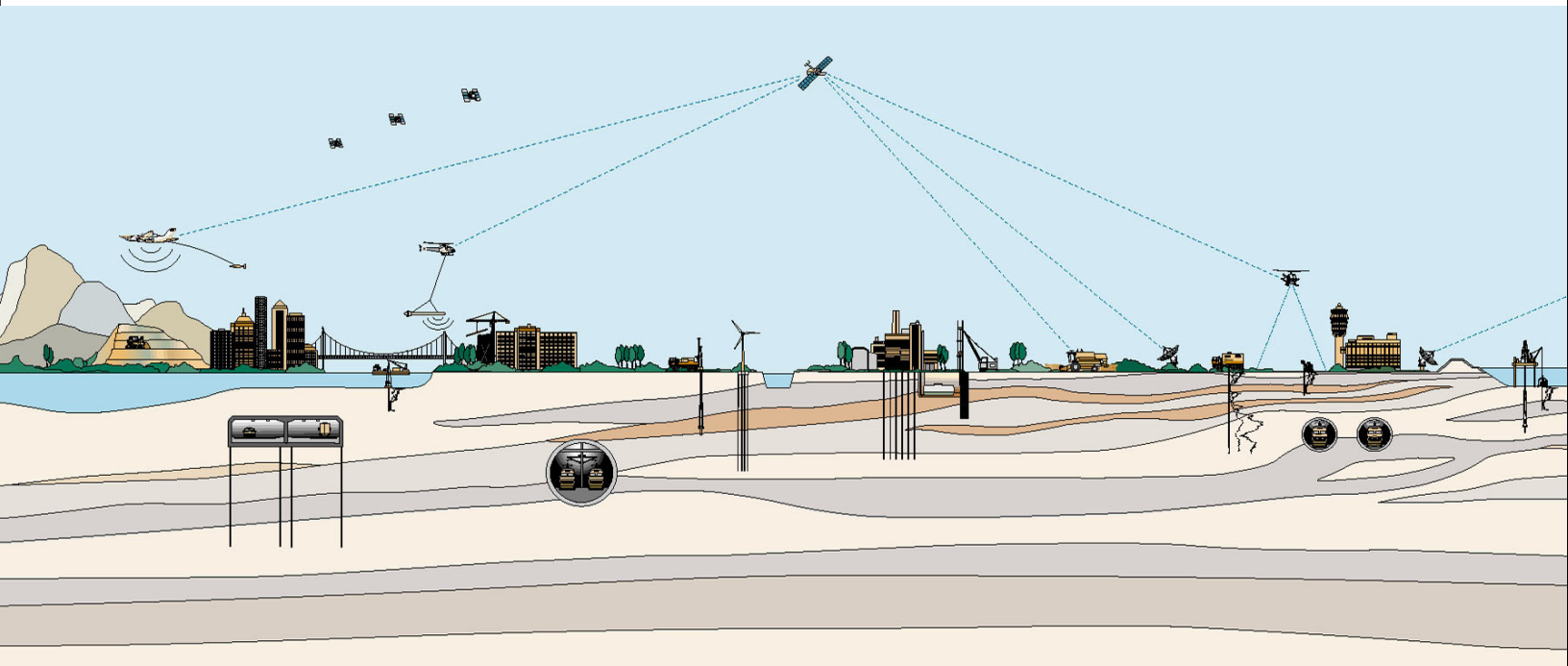
FUGRO CONSULTANTS, INC.

ANNUAL REPORT
JULY 2012 THROUGH JUNE 2013
BIG ROCK MESA LANDSLIDE
ASSESSMENT DISTRICT
MALIBU, CALIFORNIA

Prepared for:
City of Malibu

March 2014
Fugro Job No. 04.B3399006



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March 7, 2014
Project No. 04.B3399006

City of Malibu
23825 Stuart Ranch Road
Malibu, California 90265

Attention: Mr. Rob Duboux

Subject: Annual Report, July 2012 through June 2013, Big Rock Mesa Landslide Assessment District, Malibu, California

Dear Mr. Duboux:

Fugro is pleased to present the annual report for the Big Rock Mesa Landslide Assessment District. This report summarizes the monitoring and maintenance activities completed during the period of July 2012 through June 2013.

