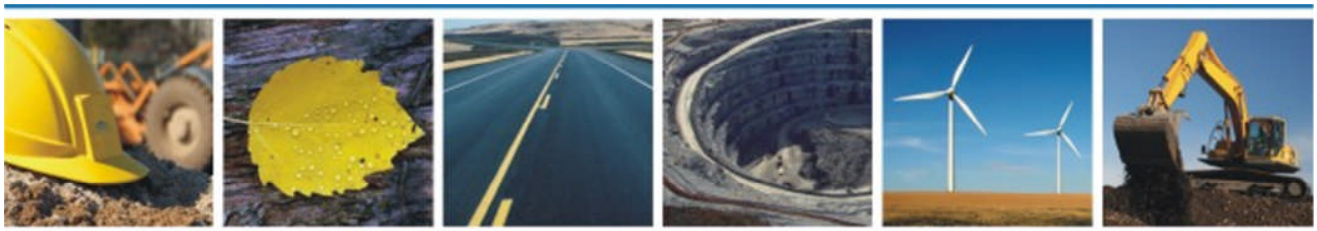
YUKON GOVERNMENT – ENERGY MINES AND RESOURCES, ASSESSMENT AND ABANDONED MINES

FARO MINE COMPLEX
MONITOR MINE WASTE ROCK TRIAL COVERS
2011 DATA SUMMARY



REPORT

DECEMBER 2011
ISSUED FOR USE
EBA FILE: W23101449

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A TETRA TECH COMPANY

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EBA Engineering Consultants Ltd. operating as EBA, A Tetra Tech Company
Calcite Business Centre, Unit 6, 151 Industrial Road
Whitehorse, YT Y1A 2V3 CANADA
p. 867.668.3068 f. 867.668.4349

EXECUTIVE SUMMARY

EBA Engineering Consultants Ltd. operating as EBA, A Tetra Tech Company (EBA) was requested by Mr. Frank Patch of the Yukon Territorial Government, Department of Energy Mines and Resources, Assessment and Abandoned Mines (AAM) to provide technical consulting services by overseeing the collection of weather and hydrological data at the Faro Mine Complex (FMC). This work was completed under the terms outlined in the Standing Offer agreement, AAMB-11-001-EBA and under contract number C00008955, dated May 19, 2011.

This report summarizes the data collected during the 2011 monitoring season (November 2010 - October 2011) from the Waste Rock Cover Trials at the Faro Mining Complex. The intent of this report is to document the field results and provide feedback on the quality of the data collected. Where problems with the collected data have been identified, this report provides recommendations for remedying the problem as well as mitigation strategies collected in following reasonable trends, and that the instrumentation and data acquisition systems are performing as expected.

An initial site visit was conducted on May 27 and 28, 2011 with AAM staff. The two CR10X data loggers were re-commissioned on July 7, 2011. Periodic on-site monitoring and downloading was conducted by DES and EBA. The last data was collected on October 20, 2011.

Following a review of the field setup and results, EBA recommends the following:

- All instruments should be re-commissioned in the early spring before the 2012 spring thaw, where possible. Access may be restricted to the instrumentation sheds in high snowfall years;
- AAM should request all relevant information regarding the project from SRK including: work books, and all digital data generated, field data and notes, photographs, instrument serial numbers, wiring diagrams, programs, calibration data, all correspondence either written or emailed as well as any other pertinent information on the experiment;
- The batteries in the Davis Weather Station should be replaced at the beginning of the 2012 monitoring season;
- The desiccant packs in each of the data logger enclosures should be replaced every two weeks;
- The tipping buckets should be cleaned and calibrated at the beginning of the next monitoring season;
- A new Diviner 2000 probe should be purchased before the 2012 monitoring season begins;
- All water within any of the Diviner access tubes should be purged;
- Ensure the wiring from the EnviroScan probes to the CR10X#1 and CR10X#2 is correct and functional; and,
- Consideration should be given to installing an evaporation pan on site near the lysimeter fields. The rain gauges monitor the input water to each field. The experiment requires an accurate measure of the water volume seeping into the field. The water volume per unit area available to seep into the field is determined by rainfall (runoff+evaporation). The evaporation pan will enable a better estimate of the evaporation rates occurring on each of the fields.

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1.0 INTRODUCTION AND SCOPE OF WORK

EBA Engineering Consultants Ltd. operating as EBA, A Tetra Tech Company (EBA) was requested by Mr. Frank Patch of the Yukon Territorial Government, Department of Energy Mines and Resources, Assessment and Abandoned Mines (AAM) to provide technical consulting services by overseeing the collection of weather and hydrological data at the Faro Mine Complex (FMC). This work was completed under the terms outlined in the Standing Offer agreement, AAMB-11-001-EBA and under contract number C00008955, dated May 19, 2011.

1.1 Background

It is the understanding of EBA from background information provided by AAM that the following summarizes the current conditions at the Faro Mining Complex:

- Faro Mining Complex has about 185 million cubic meters of waste rock covering approximately 542 hectares of surface area. Much of this waste rock has been confirmed to be acid generating and contains leachable metals.
- Waste Rock piles have been covered with local till and glaciofluvial soils to:
  - Prevent direct exposure and contact of humans and terrestrials wildlife with the waste rock;
  - Reduce infiltration through the waste rock to specified targets; and,
  - Provide a medium that would allow establishment of successional vegetation.
- In 2004, six trial covers (CT#1, CT#2A, CT#2B, CT#3A, CT#3B, and CT#4) were constructed on the Vangorda Waste Rock Pile to test a range of different physical performance criteria for the available materials. Instrumentation measuring infiltration and water balance were installed in 2004 and 2005.
- In 2007, two large lysimeter arrays (25 meters by 25 meters) were constructed on the plateau of the Vangorda waste rock dump. Lysimeters were installed in 2008 using same suite of instrumentation installed in the cover trials.
- SRK Consulting have been collecting data and maintaining the monitoring instrumentation since 2006.

1.2 Scope of Work

The scope of work for this project was as follows:

- Re-commission, install and calibrate the instrumentation to collect data from the Vangorda waste rock cover trials as described in the Faro Mine Complex, Monitor Mine Waste Rock Trial Covers: 2010 Data Summary, and explain the downloading requirements to the Denison Environmental Officer;
- Inspect the instrumentation after one month of operation to ensure that all is functioning as planned and to make any necessary adjustments;
- Return to the site prior to freeze up to dismantle and store on site all instrumentation in preparation for winter;

- Collate data and present in a report describing the project's findings and make recommendations for the following season; and,
- Prepare an equipment operations binder and operation manual as agreed to by YG and EBA.

This report summarizes the data collected from the trial covers during the 2011 monitoring season (November 2010 to October 2011). The objective of this report was to document field work conducted during the 2011 field season, provide data collected and provide feedback on the quality of data collected. As requested by AAM, and outlined in the proposal, EBA was not to provide analysis or interpretation of the data in the data summary report.

1.3 Methodology

It is the understanding of EBA from information provided by AAM that six trial covers were constructed in September 2004. Instrumentation was installed and commissioned into the trial covers in June 2005. Two lysimeters were constructed in August 2007 as a cover trial. In 2008, an additional lysimeter array was installed and instrumented as in the cover trial. SRK has overseen the collection of data from the Vangorda waste rock cover trials from inception to the end of 2010.

An initial site visit was conducted by EBA scientists and a representative of AAM on May 20 and 21, 2011. All instrumentation was re-commissioned during this site visit with exception of the two CR10X data loggers. EBA had not received the appropriate programs and corresponding wiring diagrams for the data loggers prior to the initial site visit. Campbell Scientific (the manufacturer of the CR10X data loggers) were contacted for assistance in obtaining the appropriate programs and wiring diagrams, and the two CR10X data loggers were re-commissioned on July 7, 2011.

EBA purchased a field laptop and installed all necessary software required to download data for all the data loggers. A binder was also created containing all instruments manuals, downloading procedures, and wiring diagrams.

Denison Environmental Services (DES) staff collected manual data and downloaded data from the various loggers throughout the 2011 field season and sent all retrieved data to EBA. Data was downloaded from the CR1000 and from SeaMetric DL75 data loggers every two weeks from June 6 until October 20, 2011 by Denison personnel. Soil moisture measurements using the Diviner 2000 probe were collected on a regular basis by Denison personnel between July 5 and August 27. The Diviner probe was damaged on August 27 and hence no further soil moisture data was collected post August 27, 2011. The last download of the season was performed by DES and EBA scientists on October 19 and 20, 2011.

EBA inspected and assembled the data as received. A QA/QC process was implemented where bad data was documented, flagged and removed. Excel was used to arrange the various data sets into a format suitable for analysis and graphing. The various calibration algorithms for each instrument were applied to the raw data to enable the conversion of the experimental data to standard engineering units suitable for presentation.

2.0 AUTOMATED INSTRUMENTATION DATA

2.1 Davis Instruments Vantage Pro (Weather Stations and Satellite Stations)

As described in information provided by AAM, climatic data is collected at the Vangorda Waste Rock Pile trial cover location using two Davis Instruments Vantage Pro Weather stations, located on CT#1 and on the dividing berm between CT#2A and CT#2B. Two satellite stations, which are located approximately 25 meters from the Davis Instrument stations, collect additional climatic data including temperature, relative humidity and soil moisture and soil temperature data. The locations of these stations can be seen in Figures 4, 6 and 7. These stations were taken down by SRK in October 2010 and were stored in the Guard House during the winter months. EBA set up the weather stations during the first site visit on May 27th and 28th, 2011 and then took them down for winter storage on October 19th, 2011. Data was not downloaded from these stations as Dennison were unable to find the port to connect the download cable to. The supplier will be contacted to resolve this issue, and an attempt made in January by Dennison to download the data. If this data becomes available, EBA will provide it under separate cover. The satellite stations should be re-commissioned in the spring of 2012. It is recommended that AAM consider upgrading these satellite stations if the program continues.

Table 1: Summary of primary data collected by Davis Instruments Vantage Pro Weather and Satellite Stations

Parameter	Location	Sample Frequency	Units
Rainfall	Both weather stations	Every 50-60 sec; output as hourly total	mm
Ambient Outside Air Temperature	Both weather and satellite stations	Every 10-12 sec; output as mean hourly	^{o}C
Relative Humidity	Both weather and satellite stations	Every 50-60 sec; output as mean hourly	%
Solar Radiation	Both weather stations	Every 50-60 sec; output as mean hourly	W/m^2
Barometric Pressure	Both weather stations	Every 50-60 sec; output as mean hourly	kPa
Wind Speed	Both weather stations	Every 2.5 – 3 sec; output as mean hourly	km/hr
Wind Direction	Both weather stations	Every 2.5 – 3 sec; output as mean hourly	N/E/S/W
Ultraviolet (UV) Index	Both weather stations	Every 50-60 sec; output as mean hourly	Scale 1-16
Soil Moisture	Both weather stations	Every 50-60 sec; output as mean hourly	kPa
Soil Temperature	Both weather stations	Every 50-60 sec; output as mean hourly	^{o}C

2.2 Campbell Scientific Data Loggers

Three Campbell Scientific Data Loggers are installed on site. One CR1000 is installed in the Upper Monitoring Hut (Figure 4 and 5) and two CR10X data loggers are installed in the Lower Monitoring Hut (Figure 4 and 5). These data loggers collect data from the following instruments:

- Soil matric suction and temperature data from Campbell Scientific CS229 thermal conductivity sensors;
- Soil volumetric moisture content data from Sentek EnviroScan sensors; and,
- Flow volumes from tipping bucket flow gauges.

Logger CR10X#1 collects volumetric moisture content data from trial covers CT#2A and CT#2B as well as flow data from all nine tipping buckets. Logger CR10X#2 collects soil temperature and soil matric suction data from trial covers CT#1, CT#2A, CT#2B, CT#3A, CT#3B and CT#4, as well as moisture content from data from CT#1, CT#3A, CT#3B, and CT#4. The CR1000 data logger located collects soil temperature, soil matric suction, moisture content and flow data from the two lysimeter fields, L#1 and L#2.

As previously reported by SRK, the two CR10X data loggers were removed in the fall of 2010 for recalibration. EBA re-commissioned the data loggers in July 7, 2011. AAM provided EBA with the two calibrated CR10X data loggers, however they did not have the corresponding program and wiring diagrams for each of the two data loggers. For this reason during the first site visit by EBA staff to re-commission the experiments, it was not possible to install the two CR10X data loggers. AAM requested the wiring diagrams and programs from SRK for these two loggers. Upon receiving the logger programs and wiring diagrams EBA staff conducted another site visit on June 6, 2011. During this field trip, it was apparent that the programs and wiring diagrams provided by SRK were outdated and did not match the instrumentation that was wired into each of the two panels for the wiring diagrams. All wiring diagrams and programs for these dataloggers can be found in the Wiring and Programs section of the Instrumentation and Software Manuals binder.

Attempting to wire the CS229 sensors to the two loggers was challenging due to labeling issues. The cables were not clearly labeled and they did not correspond to the location or name of each sensor. Additional information with respect to the correct logger wiring codes was requested from SRK. EBA also contacted Campbell Scientific, the supplier that had calibrated the instruments the previous year. As a precautionary measure, Campbell Scientific saves the program before recalibrating. They were able to provide EBA with the appropriate programs for the two data loggers. It was then possible for EBA to create wiring diagrams for the two data loggers based on information provided by the program. The two data loggers were reinstalled on July 7, 2011.

2.2.1 Battery Voltage

A 12 volt, 100 amp-hour deep cycle battery is connected to each data logger and provides power to the data logger and all of the instruments. Three dedicated 20W solar panels recharge each of the three batteries. Each data logger has an internal protection circuit that will shut down the data logger if the battery voltage drops below 8 volts or exceeds 15 volts. Each data logger records the daily minimum voltage. Figure 96 shows the daily minimum voltage for each logger.

As recommended by SRK, a new battery was installed in the Upper Monitoring Hut for the CR1000 on June 6, 2011.

2.2.2 Soil Matric Suction

A series of Campbell Scientific CS229 thermal conductivity sensors measures the soil matric suction in each trial cover. Figures 6 to 9 from the 2010 SRK report show the locations of each sensor in the cover trials and lysimeters. The data logger records the soil matric suction by measuring voltage differential. The voltage differential can be converted into soil matric suction by applying calibration curves unique to each material. As no information was provided by SRK with respect to the unique calibration of the CS229 probes for each type of soil being measured, EBA is unclear if these calibrations were conducted or if the

standard instrument calibration provided by the instrument supplier was used. Figure 12 and 28 show the data collected from Lysimeter #1 and #2, respectively which were connected to the CR1000. These sensors performed as expected. No reliable data was collected from the CS229 sensors connected to the CR10X#2. The problem is likely due to wiring problems, but also may be due to problems with the program or the sensors themselves. EBA recommends that this issue be resolved prior to the next field season.

2.2.3 Soil Temperature

The soil temperature is measured using the same CS229 thermal conductivity sensors. These sensors record the soil temperature by reading the voltage differential which is then converted into a temperature with the application of calibration curves. The data recorded from the CR1000 data logger are shown in Figures 11 and 27. All sensors performed as expected except one sensor installed at a depth of .10 m in L#2. It has had a consistent temperature of zero degrees since November 2010.

2.2.4 Soil Volumetric Moisture Content

EnviroScan probes record the volumetric soil moisture content at various depths in each of the trail covers. Each profile contains between seven and thirteen individual beads. Figures 6 to 9 from the 2010 SRK report show the locations at various depths. The sensors measure relative volumetric moisture content, which can be converted into actual volumetric moisture content using standard calibration curves. Figure 10, 26, 64, 73, and 81 show the collected data.

2.2.5 Tipping Bucket Flow Gauges (Runoff and Interflow)

Flow data from specific locations within each lysimeter field is determined by tipping bucket rain gauges and SeaMetric turbine flow meters. The tipping buckets located in the Lower Monitoring Hut are monitored by the CR10X#1 through two SDM-SW8A pulse counter devices connected in series. The cumulated total tips are recorded every 30 minutes. In the Upper Monitoring Hut, the CR1000 data logger records the surface and interflow values for each lysimeter. Based on the volume per tip of each tipping bucket, the number of tips was converted into a flow rate. Prior to the start of the 2011 monitoring programs, EBA verified the operation and calibration for all tipping buckets. EBA did not have the wiring diagram for the SDM-SW8A so data from each sensor was compared to last year's data in order to match the sensor with a location. In order to confirm the locations, the array number for each tipping bucket will need to be obtained from SRK. The data is presented in the following Figures: 13-15, 29, 30, 44, 53, 59, 65, 66, 74, 82 and 83. All of the tipping buckets performed as expected.

During the initial site visit, the sediment traps were cleaned and rinsed. EBA recommends that the sediment traps be cleaned during the first site visit in 2012.

2.2.6 SeaMetric DL75 Data Loggers (Surface Runoff and Interflow)

Surface runoff and interflow is measured from each trial cover using individual SeaMetrics flow meters, each connected to an individual SeaMetrics DL75 data logger. Six flow meters are installed in the Upper Monitoring Hut and nine flow meters are installed into the lower monitoring hut (Figure 5). SRK removed the flow meters and replaced these sections with PVC pipe in the fall of 2011. During the first site visit, EBA

re-commissioned all the flow meters. EBA removed all flow meters on October 19th and 20th, 2011. The flow meters should be reinstalled in the spring of 2012.

The data loggers are programmed to measure the flow rate every 60 seconds, which is used to measure incremental flow volume. During the processing of the data, all null values were removed to save space. This data is presented in Figures 15, 31, 32, and75. The majority of the data loggers did not record any flow over the course of the summer.

Data was downloaded by DES for L2-2 Central flow sensor, but an error in the file prevented this data from being readable and used in the report. Approximately two weeks of data is missing due to this file error.

EBA questions the quality of the flow data collected by SeaMetric turbine flow meters. Firstly, the installation of the turbine flow meters do not all adhere to the design criteria of 10 pipe diameters of straight pipe upstream and 5 pipe diameters downstream of the turbine section. Secondly is that seldom, if ever, does water in the pipe flow as a full pipe. Turbine flow meters record accurate data only during occasions of full pipe flow. At times when less than full pipe flow occurs the turbine meter will still rotate and generate inaccurate flow data. This error occurs because the discharge calibration for the meter is based on a velocity area calculation. Velocity is measured by the turbine and the area is assumed to be the cross sectional area of the full pipe. If the pipe is not completely full then the flows are greatly overestimated due to the calibration algorithm will still use the area of a full pipe to calculate flow.

As seen in Figure 32 and 33, very little flow was observed over the course of the summer with exception of one event on June 19, when 68 L/min flowed through the turbine, which seems excessive.

A full pipe flow situation is very unlikely to occur in either of the monitoring huts. The SeaMetric turbine flow meters are installed into 2" PVC pipe. It is unlikely that even during a storm enough water would be flowing through these pipes to satisfy the full-pipe flow assumption.

Three months of data is missing from the L2-2 Central flow meter. Data was downloaded by DES for this sensor, but an error in the file prevented this data from being readable and used in the report.

3.0 MANUALLY COLLECTED INSTRUMENTATION DATA

3.1 Sentek Sensor Technologies Diviner 2000 (Soil Volumetric Moisture Content)

Each trial cover has six to eight vertical PVC access tubes, as illustrated in Figure 5. A measurement is obtained by inserting the Sentek Diviner probe into the PVC access tube. Instantaneous soil volumetric moistures content values are recorded at 10 cm depth intervals to a depth of 1.6 metres. Data was collected throughout the summer from each of the 60 access tubes by DES personnel. The recorded data is stored on the data logger and was downloaded periodically throughout the summer (a total of 34 times).

In the spring of 2011, during the first EBA site visit it was discovered that the connection between the data logger and the probe of the Diviner was faulty. Fortunately an electrician on site was able to repair the connection. The repair lasted through most of the summer, but the probe stopped functioning again on August 27, 2011 and these became the last readings of the year. A new Diviner probe should be obtained for 2012.

All data is presented in Figures 16-25, 33-42, 45-52, 54-58, 60-63, 67-72, 76-80, and 84-91. The probe was unable to successfully log data at a number of the stations including 10, 17, 19, 31, and 45. This is likely due to the presence of water in the access tubes. EBA recommends that all water is bailed out and removed from the access tubes before the start of the 2012 monitoring season.

3.2 HOBO Water Leveloggers

In previous years, Hobo water leveloggers were installed in a series of culverts on CT#2A, CT#2B and both lysimeters. They were designed to monitor the beginning and ending of each season. This data is difficult to collect from the flow meters and the tipping buckets because of water frozen within the pipes. During the first site visit, and after discussions with AAM personnel it was decided that the water leveloggers would not be deployed as spring thaw had already occurred for 2011.

4.0 CONCLUSIONS

4.1 Summary

This report summarizes the data collected and issues encountered over the 2011 monitoring period at the Vangorda waste rock trial covers. An initial site visit was conducted on May 27 and 28, 2011 with AAM staff. The two CR10X data loggers were re-commissioned on July 7, 2011. Periodic on-site monitoring and downloading was conducted by DES and EBA. The last data was collected on October 20, 2011.

4.2 Recommendations

EBA recommends the following:

- All instruments should be re-commissioned in the early spring before the 2012 spring thaw, where possible. Access may be restricted to the instrumentation sheds in high snowfall years;
- AAM should request all relevant information regarding the project from SRK including: work books, and all digital data generated, field data and notes, photographs, instrument serial numbers, wiring diagrams, programs, calibration data, all correspondence either written or emailed as well as any other pertinent information on the experiment;
- Davis Weather Stations and SeaMetric Flow Meters should be reinstalled at the beginning of the 2012 monitoring season;
- The batteries in the Davis Weather Station should be replaced at the beginning of the 2012 monitoring season;
- The desiccant packs in each of the data logger enclosures should be replaced every two weeks;
- The tipping buckets should be cleaned and calibrated at the beginning of the next monitoring season;
- A new Diviner 2000 probe should be purchased before the 2012 monitoring season begins;
- All water within any of the Diviner access tubes should be purged;

- Ensure the wiring from the EnviroScan probes to the CR10X#1 and CR10X#2 is correct and functional; and,
- Consideration should be given to installing an evaporation pan on site near the lysimeter fields. The rain gauges monitor the input water to each field. The experiment requires an accurate measure of the water volume seeping into the field. The water volume per unit area available to seep into the field is determined by rainfall (runoff + evaporation). The evaporation pan will enable a better estimate of the evaporation rates occurring on each of the fields.

5.0 CLOSURE

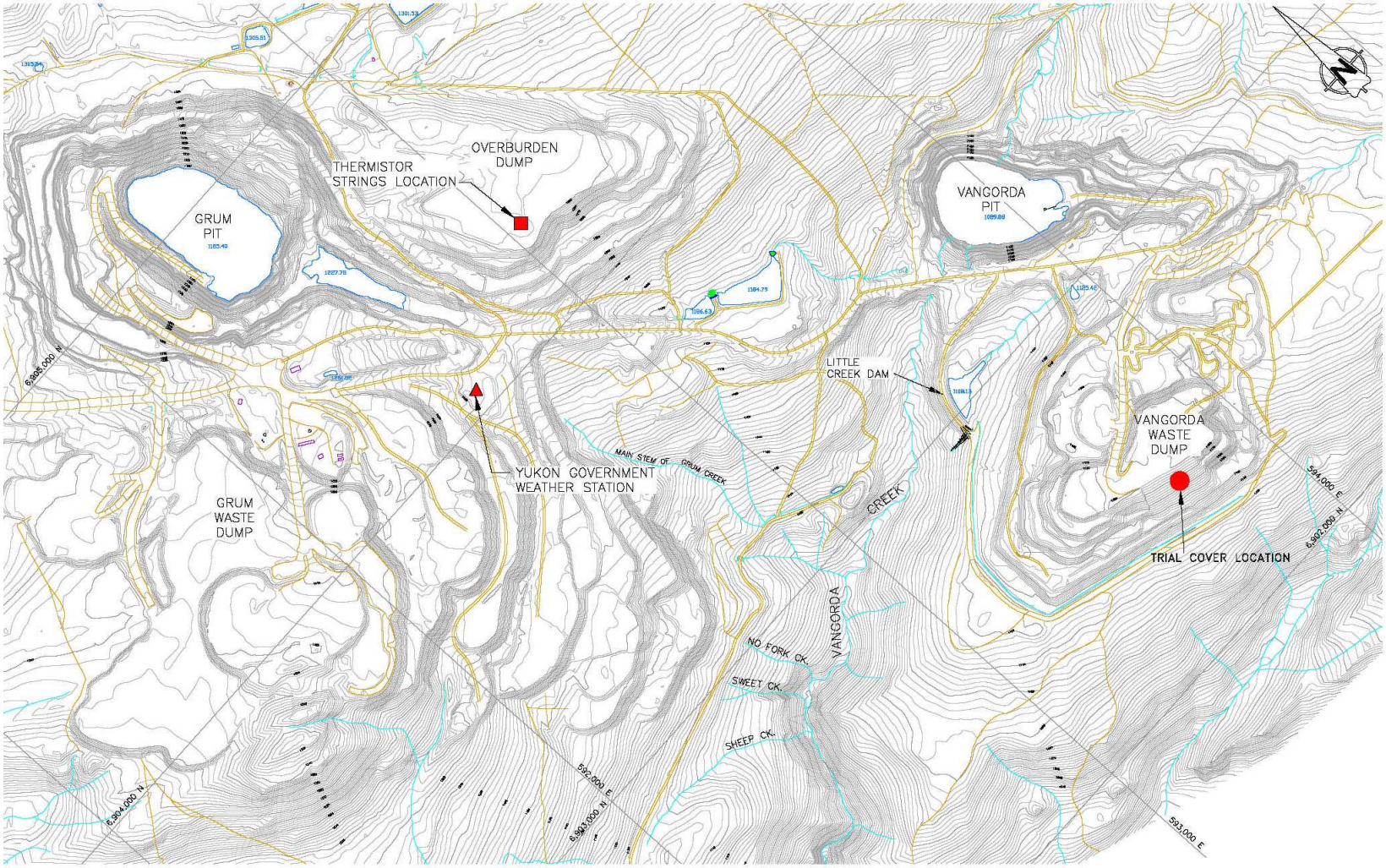
We trust this report meets your present requirements. If you have any questions or comments, please contact the undersigned.

Sincerely,
EBA Engineering Consultants Ltd.

Kristen Range, B.Sc.
Environmental Technician, Pacific Region
Direct Line: 867.668.2071 x268
krange@eba.ca

Tamra Reynolds, M.Sc., P. Geo. (BC)
Senior Hydrogeologist, Pacific Region
Direct Line: 867.668.2071 x241
tareynolds@eba.ca

FIGURES



LEGEND

NOTES

Base data: NTS 1:50,000
Taken from Faro Mine Complex
Monitor Mine Waste Rock Trial Covers
2010 Data Summary (SRK, January 2011)

STATUS

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FARO INSTRUMENTATION RECOMMISSION AND DATA SUMMARY

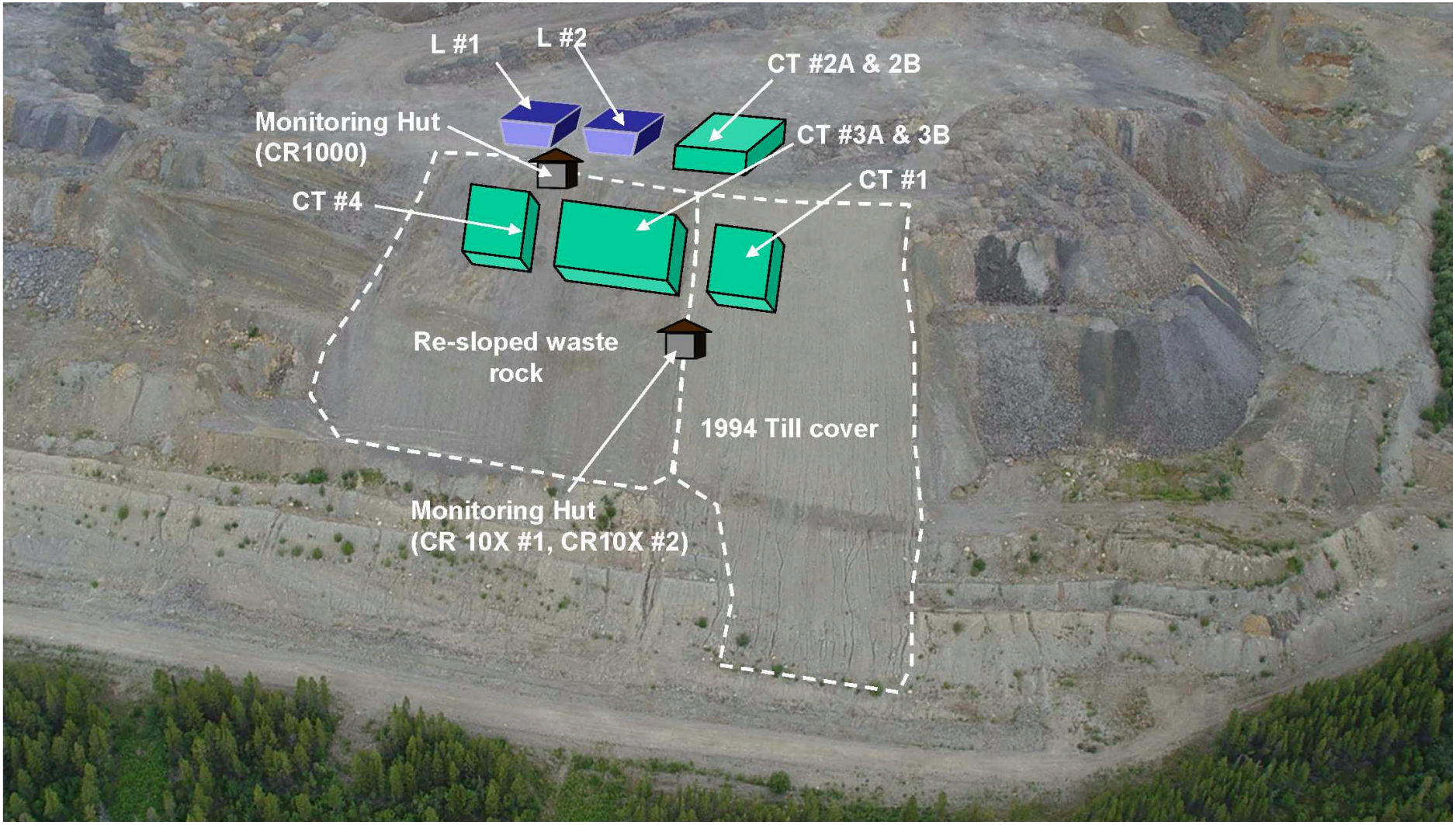
Location Plan for Trial Covers

PROJECT NO.	DWN	CKD	APVD	REV
W23101449	KRR	TR	XXX	0

OFFICE	DATE
EBA-WHSE	November 30, 2011

Figure 1

EBA-TI_Title_Block_8.5x11_Landscape.cdr



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FARO INSTURMENTATION RECOMMISSION AND DATA SUMMARY

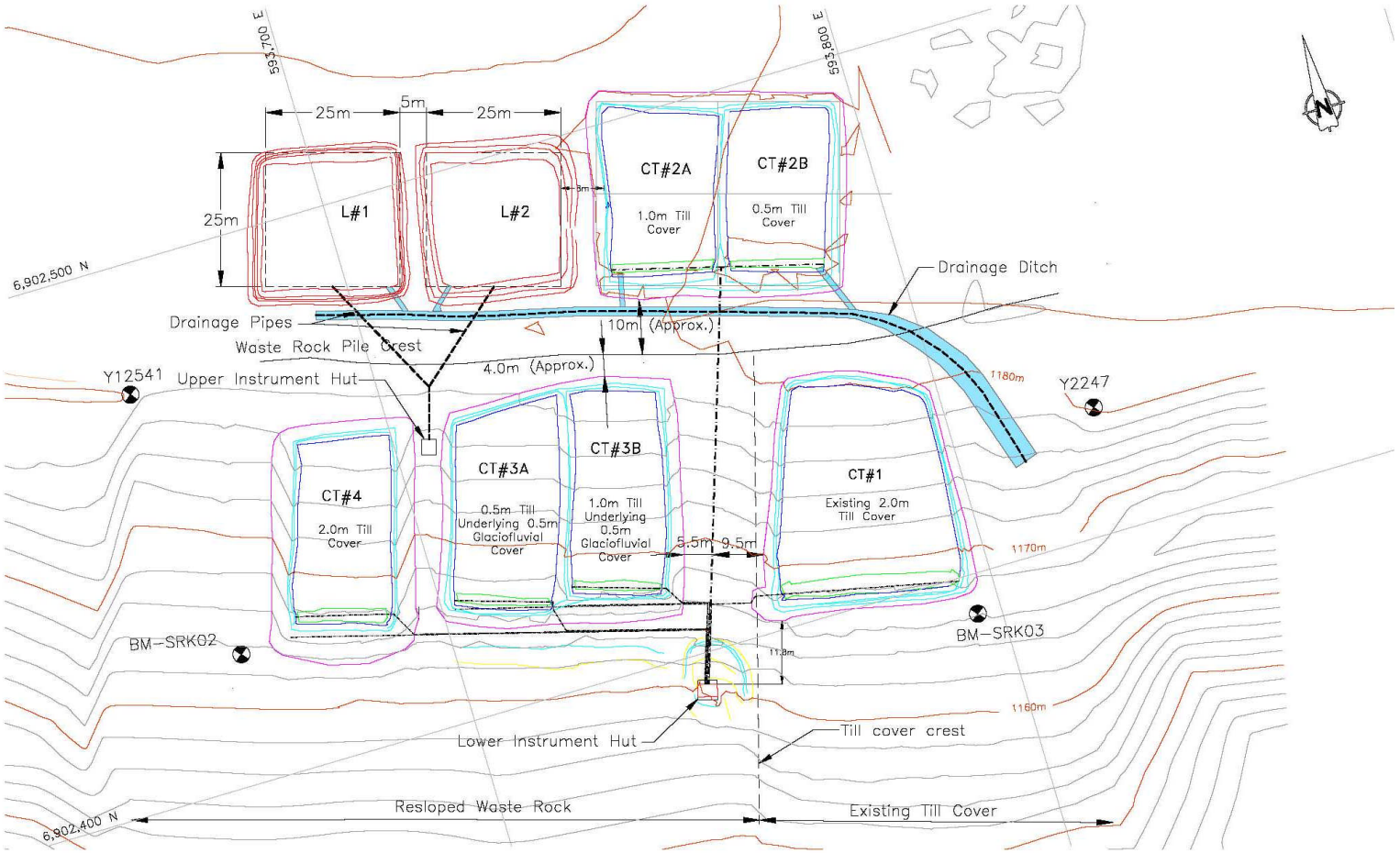
Aerial View of Trial Cover Layout

PROJECT NO.	DWN	CKD	APVD	REV
W23101449	KRR	TR	XXX	0

OFFICE	DATE
EBA-WHSE	November 30, 2011

Figure 2

EBA-TT_Title_Block_8.5x11_Landscape.cdr



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FARO INSTRUMENTATION RECOMMISSION AND DATA SUMMARY

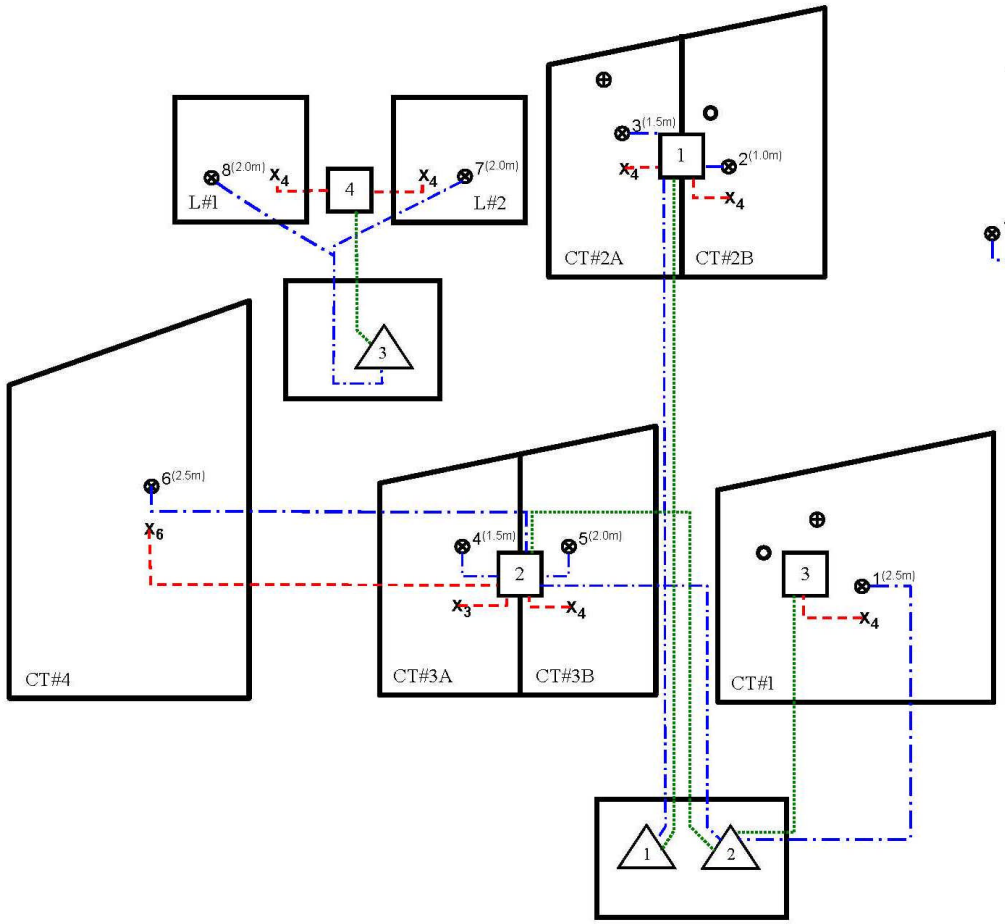
Schematic Showing Trial cover and Lysimeter Layout.

PROJECT NO.	DWN	CKD	APVD	REV
W23101449	KRR	TM	XXX	0

OFFICE	DATE
EBA-WHSE	November 30, 2011

Figure 3

EBA-TI_Title_Block_8.5x11_Landscape.cdr



Legend:

- Multiplexer
- Campbell Scientific Datalogger
- Satellite Station
- Weather Station
- EnviroSCAN Probe #(#m rail) & Communication Wire
- CS229 Thermal Conductivity Sensor (# sensors in profile) & Lead wires
- Multiplexer Communication Wire

LEGEND

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Monitor Mine Waste Rock Trial Covers
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FARO INSTURMENTATION RECOMMISSION AND DATA SUMMARY

Schematic Showing Trial cover and Lysimeter Layout.

