters:
General Weather Conditions: Antenna Height – feet:	ght – feet: Checks?

	A.
	に/ロ/方 Date: パ/ロー
GIS	Mission(s) ⁴ , 100 A
Survey Information	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name: MFRCED
Flight Vendor / Tail No: ASPEN / N68VA	Receiver Type & SN: 5700 / # 7248
Airport Start/End: MERcEp	Antenna & Measurement Type: こ ビタリイト / らん
Time of T/O: $:4 $ Time of Landing: $4:30$	Antenna Height – meters: 1, イョフ
General Weather Conditions: CLEAR	Antenna Height – feet: $4.710 - 1.497$ Checks?
Survey Information	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name:
Flight Vendor / Tail No:	Receiver Type & SN:
Airport Start/End:	Antenna & Measurement Type:
Time of T/O: Time of Landing:	Antenna Height – meters:
General Weather Conditions:	Antenna Height – feet:
Comments (notable inflight disturbances, head/tail/crosswinds, instrument anomolies, etc.):	
	Optech Galaxy Prime s/n 5060411 Last manufacturer service date: July 30, 2020

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VEYING I MAPPING I GIS AVEYING I MAPPING I GIS AUEVEN Information Base Station Data Base Station Data II: 30 Am Time of Landing: イ: 4/5 pm II: 30 Am Time of La	LIDAR FLIGHT LOG	Date: $4/11/21$ Mission(s): 1 or A
Survey Information Base Station Dat Survey Information Base Station Dat Survey Information Base Station Dat End: PNE San Joaquin Valley 14750-147 Station Name: PNE Receiver Type & SN: S7700 人 オ 7 End: PNE Receiver Type & SN: S7700 人 オ 7 End: PNE Receiver Type & SN: S7700 人 Antenna & Measurement Type: ここの4 Antenna & Measurement Type: ここの4 II(:30 Am Time of Landing: 4:45 pm Antenna & Measurement Type: ここの4 II(:30 Am Time of Landing: 4:45 pm Antenna & Measurement Type: ここの4 II(:30 Am Time of Landing: 4:45 pm Antenna & Measurement Type: ここの4 II(:30 Am Time of Landing: 4:45 pm Antenna & Measurement Type: ここの4 II(:30 Am Time of Landing: 4:45 pm Antenna & Measurement Type: ここの4 II(:30 Am Time of Landing: 4:45 pm Antenna & Measurement Type: 25 pm YK II(:30 Am Time of Landing: 4:45 pm Antenna & Measurement Type: 7 fm YK II(:30 Am Time of Landing: 4:45 pm Antenna & Measurement Type: Trime of Landing: 4:45 pm Antenna & Measurement Type: Trime of Landing: 7 fm Methin A Methina & Measurement Type: Trime of Landing: 7 fm Methina & Measurement Type: Trime of Landing: 7 fm Methina & Measurement Type: Trime of Landing: 7 fm Methina & Measurement Type: Trime of Landing: 7 fm Methina & Measurement Type: Trime of Landing: 7 fm Methina & Measurement Type: Trime of Landing: 7 fm Methina & Measurement Type: Trime of Landing: 7 fm Methina & Measurement Type: Trime of Landing: 7 fm Methina & Measurement Type: Trime of Landing: 7 fm Methina & Measurement Type: Trime of Landing: 7 fm Methina & Measurement Type: Trime of Landing: 7 fm Methina & Measurement Type: Trime of Landing: 7 fm Methina & Methina & Measurement Type: 7 fm Methina & Measurement Type: 7 fm Methina & Meth		
e: DWR San Joaquin Valley 14750-147 Station Name: からちょち r / Tail No: 入ららい人 、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、		ase Station Data
r / Tail No: 入らPFN / N & A vA Receiver Type & SN: S700 / H T End: 小ÉR CED Antenna & Measurement Type: こFPサダ 11: 30 Am Time of Landing: リ:45 pm Antenna A Measurement Type: こFPサダ Antenna Height - meters: 1.509 11: 30 Am Time of Landing: リ:45 pm Antenna Height - feet: リ,135 - Antenna Height - feet: リ,135 - Antenna Height - feet: リ,135 - Antenna Height - feet: リ,135 - Base Station Dat Station Nater Station Dat Station Nater Station Dat Station Nater Station Dat Station Nater Station Na	Station Name:	D.
End: MER CED Antenna & Measurement Type: こキャッチャート Antenna & Measurement Type: こキャッチャート Antenna Height – meters: 1.504 11:30 Am Time of Landing: 4:45 Pm Antenna Height – meters: 1.504 ather Conditions: 2LEAR Antenna Height – feet: 4,735 – Antenna Height – feet: 4,735 – End: 2. DWR San Joaquin Valley 14750-147 Station Name: Station Name: Station Name: Station Name: Crail No: Crail N	ASPEN / NEBVA	×# 72
11: ろっ Am Time of Landing: 1:45 pm Antenna Height – meters: 1.504 ather Conditions: 		
ather Conditions: كلالجماد ather Conditions: كلالجماد Survey Information Survey Information Survey Information Survey Information Survey Information Station Name: Station Name: Station Name: Station Name: Station Name: Station Name: Station Name: Station Name: Timo Station Date: Station Name: Station	Time of Landing: 4:45 pm	
Survey Information Base Survey Information Base Base Station Name: DWR San Joaquin Valley 14750-147 Station Name: Information Station Name: Information Receiver Type & SN: Information Antenna & Measurement Type Information Antenna Hoicht Limeter	CLEAR	4,933 - 1, 504 Checks?
e: DWR San Joaquin Valley 14750-147 Station Name: r / Tail No: Receiver Type & SN: End: Antenna & Measurement Type Timo of Londing: Antenna Heicht _ meters		ase Station Data
r / Tail No: End: Timo of Londing:	Station Name:	
End: Timo of I andina:	Receiver Type &	
Time of I and inc.		Type:
	Time of Landing: Antenna Height – meters:	
General Weather Conditions: Antenna Height – feet:		Checks?