Fugro appreciates this opportunity to serve the City of Malibu and the District homeowners. Please contact Christopher Dean at (310) 456-2489, x306 or Todd Curtis at (310) 456-2489, x307 if you have any questions regarding this report.

Sincerely,

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1.0 INTRODUCTION

1.1 AUTHORIZATION

Fugro Consultants, Inc. (Fugro), performed the work summarized in this report in accordance with our contract with the City of Malibu (City) and consistent with the cost estimate document "Exhibit A - FY 2013-2014 Maintenance Cost Estimate" presented in the Annual Assessment Report (Taussig, 2013).

1.2 BACKGROUND

The Big Rock Mesa Landslide Assessment District (Assessment District) was established in 1989 by the County of Los Angeles (County) following the activation of the Big Rock Mesa landslide in 1983. The Assessment District provides permanent funding to maintain and monitor dewatering facilities with the purpose of reducing landslide movements. The County administered the Assessment District until 1991 when the City of Malibu (City) incorporated. The Assessment District was re-authorized in May 1998 under Resolution AD No. 98-030. The City has administered the Assessment District, utilizing consultants to maintain and monitor the district facilities.

1.3 SCOPE OF WORK

This annual report summarizes the current monitoring and maintenance of the geotechnical instrumentation and dewatering facilities for the period between July 1, 2012, and June 30, 2013 (hereinafter, the "monitoring period"). Fugro completed monitoring and maintenance activities summarized in this report.

Data collected during this monitoring period included the following:

- Annual Rainfall data from a local rain gauge at Big Rock Mesa, operated by the County of Los Angeles;
- Monthly groundwater level measurements from 28 standpipes and 16 pneumatic piezometers;
- Twice-monthly dewatering production readings from 23 dewatering wells;
- Monthly dewatering production readings from 31 horizontal drains (hydraugers);
- Quarterly ground deformation readings from 17 slope inclinometers (geotechnical instrumentation);
- Twice yearly ground deformation readings from 10 slope inclinometers;
- Monthly readings of water usage data from the Mesa's master flow meter; and
- Quarterly water-quality sampling and analysis for National Pollution Discharge Elimination System (NPDES) compliance.

The operating condition of the instrumentation and dewatering facilities was checked during each field monitoring/observation event and by evaluating preliminary data in the office as they were received. Maintenance was performed as needed based upon the field observations and preliminary data evaluation.

The scope of services includes monitoring and maintenance of the Assessment District facilities and annual reporting. The services provided on an annual basis for the Assessment District do not include an engineering evaluation of the stability of the landslide.

1.4 REPORT ORGANIZATION

This report summarizes the monitoring data collected during the current monitoring period and presents conclusions regarding the annual monitoring results. The location of the Assessment District is illustrated on Plate 1, Site Location Map. Locations of the geotechnical instrumentation and dewatering facilities are shown on Plate 2, Assessment District Map. Tabulated and graphic summaries of monitoring data are presented in Appendices A through E.

1.5 REPORT AVAILABILITY

The annual Assessment District reports are available for review at Malibu City Hall. Reports may also be viewed on the City's website at http://www.malibucity.org.

2.0 MONITORING

2.1 RAINFALL DATA

Rainfall totals were tabulated based on recorded values from the Los Angeles County Rainfall Station 1239 - located at Big Rock Mesa. A graph of historical monthly rainfall and average annual rainfall is shown on Plate 3, Malibu Area - Monthly & Average Annual Rainfall.

Rainfall data indicate that approximately 8.06 inches of precipitation fell during the monitoring period from July 2012 through June 2013. The average annual rainfall from 1968 to 2012 in the Malibu area for the monitoring period July through June is approximately 16.0 inches.

Rainfall data are usually analyzed in terms of the annual "rain season" that covers the time period October 1 through September 30. Rainfall for October 1, 2012, through June 30, 2013, was approximately 8.10 inches. This is approximately 50 percent of the average annual rainfall of 16.0 inches for the rain seasons of 1968 through 2012.