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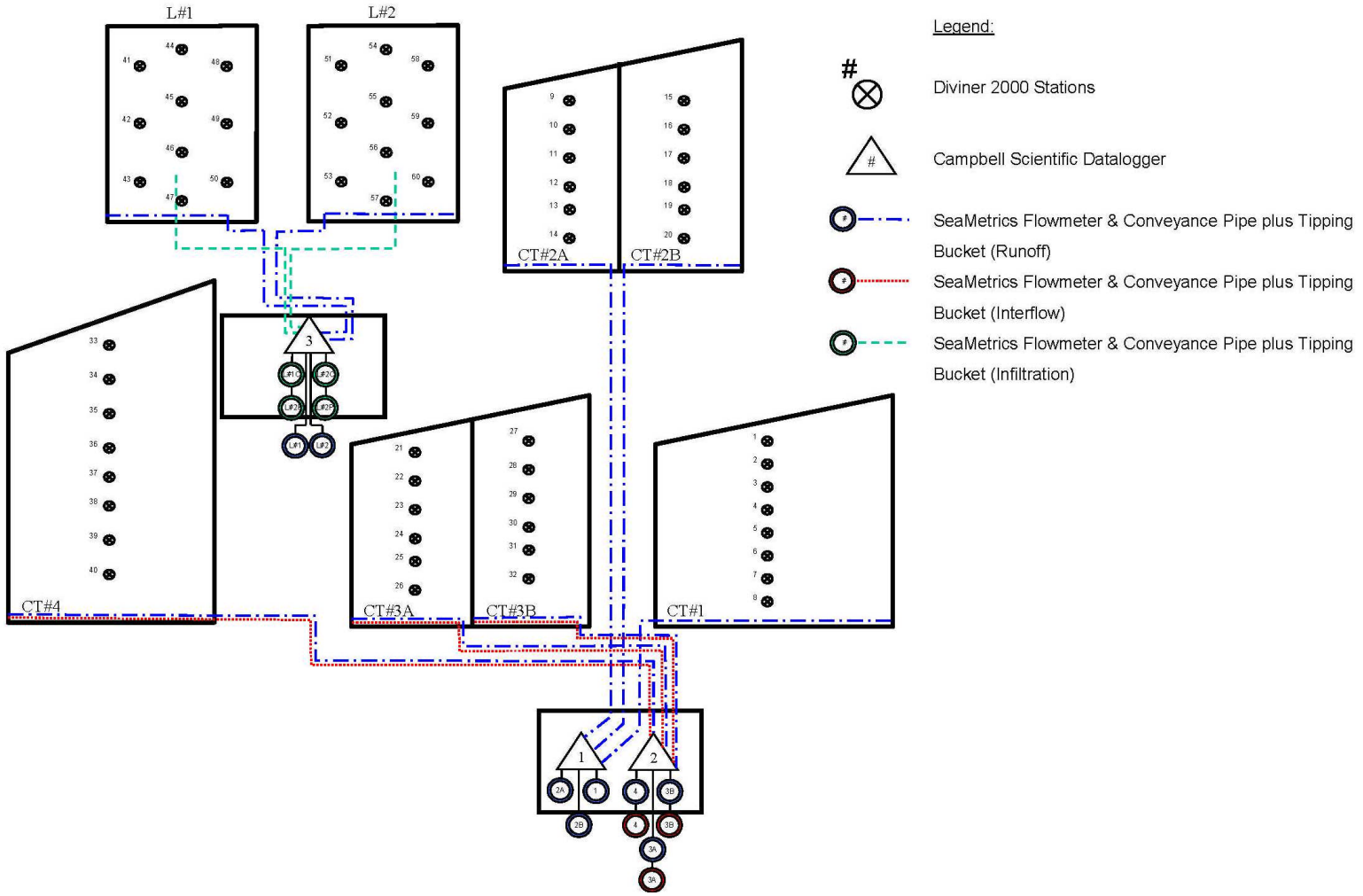
Figure 4

EBA-TI_Title_Block_8.5x11_Landscape.cdr



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FARO INSTRUMENTATION RECOMMISSION AND DATA SUMMARY

Schematic Showing Trial Cover and Lysimeter Layout.

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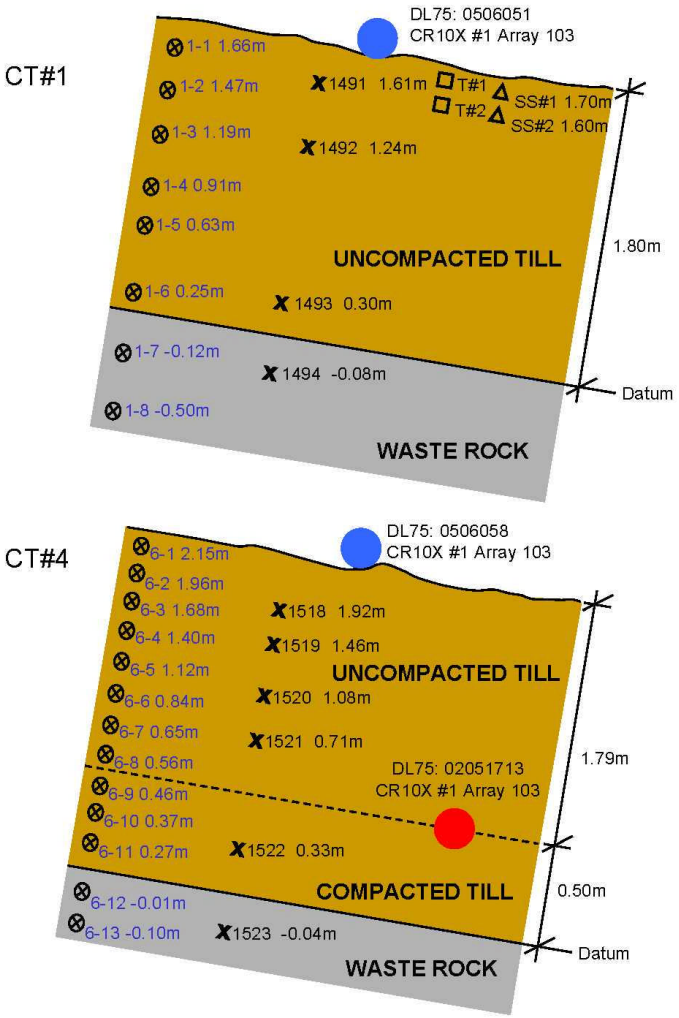
Figure 5

EBA-TI_Title_Block_8.5x11_Landscape.cdr



Legend:

#-# #.##m	EnviroSCAN Probe, s/n and depth
# #.##m	CS229 Thermal Conductivity Sensor, s/n and depth
T## #.##m	Satellite Station Soil Temperature probe and depth
SS## #.##m	Satellite Station Soil Moisture probe and depth
DL75: # CR10X #2 Array #	Seametrics Datalogger with Flowmeter and Tipping Bucket (Interflow)
DL75: #	Seametrics Datalogger with Flowmeter (Runoff)

Note:
Depths measured from Datum
- Positive = up
- Negative = down

LEGEND

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FARO INSTRUMENTATION RECOMMISSION AND DATA SUMMARY

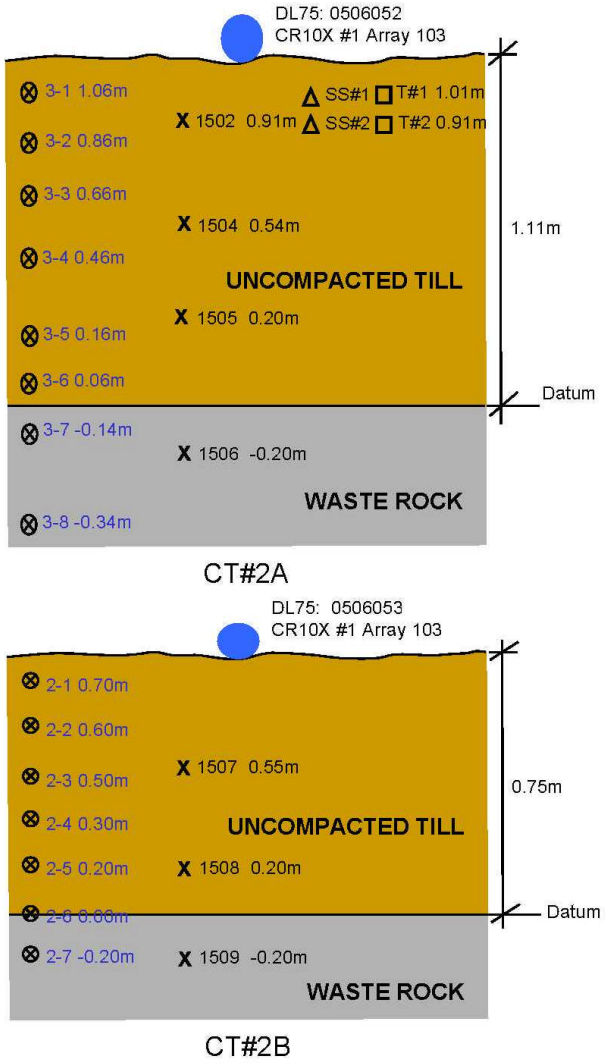
Schematic Showing Instrument Profiles for CT#1 and CT#4.

PROJECT NO.	DWN	CKD	APVD	REV
W23101449	KRR	TM	XXX	0

OFFICE	DATE
EBA-WHSE	November 30, 2011

Figure 6

EBA-TI_Title_Block_8.5x11_Landscape.cdr



Legend:

#-# #.##m	EnviroSCAN Probe with bead s/n and depth
X # #.##m	CS229 Thermal Conductivity Sensor bead s/n and depth
T## #.##m	Satellite Station Temperature probe and depth
SS## #.##m	Satellite Station Soil Moisture probe and depth
DL75: # CR10X #2 Array #	Seametrics Datalogger with Flowmeter and Tipping Bucket (Interflow)
DL75: #	Seametrics Datalogger with Flowmeter (Runoff)

Note:
Depths measured from Datum
- Positive = up
- Negative = down

LEGEND

NOTES

Base data: NTS 1:50,000
Taken from Faro Mine Complex
Monitor Mine Waste Rock Trial Covers
2010 Data Summary (SRK, January 2011)

STATUS
ISSUED FOR USE

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Yukon Government

A TETRA TECH COMPANY

FARO INSTRUMENTATION RECOMMISSION AND DATA SUMMARY

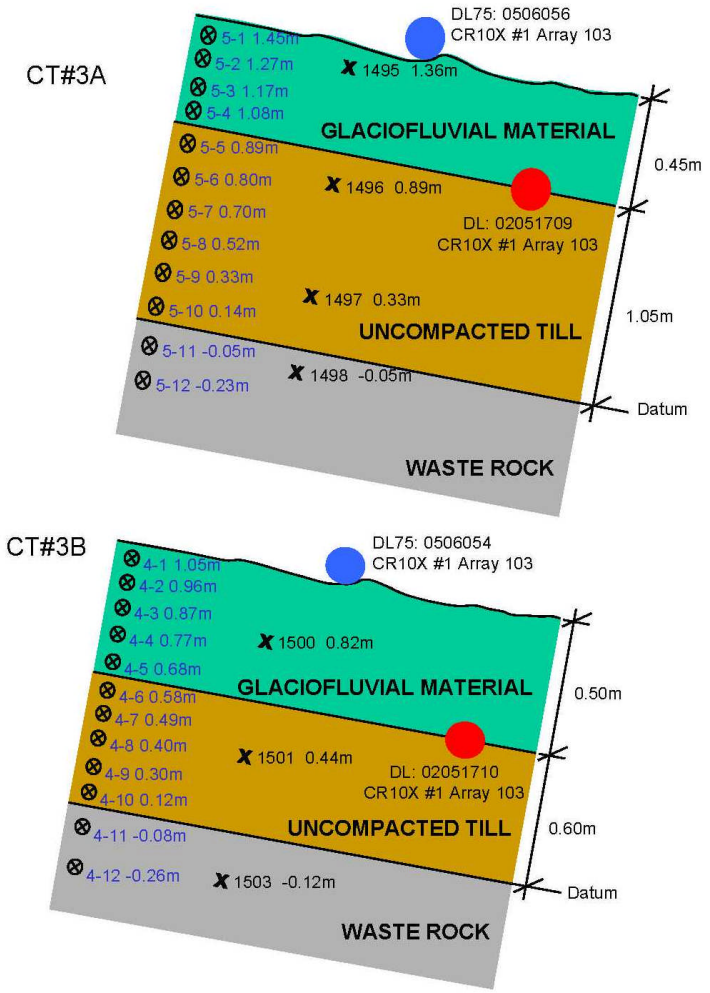
Schematic Showing Instrument Profiles for CT#2A and CT#2B.

PROJECT NO.	DWN	CKD	APVD	REV
W23101449	KRR	TM	XXX	0

OFFICE	DATE
EBA-WHSE	November 30, 2011

Figure 7

EBA-TI_Title_Block_8.5x11_Landscape.cdr



Legend:

#-# #.##m	EnviroSCAN Probe with bead s/n and depth
# #.##m	CS229 Thermal Conductivity Sensor bead s/n and depth
T## #.##m	Satellite Station Temperature probe and depth
SS## #.##m	Satellite Station Soil Moisture probe and depth
DL75: # CR10X #2 Array #	Seametrics Datalogger with Flowmeter and Tipping Bucket (Interflow)
DL75: #	Seametrics Datalogger with Flowmeter (Runoff)

Note:
Depths measured from Datum
- Positive = up
- Negative = down

LEGEND

NOTES

Base data: NTS 1:50,000
Taken from Faro Mine Complex
Monitor Mine Waste Rock Trial Covers
2010 Data Summary (SRK, January 2011)

STATUS
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FARO INSTRUMENTATION RECOMMISSION AND DATA SUMMARY

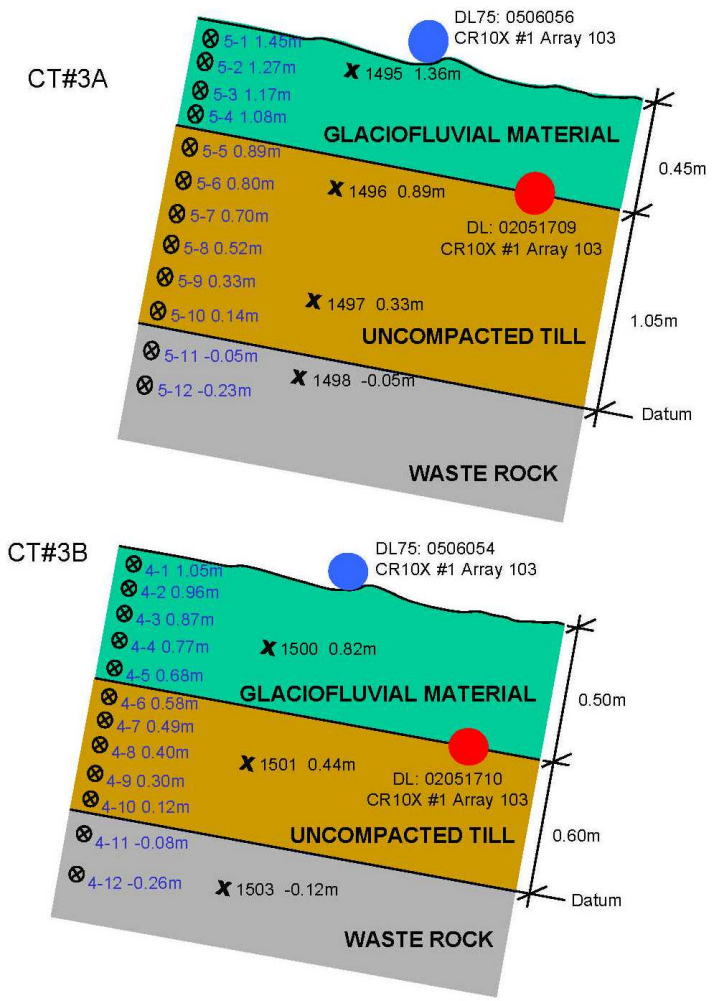
Schematic Showing Instrument Profiles for CT#3A and CT#3B.

PROJECT NO.	DWN	CKD	APVD	REV
W23101449	KRR	TM	XXX	0

OFFICE	DATE
EBA-WHSE	November 30, 2011

Figure 8

EBA-TI_Title_Block_8.5x11_Landscape.cdr



Legend:

#-# #.##m	EnviroSCAN Probe with bead s/n and depth
# #.##m	CS229 Thermal Conductivity Sensor bead s/n and depth
T## #.##m	Satellite Station Temperature probe and depth
SS## #.##m	Satellite Station Soil Moisture probe and depth
DL75: # CR10X #2 Array #	Seametrics Datalogger with Flowmeter and Tipping Bucket (Interflow)
DL75: #	Seametrics Datalogger with Flowmeter (Runoff)

Note:
Depths measured from Datum
- Positive = up
- Negative = down

LEGEND

NOTES

Base data: NTS 1:50,000
Taken from Faro Mine Complex
Monitor Mine Waste Rock Trial Covers
2010 Data Summary (SRK, January 2011)

STATUS
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FARO INSTRUMENTATION RECOMMISSION AND DATA SUMMARY

Schematic Showing Instrument Profiles for L#1 and L#2

PROJECT NO.	DWN	CKD	APVD	REV
W23101449	KRR	TM	XXX	0

OFFICE	DATE
EBA-WHSE	November 30, 2011

Figure 9

EBA-TI_Title_Block_8.5x11_Landscape.cdr

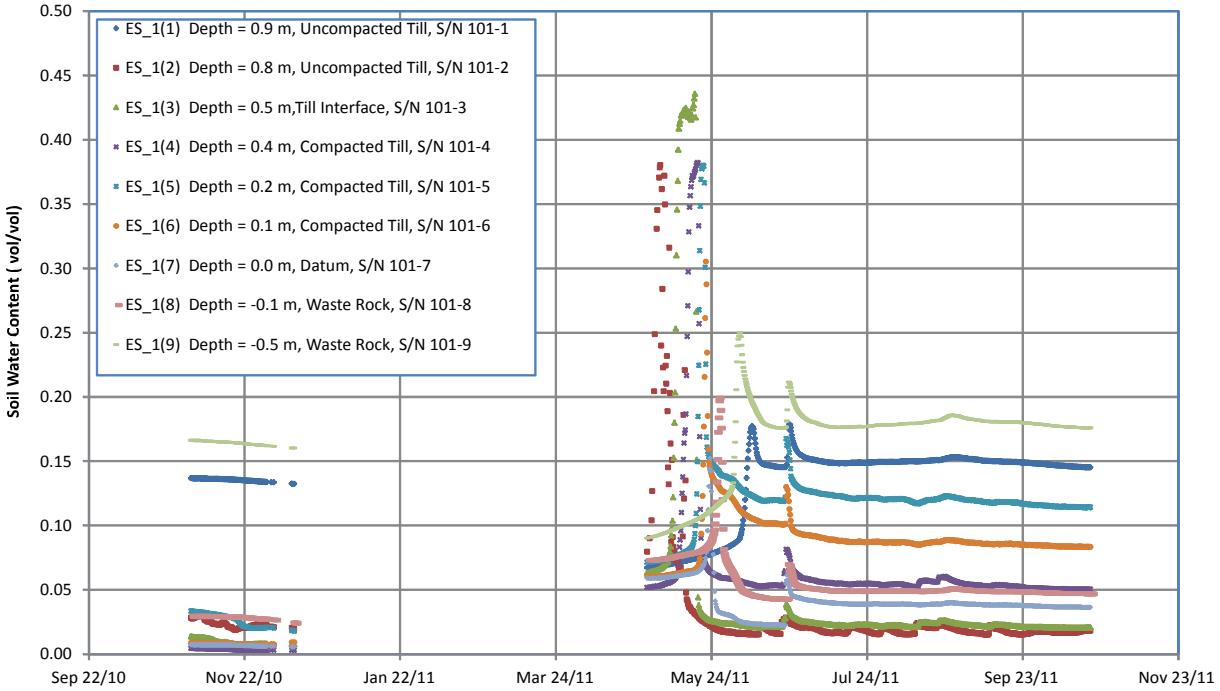

Figure 10: Lysimeter Field L#1Volumetric Soil Water Content from EnviroScan Probes.

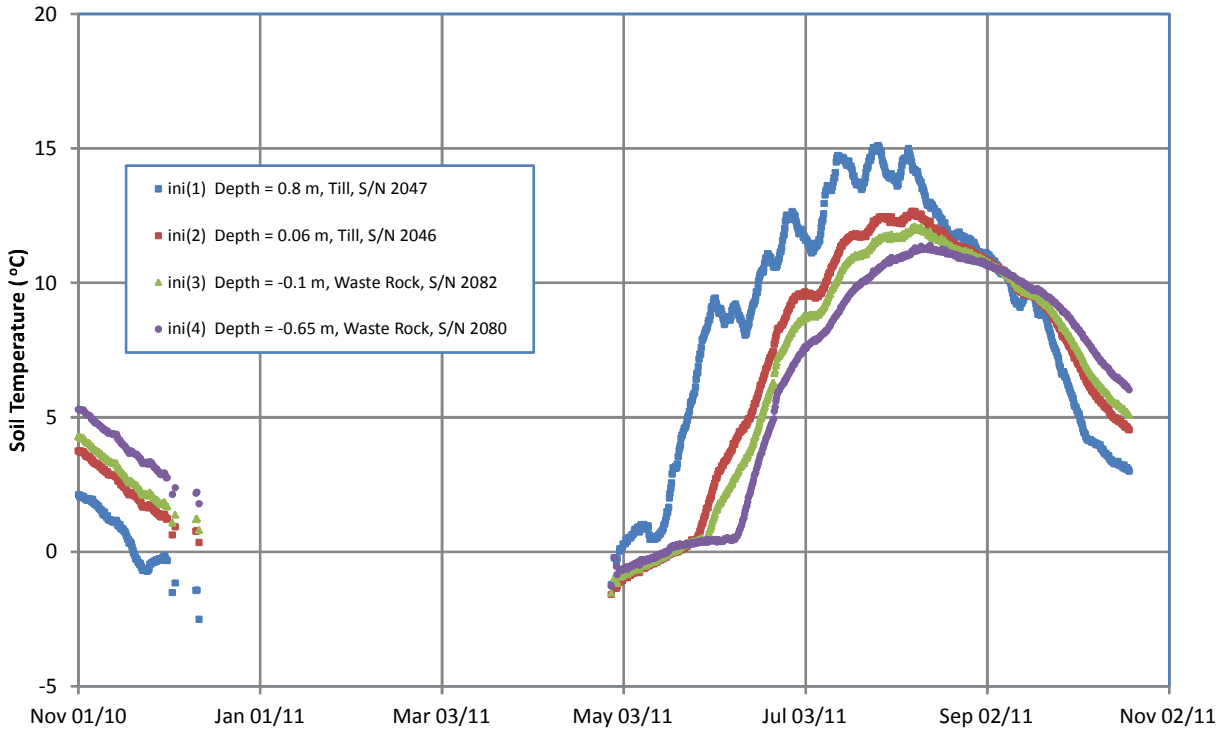

Figure11: Lysimeter Field L#1 Soil Temperature from the CS229 Probes.

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NOTES

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FARO INSTRUMENTATION RECOMMISSION AND DATA SUMMARY

Lysimeter Field #1
Soil Temperature and Volumetric Water Content

PROJECT NO.	DWN	CKD	APVD	REV
W23101449	KRR	TR		0

OFFICE	DATE
EBA-WHSE	November 30, 2011

Figure 10 and 11

EBA-Tl_Title_Block_8.5x11_Portrait.cdr

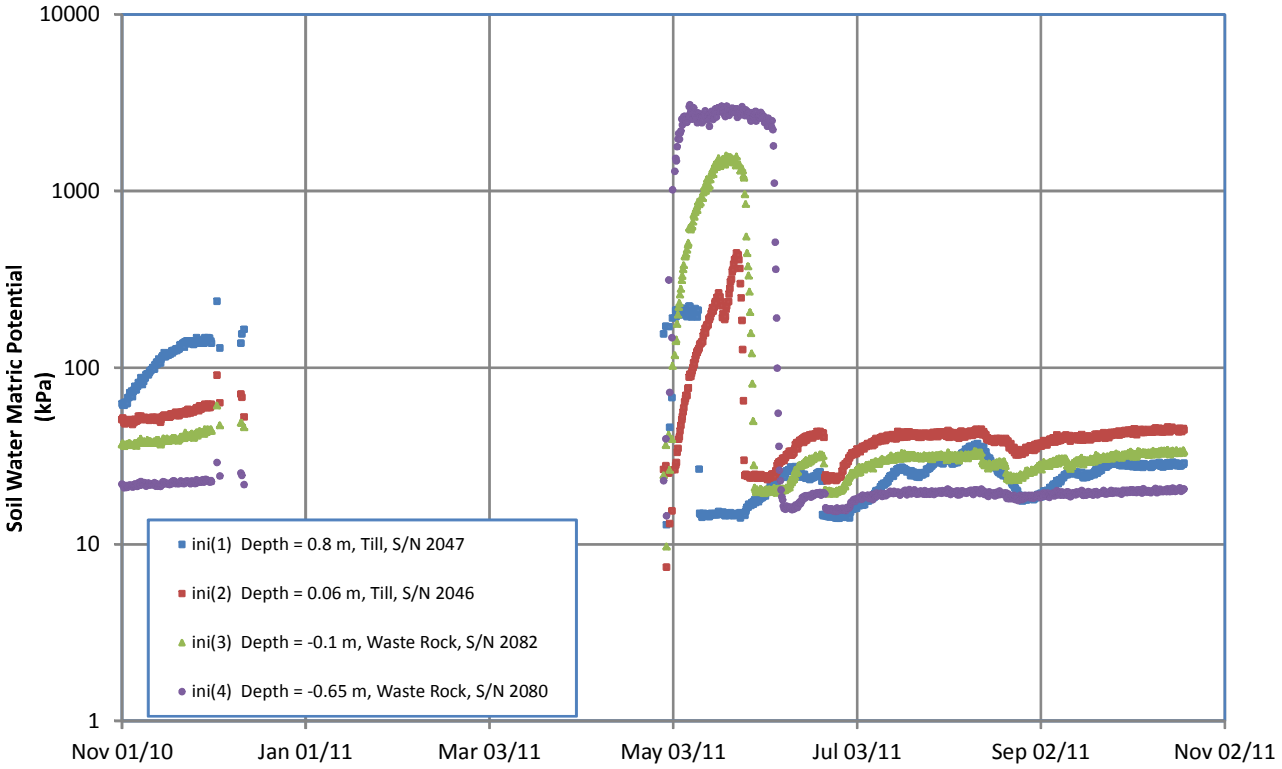

Figure 12: Soil Water Matric Potential from the CS229 Probes measured in Lysimeter Field #1.

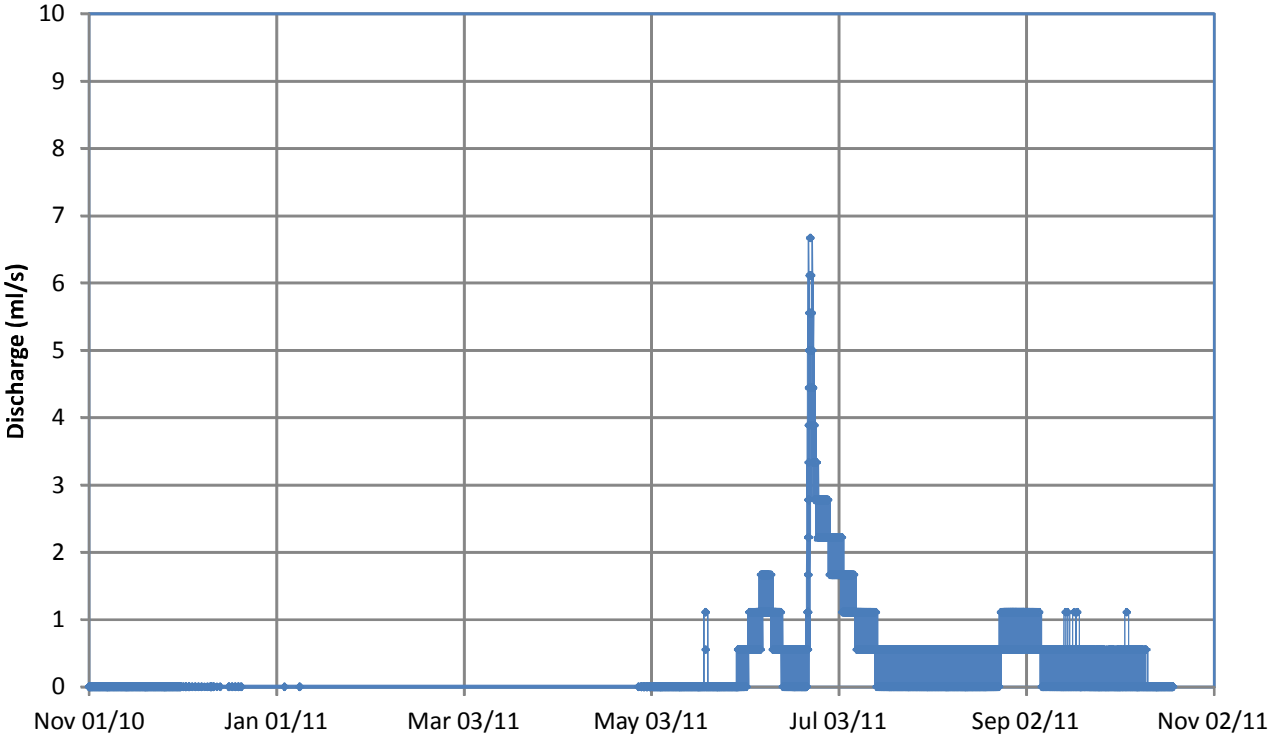

Figure13: Lysimeter Field L#1 Tipping bucket data from L1C Central Interflow

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NOTES

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FARO INSTRUMENTATION RECOMMISSION AND DATA SUMMARY

Lysimeter Field #1 Soil Water Matric Potential and Tipping Bucket Data

PROJECT NO.	DWN	CKD	APVD	REV
W23101449	KRR	TR		0

OFFICE: EBA-WHSE
DATE: November 30, 2011

Figure 12 and 13

EBA-Tt_Title_Block_8.5x11_Portrait.cdr

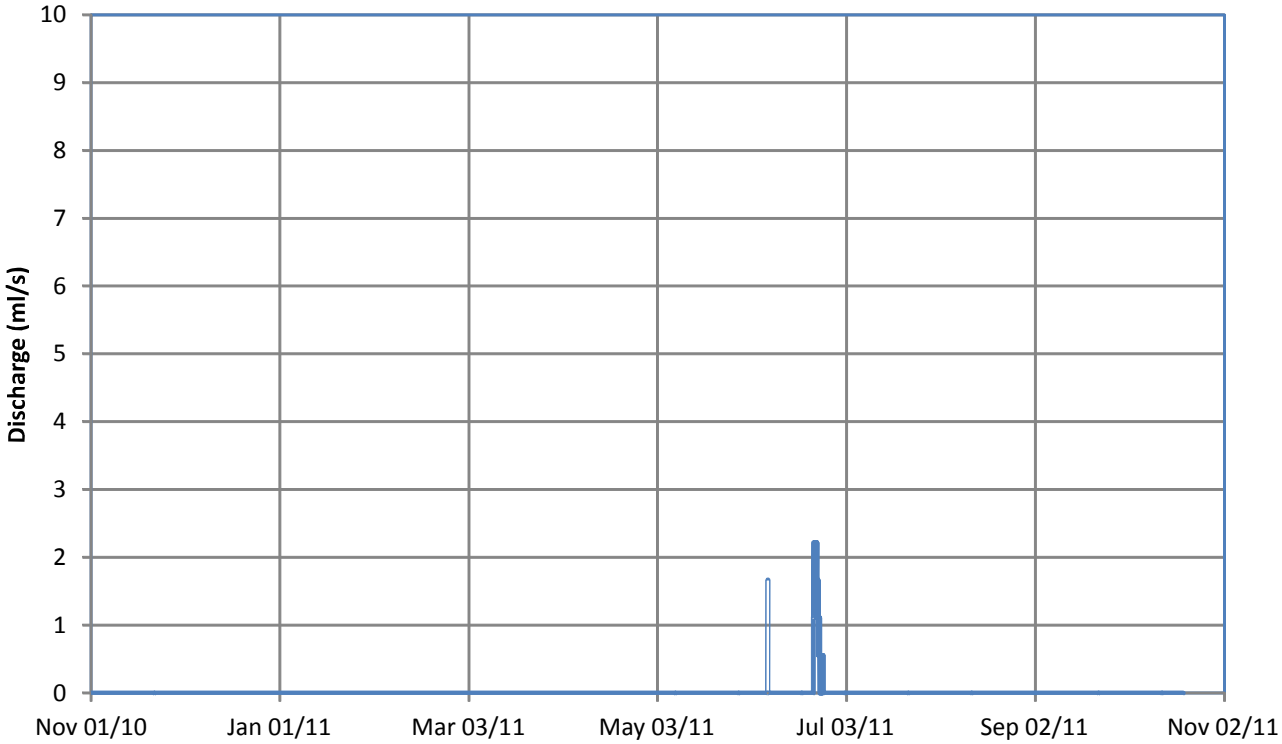

Figure 14: Lysimeter Field Tipping Bucket data from L#1 L1R Surface Flow Nov 1/2010 to Oct 19/2011

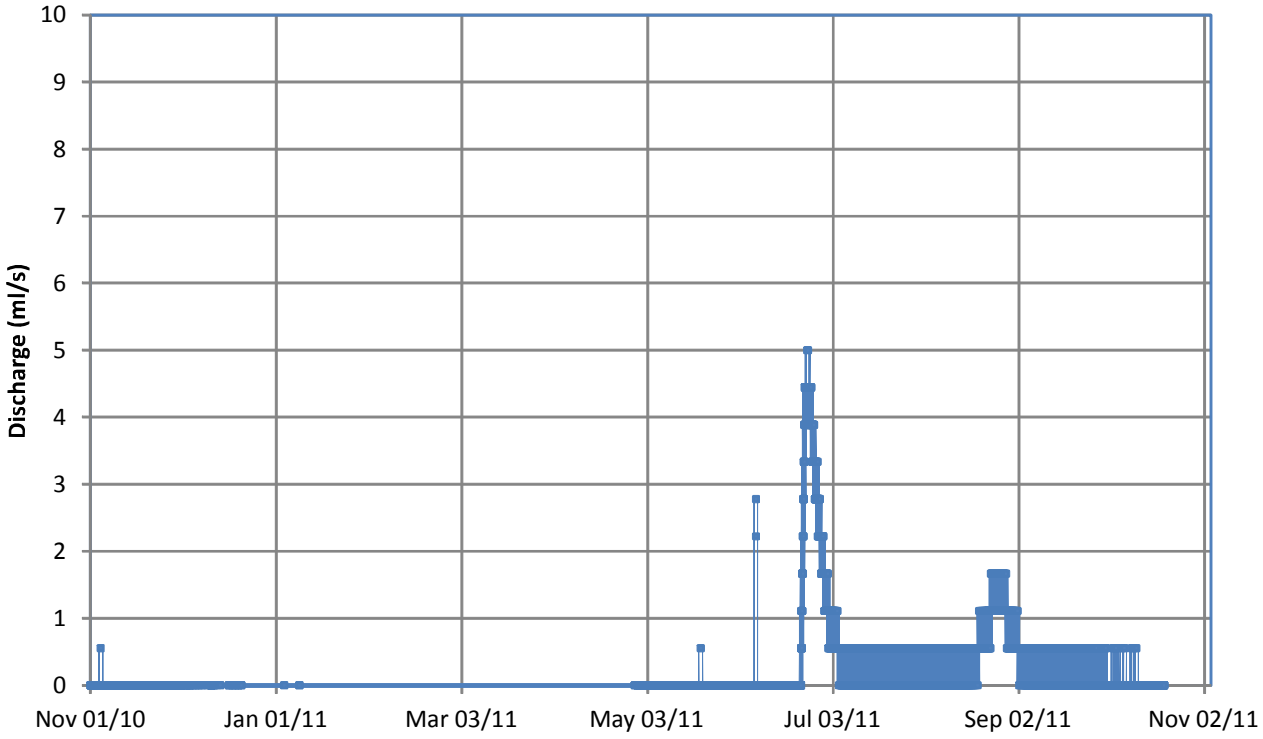

Figure15: Lysimeter Field L#1 Tipping bucket data from L1P Peripheral Interflow Nov 1/2011 to Oct 19/2011

LEGEND

NOTES

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FARO INSTRUMENTATION RECOMMISSION AND DATA SUMMARY

Lysimeter Field #1
Tipping Bucket Data from L1R and L1P

PROJECT NO.	DWN	CKD	APVD	REV
W23101449	KRR	TR		0

OFFICE	DATE
EBA-WHSE	November 30, 2011

Figure 14 and 15

EBA-Tt_Title_Block_8.5x11_Portrait.cdr

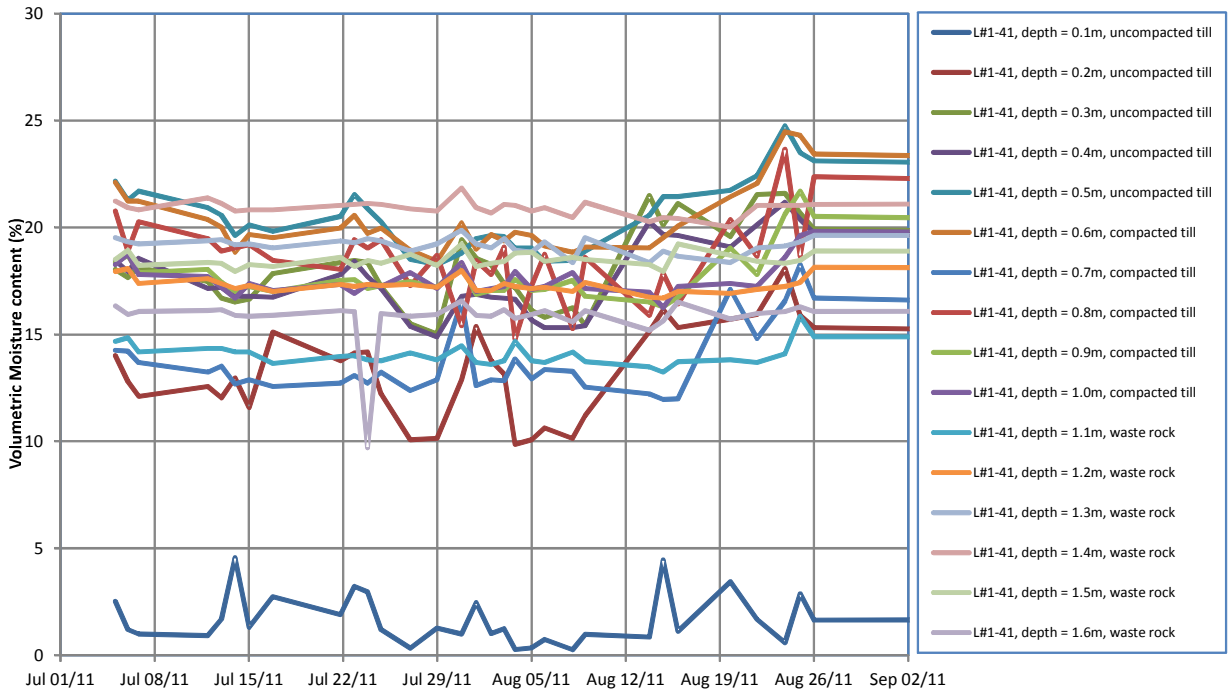

Figure 16: Diviner 2000 Volumetric Moisture Content data from L#1 station 41.