SURVEYING MAPPING GIS	LIDAR FLIGHT LOG Date: 니 / 12/2/ Mission(s): 102 A
Survey Information	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name: MERCED
Flight Vendor / Tail No: AらPEN / N 6&VA	Receiver Type & SN: <i>S</i> 7 00 / # 72 48
Airport Start/End: MERcED	Antenna & Measurement Type: ZEpHYR / DN
Time of T/O: ; 입0 싆씨 Time of Landing: ビ; 00 PM	Antenna Height – meters: リ、Sスフ
General Weather Conditions: CLØR	Antenna Height – feet: $5.009 - 1.527 \sqrt{61eeks}$
Survey Information	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name:
Flight Vendor / Tail No:	Receiver Type & SN:
Airport Start/End:	Antenna & Measurement Type:
Time of T/O: Time of Landing:	Antenna Height – meters:
General Weather Conditions:	Antenna Height – feet:
Comments (notable inflight disturbances, head/tail/crosswinds, instrument anomolies, etc.):	
	Outerh Galary Drime e/h 6060411
	Uptecn Galaxy Frime sin puoul 11 Last manufacturer service date: July 30, 2020

「日本のに、 「日本のに、 「日本のに、 Survey Information Survey Information Survey Information Survey Information Survey Information Survey Information Project Name: DWR San Joaquin Valley 14750-147 Station Name: MERCEIO Project Name: DWR San Joaquin Valley 14750-147 Station Name: MERCEIO Flight Vendor / Tail No: AppEn/ 人 んちんA Receiver Type & SN: 5700 / # 774 Airport Start/End: MFRCEIO Antenna & Measurement Type: CFM/X Airport Start/End: MFRCEIO Antenna & Measurement Type: CFM/X Time of T/O: 11:15 Am Time of Landing: 5:00 Pn/ General Weather Conditions: CLEAR Antenna Height - feet: 4, 91 g -	Date: $\frac{1}{13} \frac{1}{31}$ Mission(s): $103A$ Base Station Data Base Station Data cED cED cFD <
Survey Information Joaquin Valley 14750-147 Aら PEN / N6&VA Receiver Type & SN: Antenna & Measuremen Antenna A Measuremen Time of Landing: <i>S;oo Pn</i> , Antenna Height – meter tions: <i>CLEA</i> K Antenna Height – feet:	Base Station Data <pre> <fc <="" pre=""> <pre> <pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></fc></pre>
1 Joaquin Valley 14750-147 角ち PEN / N 68 VA えとF(つ Time of Landing: 5:00 PM tions: CLEAR	c F C S 700 / # 724 8 int Type: こ F PHYR / BN int Type: こ F PHYR / BN int Type: こ F PHYR / BN int Type: 2 F PHYR /
ASPEN / N68VA RCED Time of Landing: 5:00 PM tions: CLEAR	5700 / # 7248 int Type:
マムドロ Time of Landing: S:00 PM tions: CLEAR	int Type: こチャザメス 人 BN irs: 1, 499 4,918 – 1,499 Base Station Data
Time of Landing: ごの PM tions: こLEAR	rs: /, 499 4. 9. 8 – <i>1. 499</i> Base Station Data
CLEAR	イ・イ・B ー レ・イ ティ Base Station Data
	Base Station Data
Survey Information Ba	
Project Name: DWR San Joaquin Valley 14750-147 Station Name:	
Flight Vendor / Tail No: Receiver Type & SN:	
Airport Start/End: Antenna & Measurement Type:	ent Type:
Time of T/O: Time of Landing: Antenna Height – meters:	ers:
General Weather Conditions: Antenna Height – feet:	Checks?
Comments (notable inflight disturbances, head/tail/crosswinds,	
instrument anomolies, etc.):	
	Optech Galaxy Prime s/n 5060411

Optech Galaxy	Prime s/	n 5060411
Last manufacturer service	date: Jul	y 30, 2020

Comments (notable inflight disturbances, head/ta	ail/crosswinds,
instrument anomolies, etc.):	

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	Survey Information	Base Station Da	ta
Project Name: DWR Sa	n Joaquin Valley 14750-147	Station Name:	
Flight Vendor / Tail No		Receiver Type & SN:	
Airport Start/End:		Antenna & Measurement Type:	
Time of T/O:	Time of Landing:	Antenna Height – meters:	
General Weather Conc	litions:	Antenna Height – feet:	Checks?