2.2 MASTER WATER METER

Water usage data are collected by performing monthly readings at the master water meter near the intersection of Rockport Way and Big Rock Drive. The master water meter measures all imported water supplied to the Big Rock Mesa area by Los Angeles County Waterworks District 29. Processed readings are shown as a plot of flow rate versus time on Plate 4. Analysis of the data indicates the following:

- The recorded water usage rates are cyclic throughout the monitoring year reflecting higher levels of usage during the summer months.
- The trend of increased water consumption since about 1995 was interrupted with the reduced landscape irrigation during the extended high rainfall in the spring of 2005, 2006, and again in the winter of 2011.
- As illustrated on Plate 4, there has been a general increasing trend in water usage since about 1995. Average water usage during the 2012 through 2013 monitoring year, approximately 170,000 gallons per day (gpd), is approximately 2.4 percent more than the 2011 through 2012 monitoring year average of 166,000 gpd.

2.3 GROUNDWATER LEVEL MONITORING

The groundwater monitoring data collected during the current monitoring period are summarized in Appendix A. Groundwater levels fluctuate throughout the year, and from year to year, in response to natural and man-made influences. The primary natural influence is varying precipitation. Man-made influences include:

- Percolation from septic systems;
- Percolation from irrigation;
- Alterations to surface drainage by grading, landscaping, storm drains, and rain gutters;
- Inadvertent water discharges from leaking utilities (water, irrigation, sewer, storm drain) and swimming pools; and
- Dewatering activities including pumping dewatering wells and hydraugers.

Groundwater levels were typically measured in monitoring wells and pneumatic piezometers on a monthly basis. Monitoring data and graphs illustrating groundwater levels recorded in monitoring wells and pneumatic piezometers for the six physiographic regions of the Big Rock Mesa landslide are presented in Appendix A. Groundwater elevation maps for May 8, 1995 and May 3, 2013 are shown on Plate 5a. A map of the differences in ground water elevation between May 8, 1995 and May 3, 2013 is shown on Plate 5b.

Typically, groundwater levels rise relatively quickly following significant rainfall and gradually lower after the wet season ends. Groundwater levels recorded in the Assessment District typically peak around late-March to mid-April and gradually decline through late September to November.

The groundwater data were analyzed by evaluating changes that occurred during the monitoring period as well as changes in groundwater levels compared to historical averages (1984 through 2012). To analyze trends in seasonal groundwater fluctuations, the average (mean) annual and highest annual recorded groundwater elevation for each piezometer were calculated (Appendix A) and summarize on the following table:

Table 1. Summary of Average Groundwater Elevations by Area

	Total No. of Wells	No. of Wells with High[1] GW	2012-13 Average Groundwater Elevation (ft)	Change in Average Groundwater from Prior Monitoring Period Average (ft)	Average Peak Groundwater Elevation (ft)	Change from Prior Year (Area Average) (ft)
PCH Region	8	1	8.4	-0.2	8.7	-1.1
Bluff Region	4	1	55.0	-1.8	58.4	-2.2
Eastern Mesa	3	0	101.0	-3.3	102.0	-5.7
Central Mesa	8	3	192.1	+2.5	194.5	-6.3
Western Extension	2	1	427.2	33.6	427.5	30.2
Headscarp Region	1	1	551.0	-0.9	551.8	-1.1

1. *Wells are reported with "High" groundwater when either the Mean or Peak groundwater elevation was greater than one foot higher than the mean of the long-term average elevations (See Appendix A for data).
2. Results affected by exclusion of SP-20 and SP-21 from data set.

A summary graph of normalized peak groundwater elevations of each of the six regions in Big Rock Mesa is presented on the bottom graph of Plate 6. The top graph on Plate 6 shows the average dewatering output (gpd) and the annual departure from the mean rainfall. The average annual rainfall used for the chart was computed using all of the data from 1988 through the present. This graph illustrates that, since 2010-2011, annual rainfall has been generally decreasing. During the same period, the average dewatering output has been gradually decreasing.

2.3.1 Pacific Coast Highway (PCH) Region

The PCH Region parallels the coastal highway at the base of the bluff, including the area between the bluff and the Pacific Ocean. The PCH Region includes the southern boundary of the 1983 landslide. The Shoreline fault and landslide rupture surface define both a zone of weakness and a groundwater barrier, extending approximately along the same alignment as the highway.