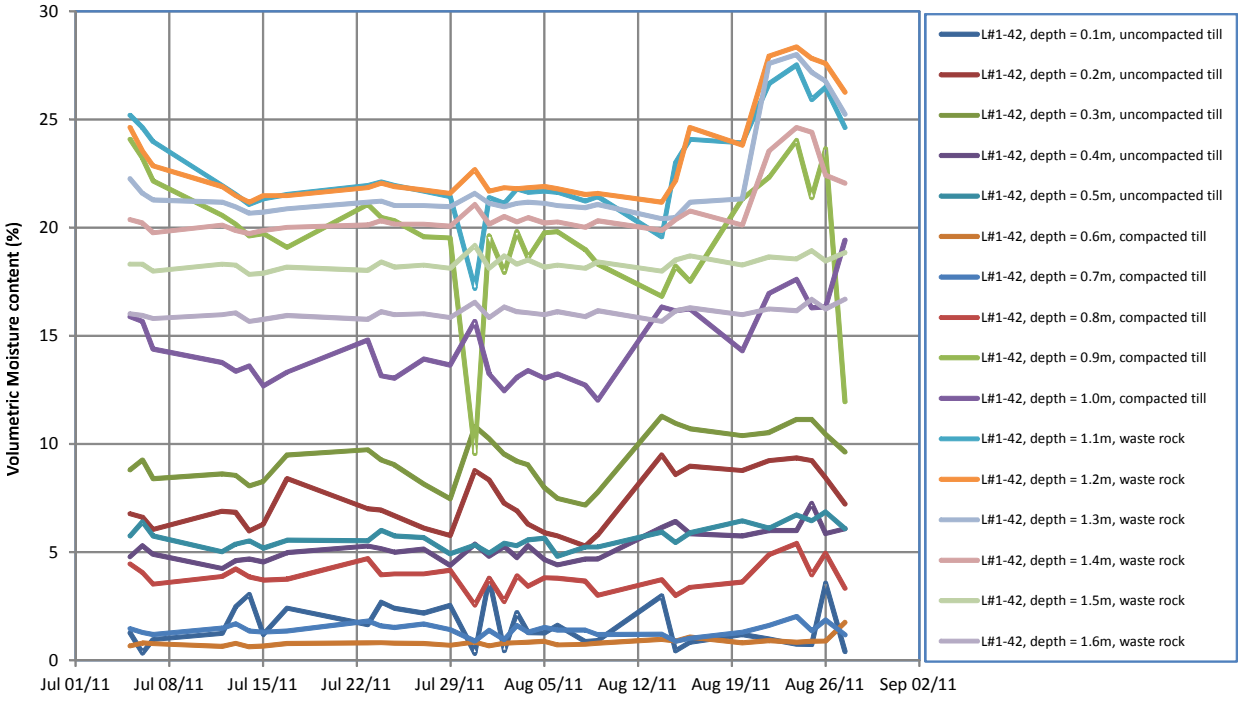

Figure17: Diviner 2000 Volumetric Moisture Content data from L#1 station 42.

LEGEND

NOTES

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FARO INSTRUMENTATION RECOMMISSION AND DATA SUMMARY

Lysimeter Field #1 Diviner Data

PROJECT NO.	DWN	CKD	APVD	REV
W23101449	KRR	TR		0

OFFICE	DATE
EBA-WHSE	November 30, 2011

Figure 16 and 17

EBA-Tt_Title_Block_8.5x11_Portrait.cdr

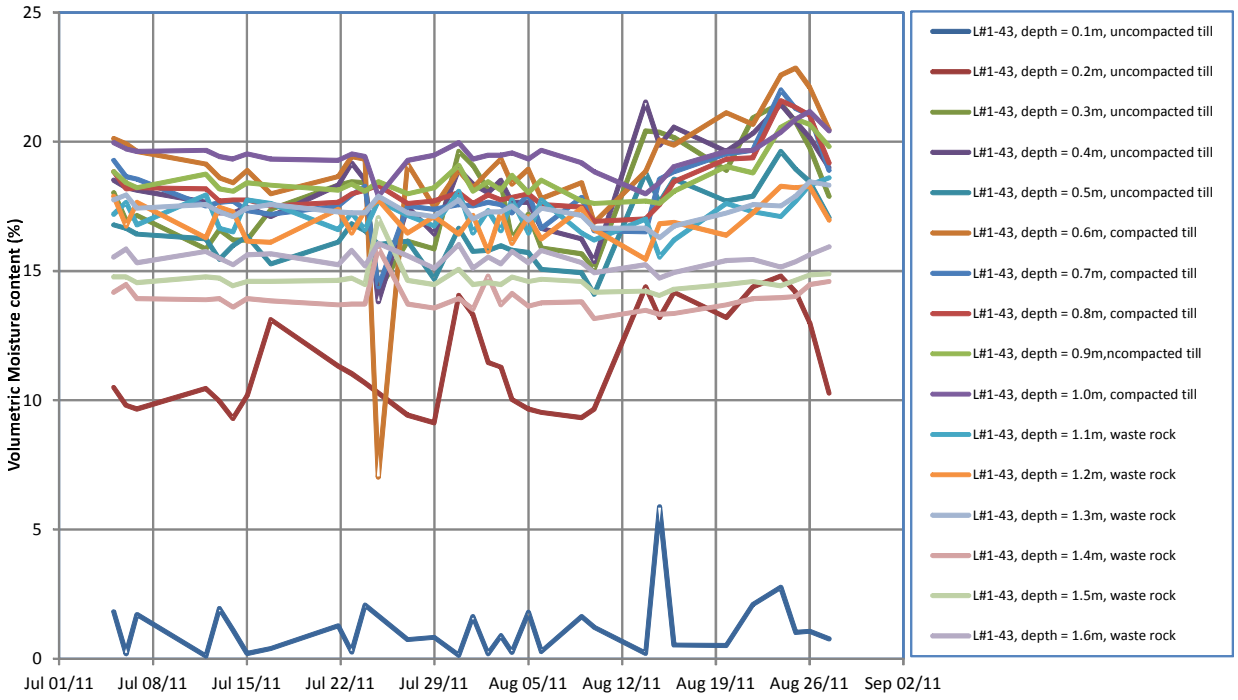

Figure 18: Diviner 2000 Volumetric Moisture Content data from L#1 station 43.

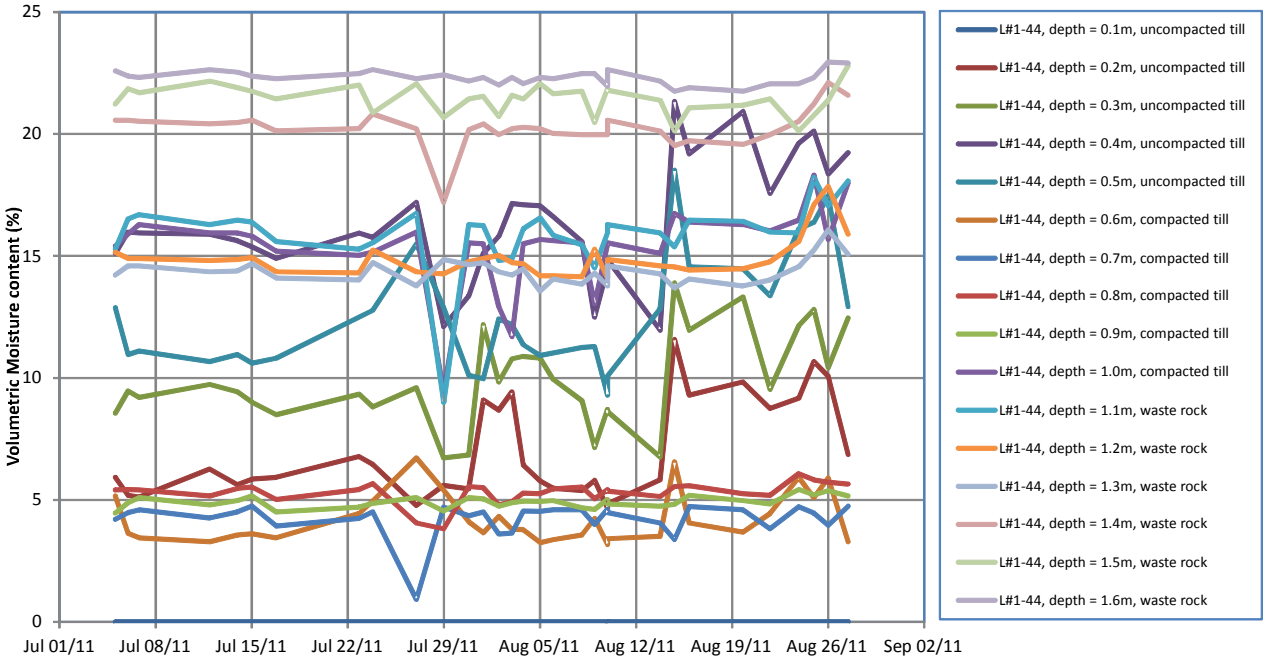

Figure 19: Diviner 2000 Volumetric Moisture Content data from L#1 station 44.

LEGEND

NOTES

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FARO INSTRUMENTATION RECOMMISSION AND DATA SUMMARY

Lysimeter Field #1 Diviner Data

PROJECT NO.	DWN	CKD	APVD	REV
W23101449	KRR	TR		0

OFFICE	DATE
EBA-WHSE	November 30, 2011

Figure 18 and 19

EBA-Tt_Title_Block_8.5x11_Portrait.cdr

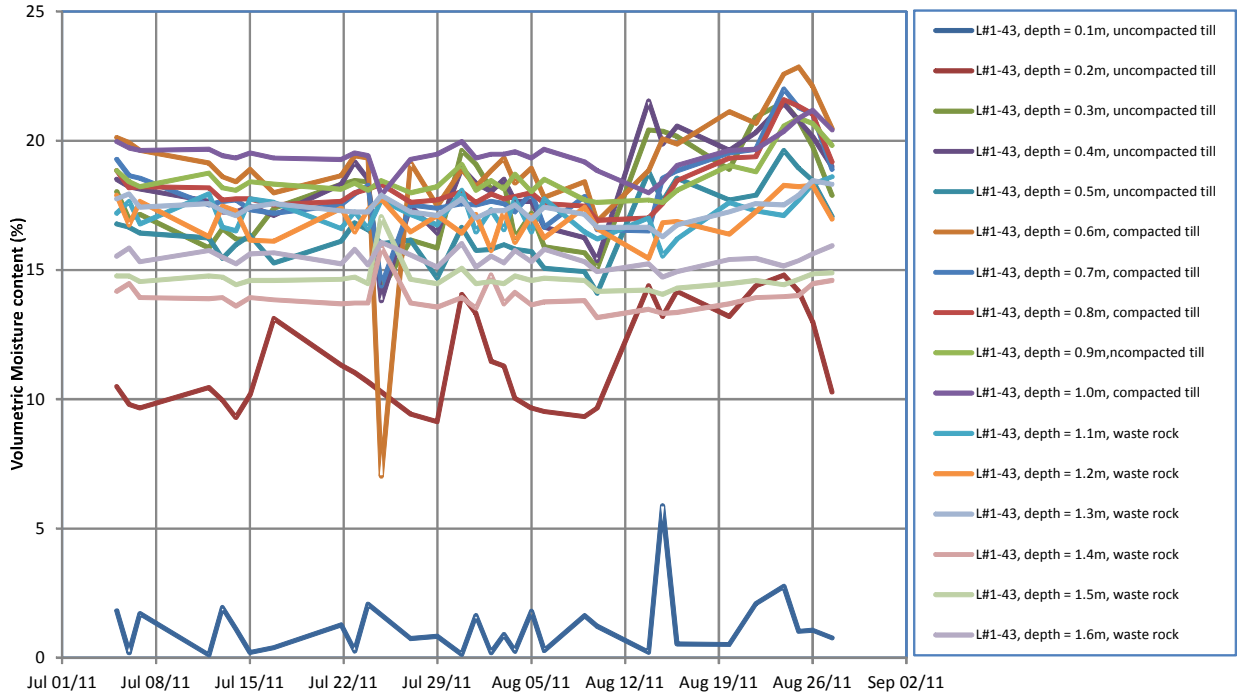

Figure 20: Diviner 2000 Volumetric Moisture Content data from L#1 station 45.

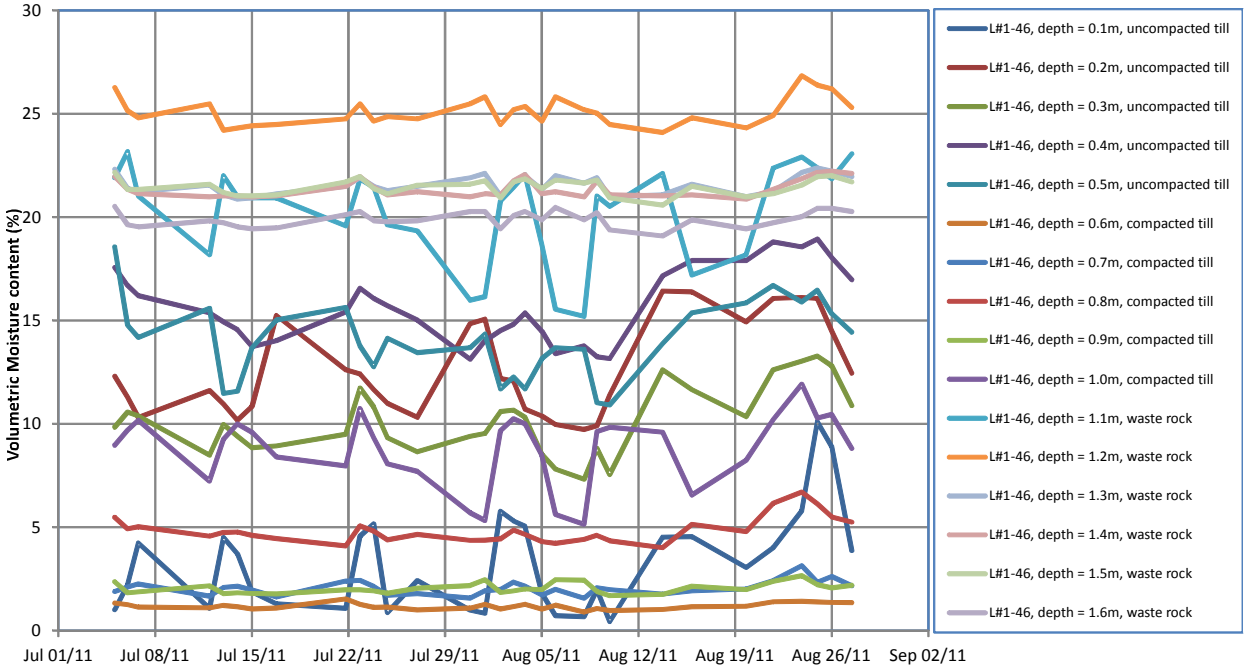

Figure 21: Diviner 2000 Volumetric Moisture Content data from L#1 station 46.

LEGEND

NOTES

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FARO INSTRUMENTATION RECOMMISSION AND DATA SUMMARY

Lysimeter Field #1 Diviner Data

PROJECT NO.	DWN	CKD	APVD	REV
W23101449	KRR	TR		0

OFFICE	DATE
EBA-WHSE	November 30, 2011

Figure 20 and 21

EBA-Tt_Title_Block_8.5x11_Portrait.cdr

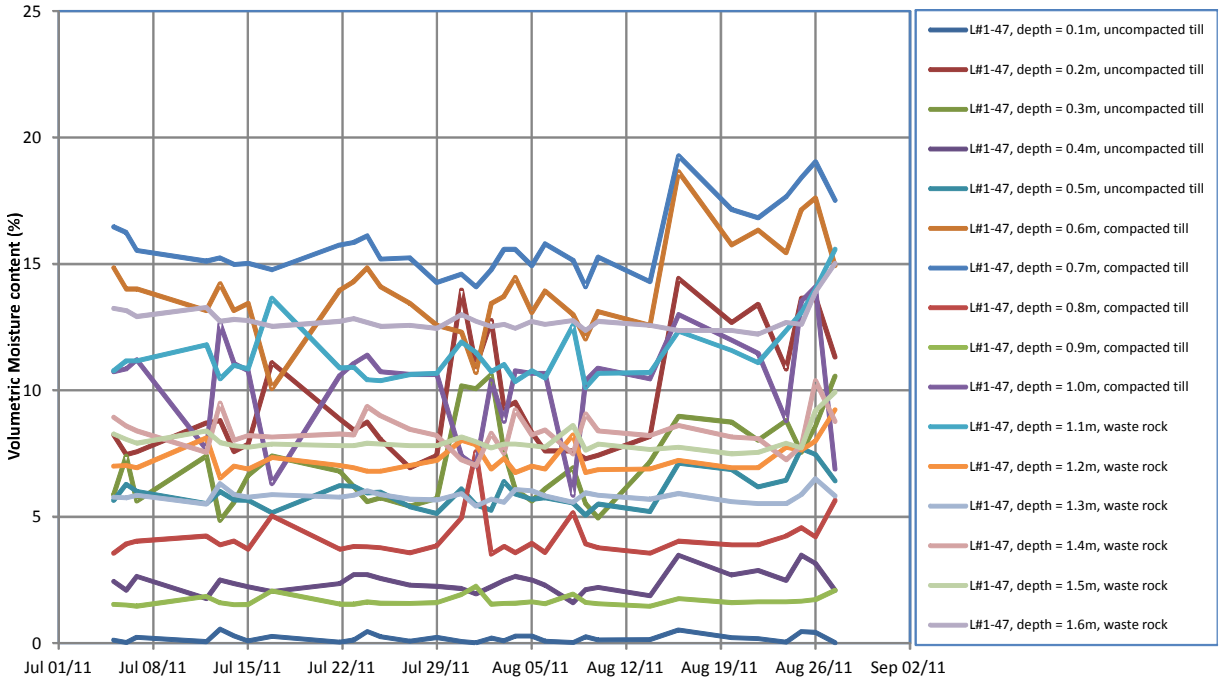

Figure 22: Diviner 2000 Volumetric Moisture Content data from L#1 station 47.

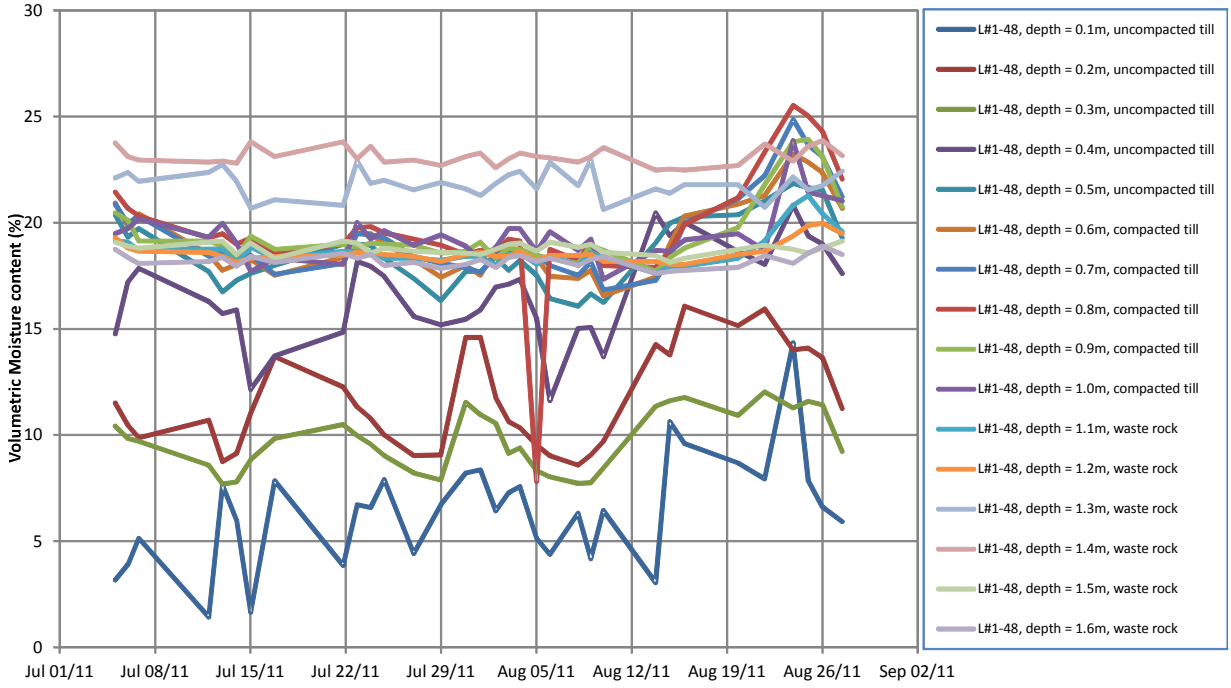

Figure 23: Diviner 2000 Volumetric Moisture Content data from L#1 station 48.

LEGEND

NOTES

STATUS
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FARO INSTRUMENTATION RECOMMISSION AND DATA SUMMARY

Lysimeter Field #1 Diviner Data

PROJECT NO.	DWN	CKD	APVD	REV
W23101449	KRR	TR		0

OFFICE	DATE
EBA-WHSE	November 30, 2011

Figure 22 and 23

EBA-Tt_Title_Block_8.5x11_Portrait.cdr

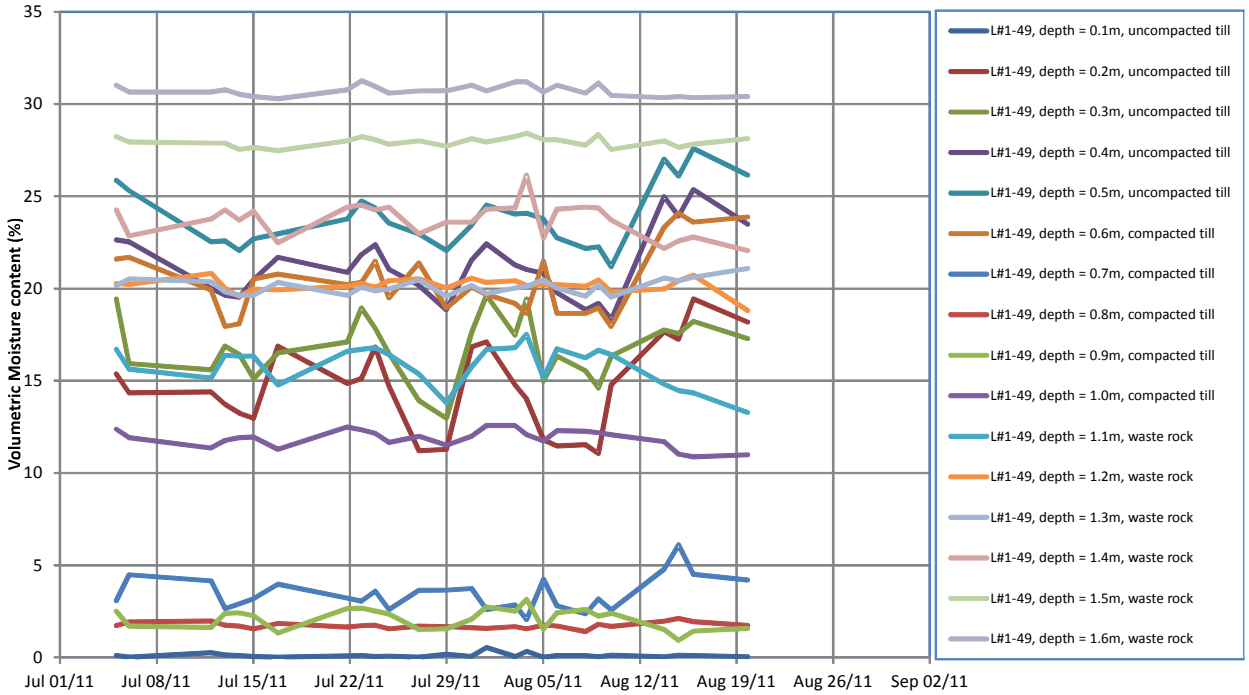

Figure 24: Diviner 2000 Volumetric Moisture Content data from L#1 station 49

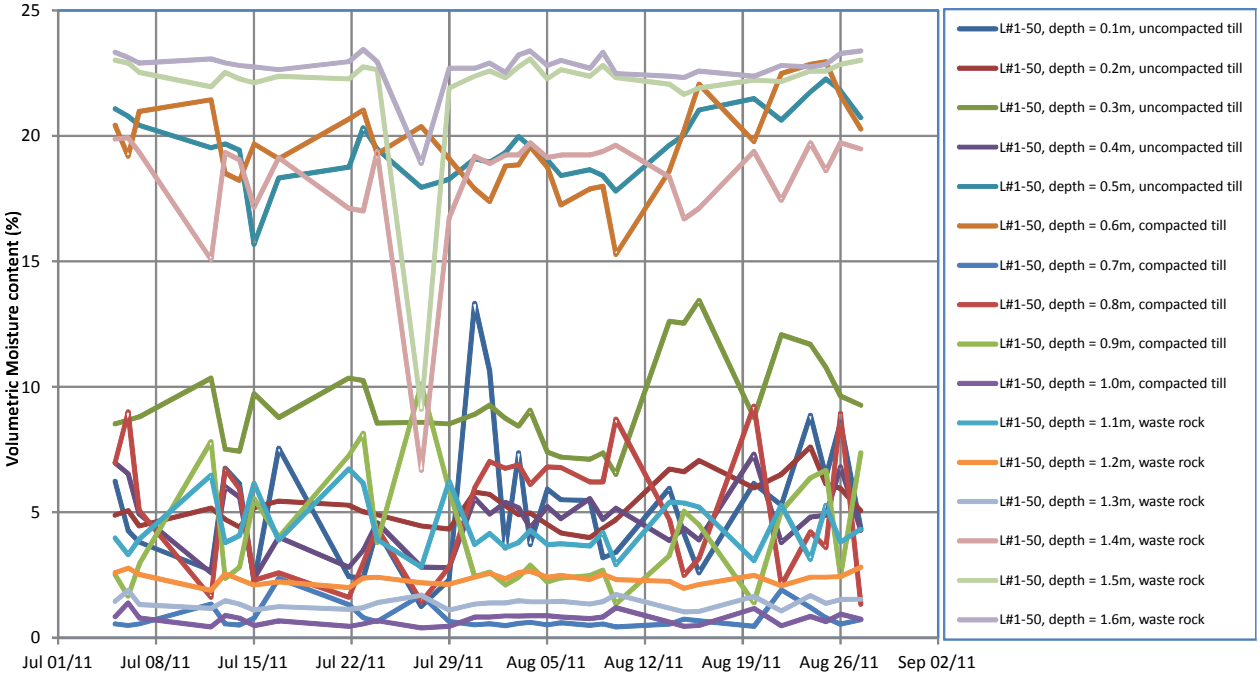

Figure 25: Diviner 2000 Volumetric Moisture Content data from L#1 station 50.

LEGEND

NOTES

STATUS
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FARO INSTRUMENTATION RECOMMISSION AND DATA SUMMARY

Lysimeter Field #1 Diviner 2000 Data

PROJECT NO.	DWN	CKD	APVD	REV
W23101449	KRR	TR		0

OFFICE	DATE
EBA-WHSE	November 30, 2011

Figure 24 and 25

EBA-Tt_Title_Block_8.5x11_Portrait.cdr

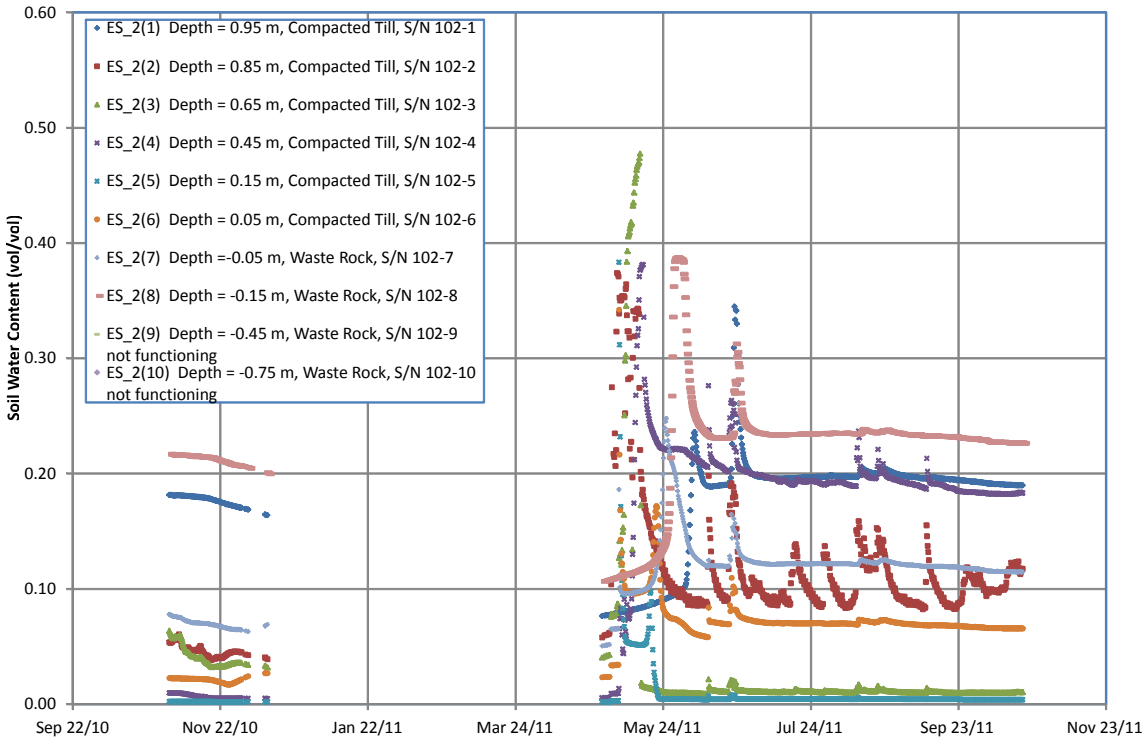

Figure 26: Volumetric Moisture Content data from L#2 from EnviroScan Probe.

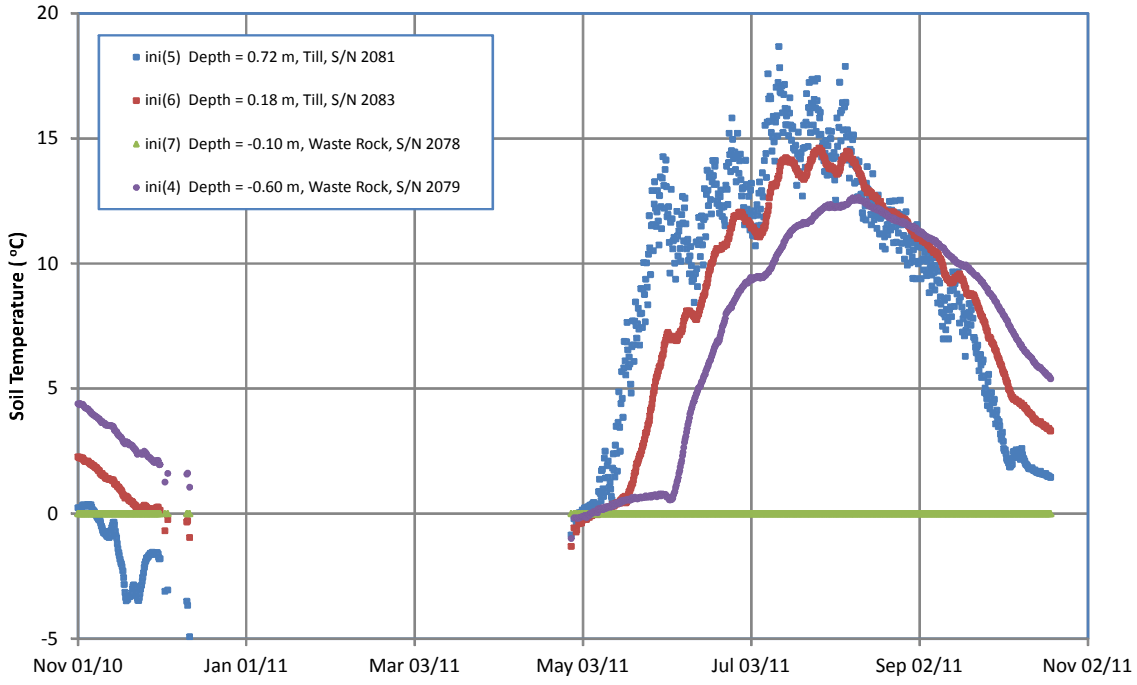

Figure 27: Soil Temperature data measured from CS229 in Lysimeter field #2..

LEGEND

NOTES

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FARO INSTRUMENTATION RECOMMISSION AND DATA SUMMARY

Lysimeter Field #2 Volumetric Soil Water and Soil Temperature Data

PROJECT NO.	DWN	CKD	APVD	REV
W23101449	KRR	TR		0

OFFICE EBA-WHSE

DATE November 30, 2011

Figure 26 and 27

EBA-Tt_Title_Block_8.5x11_Portrait.cdr

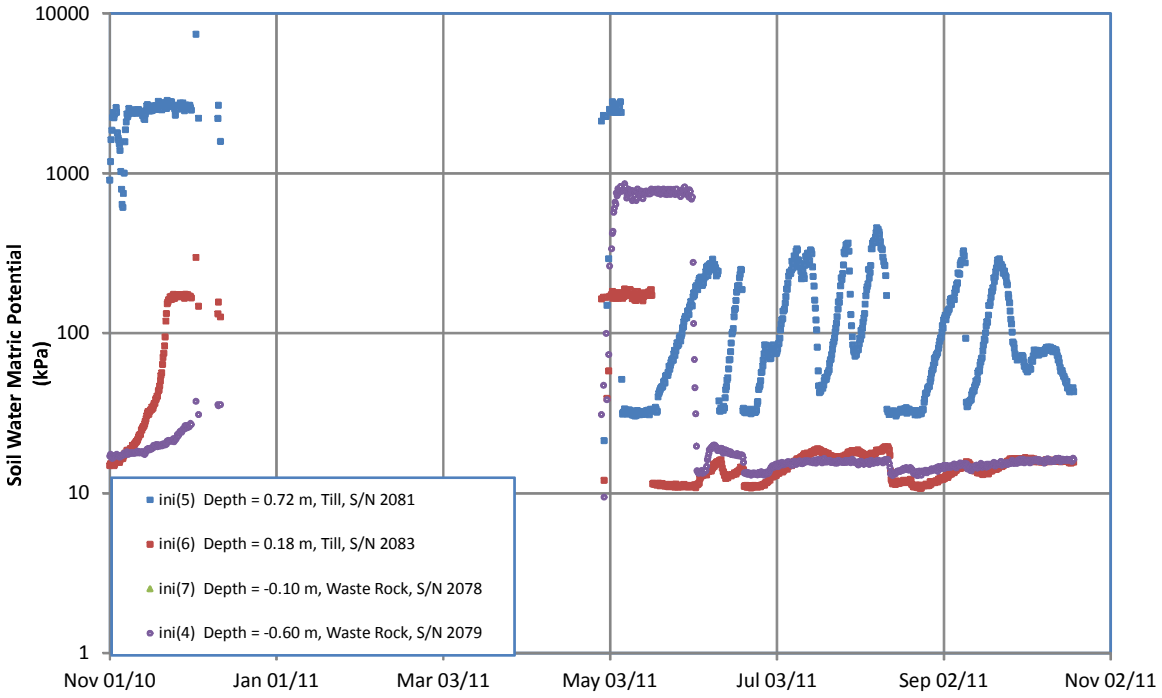

Figure 28: Soil Water Matric Potential measured by CS229 in Lysimeter Field #2

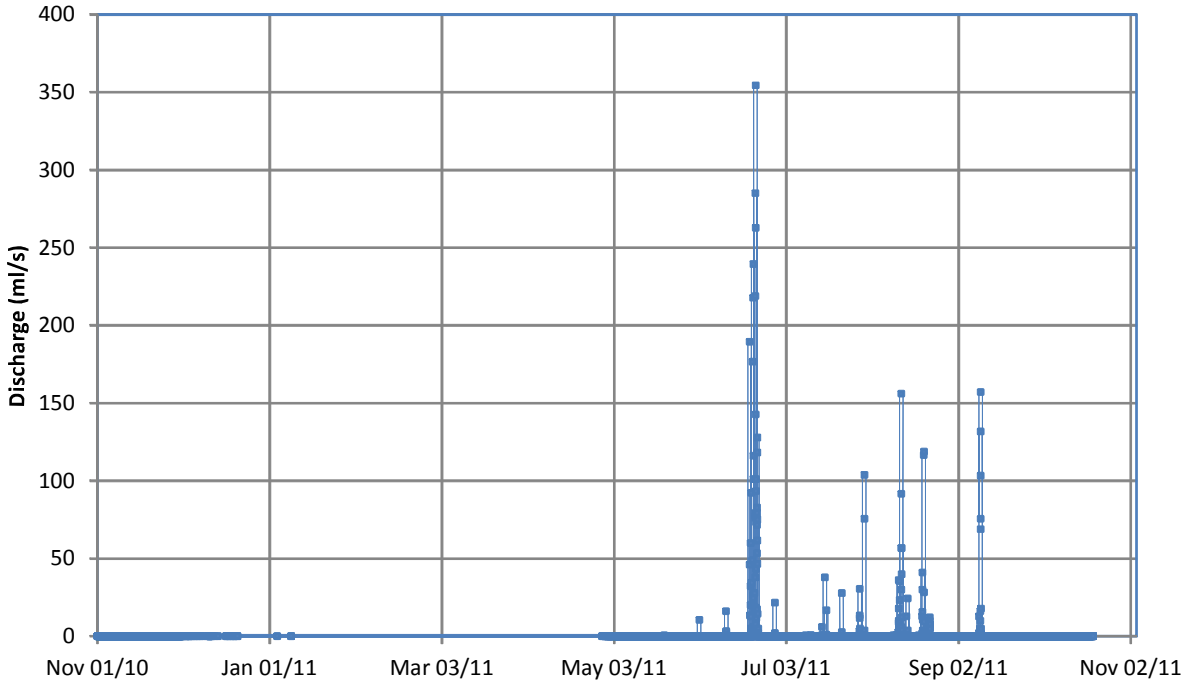

Figure 29: Tipping Bucket data from Lysimeter field #2 from L2R Surface Flow

LEGEND	**NOTES**	**CLIENT** Yukon Government	**FARO INSTRUMENTATION RECOMMISSION AND DATA SUMMARY**					
			Lysimeter Field #2 Soil Water Matric Potential and Tipping Bucket Data					
	STATUS ISSUED FOR USE	eba A TETRA TECH COMPANY	**PROJECT NO.** W23101449	**DWN** KRR	**CKD** TR	**APVD**	**REV** 0	**Figure 28 and 29**
			OFFICE EBA-WHSE	**DATE** November 30, 2011				

EBA-Tt_Title_Block_8.5x11_Portrait.cdr

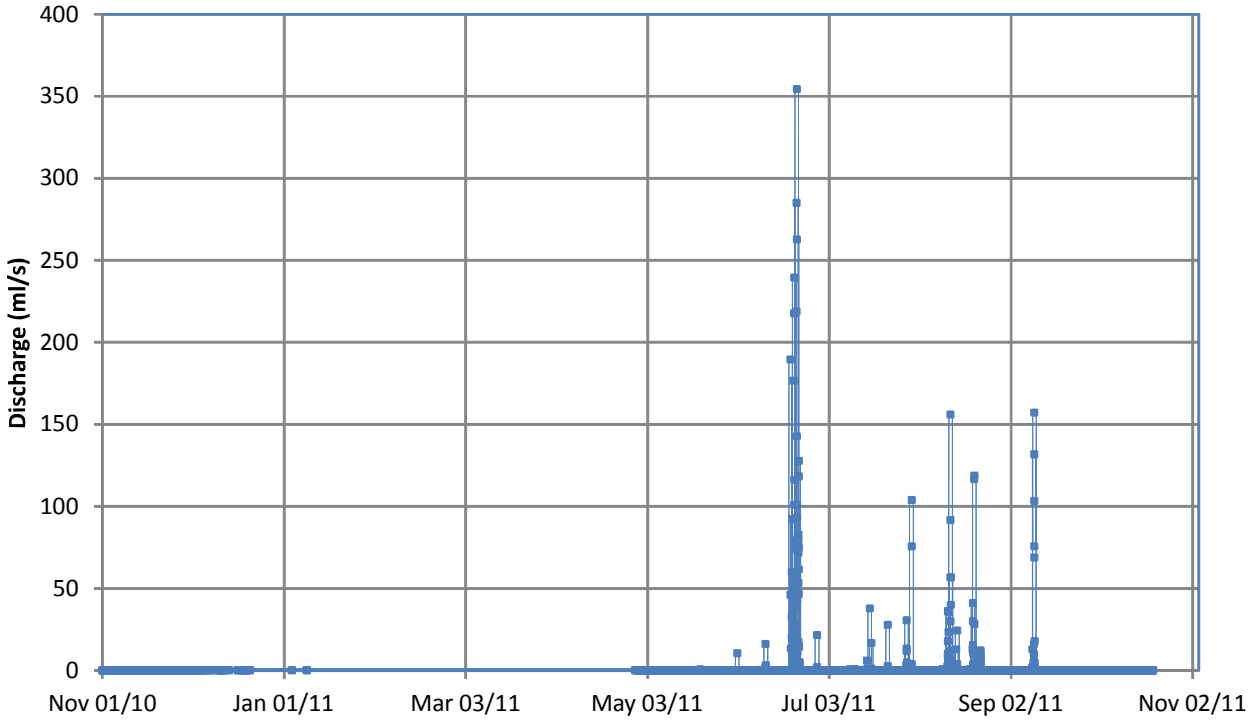

Figure 30: Tipping Bucket data from Lysimeter field #2 from L2C Central Interflow

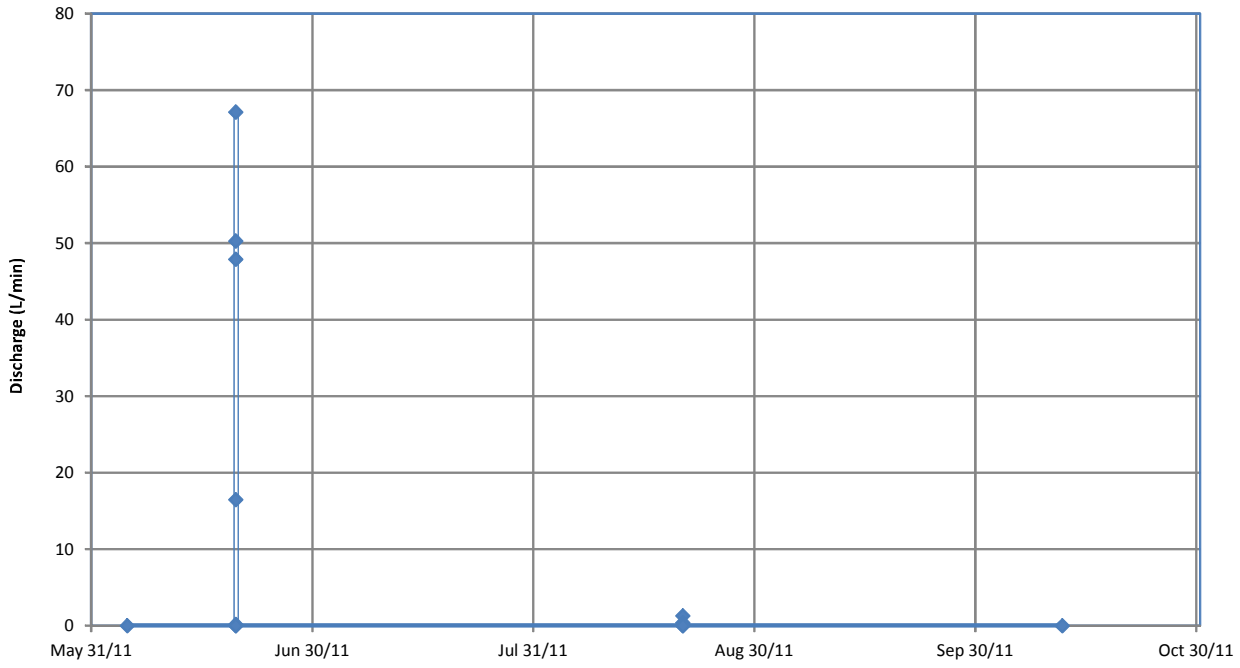

Figure 31: Lysimeter Field #2 L2R Surface flow measured by SeaMetrics Flowmeter.