Survey Information	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name: MERCED
Flight Vendor / Tail No: ASPEN N68VA	Receiver Type & SN: 5700 / # 7248
Airport Start/End: MFRCED	Antenna & Measurement Type: ZEPHYR / BN
Time of T/O: 11; ISAn Time of Landing: 1:30 PM	Antenna Height - meters: 1,523
General Weather Conditions: CLOUDY / LOW CLOUDS	Antenna Height - feet: 4, 995 - 1, 523 Checks?

N IN ASSAULT NO INVESTIGATION	CALLER & PERSON A PROVIDE	(mpaioc(a): 1029	
LIOWIL	DAR FLIGHT LOG	Date: 41 21	
N.			
		Date: 4/14/21	
	LIDAR FLIGHT LOG	Mission(s): 104A	

(And Any Incode) (Construction)	Fight Site of Site
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	where the second statement a loss
	the weight Practice for each second sec
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	Name Statistic Date
eter at Magnese Conditions - Partie # 8	Augusta Margine Margine and a set of the set
the of Fich of Landbar China of Landbar Stree Find	Aphaleta Mag. (1 - Machara) (1, 909-0
per Startilised and a set	material & Massiment Type (C.F.C. * 2) 1994
ajin Vandor (Tail No. 2., p.2.) 💉 a, 6.6.9.2	House type A Stor 5 - 24 - 2 - 24 - 2
roje ol Mariner. Ovak Gan kongulu volazy ravisit tati	Station Mariator (K) C. K. K. K.

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Band Station Date

SURVEYING I MAPPING I GIS	-IDAR FLIGHT LOG Date: サ/ IS/ 3) Mission(s): IOSA
Survey Information	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name: MERCE D
Flight Vendor / Tail No: ASPEN / NG&VA	Receiver Type & SN: S7oo / # フス48
	Antenna & Measurement Type: ZEpHYR / BN
Time of T/O: 1): スク A ・・ Time of Landing: S; 1 S P	Antenna Height – meters: $1, 48 4$
General Weather Conditions: CLFAR	Antenna Height – feet: $4.870 - 1.484$ Cheoks?
Survey Information	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name:
Flight Vendor / Tail No:	Receiver Type & SN:
Airport Start/End:	Antenna & Measurement Type:
Time of T/O: Time of Landing:	Antenna Height – meters:
General Weather Conditions:	Antenna Height – feet:
Comments (notable inflight disturbances, head/tail/crosswinds, instrument anomolies, etc.):	
	Optech Galaxy Prime s/n 5060411 Last manufacturer service date: July 30, 2020

SURVEYING I MAPPING GIS LIDAR FLIGHT LOG	HT LOG Date: $\frac{\frac{1}{17}}{\frac{1}{31}}$
Survey Information	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name: MERCED
Flight Vendor / Tail No: ASPEN / N G&VA	Receiver Type & SN: STOO / # Tays
Airport Start/End: MERCED	
Time of T/O: 」「、みんみへ Time of Landing: ら、えっか	_
General Weather Conditions: CLEAん	Antenna Height – feet: $4,873 - 1,485$ Checks?
Survey Information	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name:
Flight Vendor / Tail No:	Receiver Type & SN:
Airport Start/End:	Antenna & Measurement Type:
Time of T/O: Time of Landing:	Antenna Height – meters:
General Weather Conditions:	Antenna Height – feet:

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Survey Information	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147 Station N	Station Name: MFR <ed< td=""></ed<>
Flight Vendor / Tail No: AっりEV / ルሪ& ✓A Receiver	Receiver Type & SN: S700 / ≠ フス48
Airport Start/End: MERとED Antenna &	Antenna & Measurement Type: こ _を PHYR / B <i>N</i>
Time of T/O: 1130 Am Time of Landing: 430 Antenna 	Antenna Height – meters:
IS: CLEAR	Antenna Height – feet: デ. o 4 o – 1. ごろん Cheetsの
Survey Information	Base Station Data
	Base
Project Name: DWR San Joaquin Valley 14750-147	Station Name:
Flight Vendor / Tail No:	Receiver Type & SN:
Airport Start/End: Antenna 8	Antenna & Measurement Type:
Time of T/O: Time of Landing: Antenna H	Antenna Height – meters:
General Weather Conditions: Antenna H	Antenna Height – feet:

Noticitie Date: $109A$ Noticitie Date: $109A$ Naley Hoformation Base Station (s): $4/19$ Valuey 14750-147 Station Name: Mission(s): $4/19$ Valuey 14750-147 Station Name: Mission(s): $4/19$ Valuey 14750-147 Station Name: Mission(s): $4/19$ Valuey 14750-147 Receiver Type & SN: 5700 770 7704 80 Time of Landing: $4/200$ Antenna Height – feet: $4/7$ 36 $1/443$ Valuey 4/204 Antenna Height – feet: $4/7$ 36 $1/443$ Valuey 4/206-147 Antenna Height – feet: $4/7$ 36 $1/443$ Valuey 14750-147 Antenna Height – feet: $4/7$ 36 $1/443$ Valuey 14750-147 Receiver Type & SN: $1/43$ $1/473$ $1/473$ Valuey 14750-147 Receiver Type & SN: $1/473$ $1/473$ $1/473$ Valuey 14750-147 Receiver Type & SN: <th>PING I gls Date: I O A PING I gls Date: I O A every Information Base Station Data every Information Base Station Data</th> <th>Base Si Base Si Station Name: Station Name: Station Name: Base Si Receiver Type & SN: Antenna & Measurement Type: Antenna Height – meters: Antenna Height – feet: Antenna Height – feet:</th> <th></th> <th></th> <th>1</th>	PING I gls Date: I O A PING I gls Date: I O A every Information Base Station Data	Base Si Base Si Station Name: Station Name: Station Name: Base Si Receiver Type & SN: Antenna & Measurement Type: Antenna Height – meters: Antenna Height – feet:			1
Sy InformationBase Station DataBy InformationBase Station DataSy InformationBase Station DataP $f'V / N b \& VA$ Station Name: $M \circ DEST \circ$ P $f'V / N b \& VA$ Receiver Type & SN: $S \neg o / A \neg 24 \&$ D Time of Landing: $4: b0$ Antenna & Measurement Type: $Z \not F \rho H \gamma R / B M$ D Time of Landing: $4: b0$ Antenna Height – meters: $1, 443$ D Time of Landing: $4: b0$ Antenna Height – feet: $4, 73\% - 1, 443$ D Time of LandingStation Name:D Antenna Height – feet: $4, 73\% - 1, 443$ D Antenna Height – feet: $4, 73\% - 1, 443$ D Antenna Height – feet: $4, 73\% - 1, 443$ D Antenna Height – feet: $4, 73\% - 1, 443$ D Antenna Height – feet: $4, 73\% - 1, 443$ D Antenna Height – feet: $4, 73\% - 1, 443$ D Antenna Height – feet: $4, 73\% - 1, 443$ D Antenna Height – feet: $4, 73\% - 1, 443$ D Antenna Height – feet: $4, 73\% - 1, 443$ D Antenna Height – feet: $7, 73\% - 1, 443$ D Antenna K Measurement Type:Time of Landing:Antenna Height – feet:Time of Landing:Antenna Height – feet:	vey Information Base Station Data vey Information Base Station Data vey Information Base Station Data quin Valley 14750-147 Station Name: MODESTO SP $\overline{F}(V \setminus N b \& V A)$ Receiver Type & SN: $S \neg 7 \circ 0 \vee A \neg 7 2 4 \%$ SP $\overline{T}(V \setminus N b \& V A)$ Antenna & Measurement Type: $2\pi p_{H} Y R \setminus B N$ Time of Landing: $4:00$ Antenna Height - meters: $1, 443$ S: $\angle L \overline{E} R R$ Antenna Height - feet: $4, 733 - 1, 443$ S: $\angle L \overline{E} R R$ Antenna Height - feet: $4, 733 - 1, 443$ out valley 14750-147 Station Name: Base Station Data out valley 14750-147 Station Name: Base Station Data vey Information Base Station Data Content Type: Time of Landing: Antenna & Measurement Type: Image of Landing: S: Antenna Height - feet: Antenna Height - feet: S: Antenna Height - feet: Antenna Height - feet:	very Information Base Si very Information Base Si ouin Valley 14750-147 Station Name: M_{ODESTO} Sp $f' N / N b \delta V A$ Receiver Type & SN: ≤ 700 Time of Landing: $4/D$ Antenna & Measurement Type: Time of Landing: $4/D$ Antenna & Measurement Type: S: $\angle L \vec{E} A A$ Antenna Height – feet: $4/.7$ S: $\angle L \vec{E} A A$ Antenna Height – feet: $4/.7$ Out Nalley 14750-147 Station Name: Base S ouin Valley 14750-147 Station Name: Base S Outin Valley 14750-147 Station Name: Antenna Height – feet: Station Name: Antenna Height – feet: I/T Statin Name: Antenna Height – fee		Date: 1C Mission(s):	
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in Valley 14750-147Station Name: MODESTO $P \not{f} N / N b \& V A$ Receiver Type & SN: $S \neg 00 / A \neg 24 \%$ $P \not{f} N / N b \& V A$ Receiver Type & SN: $S \neg 00 / A \neg 24 \%$ $P \neg 1$ me of Landing: $4:00$ Antenna & Measurement Type: $2 \not{F} \rho H \gamma R / N \rightarrow 2 \not{F} \rho H \gamma R / N \rightarrow 2 \not{F} \rho H \gamma R / N \rightarrow 2 \not{F} \rho H \gamma R / N \rightarrow 2 \not{F} \rho H \gamma R / N \rightarrow 2 \not{F} \rho H \gamma R / N \rightarrow 2 \not{F} \rho H \gamma R / N \rightarrow 2 \not{F} \rho H \gamma R / N \rightarrow 2 \not{F} \rho H \gamma R / N \rightarrow 2 \not{F} \rho H \gamma R / N \rightarrow 2 \not{F} \rho H \gamma R / N \rightarrow 2 \not{F} \rho H \gamma R / N \rightarrow 2 \not{F} \rho H \gamma R / N \rightarrow 2 \not{F} \rho H \gamma R / N \rightarrow 2 \not{F} \rho H \gamma R / N \rightarrow 2 \not{F} \rho H \gamma R / N \rightarrow 2 \not{F} \rho H \gamma R / N \rightarrow 2 \not{F} \rho H \gamma R / N \rightarrow 2 \not{F} \rho H \gamma R / N \rightarrow 2 \not{F} \rho H \gamma R \rightarrow 2 \not{F} \rho H \gamma R \rightarrow 2 \not{F} \rho H \gamma R / N \rightarrow 2 \not{F} \rho H \gamma R \rightarrow 2 \not{F} \rho H \rightarrow 2 \not{R} \rightarrow 2 \not{F} \rho H \rightarrow 2 \not{R} \rightarrow 2 \not{F} \rho H \gamma R \rightarrow 2 \not{F} \rho H \rightarrow 2 \not{R} \rightarrow 2 \not{F} \rho H \rightarrow 2 \not{R} \rightarrow 2 \not{F} \rho H \rightarrow 2 \not{R} \rightarrow 2 \not{R} \rightarrow 2 \not{R} \rightarrow 2 \not{R} \rightarrow 2 \not{R} \rightarrow 2 \not{R} \rightarrow 2 \not{R} \rightarrow 2 n n n n n n n n n n n n $	quin valley 14750-147Station Name: MODESTO $SPFN / N 65VA$ Receiver Type & SN: S700 / π 724% $SPFN / N 65VA$ Antenna & Measurement Type: $2FPHYR / BN$ Time of Landing: $4:00$ Antenna & Measurement Type: $2FPHYR / BN$ Time of Landing: $4:00$ Antenna Height - meters: $1, 443$ S: $\angle LEA$ Antenna Height - feet: $4, 73\% - 1, 443$ s: $\angle LEAA$ Antenna Height - feet: $4, 73\% - 1, 443$ our valley 14750-147Antenna Height - feet: $4, 73\% - 1, 443$ vey InformationBase Station Dataour valley 14750-147Station Name:Time of Landing:Antenna & Measurement Type:Time of Landing:Antenna & Measurement Type:S:Time of Landing:S:Antenna Height - feet:S:Antenna Height - feet:S:Antenna Height - feet:	quin Valley 14750-147Station Name: MODESTO $S \rho \Gamma N \ N b \delta V A$ Receiver Type & SN: $S \gamma o o$ $r o$ Antenna & Measurement Type: $r o$ Antenna & Measurement Type: $r i$ Antenna & Measurement Type: $r i$ Antenna Height - meters: l $r i$ Antenna Height - meters: l $r i$ Antenna Height - feet: d, T $r i$ Vet Information $r i$ Valley 14750-147 $r i$ Station Name: $r i$ Valley 14750-147 $r i$ Station Name: $r i$ Name: $r i$ Antenna & Measurement Type: $r i$ Antenna A Measurement Type: $r i$ Antenna Height - meters: $r i$ Antenna Height - feet:	Survey Information	Base Station Data	
$PFN \ N b \& VA$ Receiver Type & SN: $S700 \ A \ T248$ Time of Landing: $4:00$ Antenna & Measurement Type: $2FPHYR$ Time of Landing: $4:00$ Antenna & Measurement Type: $1, 443$ Time of Landing: $4:00$ Antenna Height - feet: $1, 738 - 1, 4$ $CLFAR$ Antenna Height - feet: $4, 738 - 1, 4$ $CLFAR$ Antenna Height - feet: $4, 738 - 1, 4$ $CLFAR$ Antenna Height - feet: $7, 738 - 1, 4$ $CLFAR$ Antenna Height - feet: $7, 738 - 1, 4$ $CLFAR$ Antenna Height - feet: $7, 738 - 1, 4$ $CLFAR$ Antenna Height - feet: $7, 738 - 1, 4$ $Receiver Type & Station DataBase Station DataIn Valley 14750-147Station Name:In Valley 14750-147Station Name:In Valley 14750-147Antenna & Measurement Type:Time of Landing:Antenna & Measurement Type:Time of Landing:Antenna Height - meters:Antenna Height - feet:Antenna Height - feet:$	$S\rho FN / N b SVA$ Receiver Type & SN: $S7 o 74 7248$ To Antenna & Measurement Type: $2F\rho HYR / BN$ Time of Landing: $4:b0$ Antenna Height - meters: $1, 443$ S: $\mathcal{L}LFAA$ Antenna Height - feet: $4, 738 - 1, 443$ s: $\mathcal{L}LFAA$ Antenna Height - feet: $4, 738 - 1, 443$ out valley 14750-147 Station Name: vey Information Base Station Data out valley 14750-147 Station Name: Time of Landing: Antenna & Measurement Type: Time of Landing: Antenna & Measurement Type: Si Time of Landing: Antenna Height - feet: s: Antenna Height - feet:	5 P FN / N b β VA Receiver Type & SN: S700 Time of Landing: 4:00 Antenna & Measurement Type: Time of Landing: 4:00 Antenna Height - meters: 1 s: ∠LEAL Antenna Height - feet: 4/.7 din Valley 14750-147 Station Name: vey Information Base S quin Valley 14750-147 Station Name: rime of Landing: Antenna & Measurement Type: Time of Landing: Antenna Height - meters: s: Antenna Height - feet: disturbances, head/lail/crosswinds, Antenna Height - feet:	Project Name: DWR San Joaquin Valley 14750-147		
Number Antenna & Measurement Type: $2 \neq \beta H \gamma R$ Time of Landing: $4:\delta 0$ Antenna Height – meters: $1, 443$ $\mathcal{L}LEA$ Antenna Height – feet: $4, 738 - 1, 4$ $\mathcal{L}IEAR$ Antenna Height – feet: $4, 738 - 1, 4$ In valley 14750-147 Antenna Height – feet: $4, 738 - 1, 4$ In valley 14750-147 Station Name: Base Station Data In valley 14750-147 Station Name: Antenna feight – feet: In valley 14750-147 Station Name: Antenna feight – feet: In valley 14750-147 Antenna & Measurement Type: Antenna feight – meters: In valley 14750-147 Antenna & Measurement Type: Antenna Height – meters:	Time of Landing: $4:$ o0 Antenna & Measurement Type: $Z \not\in \rho H \gamma \mathcal{R} \setminus \mathcal{B} N$ Time of Landing: $4:$ o0 Antenna Height – meters: $1, 443$ s: $\mathcal{L} \mathcal{E} \beta \mathcal{A}$ Antenna Height – meters: $1, 443$ s: $\mathcal{L} \mathcal{E} \beta \mathcal{A}$ Antenna Height – feet: $4, 738 - 1, 443$ 0 s: $\mathcal{L} \mathcal{E} \beta \mathcal{A}$ Antenna Height – feet: $4, 738 - 1, 443$ 0 vey Information Rase Station Data 0 0 0 vey Information Station Name: 0 0 0 very Valley 14750-147 Station Name: 0 0 0 0 0 0 0 0 very Valley 14750-147 Station Name: 0 0 0 0 0 0 0 0 0 0 0 0 0 0	70 Time of Landing: 4:50 Antenna & Measurement Type: S: CLEAA Antenna Height - feet: 4, 73 Antenna Kaasurement Type: Time of Landing: Antenna & Measurement Type: S: Antenna Height - meters: S: Antenna Height - feet: Antenna Height - feet:	ASPIN /	S700 /	