Groundwater in most of the PCH Region was close to or below average levels during the monitoring period. As noted in previous monitoring reports, standpipe SP-30 continues to show rising groundwater levels since the 1998 monitoring year. Groundwater levels in SP-11 continued to decrease from the previous monitoring period to more normal levels (pre 2009-2010).

2.3.2 Bluff Region

Along the Bluff Region, where intense ground cracking was observed during the 1983 landslide, the subsurface materials generally have a relatively high secondary permeability due to the level of fracturing.

Groundwater in the Bluff Region was somewhat lower than average during the monitoring period. Annual average groundwater levels at SP-32 have been generally increasing from 89.9 to 106.4 feet since the 2002 to 2003 monitoring period. Groundwater levels at SP-34 are significantly lower due to the installation of FW-2 in February 2010; current groundwater levels are approximately 7.6 feet below the previous monitoring period and approximately 35.5 feet below average, and are continuing to lower. Average groundwater levels increased slightly at two locations from the previous monitoring period, at SP-10 and SP-32 (1.1 and 1.6 feet respectively).

2.3.3 Eastern Mesa Region

The Eastern Mesa Region lies between the Bluff and Big Rock Mesa Drive east of the Piedra Chica cul-de-sac. Groundwater within this area occurs within low permeability deposits of the Sespe Formation.

Average groundwater levels for PC-1, SP-3, and SP-3A decreased from the previous monitoring period, except for the increase in groundwater level in SP-3 from 2010-2011 to 2011-2012. The groundwater data from SP-33 was not presented for the current monitoring year as the surface elevation for the well shown on the Assessment District Map (Plate 2) does not match the topography. Based on a review of the pneumatic piezometer readings for SP-33, the revised elevation data is inconsistent with anticipated groundwater levels. Groundwater levels have been generally decreasing since the installation of FW-1 in May 2008.

2.3.4 Central Mesa Region

The Central Mesa Region lies between the Bluff and Big Rock Mesa Drive and to the west of the Piedra Chica cul-de-sac. Groundwater within this area generally occurs within moderately permeable landslide deposits derived from the Topanga Formation.

The groundwater levels were somewhat higher than long-term average during the monitoring period for SP-9A, SP-16A, and SP-35. SP-16A has shown a significant increase in groundwater levels over the previous monitoring period; however, the groundwater within this well historically exhibits significant fluctuations and is significantly lower than the levels recorded between 2004 and 2010.

2.3.5 Western Extension Region

The Western Extension Region encompasses approximately 79 acres, from PCH on the south to the upper ridgeline on the north, immediately west of the 1983 Big Rock Mesa landslide area.

Mean and high groundwater levels in this area reflect significant changes since the previous monitoring period, particularly due to the exclusion of data from SP-20 and SP-23 from the data set for the monitoring period. Groundwater level data for SP-20 and SP-23 from May 2012 through the end of the reporting year is inconsistent with anticipated groundwater levels. The apparent reason for the inconsistency appears to be a combination of factors including the

use of a new groundwater sounder, data entry, and false positive readings due to residual moisture from seepage or other sources.

Groundwater levels at SP-20 have been increasing since 1995 at an average rate of about 4 feet per year. Groundwater levels have not returned to pre-2005 or pre-1998 levels.

Groundwater levels at SP-21 have increased since the 1997-98 monitoring period by about 2 feet per year. Groundwater levels have not returned to pre-2005 or pre-1998 levels.

Groundwater levels at SP-22 have increased since the 1997-98 monitoring period by less than 0.5 foot per year; however groundwater levels are below those observed during 2005 reflecting a more recent decreasing trend of about 1 foot per year.

Groundwater levels at SP-23 have been increasing since 2000 at an average rate of about 2 feet per year. Groundwater levels have not returned to pre-2005 or pre-1998 levels.

2.3.6 Headscarp Region

The ground surface elevation in the Headscarp Region is higher than other regions in Big Rock Mesa, and groundwater is relatively deep. The average groundwater elevation in SP-26 is higher than the historical average (1986 through 2011). Groundwater levels have not returned to pre-2005 or pre-1998 levels, but the average groundwater level for the current monitoring period is approximately 0.9 feet lower than the previous monitoring period.