LEGEND

NOTES

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FARO INSTRUMENTATION RECOMMISSION AND DATA SUMMARY

Lysimeter Field #2 Tipping Bucke and Flow t Data

PROJECT NO.	DWN	CKD	APVD	REV
W23101449	KRR	TR		0

OFFICE	DATE
EBA-WHSE	November 30, 2011

Figure 30 and 31

EBA-Tt_Title_Block_8.5x11_Portrait.cdr

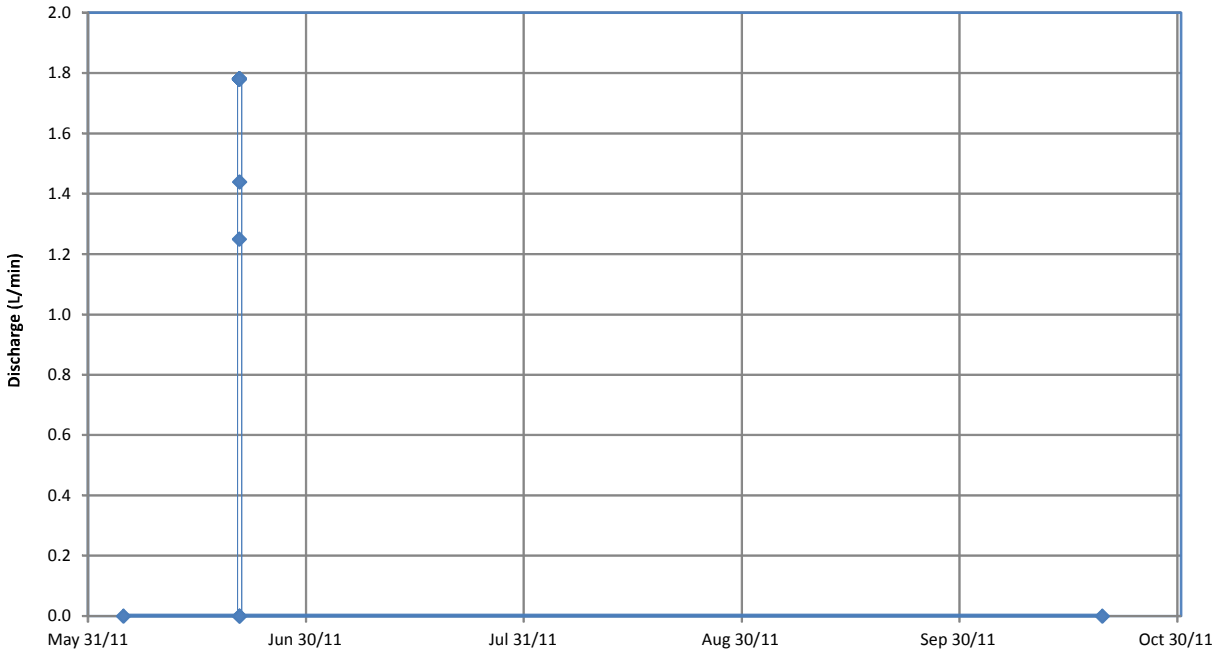

Figure 32: Lysimeter Field L#2 Central Flow measured by SeaMetrics Flowmeter.

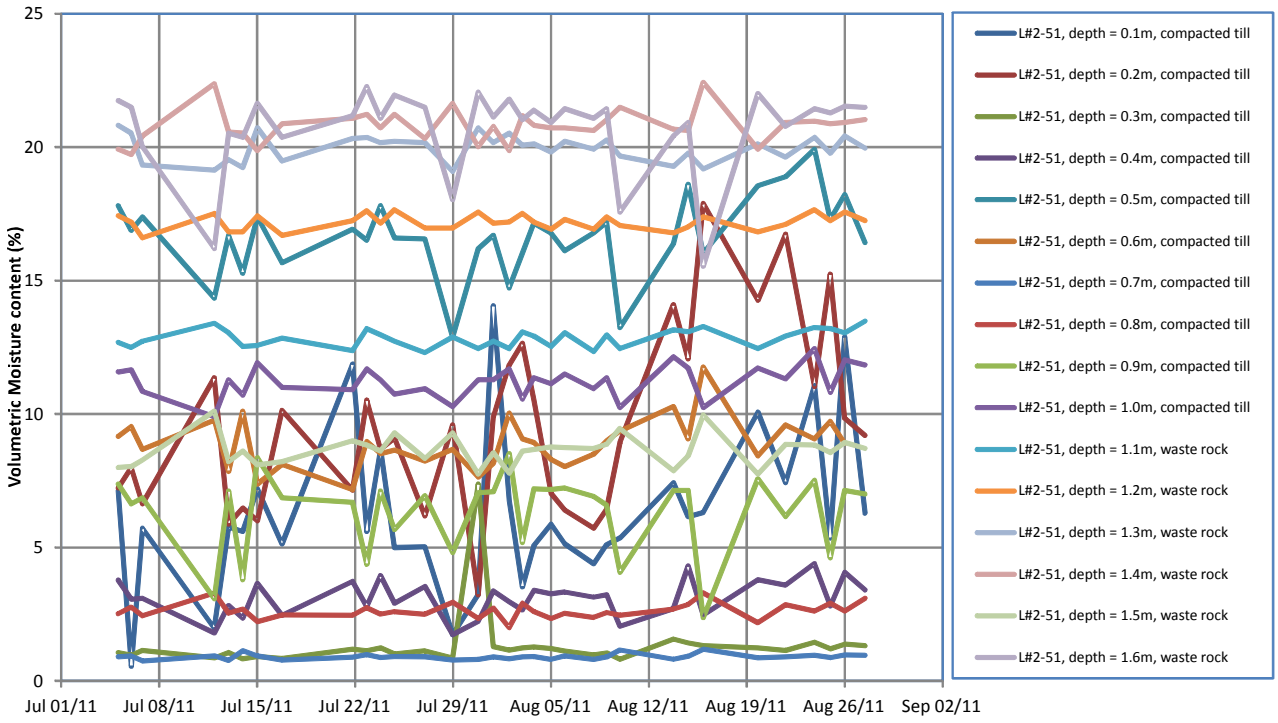

Figure 33: Diviner 2000 Volumetric Moisture Content data from L#2 station 51.

LEGEND

NOTES

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FARO INSTRUMENTATION RECOMMISSION AND DATA SUMMARY

Lysimeter Field #2 Flow and Diviner Data

PROJECT NO.	DWN	CKD	APVD	REV
W23101449	KRR	TR		0

OFFICE	DATE
EBA-WHSE	November 30, 2011

Figure 32 and 33

EBA-Tt_Title_Block_8.5x11_Portrait.cdr

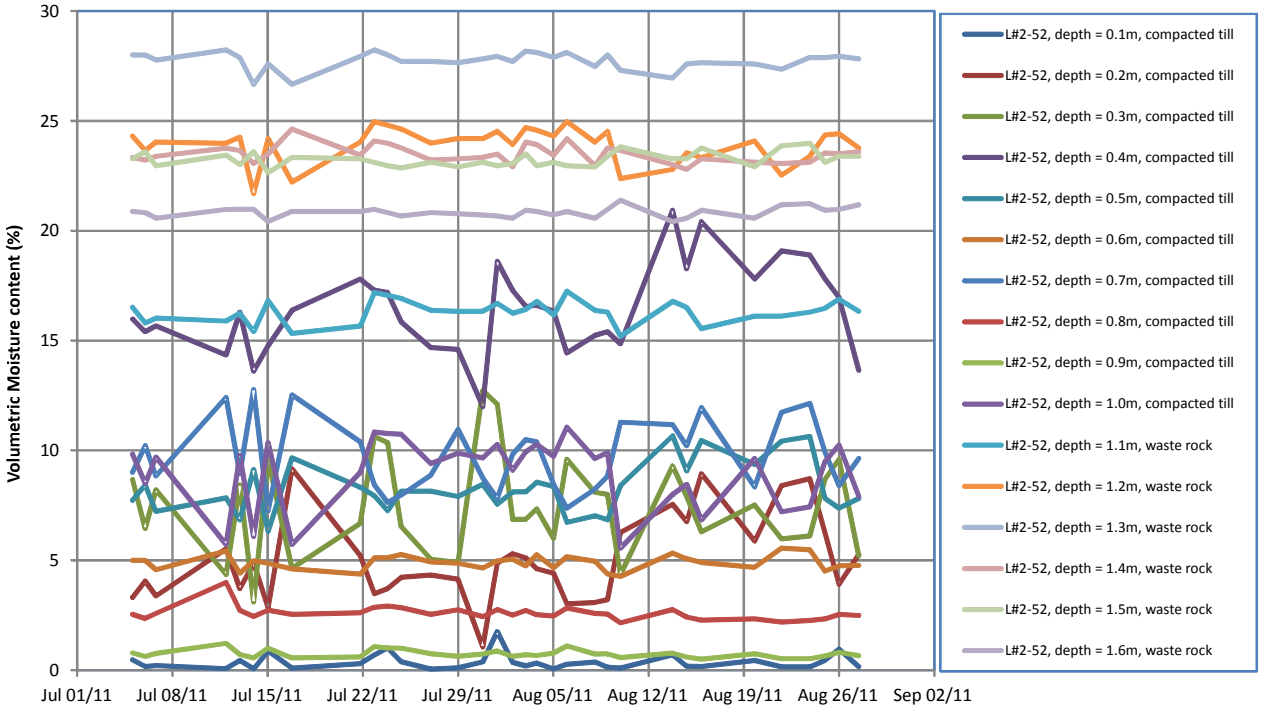

Figure 34: Diviner 2000 Volumetric Moisture Content data from L#2 station 52.

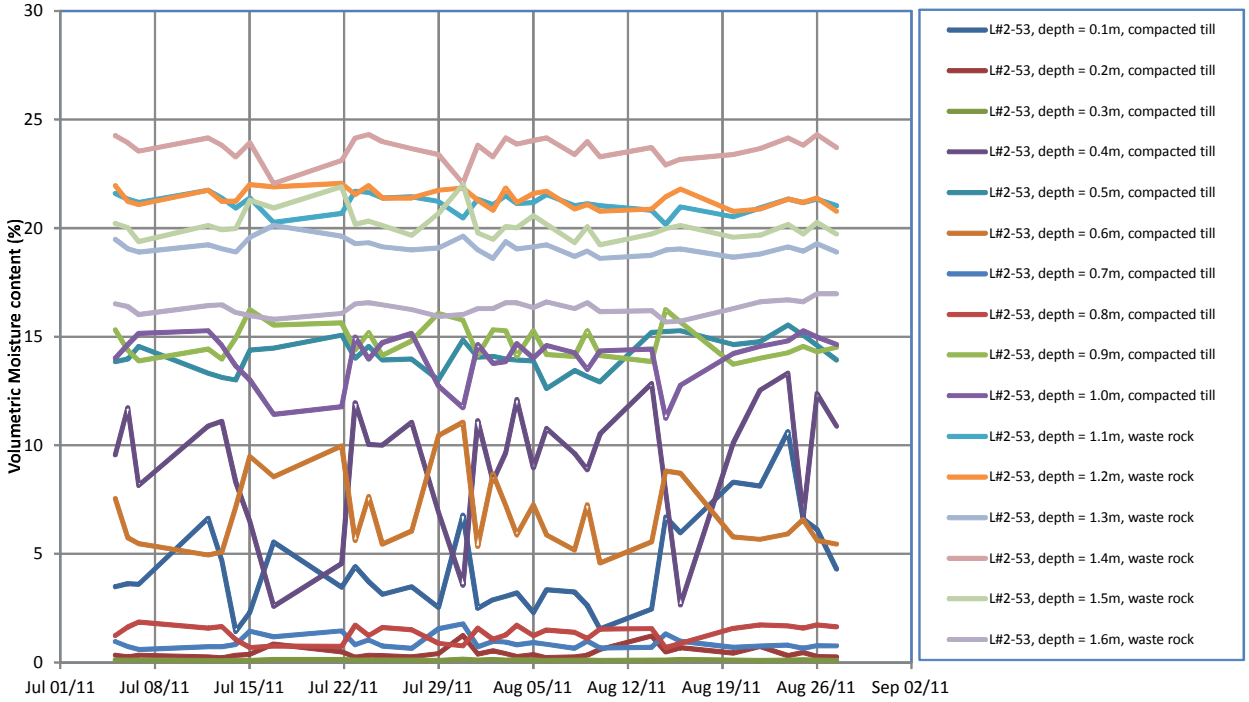

Figure 35: Diviner 2000 Volumetric Moisture Content data from L#2 station 53.

LEGEND

NOTES

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FARO INSTRUMENTATION RECOMMISSION AND DATA SUMMARY

Lysimeter Field #2 Diviner 2000 Data

PROJECT NO.	DWN	CKD	APVD	REV
W23101449	KRR	TR		0

OFFICE	DATE
EBA-WHSE	November 30, 2011

Figure 34 and 35

EBA-Tt_Title_Block_8.5x11_Portrait.cdr

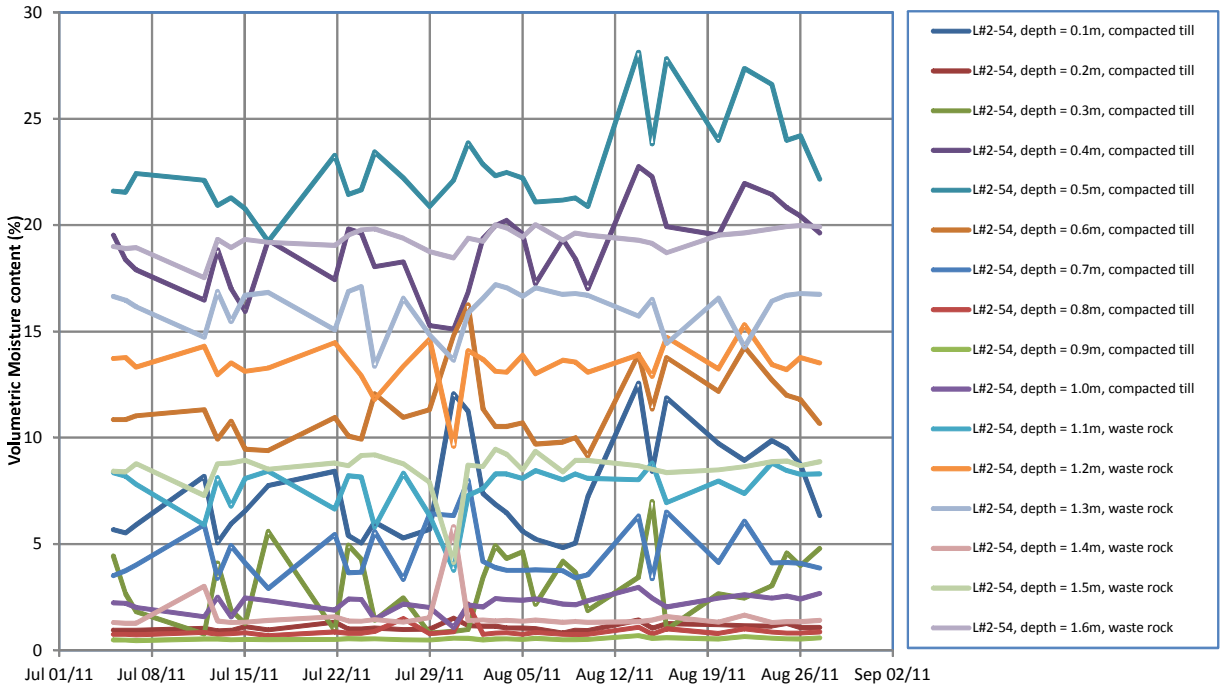

Figure 36: Diviner 2000 Volumetric Moisture Content data from L#2 station 54.

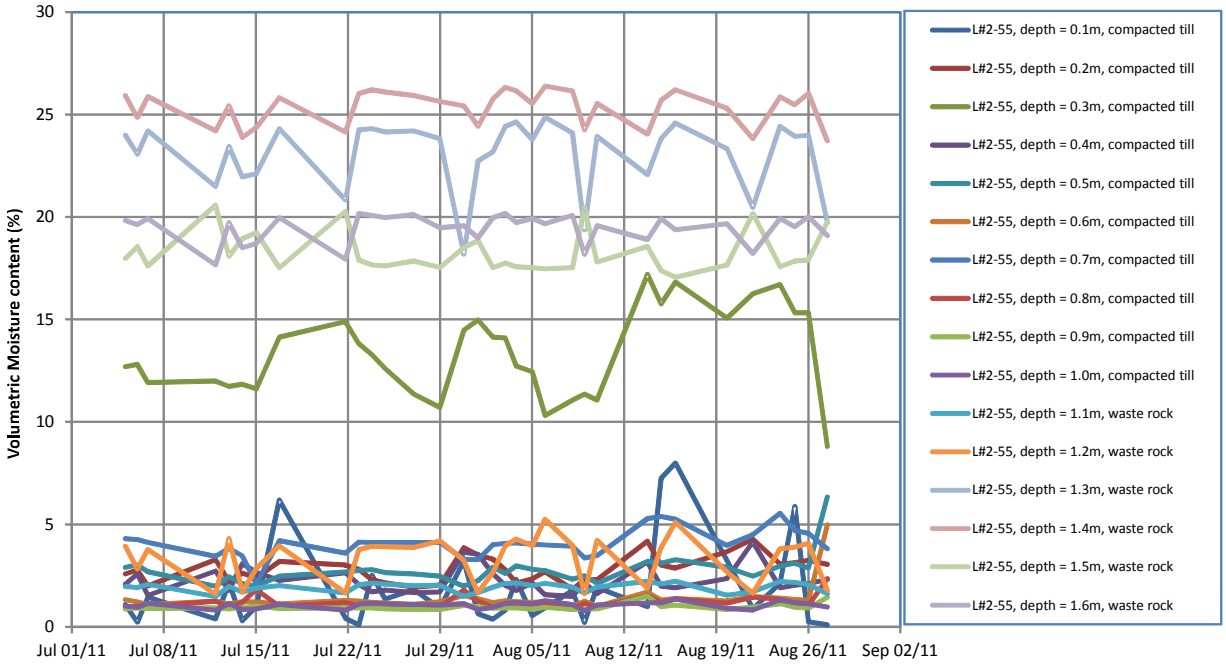

Figure 37: Diviner 2000 Volumetric Moisture Content data from L#2 station 55.

LEGEND

NOTES

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FARO INSTURMENTATION RECOMMISSION AND DATA SUMMARY

Lysimeter Field #2 Diviner 2000 Data

PROJECT NO.	DWN	CKD	APVD	REV
W23101449	KRR	TR		0

OFFICE	DATE
EBA-WHSE	November 30, 2011

Figure 36 and 37

EBA-Tt_Title_Block_8.5x11_Portrait.cdr

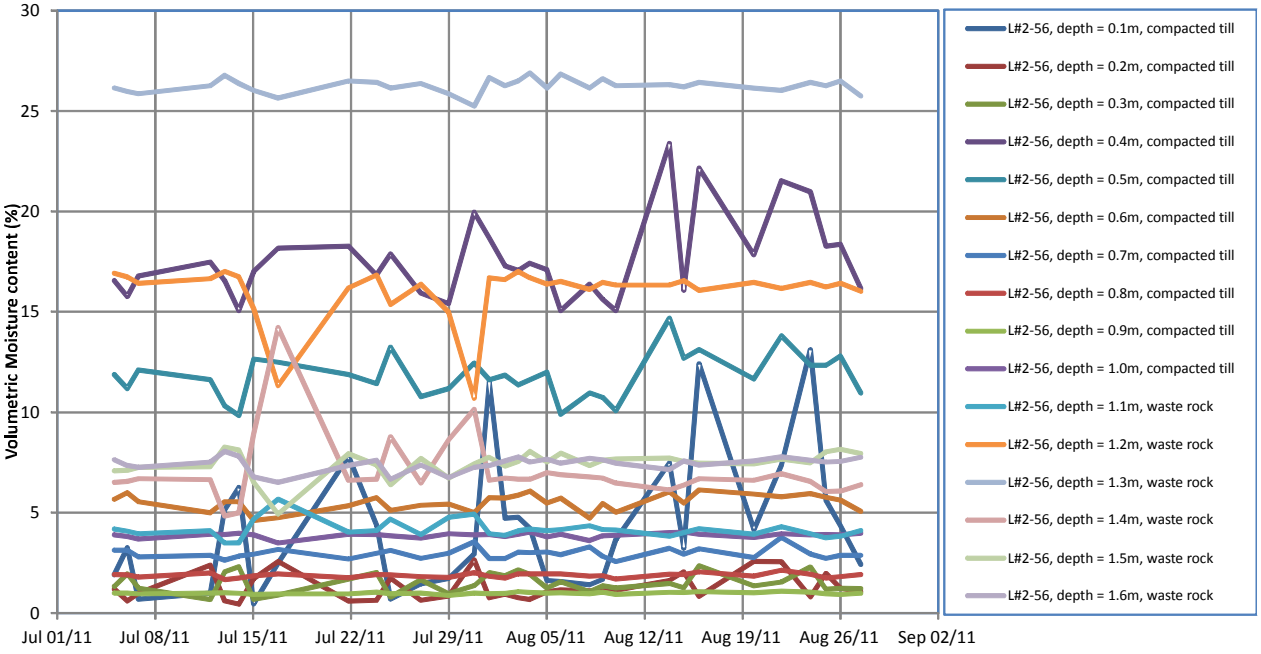

Figure 38: Diviner 2000 Volumetric Moisture Content data from L#2 station 56.

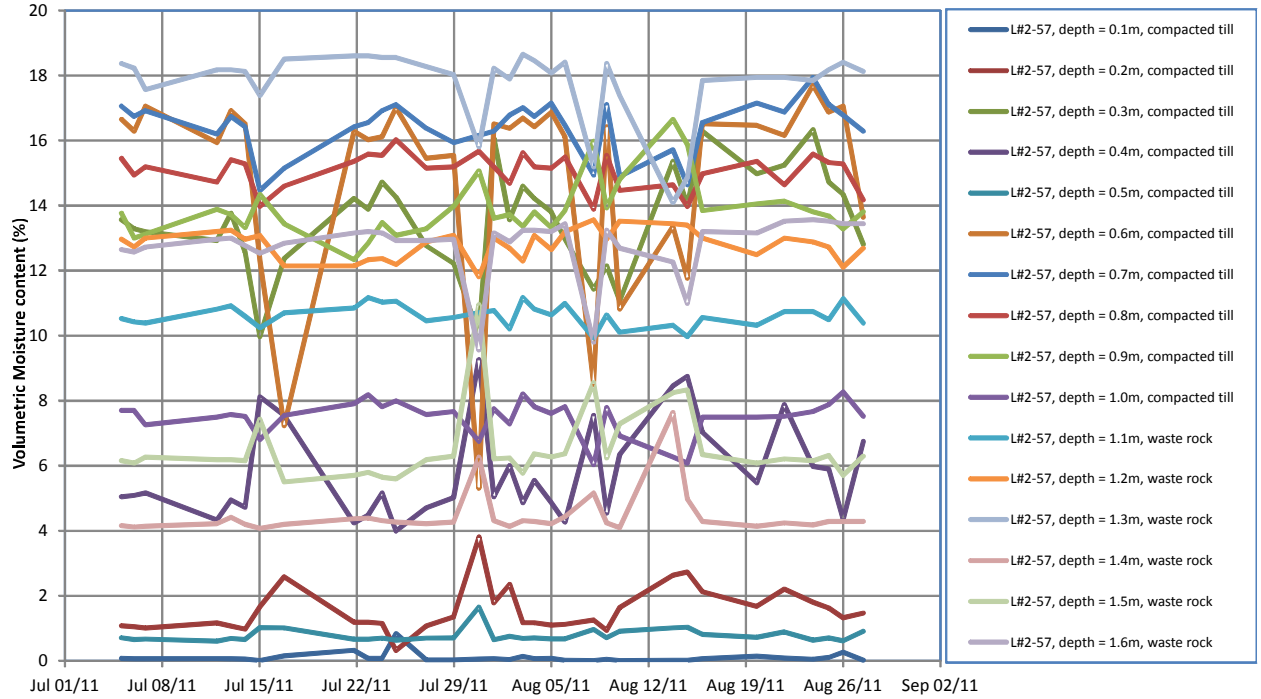

Figure 39: Diviner 2000 Volumetric Moisture Content data from L#2 station 57.

LEGEND

NOTES

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FARO INSTURMENTATION RECOMMISSION AND DATA SUMMARY

Lysimeter Field #2 Diviner 2000 Data

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Figure 38 and 39

EBA-Tt_Title_Block_8.5x11_Portrait.cdr

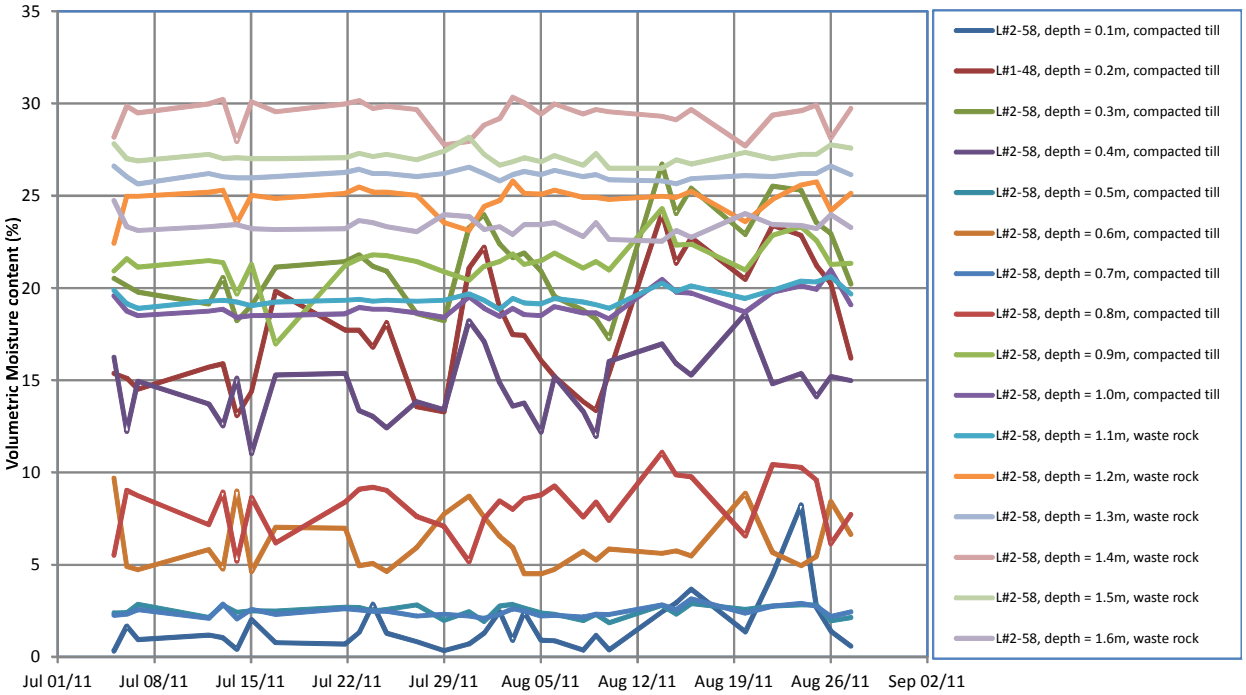

Figure 40: Diviner 2000 Volumetric Moisture Content data from L#2 station 58.

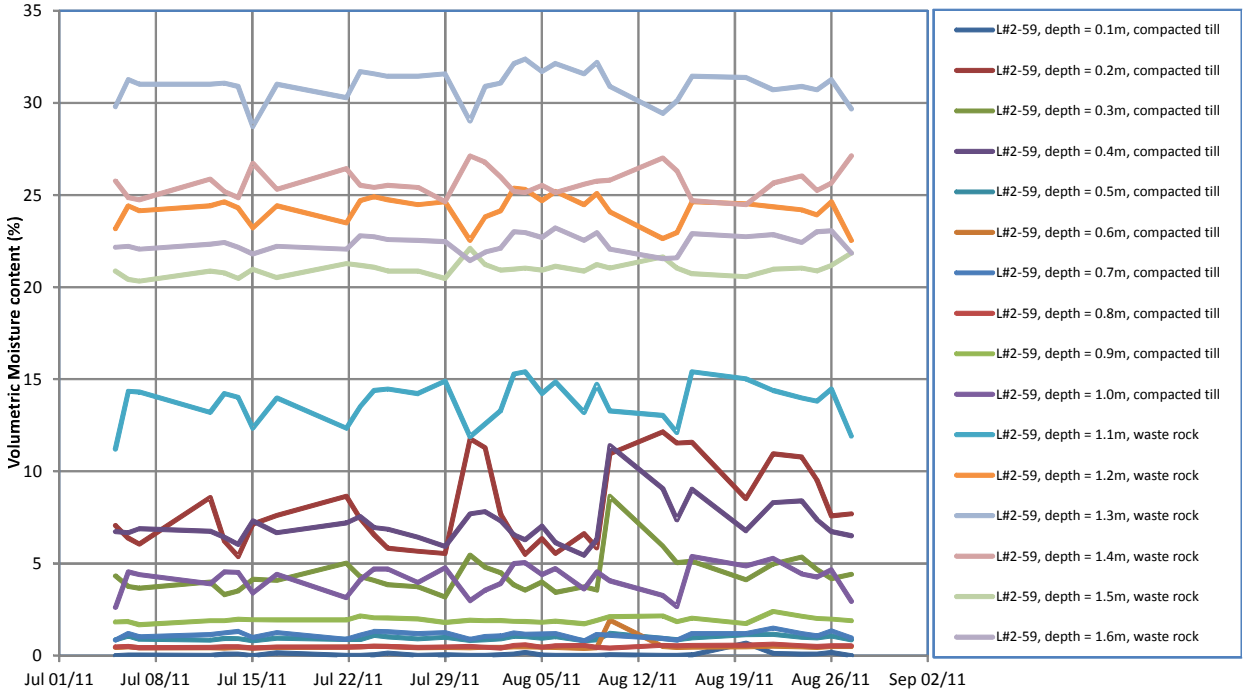

Figure 41: Diviner 2000 Volumetric Moisture Content data from L#2 station 59.

LEGEND

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FARO INSTRUMENTATION RECOMMISSION AND DATA SUMMARY

Lysimeter Field #2 Diviner 2000 Data

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Figure 40 and 41

EBA-Tt_Title_Block_8.5x11_Portrait.cdr

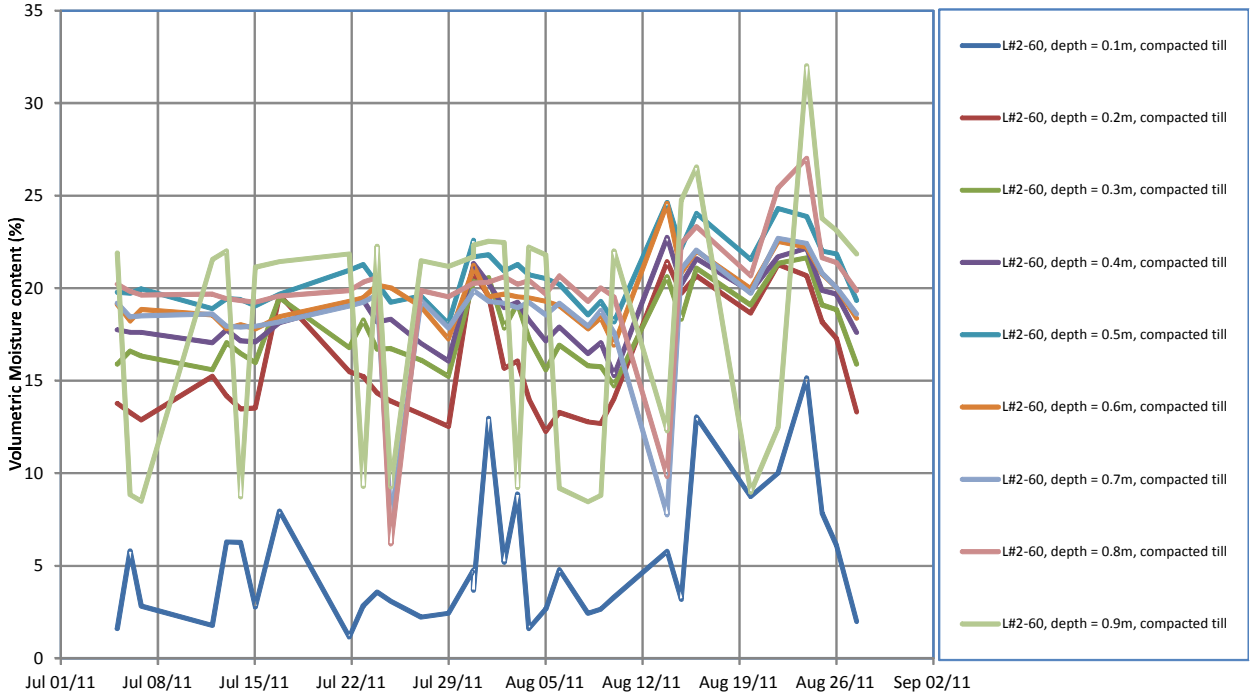

Figure 42: Diviner 2000 Volumetric Moisture Content data from L#2 station 60.

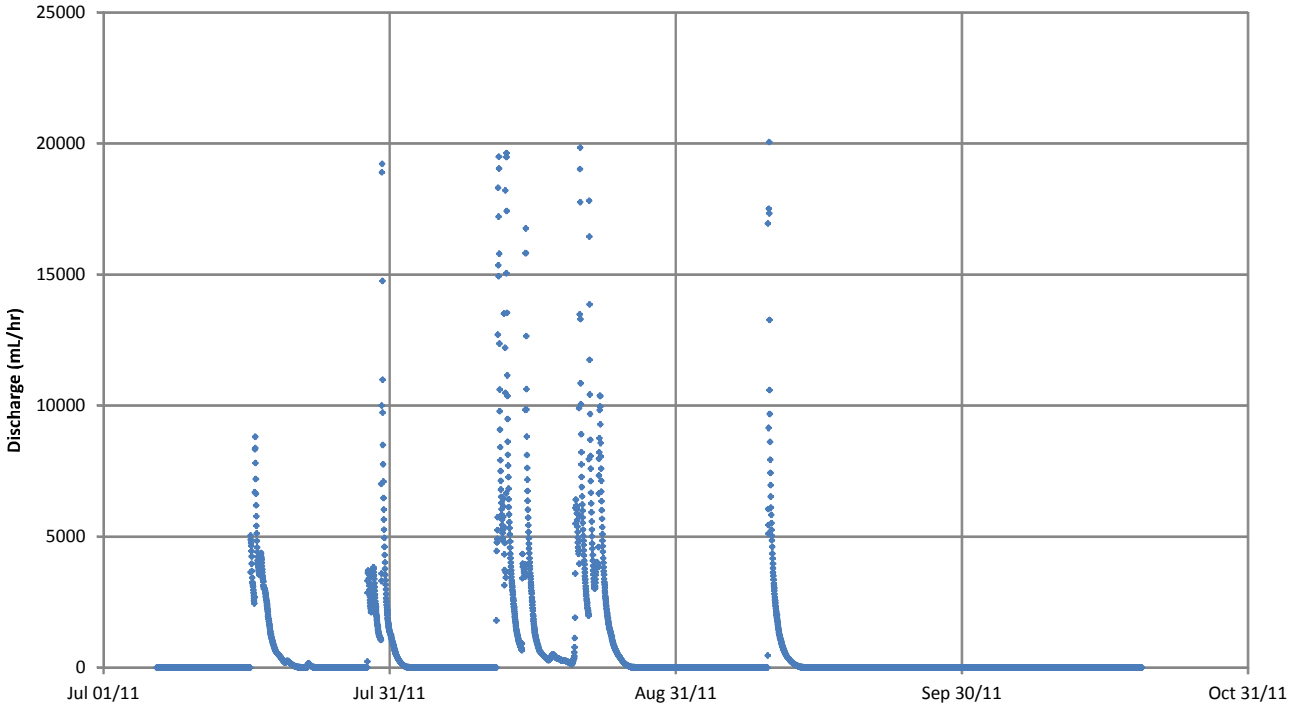

Figure 43: Tipping bucket data assumed to be from CT#1.