Time of Landing: $d: b0$ Antenna Height – meters: $l, qd 3$ \mathcal{L} \mathcal{L} \mathcal{L} \mathcal{L} \mathcal{A} Antenna Height – feet: $d', 733 - 1, 4$ ey Information Antenna Height – feet: $d', 733 - 1, 4$ ey Information Base Station Dataey InformationBase Station Dataey InformationBase Station Dataein Valley 14750-147Station Name:In Valley 14750-147Station Name:In Valley 14750-147Station Name:In Valley 14750-147Antenna & Measurement Type:In Valley 14750-147Antenna & Measurement Type:Time of Landing:Antenna Height – meters:Interna Meight – feet:Antenna Height – feet:	Time of Landing: $d: b0$ Antenna Height - meters: $l. 4f3$ S: $C \perp E \exists R_{a}$ Antenna Height - feet: $d'. 73 \ R_{a}$ $J. 4f3$ Q S: $C \perp E \exists R_{a}$ Antenna Height - feet: $d'. 73 \ R_{a}$ $J. 4f3$ Q vey InformationBase Station Dataquin Valley 14750-147Station Name: $Receiver Type \ R_{a}$ $Receiver Type \ R_{a}$ $Receiver Type \ R_{a}$ vin Valley 14750-147Station Name:Receiver Type \ R_{a} $Receiver Type \ R_{a}$ $Receiver \ Type:Time of Landing:Antenna \ R_{a}$ Antenna Height - meters: $Receiver \ R_{a}$ $Receiver \ R_{a}$ S: $Antenna Height - feet:Antenna Height - feet:Receiver \ R_{a}disturbances, head/fail/crosswinds,Receiver \ R_{a}Receiver \ R_{a}$	Time of Landing: 4:>0 Antenna Height – meters: 1 s: CLEAR Antenna Height – feet: 4.73 s: CLEAR Antenna Height – feet: 4.73 vey Information Antenna Height – feet: 4.73 vein Valley 14750-147 Station Name: Base S quin Valley 14750-147 Station Name: Base S rime of Landing: Antenna & Measurement Type: Antenna & Measurement Type: Time of Landing: Antenna Height – meters: Station Name: s: Antenna Height – feet: Antenna Height – feet: disturbances, head/tail/crosswinds, Antenna Height – feet: Antenna Keight – feet:	Airport Start/End: MoDESTo	ZF4HYR /	
 <p< td=""><td>s: CLEAA Antenna Height – feet: 4、73 & - 1、4 4 3 vey Information Base Station Data ouin Valley 14750-147 Station Name: auin Valley 14750-147 Station Name: Receiver Type & SN: Receiver Type & SN: Time of Landing: Time of Landing: Antenna A Measurement Type: Time of Landing: Antenna Height – feet: Antenna Height – feet: Antenna Height – feet: Antenna Keister A Measurement A M</td><td>s: CLEAA Antenna Height – feet: ビー・フ vey Information Base S vey Information Base S quin Valley 14750-147 Station Name: Base S quin Valley 14750-147 Station Name: Base S quin Valley 14750-147 Station Name: Base S Time of Landing: Antenna & Measurement Type: Antenna & Measurement Type: Antenna A Measurement Type: S: Antenna Height – meters: Antenna Height – feet: disturbances, head/tail/crosswinds,</td><td>(3:30 Time of Landing:</td><td>Antenna Height – meters: 1 , 44 3</td><td></td></p<>	s: CLEAA Antenna Height – feet: 4、73 & - 1、4 4 3 vey Information Base Station Data ouin Valley 14750-147 Station Name: auin Valley 14750-147 Station Name: Receiver Type & SN: Receiver Type & SN: Time of Landing: Time of Landing: Antenna A Measurement Type: Time of Landing: Antenna Height – feet: Antenna Height – feet: Antenna Height – feet: Antenna Keister A Measurement A M	s: CLEAA Antenna Height – feet: ビー・フ vey Information Base S vey Information Base S quin Valley 14750-147 Station Name: Base S quin Valley 14750-147 Station Name: Base S quin Valley 14750-147 Station Name: Base S Time of Landing: Antenna & Measurement Type: Antenna & Measurement Type: Antenna A Measurement Type: S: Antenna Height – meters: Antenna Height – feet: disturbances, head/tail/crosswinds,	(3:30 Time of Landing:	Antenna Height – meters: 1 , 44 3	
ey Information Base Iin Valley 14750-147 Station Name: Iin Valley 14750-147 Reteiver Type & SN: Receiver Type & SN: Antenna & Measurement Type Time of Landing: Antenna A Measurement: Time of Landing: Antenna Height – meters:	vey Information Base Station Data quin Valley 14750-147 Station Name: quin Valley 14750-147 Station Name: receiver Type & SN: Receiver Type & SN: Time of Landing: Antenna & Measurement Type: Si Antenna Height – meters: Si Antenna Height – feet:	vey Information Base S quin Valley 14750-147 Station Name: quin Valley 14750-147 Station Name: quin Valley 14750-147 Station Name: Receiver Type & SN: Receiver Type & SN: Time of Landing: Antenna & Measurement Type: S: Antenna Height – meters: S: Antenna Height – feet: disturbances, head/tail/crosswinds, Antenna Height – feet:		4.738 - 1	Checks?
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Time of Landing:	Receiver Type & SN: Antenna & Measurement Type: Time of Landing: Antenna Height – meters: Antenna Height – feet: disturbances, head/tail/crosswinds,	Receiver Type & SN: Antenna & Measurement Type: Time of Landing: Antenna Height – meters: S: Antenna Height – feet: disturbances, head/tail/crosswinds,	Project Name: DWR San Joaquin Valley 14750-147	Station Name:	
Time of Landing:	Antenna & Measurement Type: Time of Landing: Antenna Height – meters: S: Antenna Height – feet: disturbances, head/tail/crosswinds,	Antenna & Measurement Type: Time of Landing: Antenna Height – meters: s: Antenna Height – feet: disturbances, head/tail/crosswinds, Antenna keight – feet:	Flight Vendor / Tail No:	Receiver Type & SN:	
Time of Landing:	Time of Landing: Antenna Height – meters: s: Antenna Height – feet: disturbances, head/tail/crosswinds,	Time of Landing: Antenna Height – meters: s: Antenna Height – feet: disturbances, head/tail/crosswinds, Antenna Height – feet:	Airport Start/End:	Antenna & Measurement Type:	
	s: Antenna Height – feet: disturbances, head/tail/crosswinds,	s: Antenna Height – feet: disturbances, head/tail/crosswinds,		Antenna Height – meters:	
	disturbances, head/tail/crosswinds,	disturbances, head/tail/crosswinds,	General Weather Conditions:	Antenna Height – feet:	Checks
	disturbances, head/tail/cro	disturbances, head/tail/crosswinds,			CIEC
				Optech Galaxy Prime s/n 5060411	Prime s/n 5060