2.4 DEWATERING WELL PRODUCTION

The total production rate for all dewatering wells from 1984 through June 2013 is depicted on Plate 4. Dewatering well production rates for individual wells are presented on Plates B-1 through B-4 (Appendix B).

The average total well production rate for the monitoring period was approximately 47,555 gpd. This is approximately less than 1.0 percent more than the previous year's monitoring period value of 47,539 gpd, and below historical average production of 55,218 gpd measured from 1993 to the present.

2.5 HYDRAUGER PRODUCTION

The total production rate for all hydraugers from 1993 through June 2013 is depicted on Plate 4. Additional data regarding hydraugers and production rates are presented in Appendix C, Plates C-1 through C-4.

The average total hydrauger production rate over the monitoring period was approximately 11,718 gpd. This represents a 33 percent decrease in production relative to the previous monitoring period (17,569 gpd). Hydraugers produced below historical average volumes of water throughout the monitoring period. Because hydraugers rely on gravity and water pressure (related to elevating groundwater table) for water production, generally hydraugers produce lower volumes during lower rainfall periods.

2.6 SLOPE INCLINOMETERS

Fugro monitored 17 slope inclinometers on a quarterly basis and 10 additional inclinometers on a semi-annual basis to measure subsurface ground deformation through June 2013.

Slope inclinometer measurement plots are presented in Appendix D. Two slope inclinometer plots are prepared for all inclinometer installations. The first data plot for each slope inclinometer presents readings recorded during the monitoring period. The date of the baseline reading is generally the last reading of the previous monitoring period (May or June 2012) and is indicated on each plot. The second data plot has a baseline reading from May or June 2005 to show historical readings since the movement indicated in the 2004 through 2005 monitoring year.

Interpretation of inclinometer data shows measurable ground movement in only 2 of the 29 inclinometers monitored during the 2012 through 2013 monitoring period. SP-11 shows a change of 0.1 inch from the surface to a depth of 25 feet; and SP-33 shows a cumulative change of 0.20 inch at the ground surface. These two wells penetrate the basal rupture surface of the landslide. Several wells show some change (<0.1 inch), but the potential movement magnitude and orientation is not clear and is not within the reliable accuracy of the instrument.

A brief summary of each region is presented below and is summarized on Plate D-1. It is important to keep in mind the high sensitivity of the inclinometer probes and the magnitude of the interpreted movements when reviewing the inclinometer data presented in this report. Plate D-1 notes the depths at which movement has been interpreted in the past, as well as whether the inclinometer penetrates the basal rupture surface. Shallower depths of historically interpreted movement above the base of the Big Rock Mesa Landslide have also been noted.

2.6.1 PCH Region

The PCH Region extends along PCH in proximity of the southern boundary of the 1983 landslide. SP-11 shows a change of 0.1 inch from the surface to a depth of 25 feet during the monitoring period. The remaining wells in the region show slight offsets that are below the level of instrument accuracy.

2.6.2 Bluff Region

The Bluff Region extends along the top of the slope immediately to the north of the PCH Region where intense ground cracking was observed during the 1983 landslide. No distinct offsets within the seven inclinometers in the Bluff Region were observed.

2.6.3 Eastern Mesa Region

The Eastern Mesa Region extends west to the ends of Inland Lane and Piedra Chica cul-de-sac. This area is bordered to the north by Big Rock Drive and to the south by the Bluff Region. No distinct offsets along clearly defined shear planes within the four inclinometers in

the Eastern Mesa Region were observed; however SP-33 showed cumulative movement of about 0.2 inch measured at the ground surface.

2.6.4 Central Mesa Region

The Central Mesa Region is located between the Bluff and Big Rock Mesa Drive and to the west of the Piedra Chica cul-de-sac. No distinct offsets within the seven inclinometers in the Central Mesa Region were observed.

2.6.5 Western Extension Region

The Western Extension Area encompasses approximately 79 acres, from PCH on the south to the upper ridgeline on the north, immediately west of the 1983 Big Rock Mesa landslide area. No distinct offsets within the four inclinometers in the Western Extension Region were observed.