LEGEND

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Lysimeter Field #2 Diviner 2000 and CT#1 Tipping Bucket Data

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Figure 42 and 43

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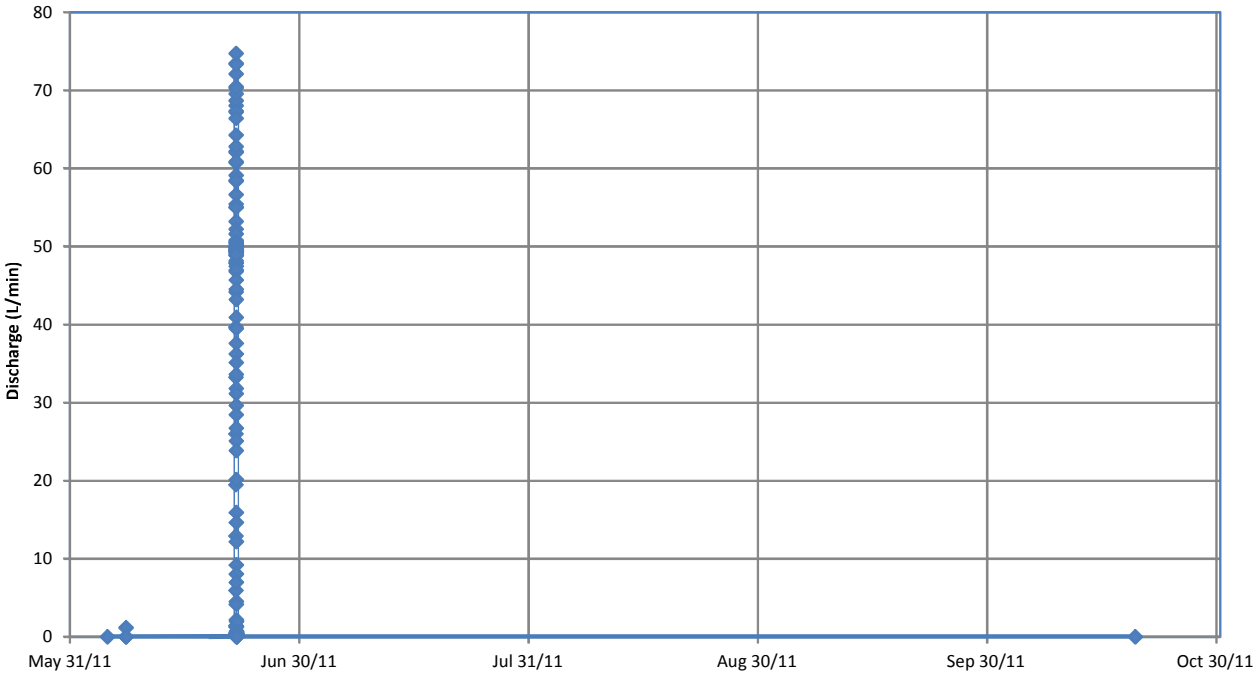

Figure 44: Surface flows measured in CT#1 by SeaMetrics Flowmeter.

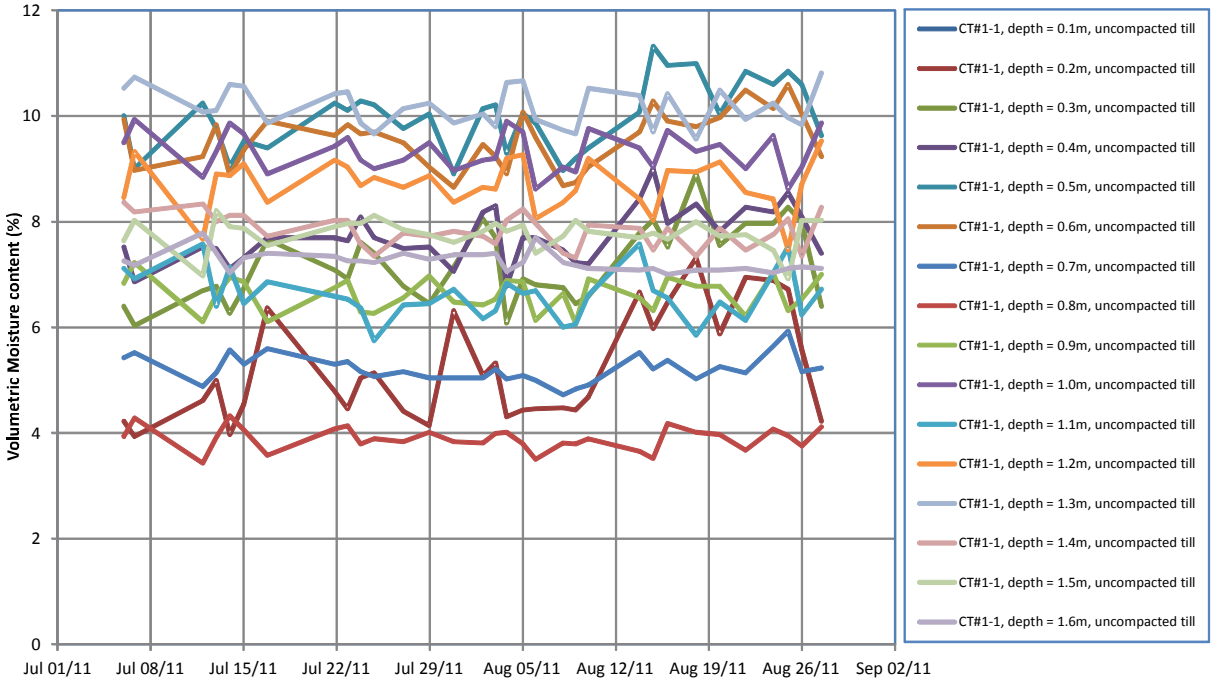

Figure 45: Diviner 2000 Volumetric Moisture Content data from CT#1 station 1.

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CT#1 Flow and Diviner Data

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Figure 44 and 45

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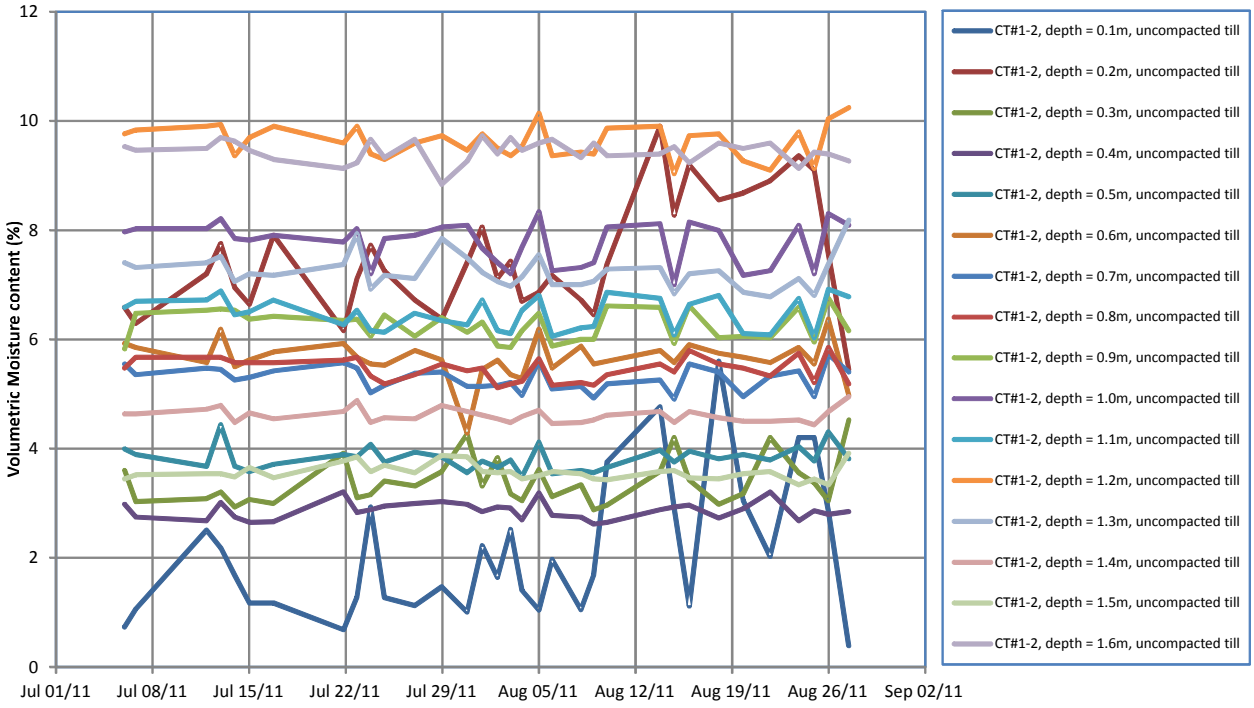

Figure 46: Diviner 2000 Volumetric Moisture Content data from CT#1 station 2.

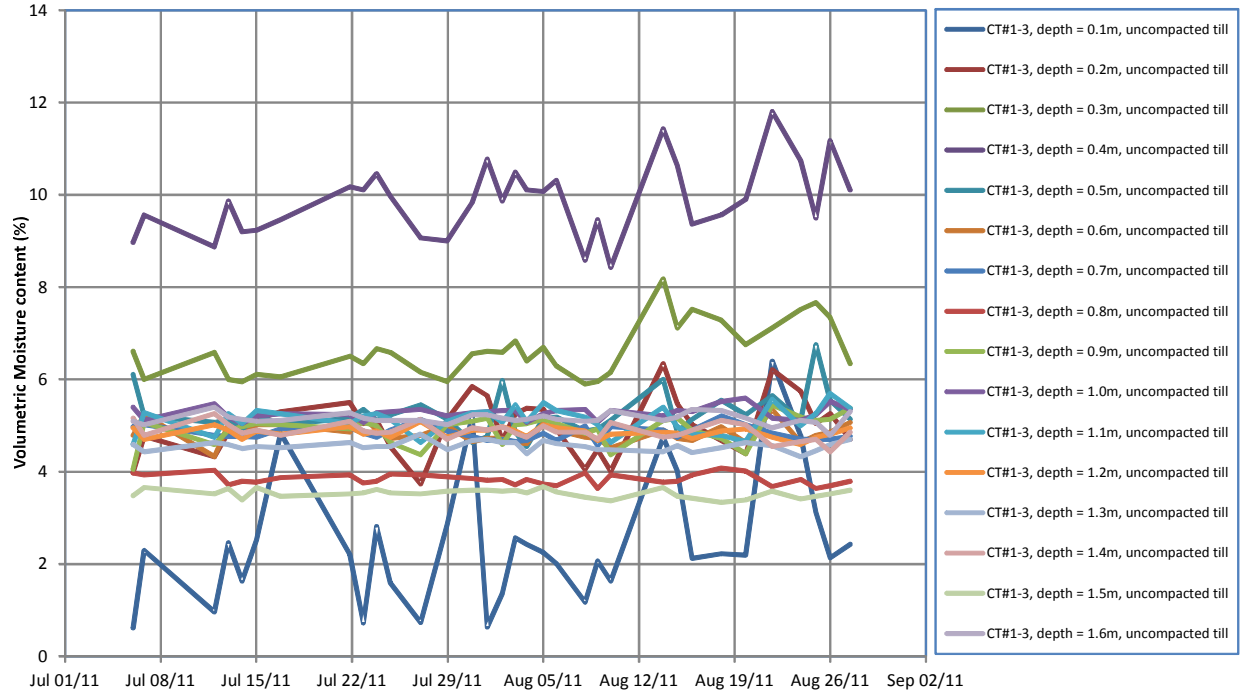

Figure 47: Diviner 2000 Volumetric Moisture Content data from CT#1 station 3.

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FARO INSTRUMENTATION RECOMMISSION AND DATA SUMMARY

Lysimeter Field CT#1 Diviner 2000 Data

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Figure 46 and 47

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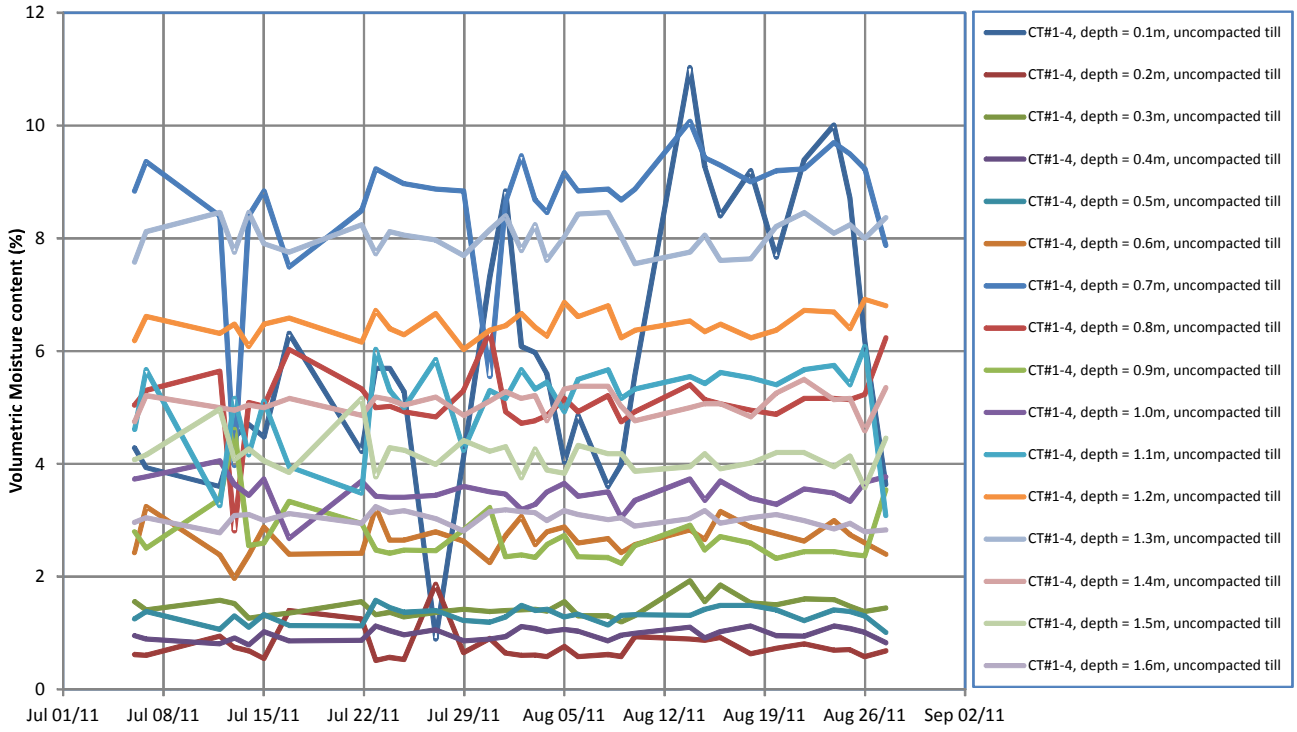

Figure 48: Diviner 2000 Volumetric Moisture Content data from CT#1 station 4.

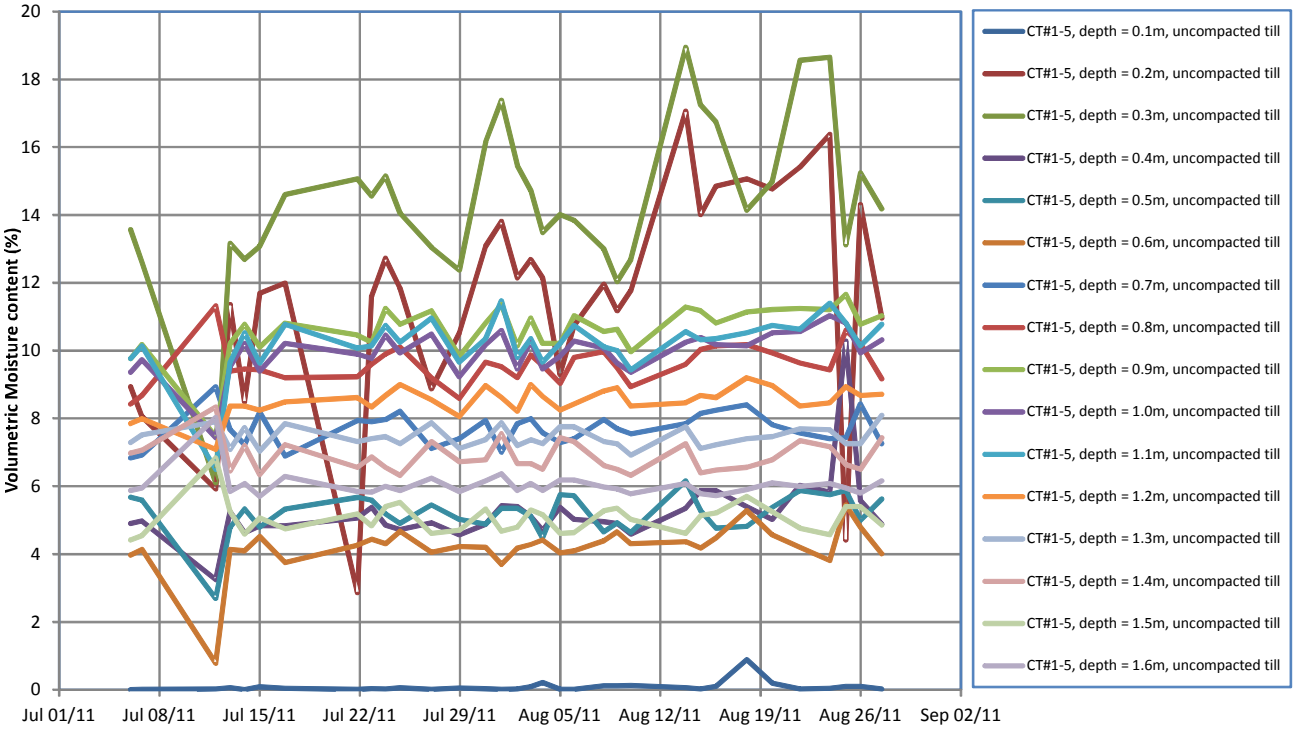

Figure 49: Diviner 2000 Volumetric Moisture Content data from CT#1 station 5.

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FARO INSTRUMENTATION RECOMMISSION AND DATA SUMMARY

CT#1 Diviner 2000 Data

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Figure 48 and 49

EBA-Tt_Title_Block_8.5x11_Portrait.cdr

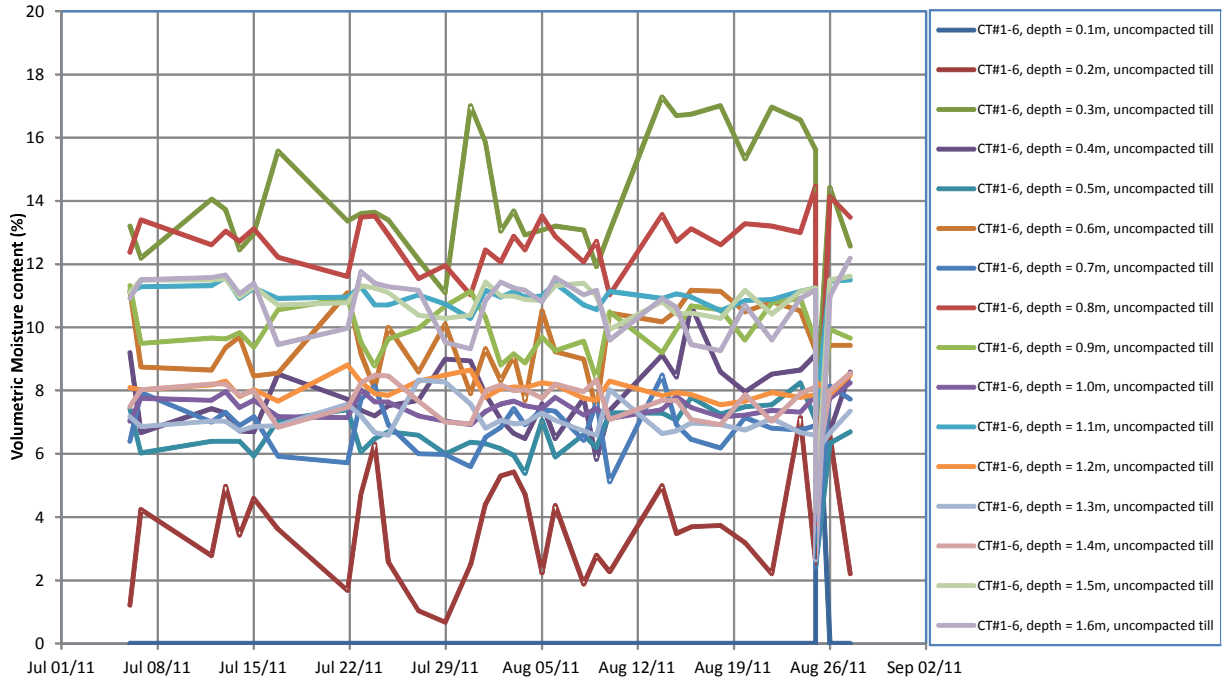

Figure 50: Diviner 2000 Volumetric Moisture Content data from CT#1 station 6.

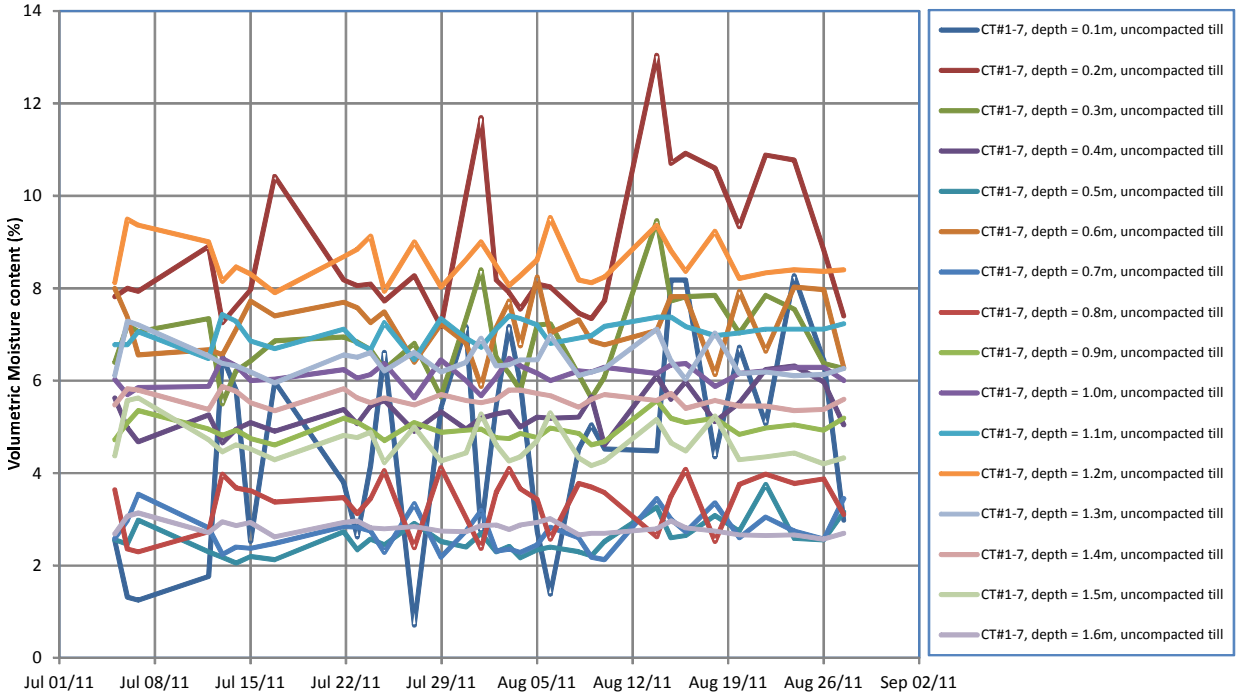

Figure 51: Diviner 2000 Volumetric Moisture Content data from CT#1 station 7.

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CT#1 Diviner 2000 Data

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Figure 50 and 51

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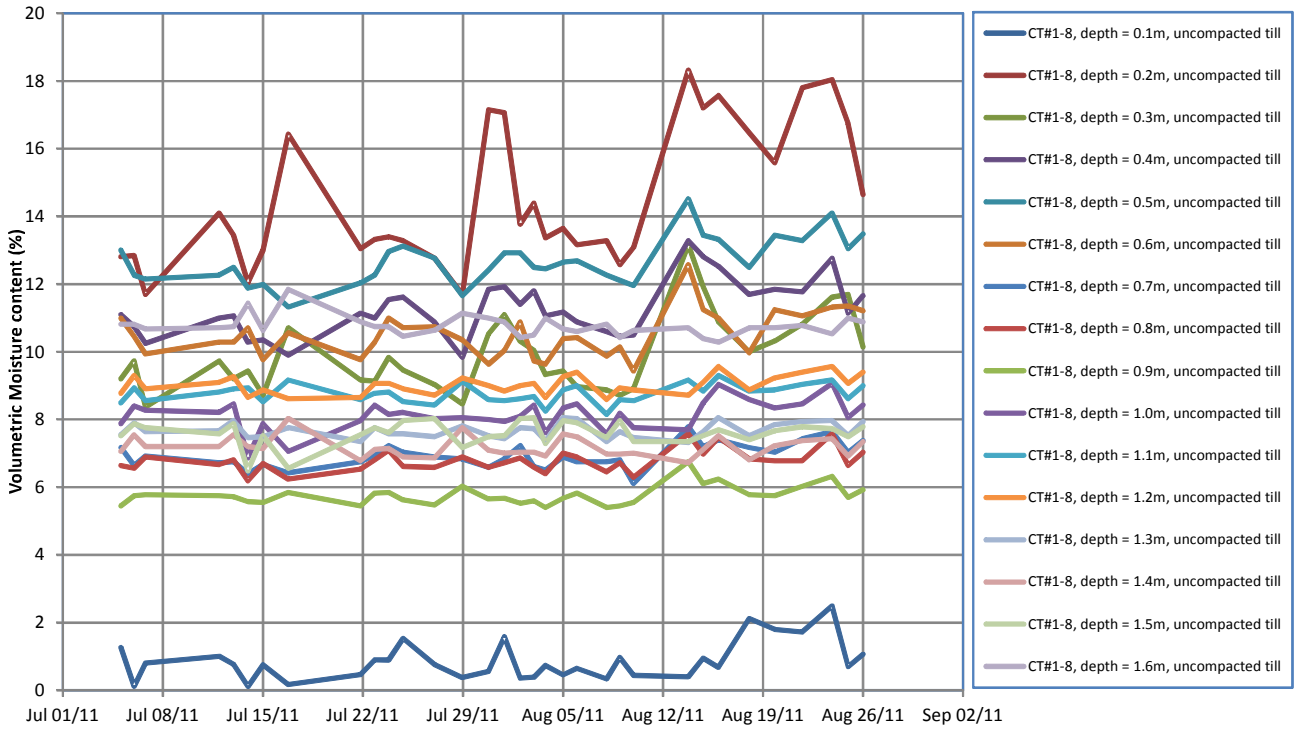

Figure 52: Diviner 2000 Volumetric Moisture Content data from CT#1 station 8.

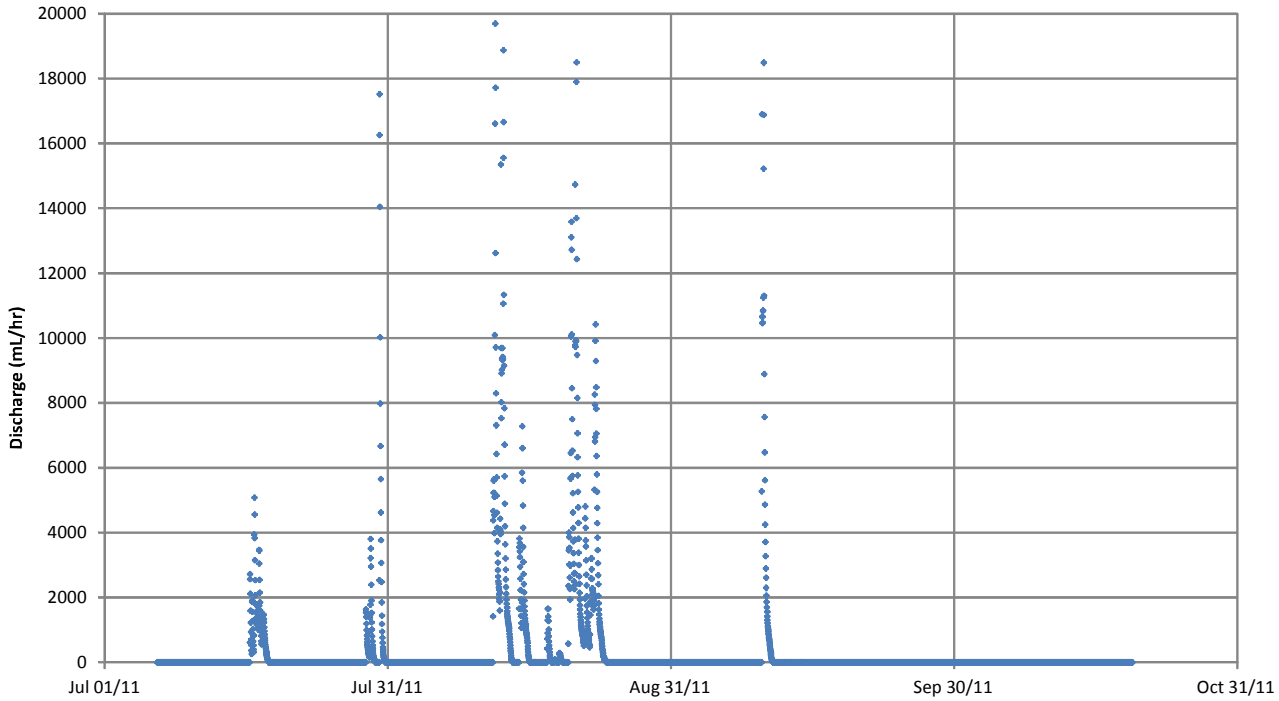

Figure 53: Tipping bucket data assumed to be CT#2A Surface Flow.

LEGEND

NOTES

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FARO INSTRUMENTATION RECOMMISSION AND DATA SUMMARY

CT#1 Diviner 2000 Data and CT#2A Surface Flow

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Figure 52 and 53

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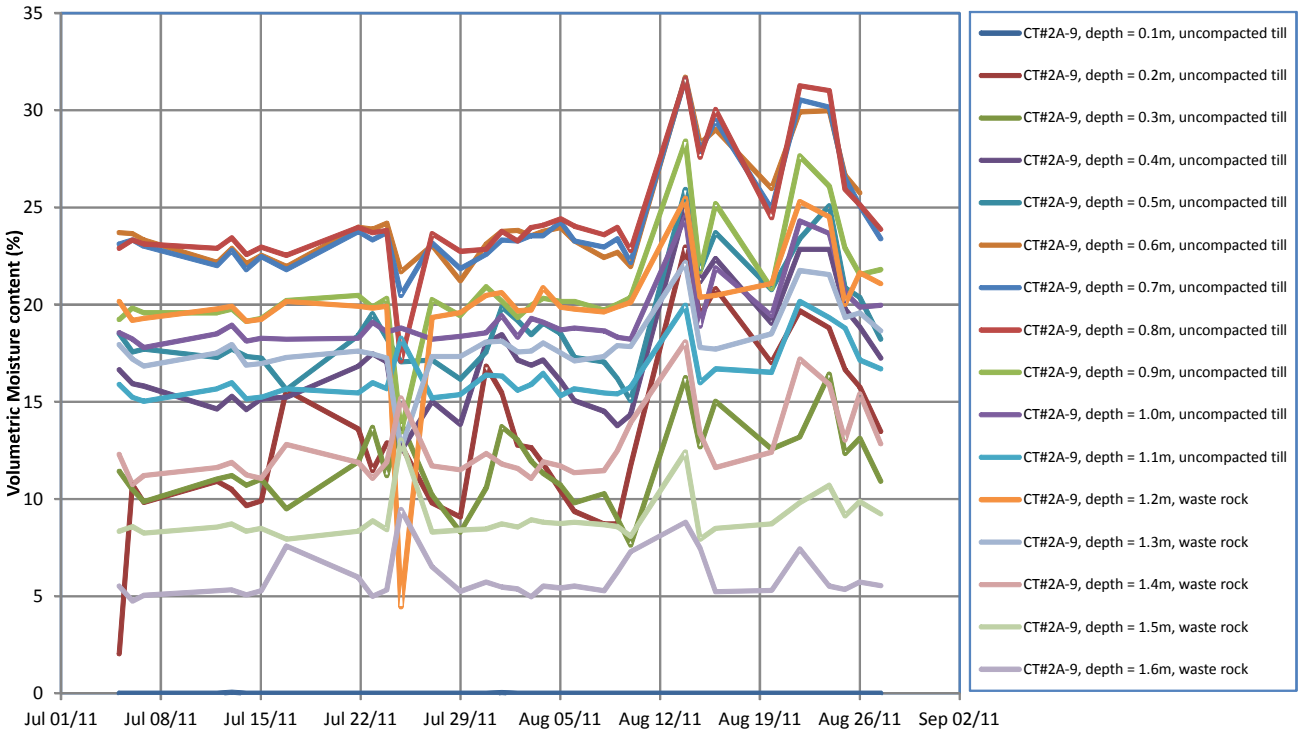

Figure 54: Diviner 2000 Volumetric Moisture Content data from CT#2A station 9.

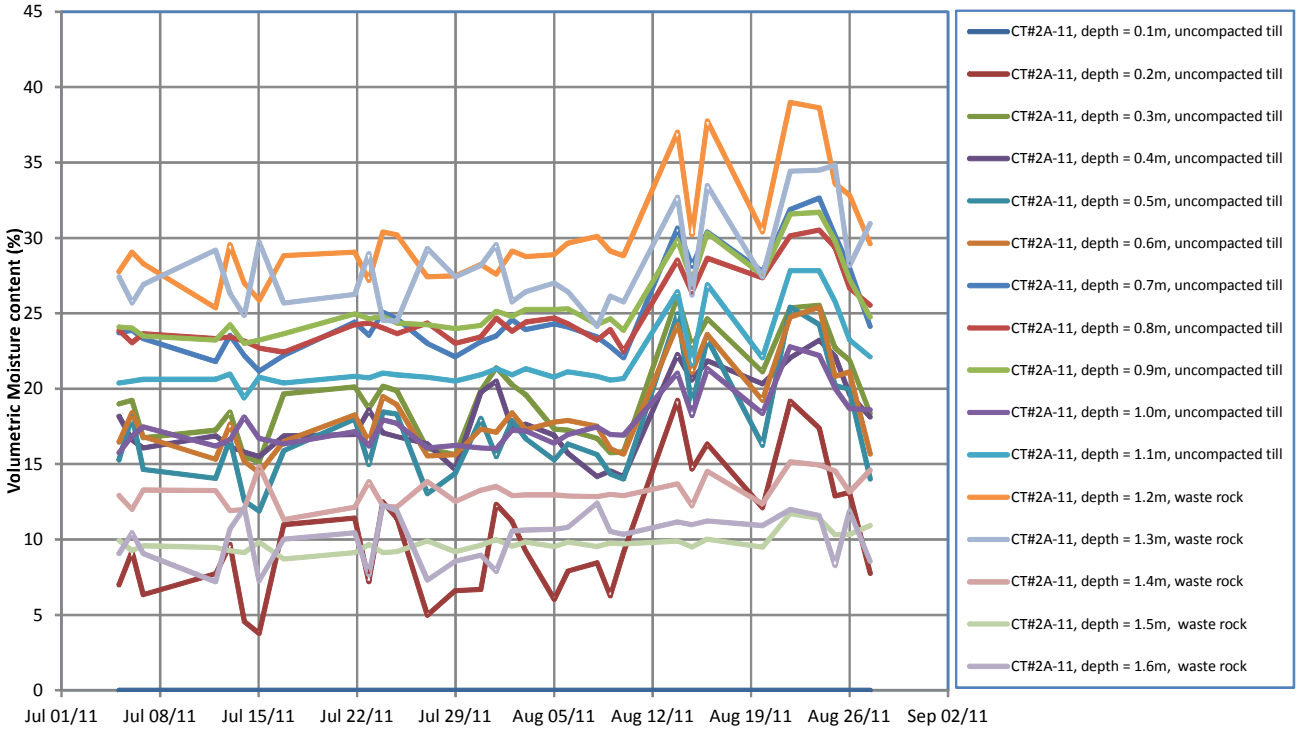

Figure 56: Diviner 2000 Volumetric Content data from CT#2A station 11.

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CT#2A Diviner Data

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Figure 54 and 55

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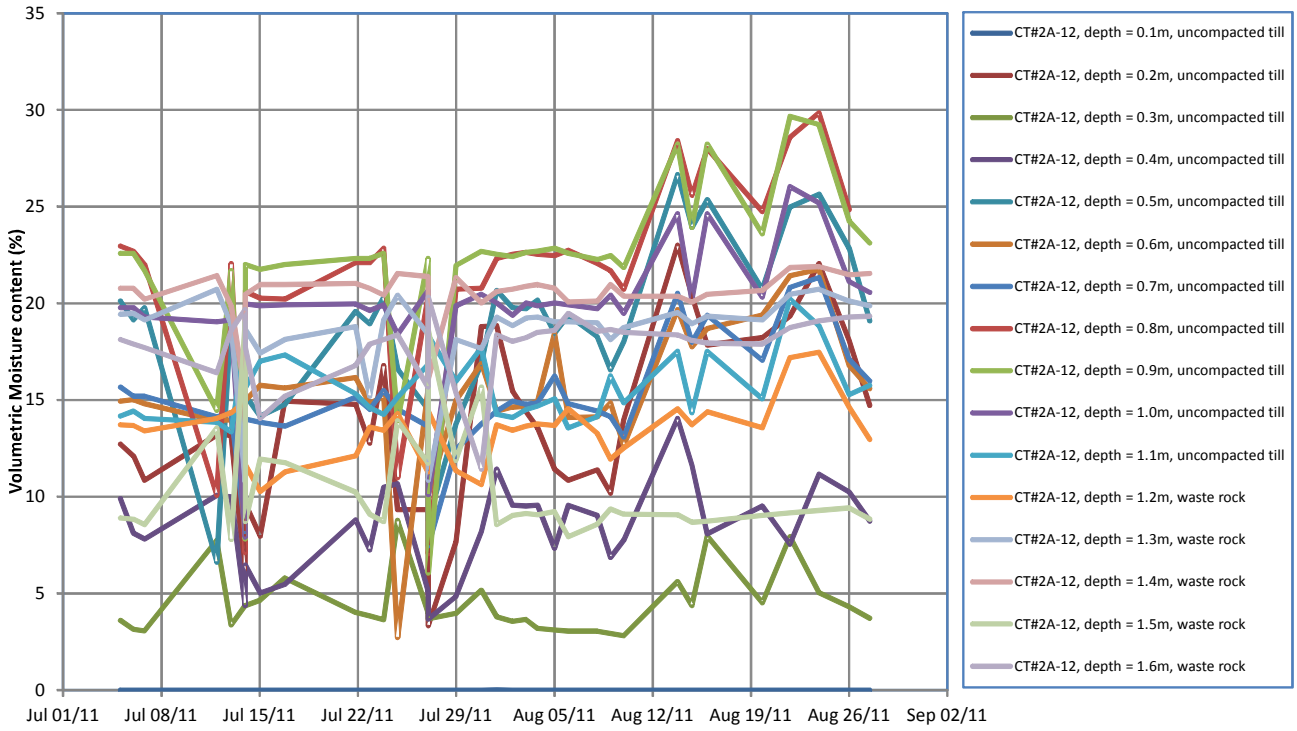

Figure 56: Diviner 2000 Volumetric Content data from CT#2A station 12.