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SURVEYING MAPPING GIS LIDAR FLIGHT LOG	IT LOG Date: イ/ス(/ス) Mission(s): 111月
Survey Information	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name: MoPESTO
Flight Vendor / Tail No: A S P Fiv / い 68 V A	Receiver Type & SN: STOO / エフタ48
Airport Start/End: MoDES TO	Antenna & Measurement Type: ZみHYR/ Gw
Time of T/O: 11: 30 AM Time of Landing: 5:15 PM	Antenna Height – meters: 」, イ 6 イ
General Weather Conditions: しょぎみ &	Antenna Height – feet: 4. & I f – 1. イ ζ タ Checks?
Survey Information	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name:
Flight Vendor / Tail No:	Receiver Type & SN:
Airport Start/End:	Antenna & Measurement Type:
Time of T/O: Time of Landing:	Antenna Height – meters:
Ceneral Weather Conditions:	Antenna Height – feet:

Survey Information	
	Base Station Data
	Station Name: UA
Flight Vendor / Tail No: ASPEN / N68VA / P-68 F	Receiver Type & SN: TRM 5700 /# 7248
12MOD	Antenna & Measurement Type: Zephy//BN
mding: 3:45pm	Antenna Height – meters: 1, 4っこい
General Weather Conditions: ことし	Antenna Height – feet: 4.600 ft
Survey Information	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name:
Flight Vendor / Tail No:	Receiver Type & SN:
	Antenna & Measurement Type:
Time of T/O: Time of Landing:	Antenna Height – meters:
General Weather Conditions:	Antenna Height – feet:
Comments (notable inflight disturbances, head/tail/crosswinds,	r 1443 - 1461
	Öptech Galaxy Prime s/n 5060411 I ast manufacturer service date: July 30, 2020