2.6.6 Headscarp Region

The Headscarp Region borders the Central Mesa Region to the north. Typically within the Assessment District, SP-26, the only inclinometer in this region is first to move and the last to cease movement in response to heavy rainfall. No distinct offsets within SP-26 in the Western Extension Region were observed. Past movement has occurred along the identified slide plane between a depth of 120 and 130 feet and from shallow depths of 25 and 45 feet reflecting a smaller "headscarp" landslide.

2.7 WATER QUALITY MONITORING

2.7.1 Regional Board Requirements

Water quality monitoring was completed in general compliance with the NPDES permit, as required by the California Regional Water Quality Control Board (RWQCB).

On March 2, 2004, the RWQCB issued General NPDES permit CAG994004, Order No. R4-2003-011. On October 3, 2008, Order No. R4-2003-0111 was superseded by Order No. R4-2008-0032 providing revised requirements for sampling and analysis. Residual chlorine was not sampled until the end of the second quarter 2010. A revised permit was issued to the City in October 2010 requiring all sites to be sampled monthly for all constituents, except for Acute Toxicity, which is sampled annually.

Fugro completed quarterly sampling under the revised permit. The data collected and reports submitted are presented in Appendix E.

Water produced by dewatering wells and hydraugers is discharged to one of several storm-drain conveyance lines. Usually, several wells and hydraugers discharge to each storm-drain line. Other sources of water are also collected by the storm-drain system including storm water runoff (during and following precipitation), irrigation runoff, domestic use surface runoff

from car washing and hosing off of driveways, illicit discharges, groundwater seepage, and other possible unidentified sources.

Prior to 2004, samples were collected from storm drain outlets. In November 2004, sampling locations were changed prior to fourth quarter collection of the 2004 monitoring year because the samples collected from storm drains represent discharge from uncontrolled sources in addition to dewatering discharge. The samples are currently collected directly from the dewatering system discharge lines (wells and hydraugers). This change in sampling methodology should be noted when comparing recent water quality data to data collected before the 2004 through 2005 monitoring period.

2.7.2 Water-Quality Results

Results of water quality sampling and analyses for the monitoring period are presented in Appendix E. Water quality monitoring conducted in general conformance with the requirements of the RWQCB NPDES Permit indicated that all monitored discharges during the monitoring period were in compliance except for sulfides during the second quarter of 2013. Historically, discharges from the dewatering wells and hydraugers generally meet discharge requirements; however, they have been periodically out of compliance for pH, residual chlorine, acute toxicity, and settleable solids.

3.0 CAPITAL IMPROVEMENTS

3.1 SLOPE INCLINOMETER

A new inclinometer, SI-17B, was installed in September 2012 in the Central Mesa Region of the Assessment District. The well is 250 feet in depth, and it penetrates the basal rupture surface of the landslide. The inclinometer was installed as a replacement for inclinometers SP-17 and SP-17A, which were non-functional during the monitoring period.

3.2 FACILITY MAINTENANCE

The operating status of each dewatering well and hydrauger was checked monthly. When necessary, repair work was scheduled and undertaken as expeditiously as reasonable - typically within a matter of a few hours to a few days of identifying a problem. Generally, repairs and maintenance consisted of brush clearance, cleaning, well pump and electrical repairs. These repairs are summarized on the following table:

Table 2. Maintenance Activities

Date	Facility	Work Performed
7/3/2012	BYA-5	Brush clearance around well box
7/5/2012	BYA-4	replaced meter and recalibrate
7/9/2012	HD-43	fixed broken pipe
7/10/2012		Brush clearance
7/12/2012	BYA-5	painted well box
7/13/2012	FW-2	cleaned meter and connections at pump saver
7/16/2012	HD-12,7	fixed broken pipes
7/27/2012		Well maintenance
8/1/2012	BYA-4,14,and w-13	Cleaned well boxes
8/6/2012		Cleaned meters
8/9/2012	HD-43	fixed broken pipe
8/13/2012		fixed broken pipe
8/21/2012	HD-28,29	fixed broken pipe
9/4/2012	BYA-6	fixed broken pipe
9/7/2012		Brush clearance
9/10/2012		Brush clearance
9/11/2012	BYA-7	fixed broken pipes at meter
9/17/2012	SP-17b	observation of slope inclinometer install
9/18/2012	SP-17b	observation of slope inclinometer install
10/1/2012	BYA-10	cleaned meter
10/8/2012	BYA-14,13,and W-2	discharge line repair
11/14/2012		fixed broken hydauger
11/27/2012	BYA-11	diagnose broken pump
12/4/2012		Brush clearance
12/7/2012	HD-4	dirt removal around pipe
1/4/2013		fixed broken pipe
1/11/2013		Well maintenance
1/16/2013	HD-28,29	fixed broken pipe
1/17/2013	BYA-1	recalibration
1/18/2013		Well maintenance
1/21/2013		hydauger maintenance
1/25/2013		hydauger maintenance
1/31/2013		hydauger maintenance
2/11/2013		hydauger maintenance
2/15/2013	hd-43	fixed broken pipe