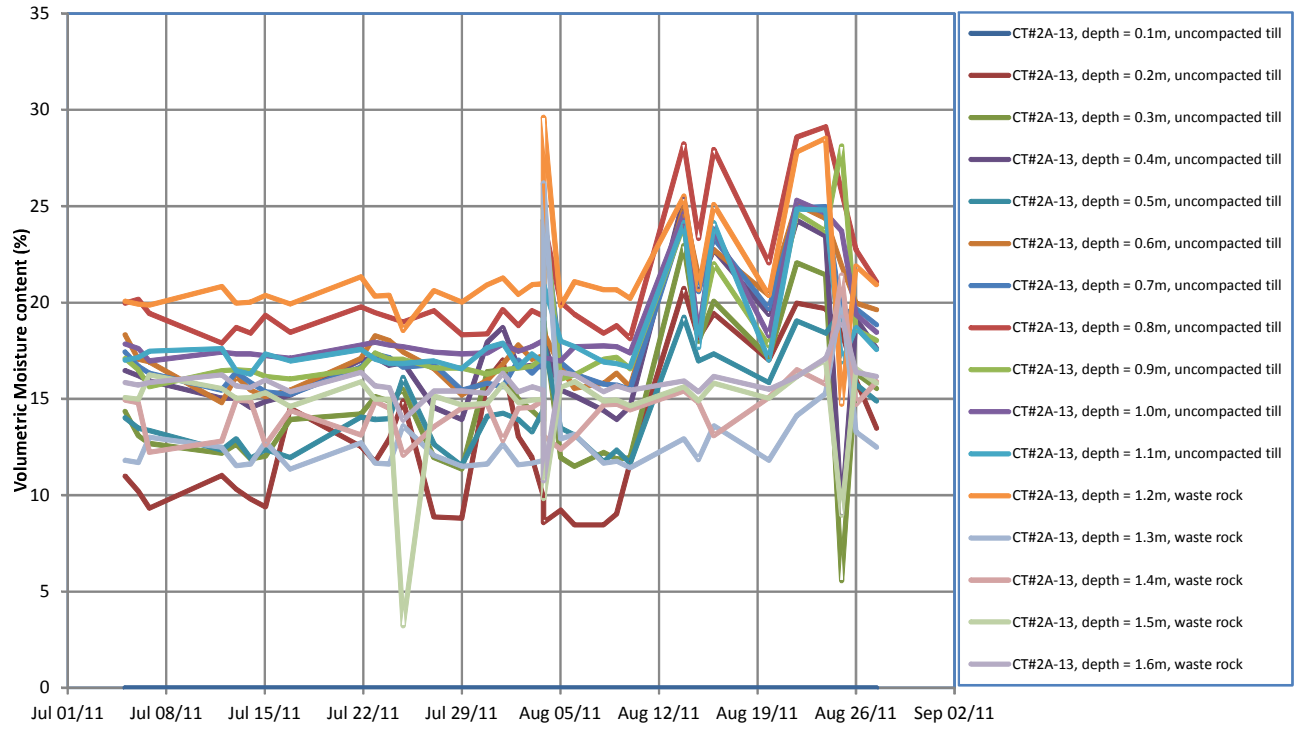

Figure 57: Diviner 2000 Volumetric Moisture Content data from CT#2A station 13.

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FARO INSTRUMENTATION RECOMMISSION AND DATA SUMMARY

CT#2A Diviner Data

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Figure 56 and 57

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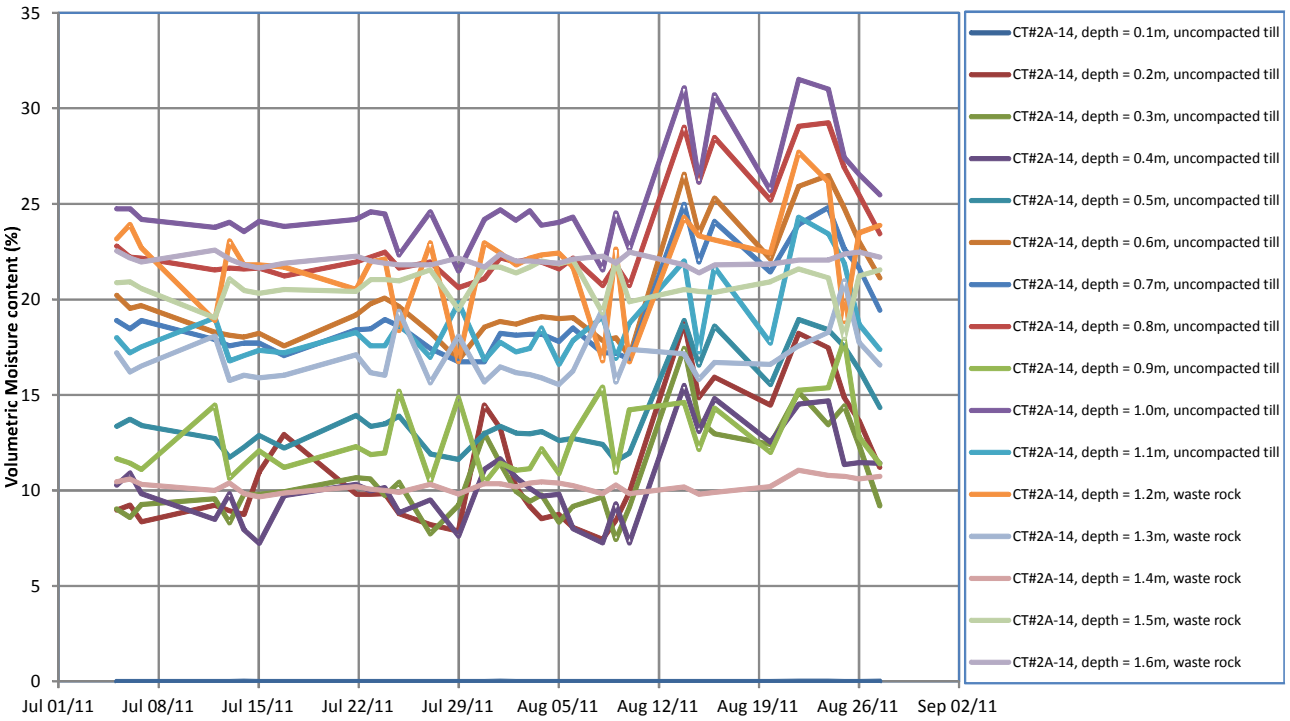

Figure 58: Diviner 2000 Volumetric Content data from CT#2A station 14.

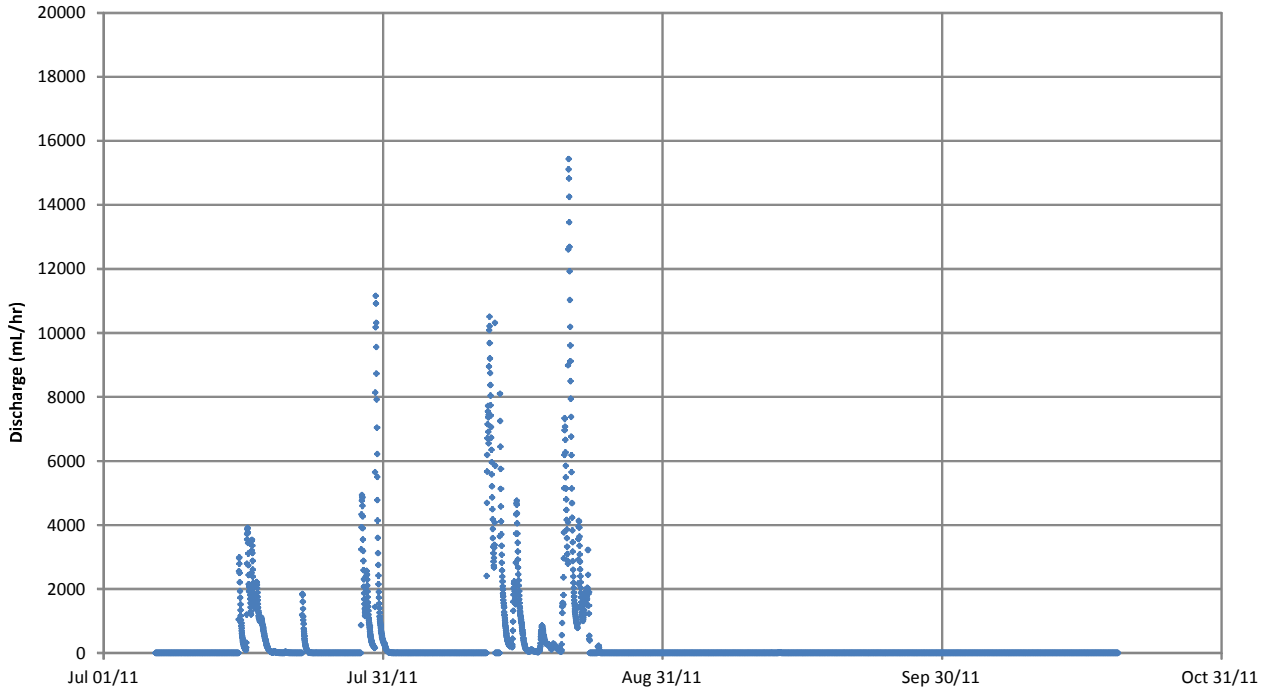

Figure 59: Tipping bucket data assumed to be CT#2B Surface Flow.

LEGEND

NOTES

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FARO INSTRUMENTATION RECOMMISSION AND DATA SUMMARY

CT#2A Diviner and CT#2B Flow Data

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Figure 58 and 59

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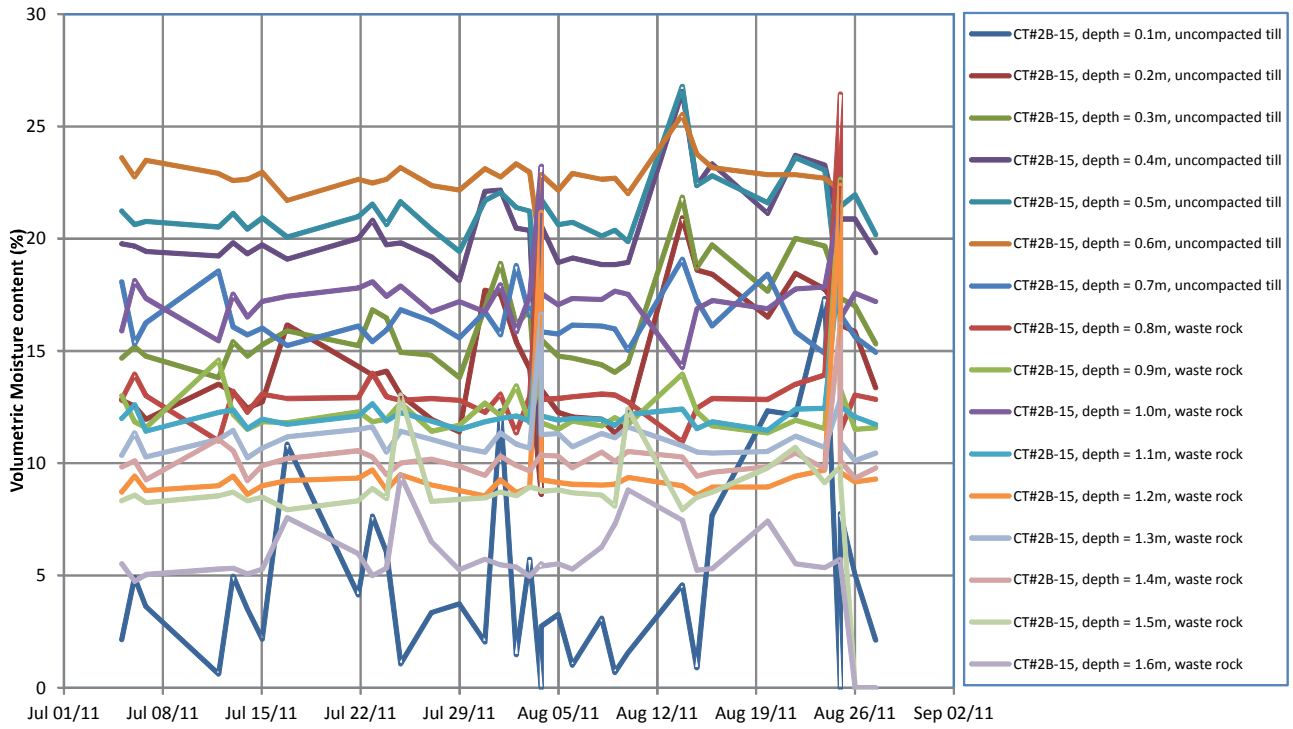

Figure 60:Diviner 2000 Volumetric Moisture Content data from CT#2B station 15.

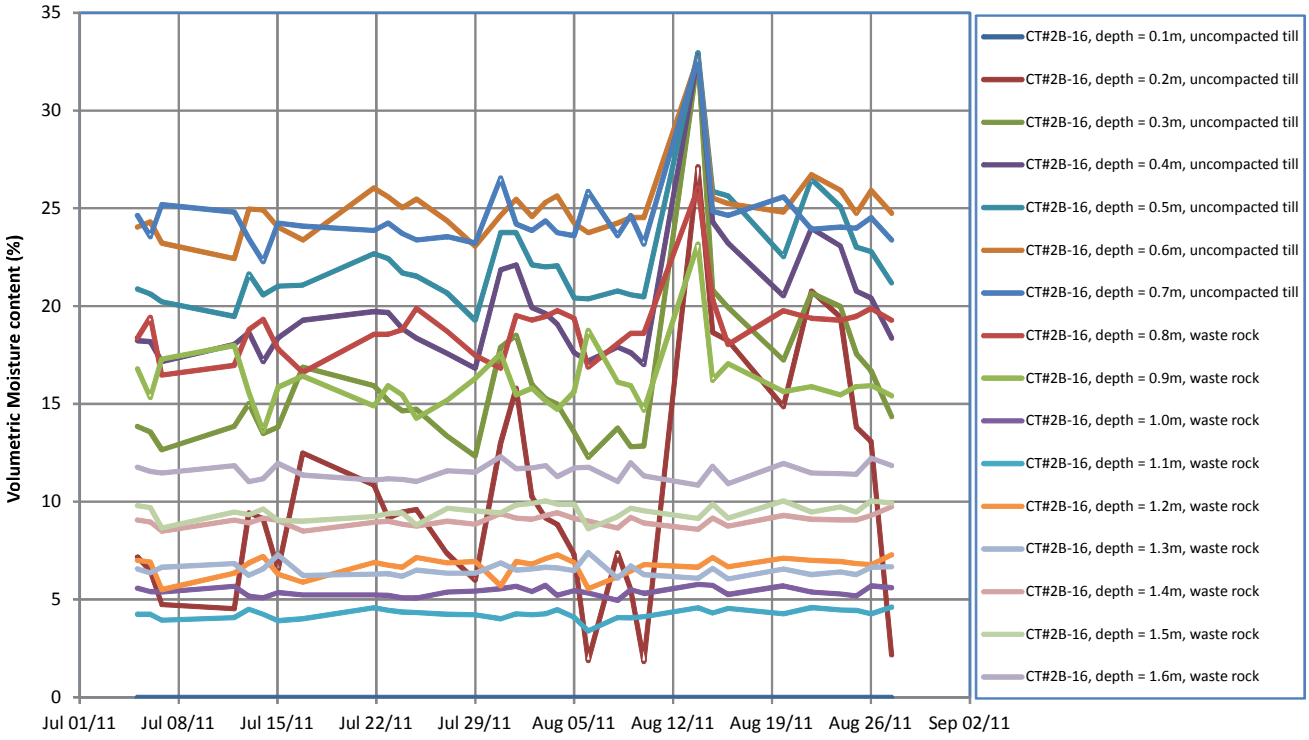

Figure 61: Diviner 2000 Volumetric Moisture Content data from CT#2B station 16.

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CT#2B Diviner Data

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W23101449	KRR	TR		0

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Figure 60 and 61

EBA-Tt_Title_Block_8.5x11_Portrait.cdr

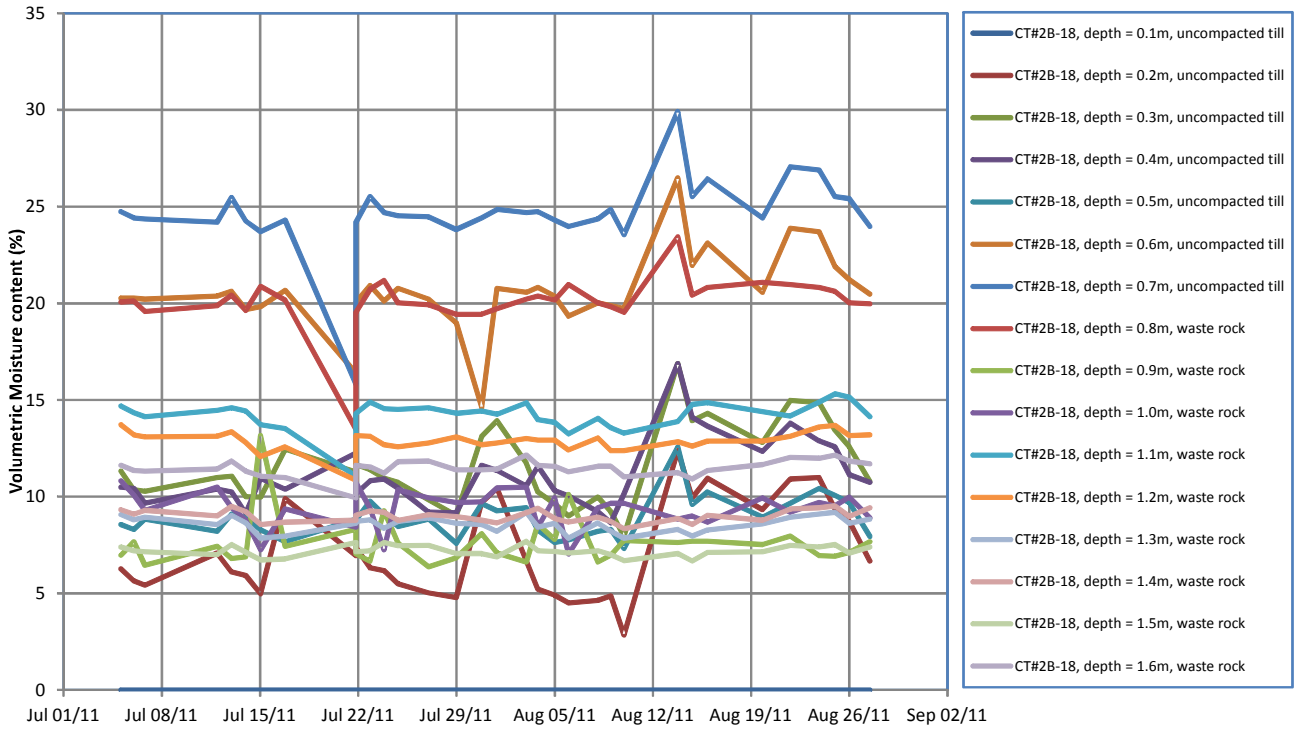

Figure 62: Diviner 2000 Volumetric Moisture Content data from CT#2B station 18.

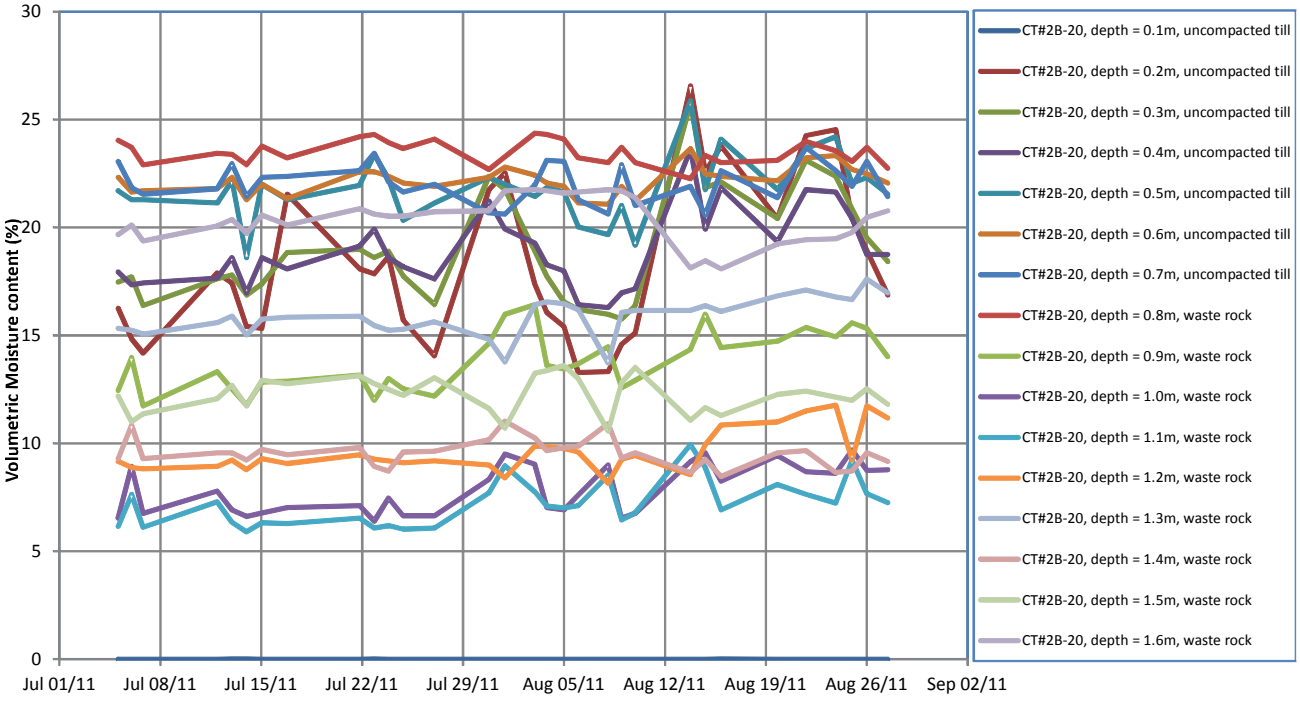

Figure 63: Diviner 2000 Volumetric Moisture Content data from CT#2B station 20.

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CT#2B Diviner Data

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Figure 62 and 63

EBA-Tt_Title_Block_8.5x11_Portrait.cdr

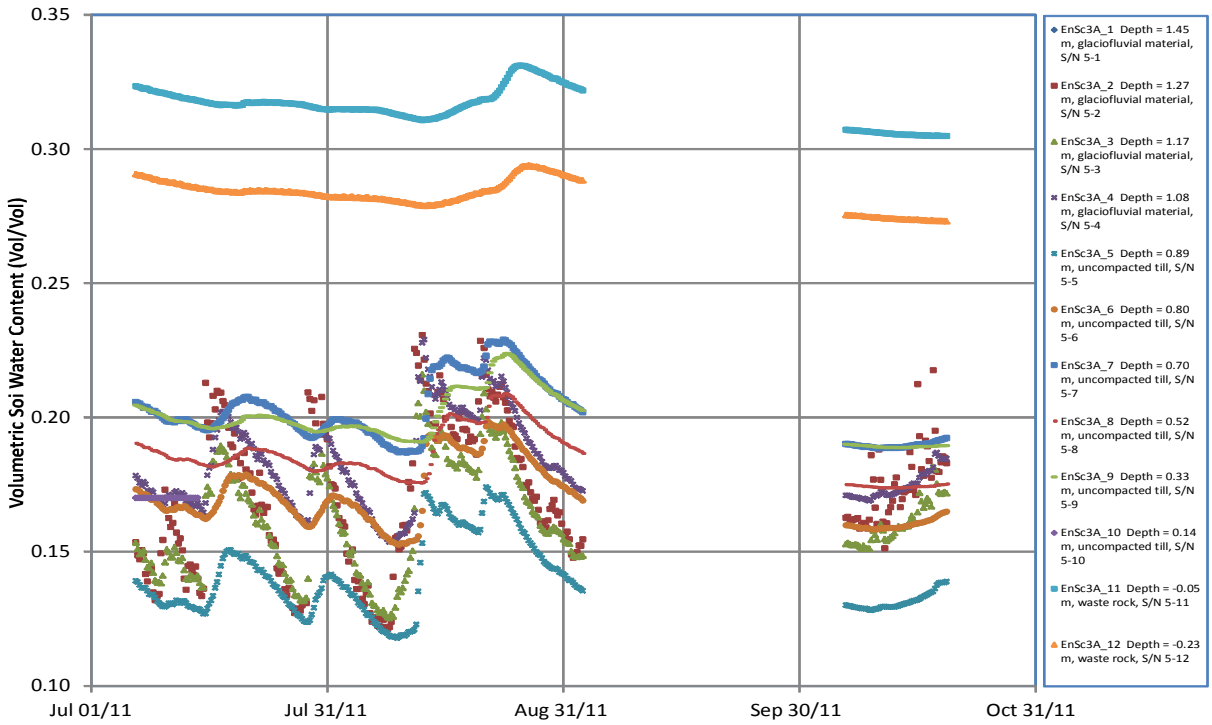

Figure 64: CT#3A Volumetric Soil Water Content data measured by EnviroScan Probes .

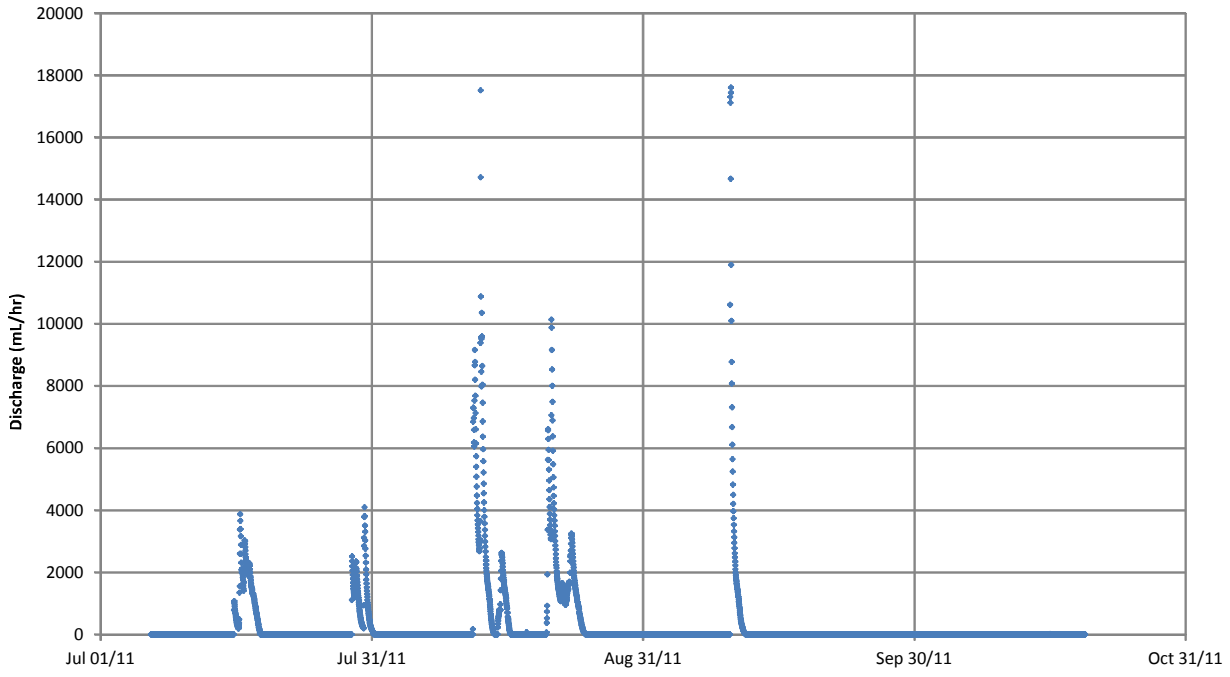

Figure 65: Tipping Bucket data from CT#3A surface flow.

LEGEND	**NOTES**	**CLIENT** Yukon Government	**FARO INSTRUMENTATION RECOMMISSION AND DATA SUMMARY**					
			CT#3A Volumetric Soil Water Content and Flow Data					
	STATUS ISSUED FOR USE	eba A TETRA TECH COMPANY	**PROJECT NO.** W23101449	**DWN** KRR	**CKD** TR	**APVD**	**REV** 0	**Figure 64 and 65**
			OFFICE EBA-WHSE	**DATE** November 30, 2011				

EBA-Tt_Title_Block_8.5x11_Portrait.cdr

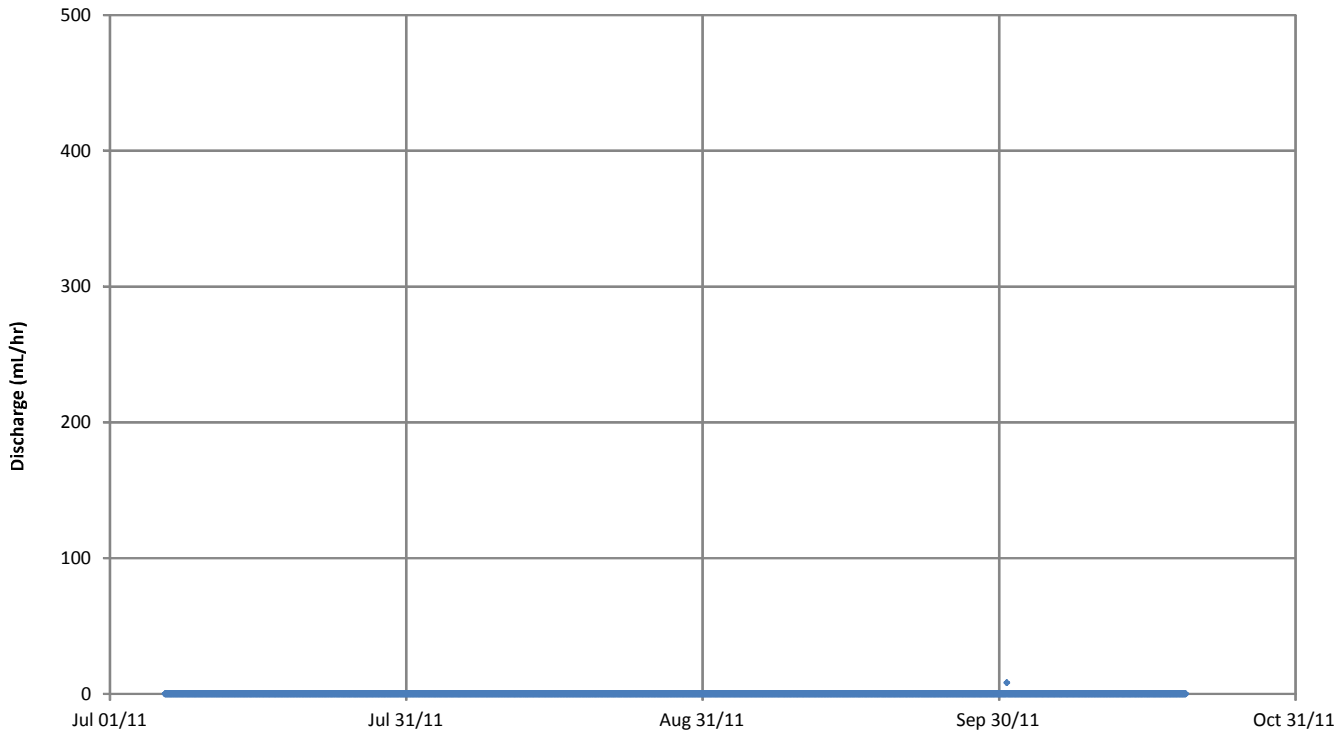

Figure 66: Tipping Bucket data assumed to be from CT#3A Interflow.

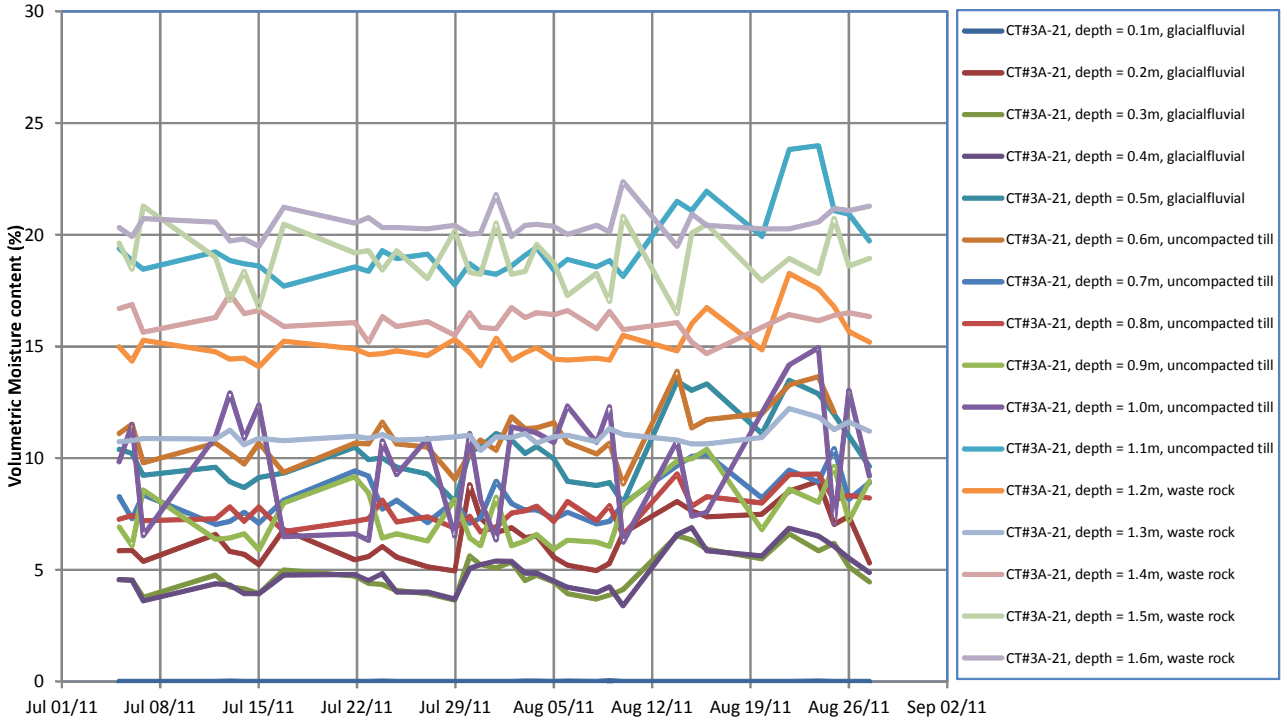

Figure 67: Diviner 2000 Volumetric Moisture Content data from CT#3A station 22.

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CT#3A Flow and Diviner Data

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Figure 66 and 67

EBA-Tt_Title_Block_8.5x11_Portrait.cdr

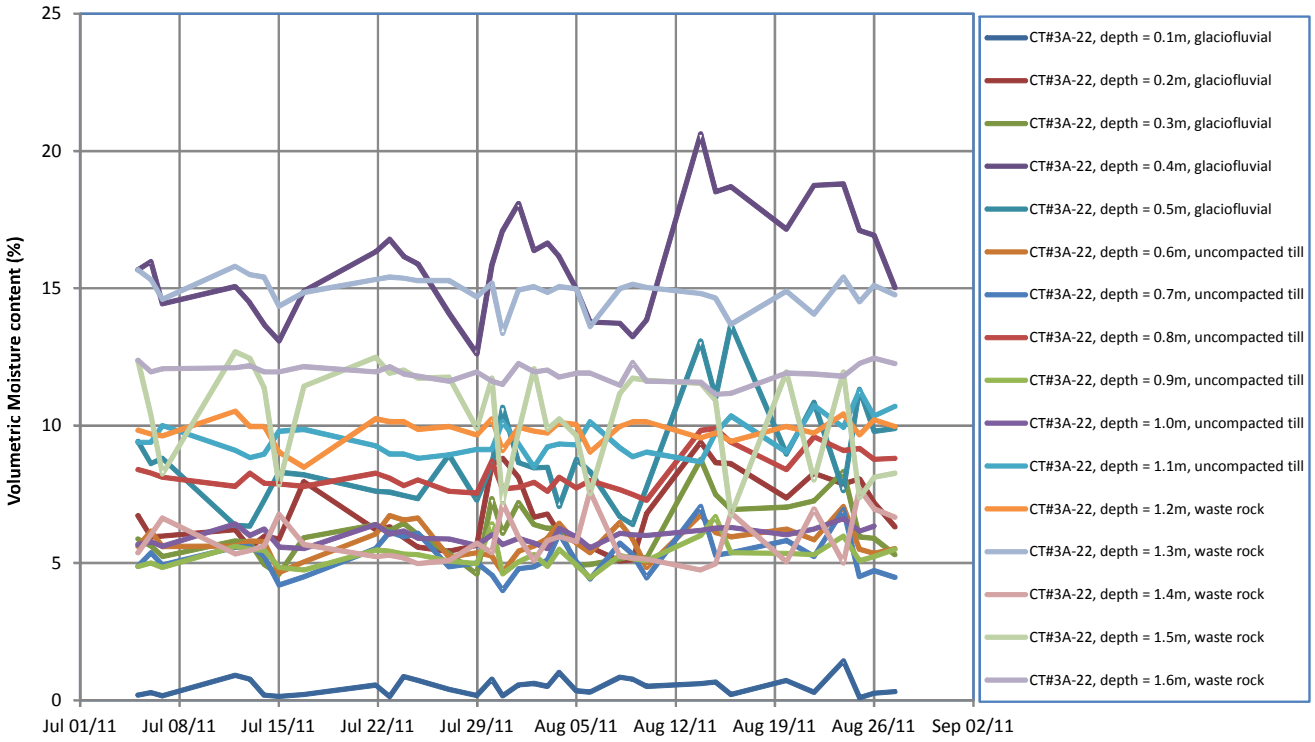

Figure 68: Diviner 2000 Volumetric Moisture Content data from CT#3A station 22.

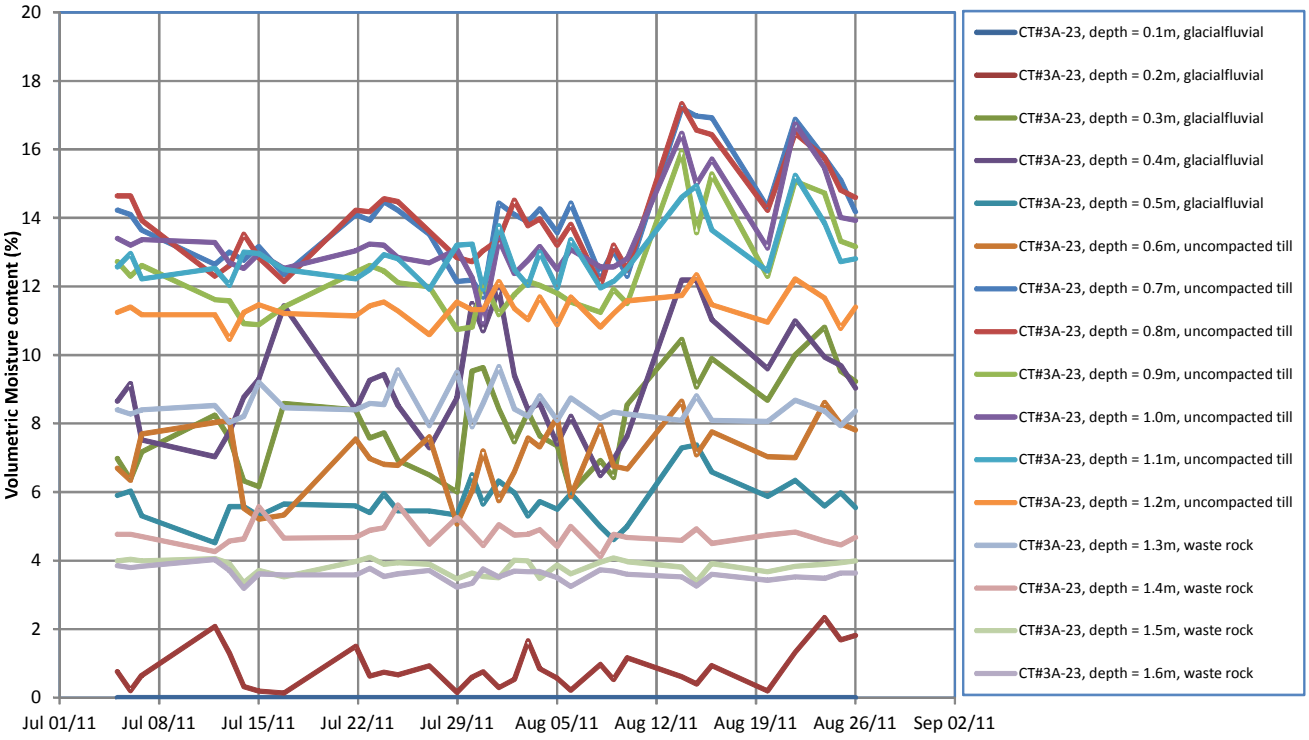

Figure 69: Diviner 2000 Volumetric Moisture Content data from CT#3A station 23.