	Date: 4-24-2021
SURVEYING MAPPING GIS	HILOG Mission(s): 119 A
Survey Information	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name: $\mathcal{N} \cap$
Flight Vendor / Tail No: ASPEN / N63VA / P-68	Receiver Type & SN: レヘ
- KMOD	Antenna & Measurement Type: \mathcal{NA}
Time of T/O: 9:55 m Time of Landing: 2:20 m	Antenna Height – meters: $_{\mathcal{N}}$ A
General Weather Conditions: SKC	Antenna Height – feet: $V \ominus$
Survey Information	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name:
Flight Vendor / Tail No:	Receiver Type & SN:
Airport Start/End:	Antenna & Measurement Type:
Time of T/O: Time of Landing:	Antenna Height – meters:
General Weather Conditions:	Antenna Height – feet: Checks?
Comments (notable inflight disturbances, head/tail/crosswinds, \mathcal{ST}_{T} instrument anomolies, etc.):	57ART L461-L485
	Optech Galaxy Prime s/n 5060411 Last manufacturer service date: July 30, 2020

SURVEYING MAPPING GIS	IDAR FLIGHT LOG Mission(s): 120A
Survey Information 120A	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name: しんろ
Flight Vendor / Tail No: ASPEN / N68VA / P-68	Receiver Type & SN: NA
	Antenna & Measurement Type: $\mathcal{N}\mathcal{A}$
Time of T/O: q:15 am Time of Landing: 12:20 pm	Antenna Height – meters: $N A$
General Weather Conditions: ことし	Antenna Height – feet: NA Ohecks?
Survey Information	Base Station Data
Project Name: DWR San Joaquin Valley 14750-147	Station Name:
Flight Vendor / Tail No:	Receiver Type & SN:
Airport Start/End:	Antenna & Measurement Type:
Time of T/O: Time of Landing:	Antenna Height – meters:
General Weather Conditions:	Antenna Height – feet: Checks?