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CT#3A Diviner Data

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Figure 68 and 69

EBA-Tt_Title_Block_8.5x11_Portrait.cdr

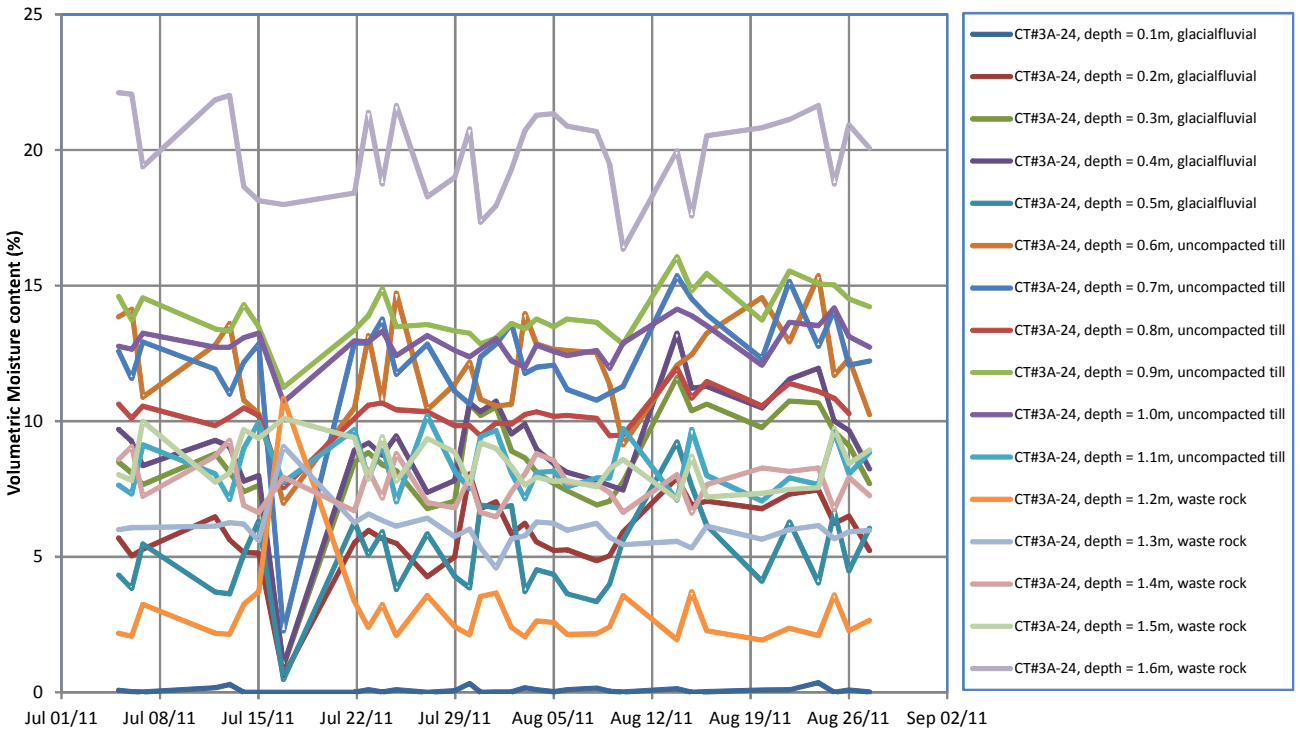

Figure 70: Diviner 2000 Volumetric Moisture Content data from CT#3A station 24.

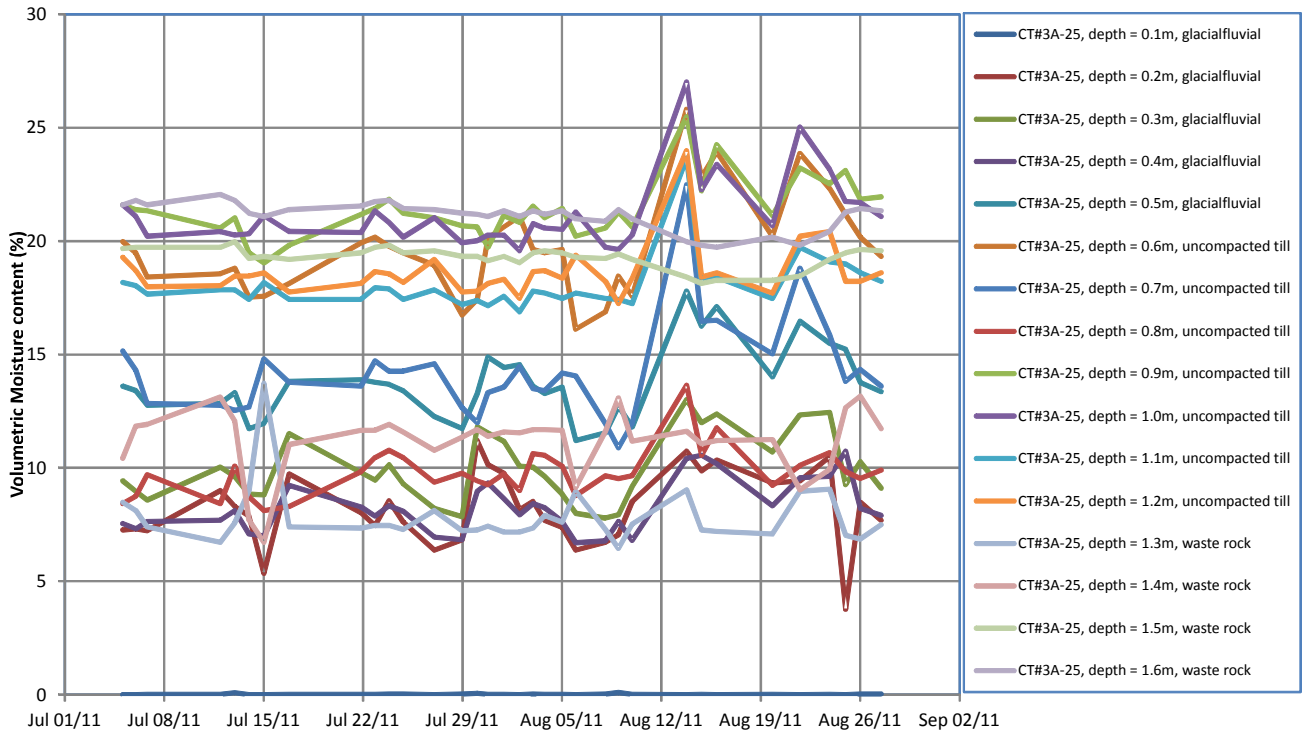

Figure 71: Diviner 2000 Volumetric Moisture Content data from CT#3A station 25.

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CT#3A Diviner Data

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Figure 70 and 71

EBA-Tt_Title_Block_8.5x11_Portrait.cdr

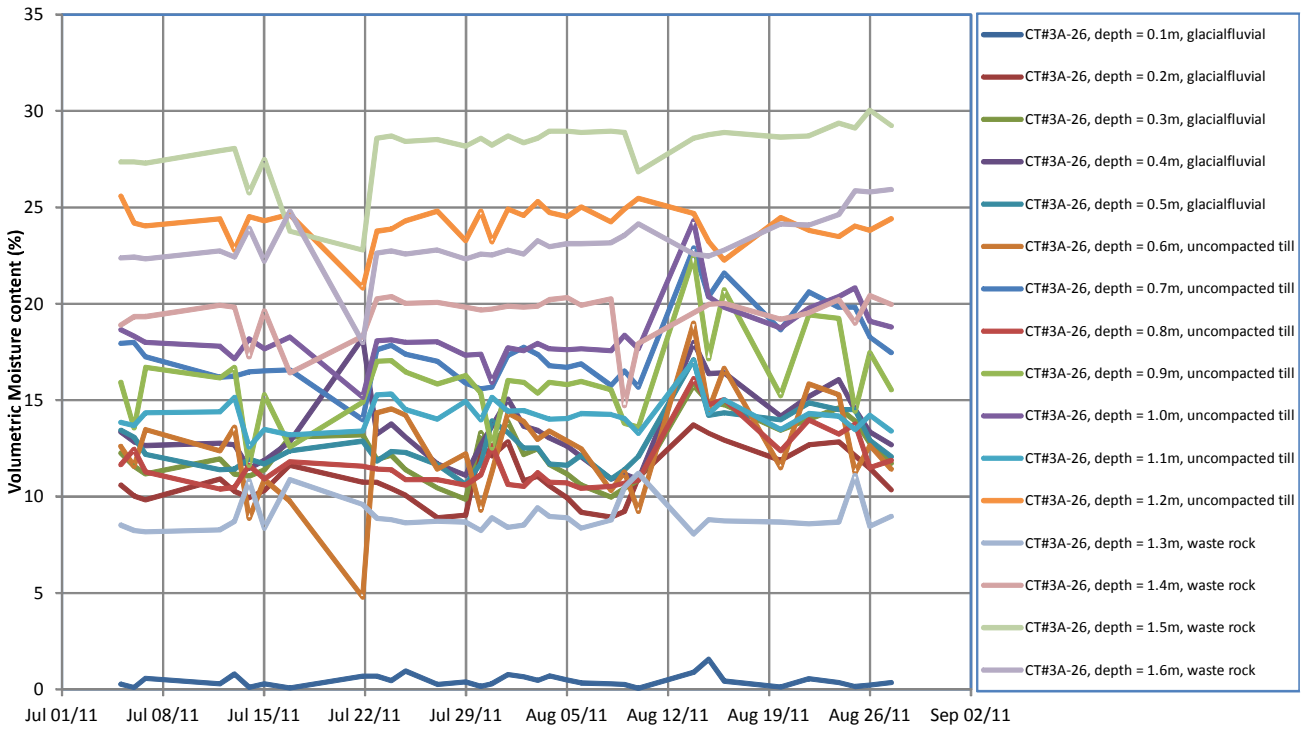

Figure 72: Diviner 2000 Volumetric Moisture Content data from CT#3A station 26.

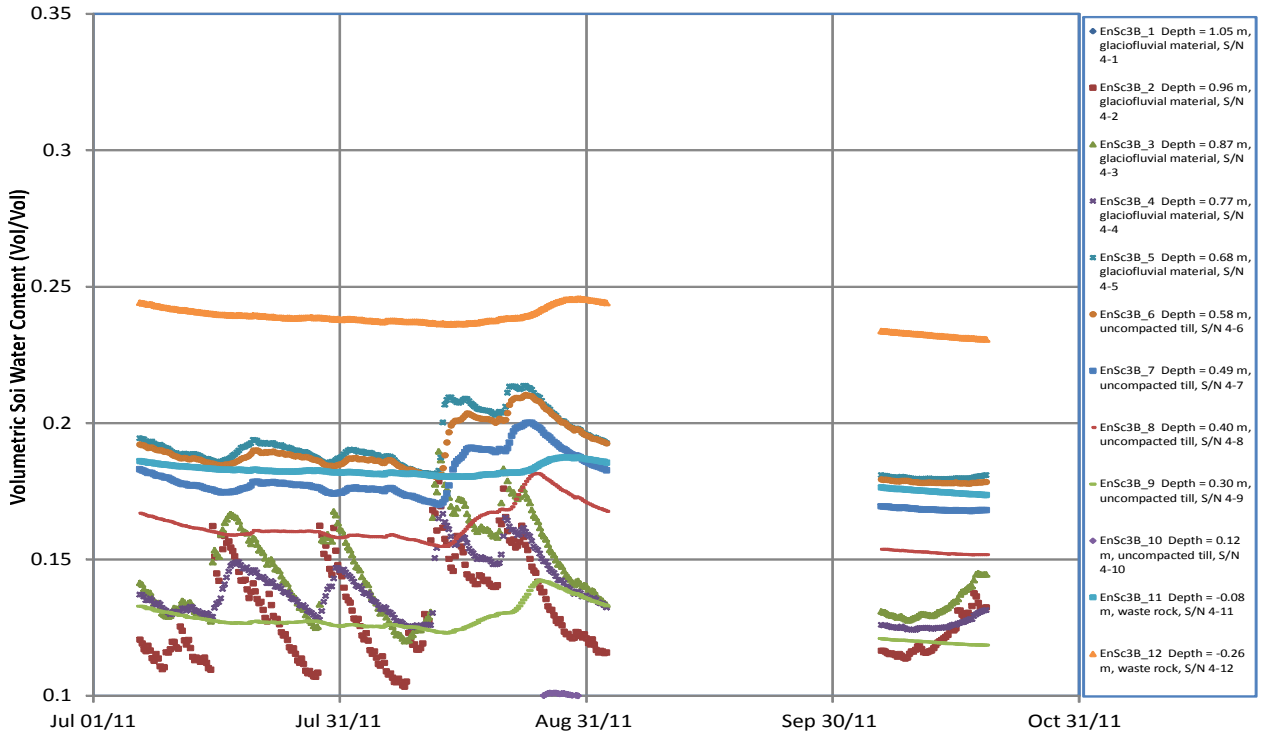

Figure 73: CT#3B Volumetric Soil Water Content from EnviroScan probes.

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CT#3B Volumetric Soil Water Content and CT#3A Diviner Data

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Figure 72 and 73

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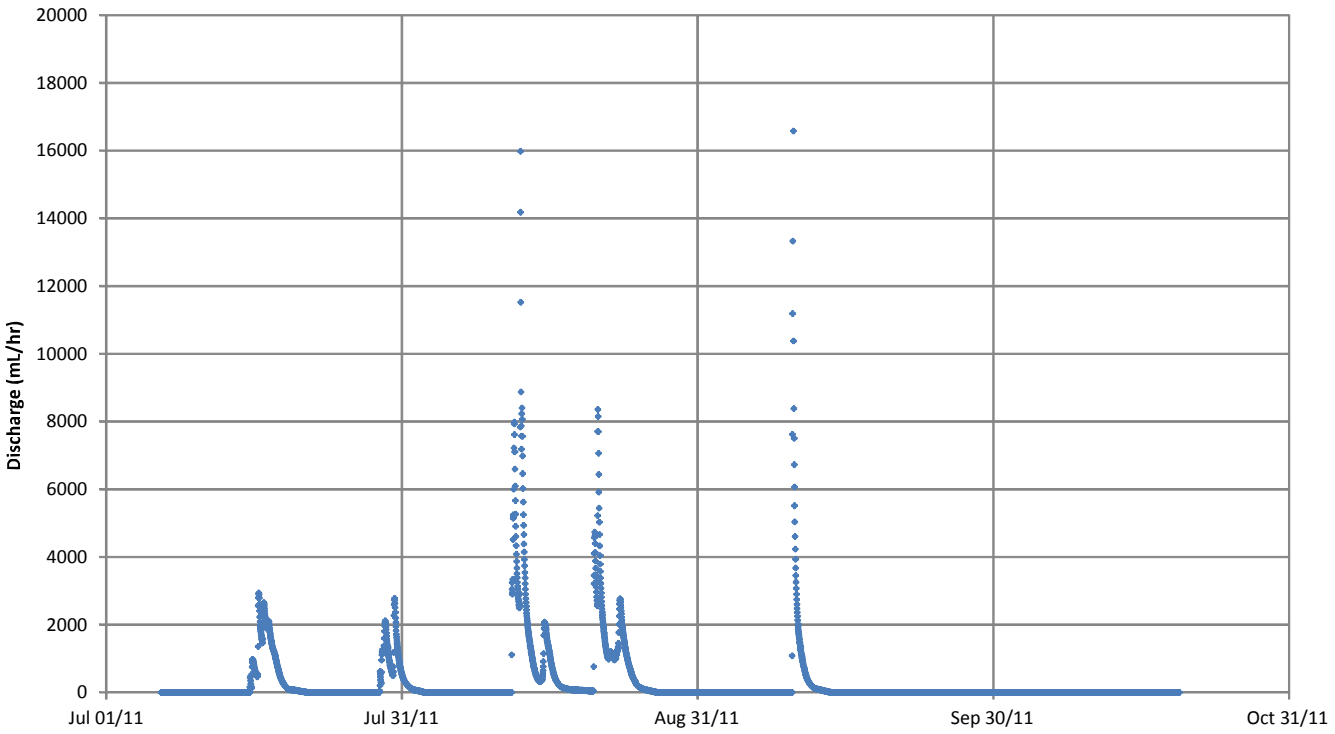

Figure 74: Tipping bucket data assumed to be CT#3B Surface flow.

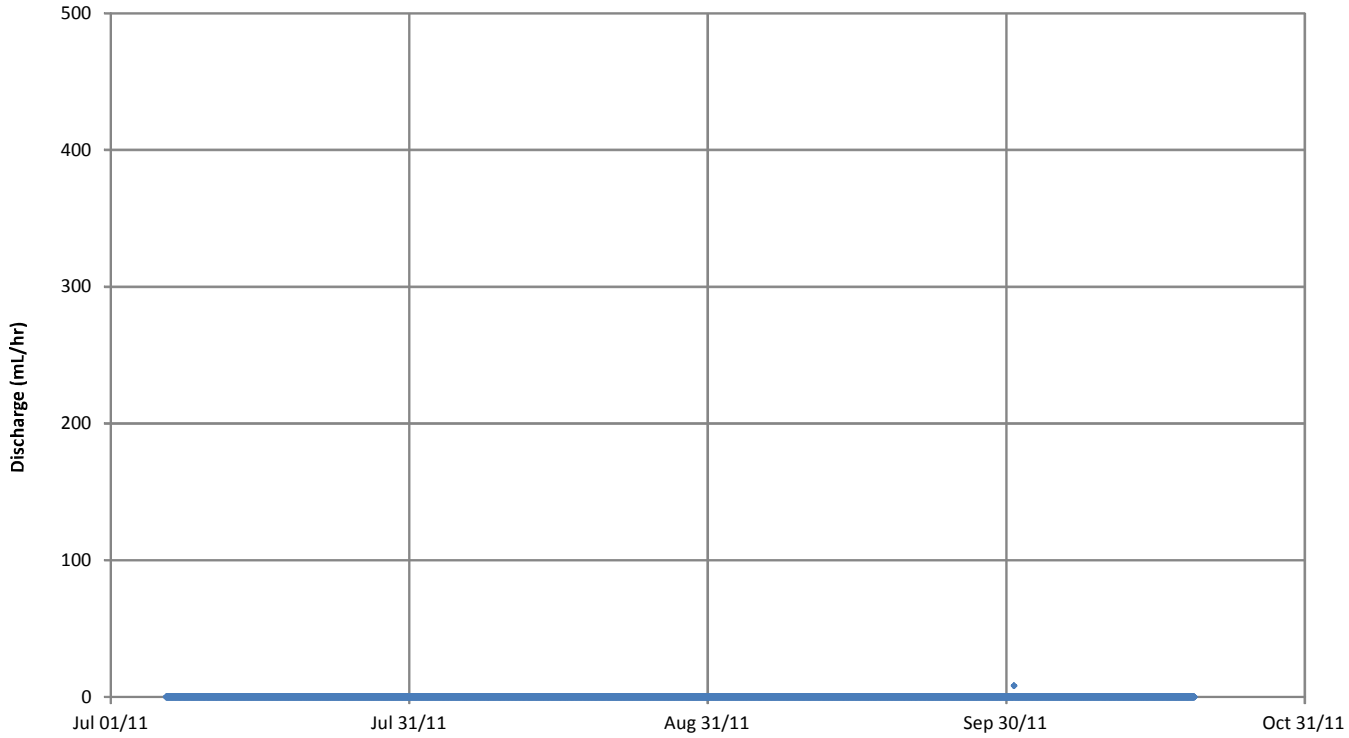

Figure 75: Tipping bucket data assumed to be CT#3B Interflow.

LEGEND

NOTES

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FARO INSTRUMENTATION RECOMMISSION AND DATA SUMMARY

CT#3B Flow Data

PROJECT NO.	DWN	CKD	APVD	REV
W23101449	KRR	TR		0

OFFICE	DATE
EBA-WHSE	November 30, 2011

Figure 74 and 75

EBA-Tt_Title_Block_8.5x11_Portrait.cdr

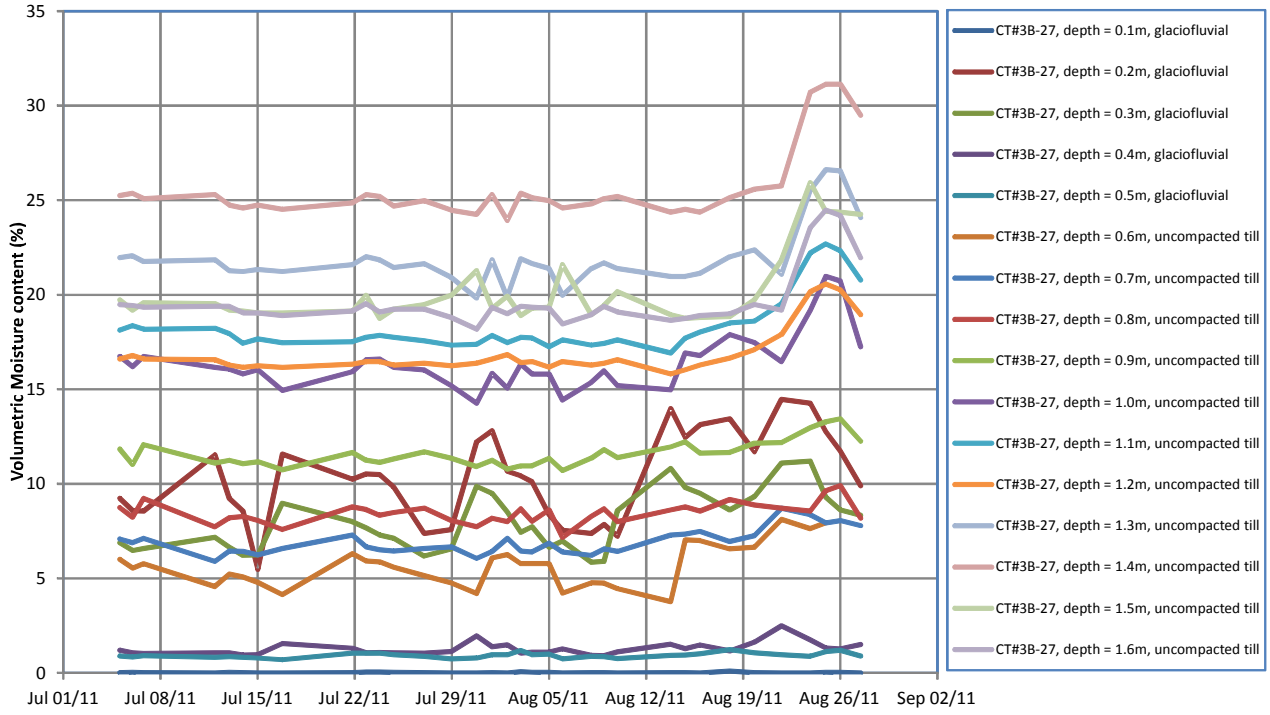

Figure 76:Diviner 2000 Volumetric Moisture Content data from CT#3B station 27.

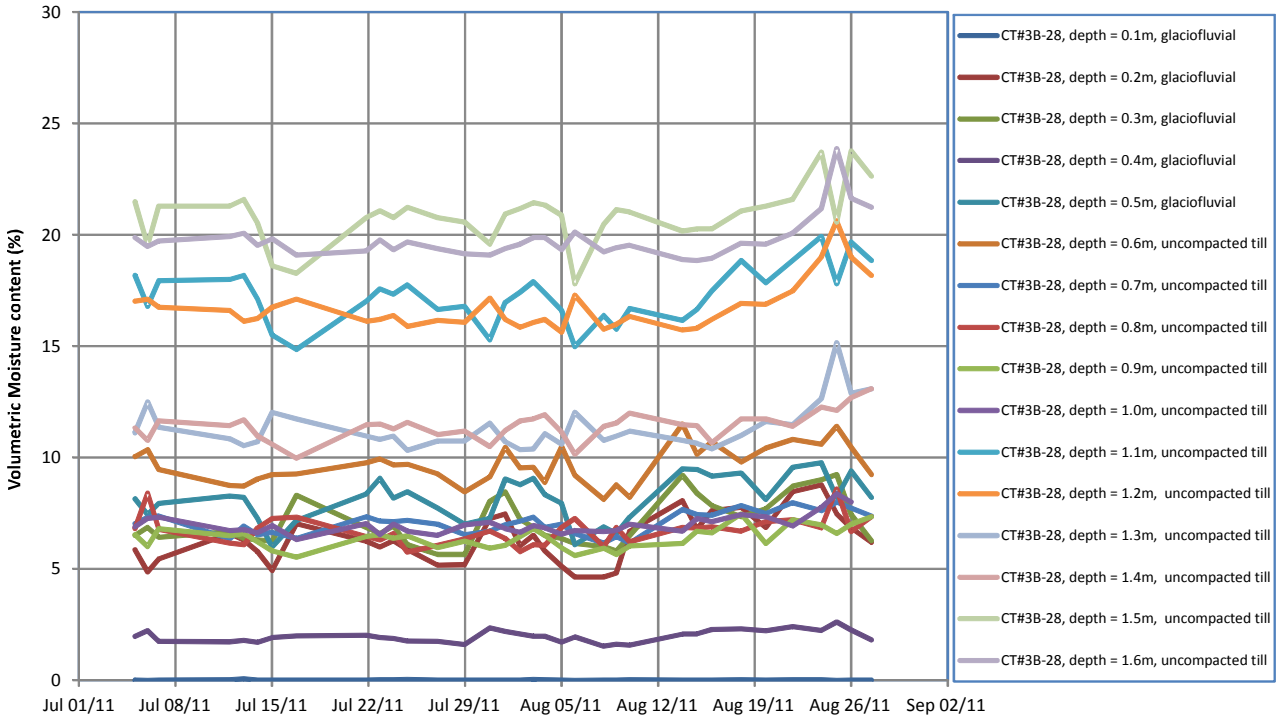

Figure 77:Diviner 2000 Volumetric Moisture Content data from CT#3B station 28.

LEGEND

NOTES

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FARO INSTRUMENTATION RECOMMISSION AND DATA SUMMARY

CT#3B Diviner 2000 Data

PROJECT NO.	DWN	CKD	APVD	REV
W23101449	KRR	TR		0

OFFICE	DATE
EBA-WHSE	November 30, 2011

Figure 76 and 77

EBA-Tt_Title_Block_8.5x11_Portrait.cdr

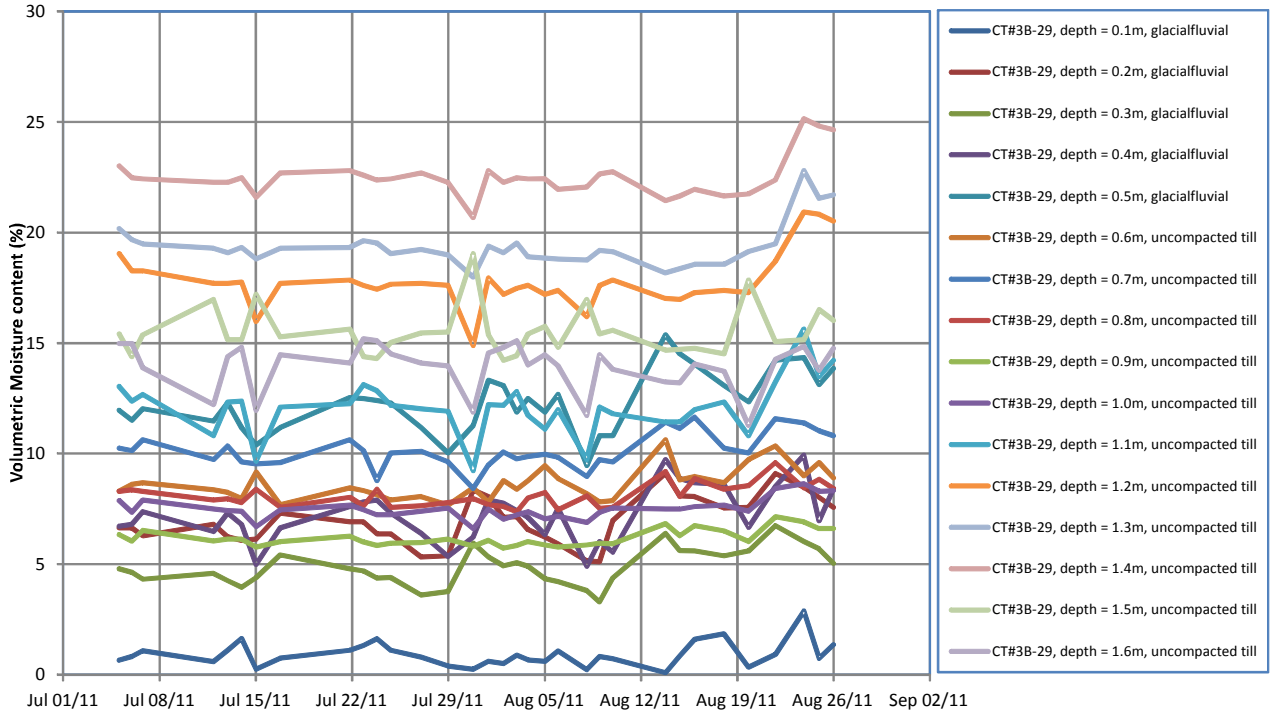

Figure 78: Diviner 2000 Volumetric Moisture Content data from CT#3B station 29.

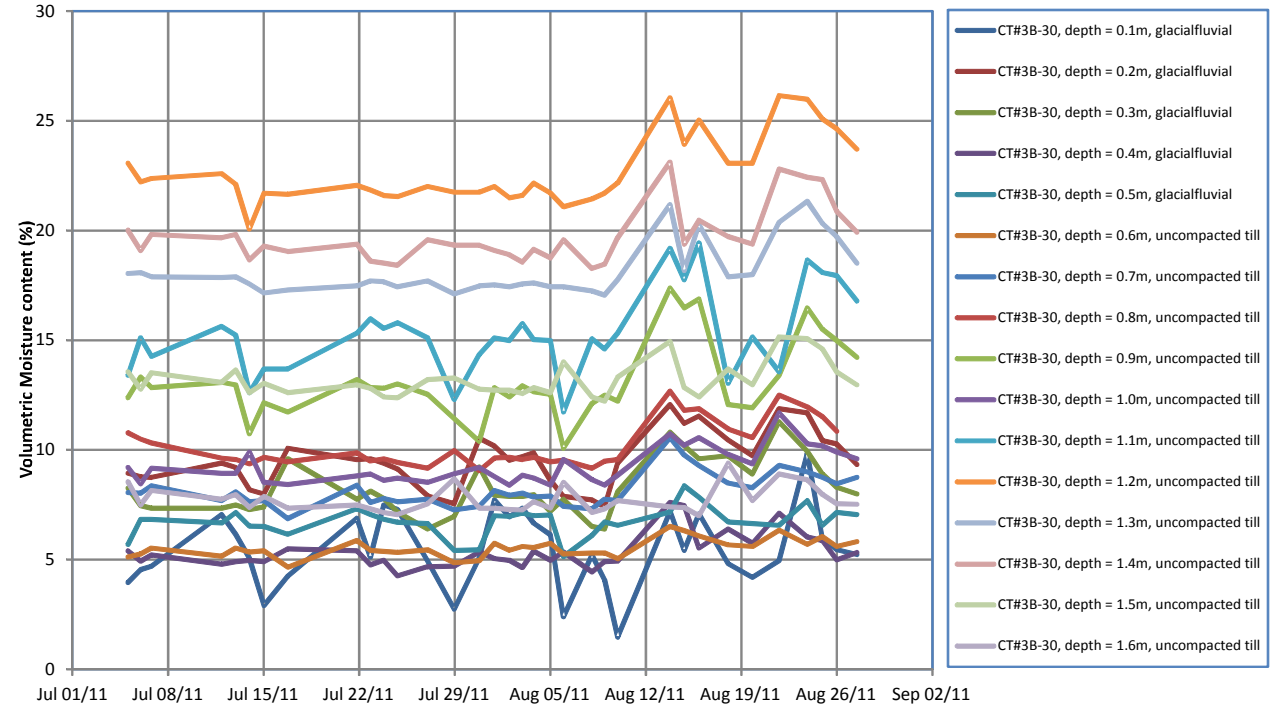

Figure 79: Diviner 2000 Volumetric Moisture Content data from CT#3B station 30.

LEGEND

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FARO INSTRUMENTATION RECOMMISSION AND DATA SUMMARY

CT#3B Diviner 2000 Data

PROJECT NO.	DWN	CKD	APVD	REV
W23101449	KRR	TR		0

OFFICE	DATE
EBA-WHSE	November 30, 2011

Figure 78 and 79

EBA-Tt_Title_Block_8.5x11_Portrait.cdr

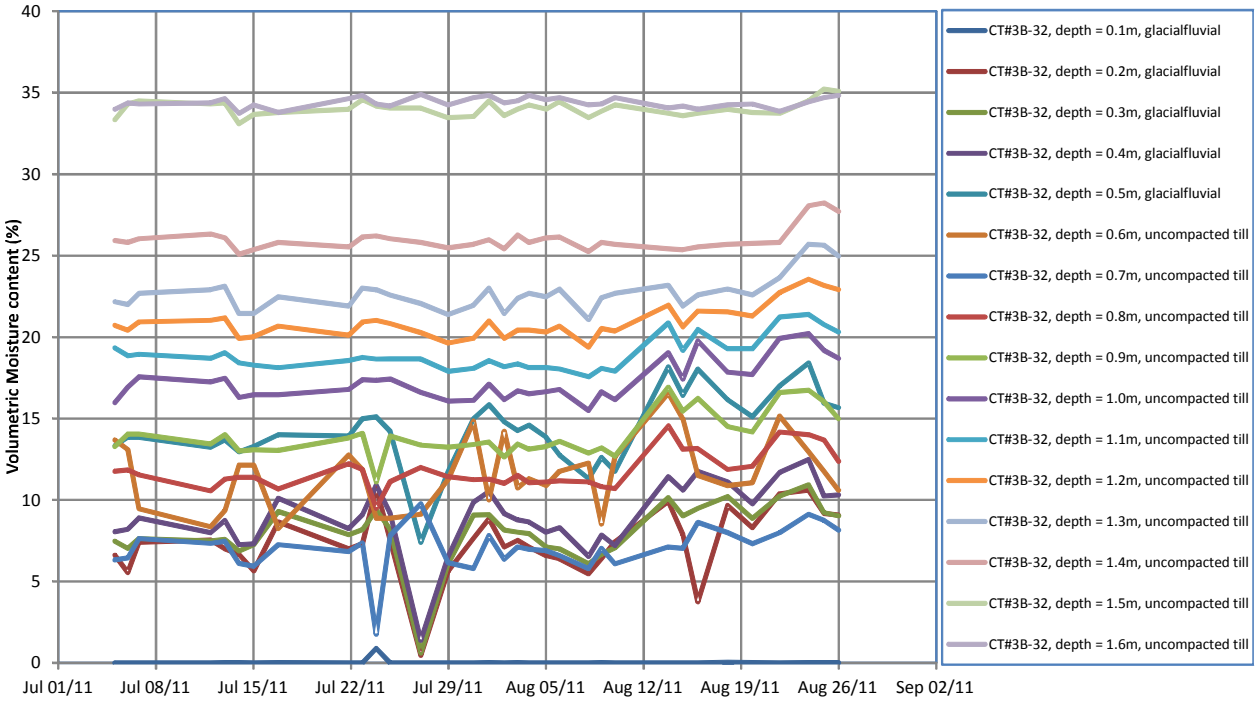

Figure 80: Diviner 2000 Volumetric Moisture Content data from CT#3B station 32.

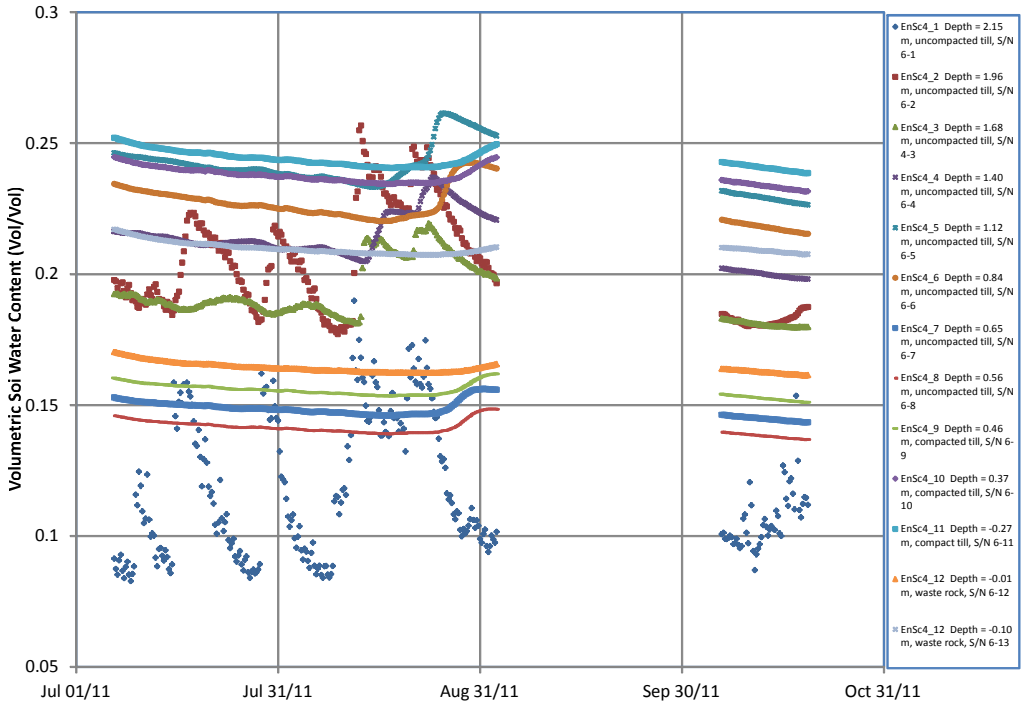

Figure 81: CT#4 Volumetric Soil Water Content from EnviroScan Probes.

LEGEND

NOTES

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FARO INSTRUMENTATION RECOMMISSION AND DATA SUMMARY

CT#3B Diviner 2000 and CT#4 Volumetric Water Content Data

PROJECT NO.	DWN	CKD	APVD	REV
W23101449	KRR	TR		0

OFFICE
EBA-WHSE

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November 30, 2011

Figure 80 and 81

EBA-Tt_Title_Block_8.5x11_Portrait.cdr

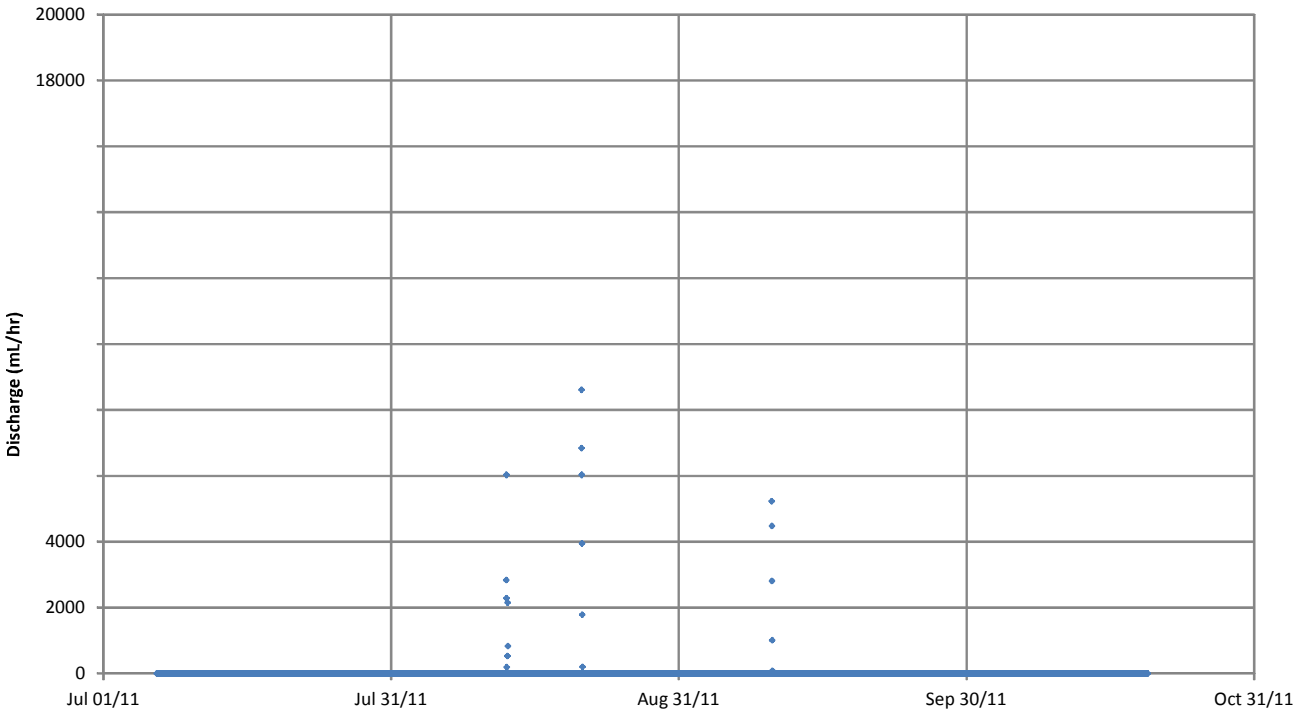

Figure 82: Tipping bucket data assumed to be CT#4 Surface flow.

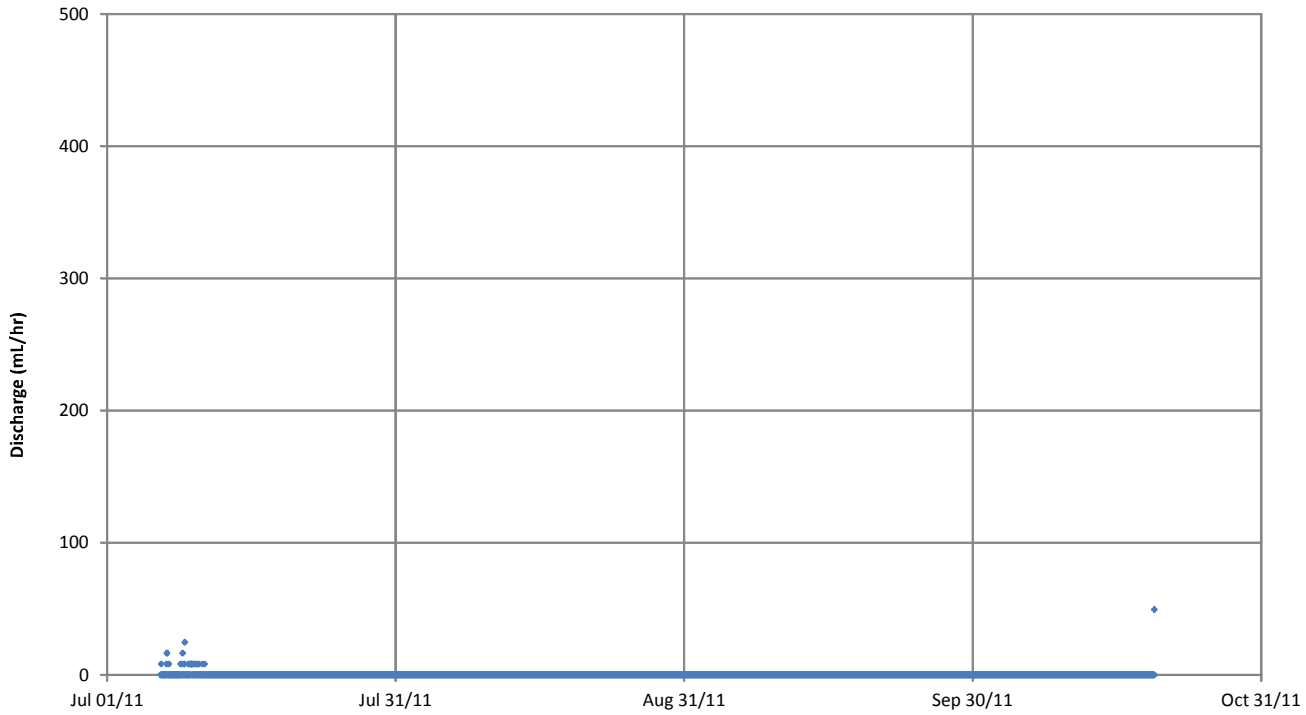

Figure 83: Tipping bucket data assumed to be CT#4 Interflow.

LEGEND

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FARO INSTRUMENTATION RECOMMISSION AND DATA SUMMARY

CT#4 Tipping Bucket Data

PROJECT NO.	DWN	CKD	APVD	REV
W23101449	KRR	TR		0

OFFICE	DATE
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Figure 82 and 83

EBA-Tl_Title_Block_8.5x11_Portrait.cdr

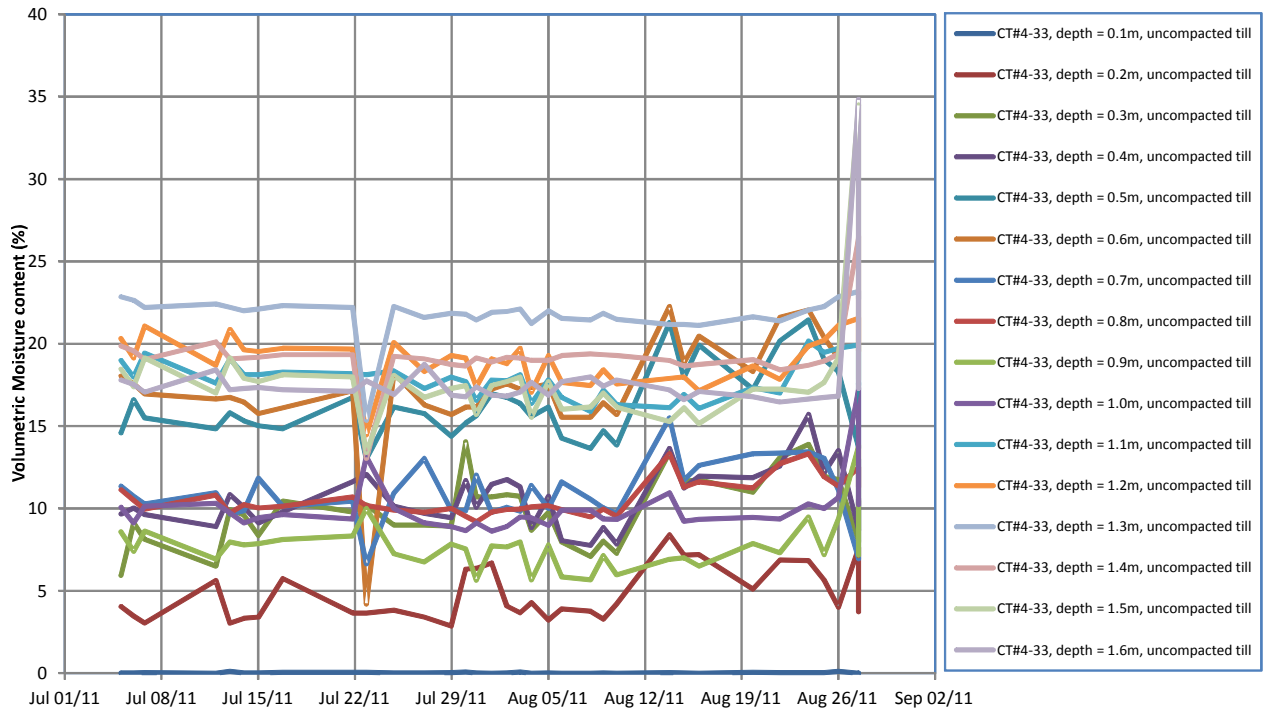

Figure 84: Diviner 2000 Volumetric Moisture Content data from CT#4 station 33.

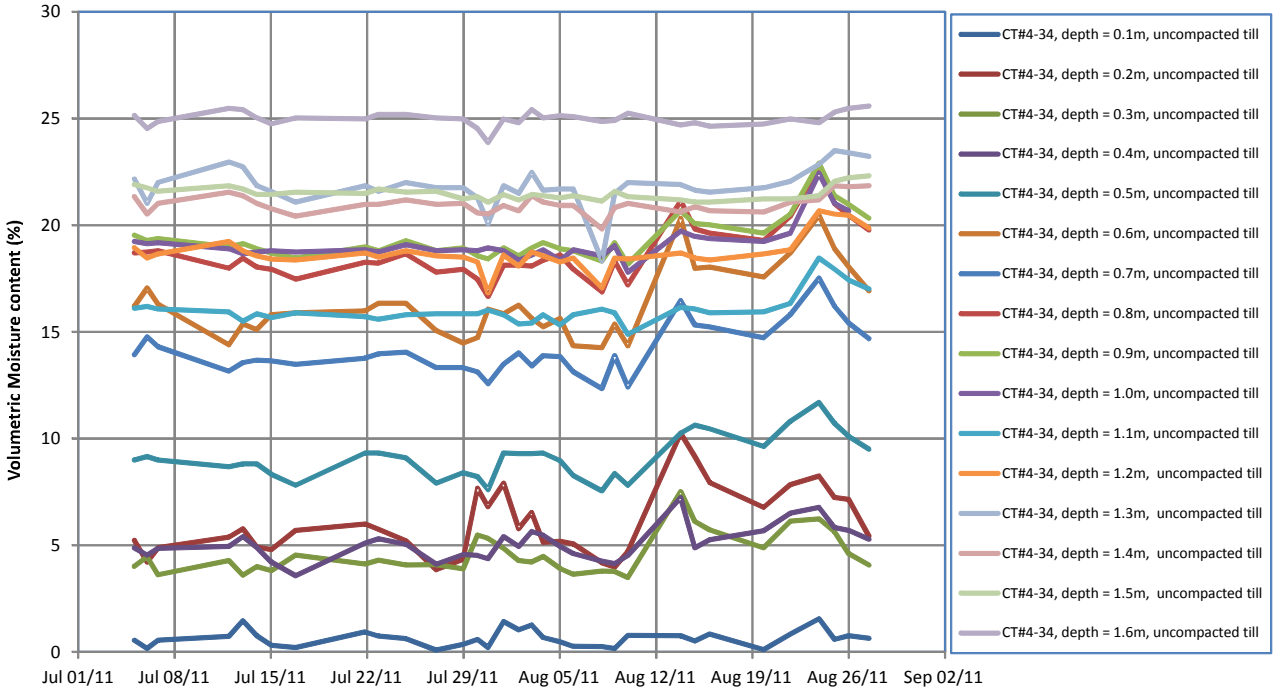

Figure 85: Diviner 2000 Volumetric Moisture Content data from CT#4 station 34.

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FARO INSTRUMENTATION RECOMMISSION AND DATA SUMMARY

CT#4 Diviner 2000 Data

PROJECT NO.	DWN	CKD	APVD	REV
W23101449	KRR	TR		0

OFFICE	DATE
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Figure 84 and 85

EBA-Tt_Title_Block_8.5x11_Portrait.cdr

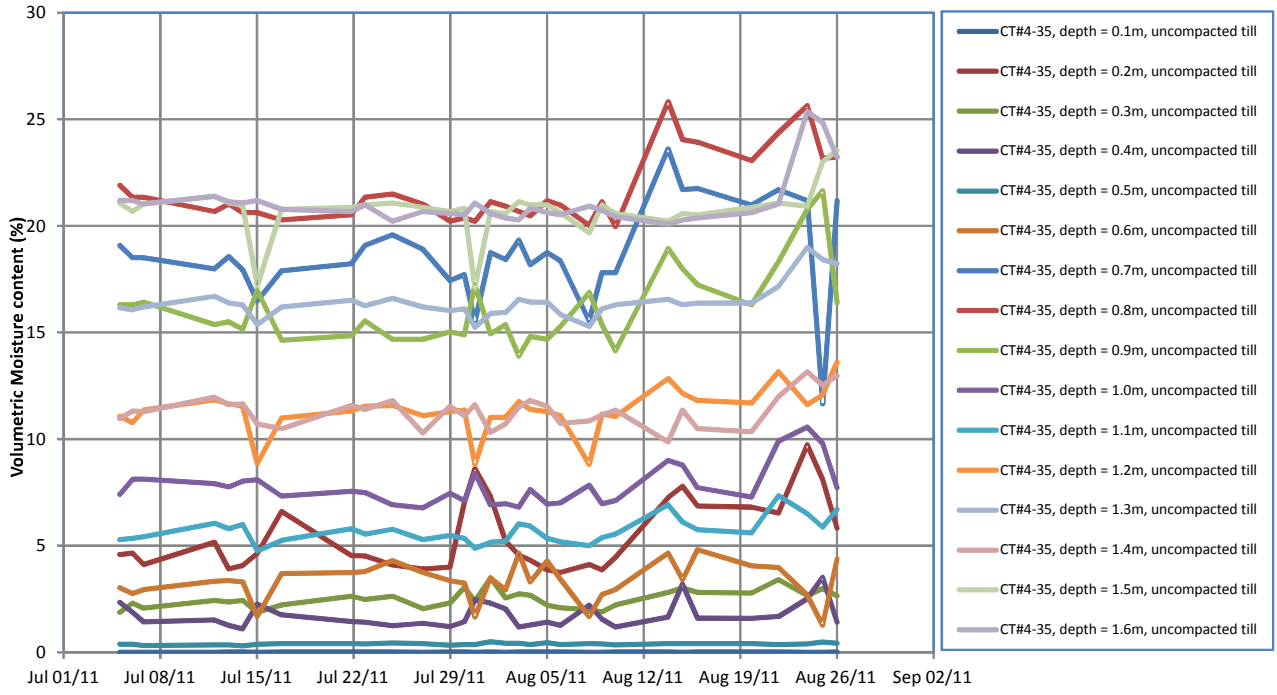

Figure 86: Diviner 2000 Volumetric Moisture Content data from CT#4 station 35.

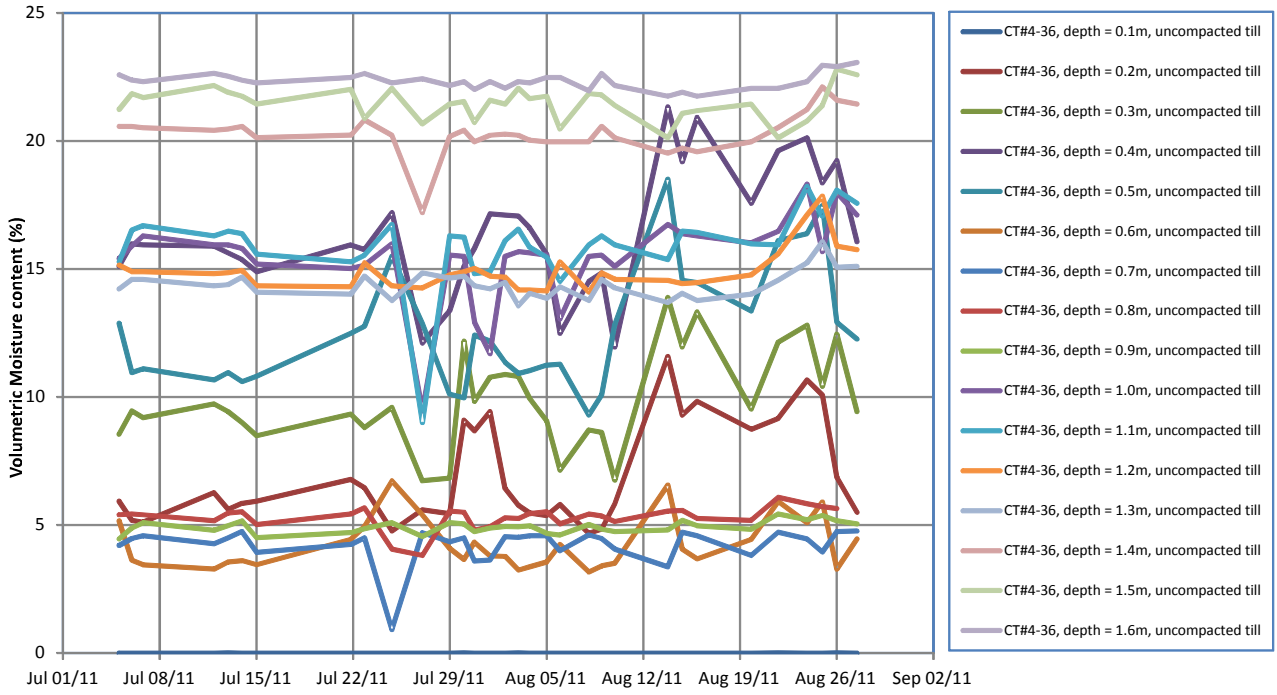

Figure 87: Diviner 2000 Volumetric Moisture Content data from CT#4 station 36.

LEGEND

NOTES

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CT#4 Diviner 2000 Data

PROJECT NO.	DWN	CKD	APVD	REV
W23101449	KRR	TR		0

OFFICE	DATE
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Figure 86 and 87

EBA-Tt_Title_Block_8.5x11_Portrait.cdr

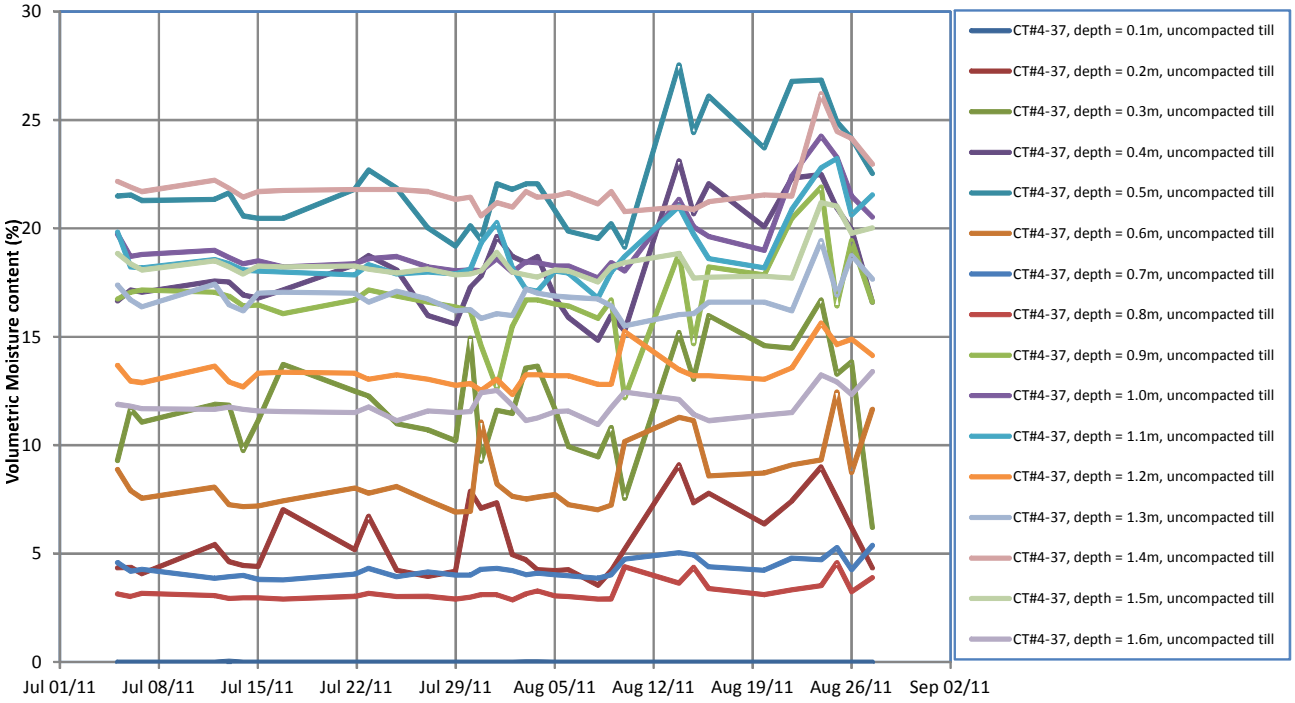

Figure 88: Diviner 2000 Volumetric Moisture Content data from CT#4 station 37.

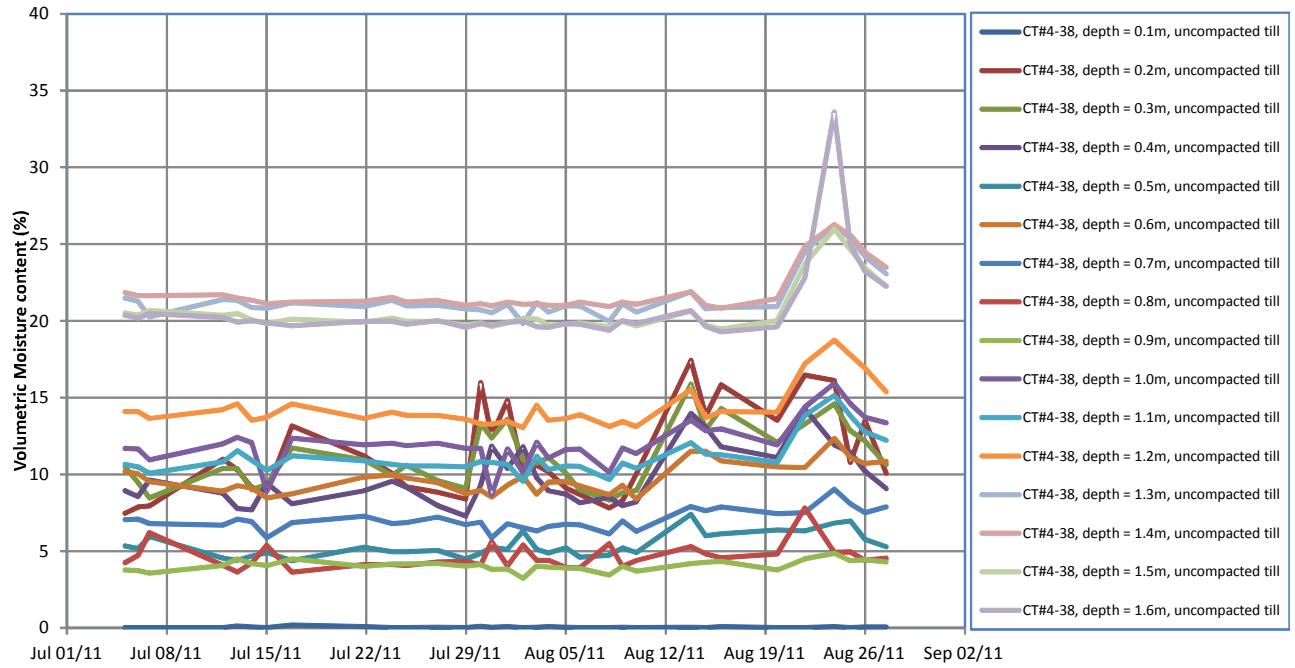

Figure 89: Diviner 2000 Volumetric Moisture Content data from CT#4 station 38.

LEGEND

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FARO INSTRUMENTATION RECOMMISSION AND DATA SUMMARY

CT#4 Diviner 2000 Data

PROJECT NO.	DWN	CKD	APVD	REV
W23101449	KRR	TR		0

OFFICE	DATE
EBA-WHSE	November 30, 2011

Figure 88 and 89

EBA-Tt_Title_Block_8.5x11_Portrait.cdr

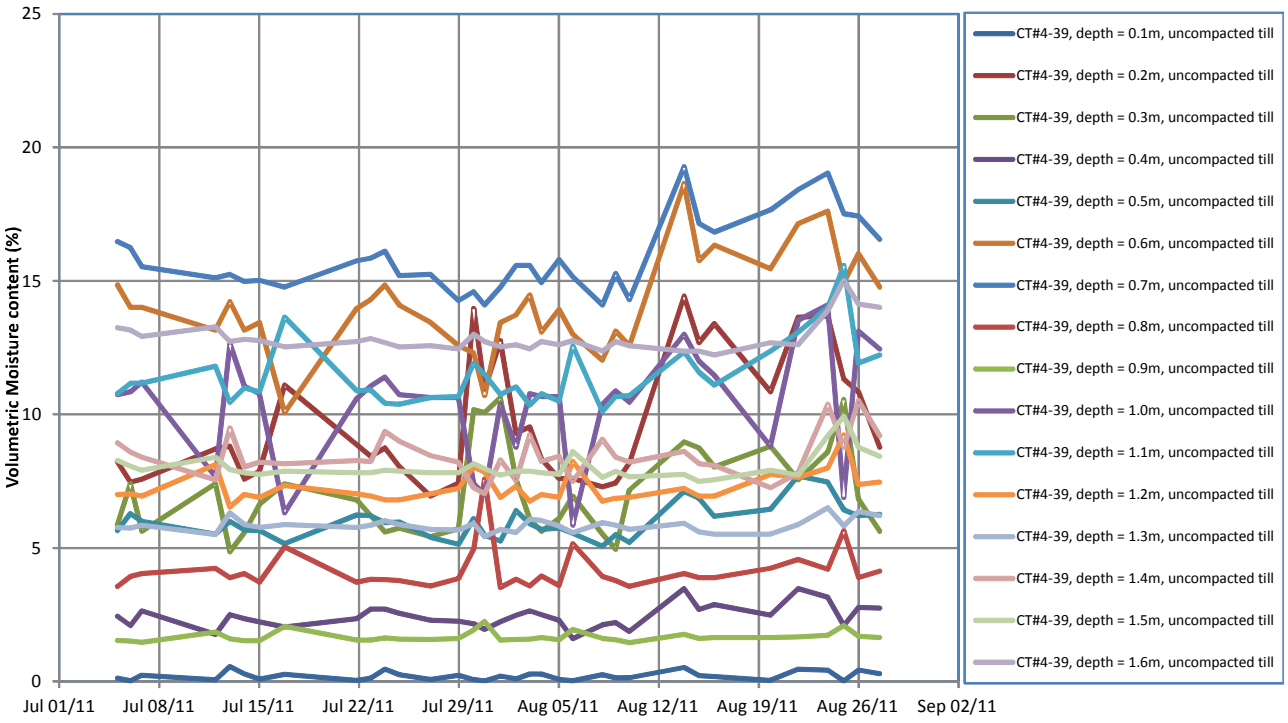

Figure 90: Diviner 2000 Volumetric Moisture Content data from CT#4 station 39.

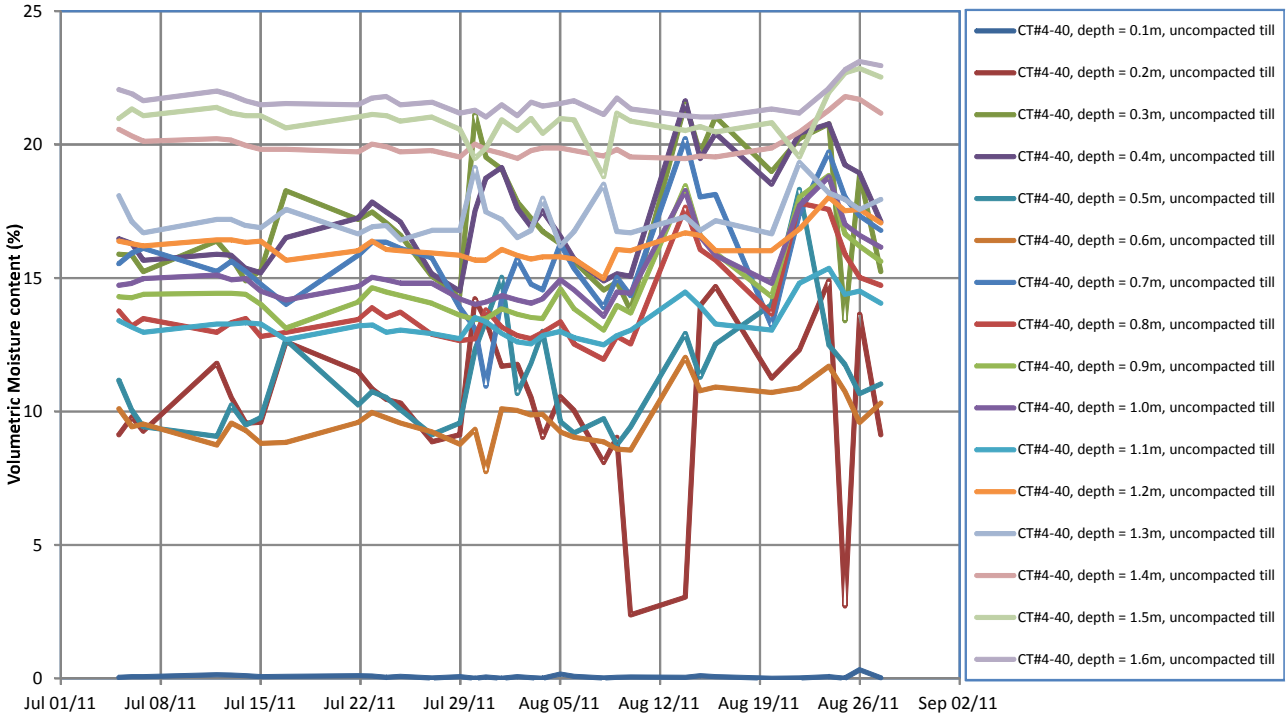

Figure 91: Diviner 2000 Volumetric Moisture Content data from CT#4 station 40.

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FARO INSTRUMENTATION RECOMMISSION AND DATA SUMMARY

CT#4 Diviner 2000 Data

PROJECT NO.	DWN	CKD	APVD	REV
W23101449	KRR	TR		0

OFFICE	DATE
EBA-WHSE	November 30, 2011

Figure 90 and 91

EBA-Tl_Title_Block_8.5x11_Portrait.cdr

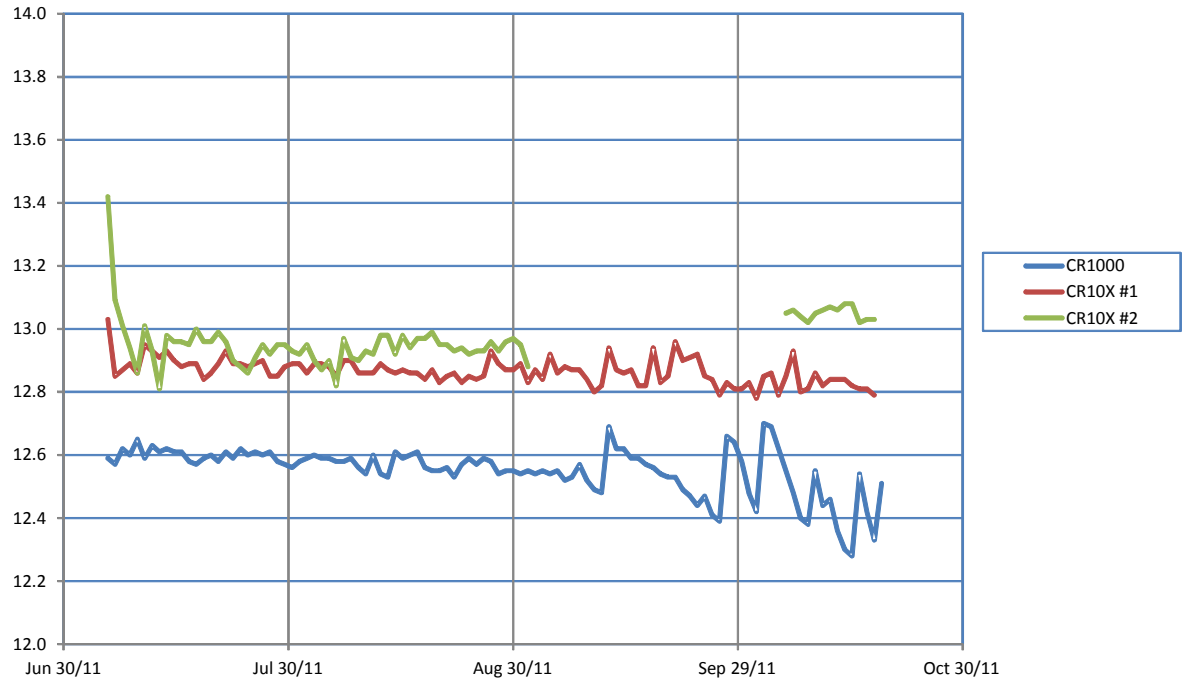

Figure 92: Battery Voltage from CR10X#1, CR10X#2, and CR1000.

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FARO INSTRUMENTATION RECOMMISSION AND DATA SUMMARY

Data logger Battery Voltages

PROJECT NO.	DWN	CKD	APVD	REV
W23101449	KRR	TR		0

OFFICE	DATE
EBA-WHSE	November 30, 2011

Figure 92

EBA-Tt_Title_Block_8.5x11_Portrait.cdr

PHOTOS

Photo 1	AM 16/32 Relay Multiplexer #1 located on the berm between CT#2A and CT#2B.
Photo 2	CT#2B located on the plateau of Vangorda Waste Rock Pile.
Photo 3	CR1000 data logger located in the Upper Monitoring hut.
Photo 4	SeaMetric turbine flowmeters and DL75 data loggers installed into the Lower Monitoring hut.
Photo 5	Davis Instruments Pro Vantage Weather Station located in CT#1.

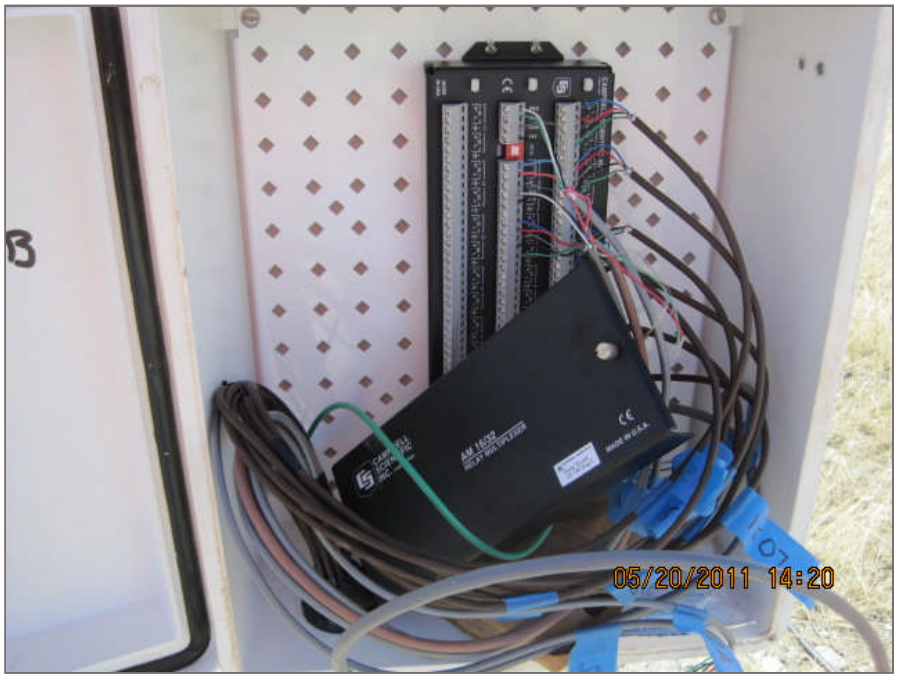

Photo 1: AM 16/32 Relay Multiplexer #1 located on the berm between CT#2A and CT#2B.

Photo 2: CT#2B located on the plateau of Vangorda Waste Rock Pile.

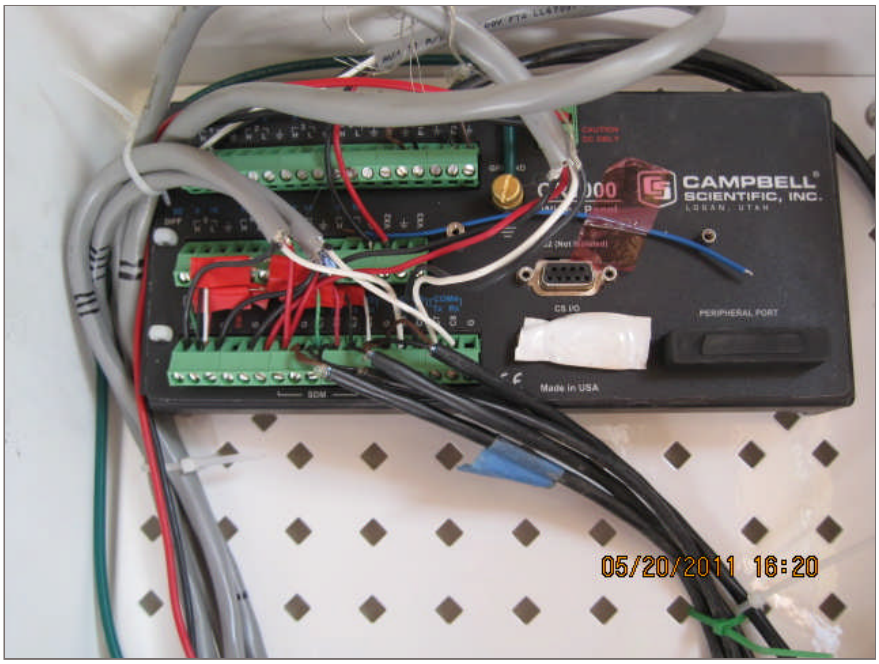

Photo 3: CR1000 data logger located in the Upper Monitoring hut.

Photo 4: SeaMetric turbine flowmeters and DL75 data loggers installed into the Lower Monitoring hut.

Photo 5: Davis Instruments Pro Vantage Weather Station located in CT#1.

APPENDIX A

APPENDIX A EBA'S GENERAL CONDITIONS

GENERAL CONDITIONS

GEO-ENVIRONMENTAL REPORT

This report incorporates and is subject to these “General Conditions”.

1.0 USE OF REPORT AND OWNERSHIP

This report pertains to a specific site, a specific development, and a specific scope of work. It is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site or proposed development would necessitate a supplementary investigation and assessment.

This report and the assessments and recommendations contained in it are intended for the sole use of EBA’s client. EBA does not accept any responsibility for the accuracy of any of the data, the analysis or the recommendations contained or referenced in the report when the report is used or relied upon by any party other than EBA’s Client unless otherwise authorized in writing by EBA. Any unauthorized use of the report is at the sole risk of the user.

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Where EBA submits both electronic file and hard copy versions of reports, drawings and other project-related documents and deliverables (collectively termed EBA’s instruments of professional service), only the signed and/or sealed versions shall be considered final and legally binding. The original signed and/or sealed version archived by EBA shall be deemed to be the original for the Project.

Both electronic file and hard copy versions of EBA’s instruments of professional service shall not, under any circumstances, no matter who owns or uses them, be altered by any party except EBA. The Client warrants that EBA’s instruments of professional service will be used only and exactly as submitted by EBA.

Electronic files submitted by EBA have been prepared and submitted using specific software and hardware systems. EBA makes no representation about the compatibility of these files with the Client’s current or future software and hardware systems.

3.0 NOTIFICATION OF AUTHORITIES

In certain instances, the discovery of hazardous substances or conditions and materials may require that regulatory agencies and other persons be informed and the client agrees that notification to such bodies or persons as required may be done by EBA in its reasonably exercised discretion.

4.0 INFORMATION PROVIDED TO EBA BY OTHERS

During the performance of the work and the preparation of the report, EBA may rely on information provided by persons other than the Client. While EBA endeavours to verify the accuracy of such information when instructed to do so by the Client, EBA accepts no responsibility for the accuracy or the reliability of such information which may affect the report.