Table 2. Maintenance Activities

Date	Facility	Work Performed
2/20/2013		brush clearance
3/5/2013	BYA-2,W-1	cleaned meters
3/6/2013	HD-9	brush clearance
3/8/2013	BYA-5	Diagnose and removed meter
3/11/2013	BYA-5	cleaned and fixed meter
3/18/2013	BYA-1,BYA-9	BYA-1,BYA-9
3/21/2013	BYA-1,BYA-9	BYA-1,BYA-9
3/26/2013		brush clearance
3/27/2013		brush clearance
3/28/2013		fixed broken pipe
4/5/2013		cleaned meters
4/11/2013	FW-1	fixed pipes
4/15/2013		cleaned meters
4/23/2013		cleaned meters
5/15/2013	FW-1	observation of pump replacement
5/16/2013	FW-1	cleaned meter and calibration
6/10/2013		cleaned meters
6/24/2013		Well maintenance

4.0 SUMMARY AND CONCLUSIONS

4.1 ANNUAL SUMMARY

The status of the Big Rock Mesa Landslide Assessment District can be summarized as follows:

- The groundwater level in the Big Rock Mesa landslide is the primary factor controlling the stability of the landslide mass. Rises in groundwater level tend to destabilize the landslide. Previous episodes of movement of the landslide have been directly related to high groundwater levels. Therefore, controlling the long-term average and peak groundwater levels in the landslide mass is the primary means available to reduce future movements of the landslide. The primary factors influencing recharge of groundwater to the landslide are: 1) Septic discharge, 2) Rainfall, 3) Irrigation, and 4) Water-line and pool leakage.
- Monitoring data related to rainfall and imported water usage indicate the following:
    - This year's rainfall was well below average with 8.06 inches of precipitation. Rainfall during the monitoring period was below the historical average of 16.0 inches per year measured from 1968 through 2012.

  - Use of imported water increased approximately 2.4 percent from the previous monitoring year (170,000 gpd vs 166,000 gpd) and is 45 percent above the average usage in 1984 (117,400 gpd).

- Groundwater levels in 29 monitoring wells were measured regularly during the monitoring period. Average groundwater levels and/or peak groundwater levels measured during the monitoring period were more than 1 foot above long term average groundwater levels for 9 of the 28 wells and piezometers.
- Groundwater levels in the western region reflect a long term trend of increasing groundwater levels. This area of approximately 79 acres is dewatered by two wells and six hydraugers; however, over sixty percent of the production is provided by one well W-18.
- Groundwater levels in SP-30 along Pacific Coast Highway reflect a long term trend of increasing groundwater levels. No dewatering facilities have been constructed along Pacific Coast Highway.
- The average total well production rate for the monitoring period was approximately 47,555 gpd. This is less than 1.0 percent increase compared to the previous year's monitoring period value of 47,539 gpd, and below historical average production of 55,218 gpd measured from 1993 to the present.
- Interpretation of inclinometer data shows measurable ground movement in only 2 of the 27 inclinometers monitored during the 2012 through 2013 monitoring period. SP-11 shows a change of 0.1 inch from the surface to a depth of 25 feet. SP-33 shows a change of 0.20 inch at the ground surface. These two wells penetrate the basal rupture surface of the landslide. Several wells show some change (<0.1 inch), but the potential movement magnitude and orientation is not clear and is not within the reliable accuracy of the instrument.
- A new inclinometer, SI-17B, was installed in September 2012 in the Central Mesa Region of the Assessment District as a replacement for SI-17 and SI-17A. The well is 250 feet in depth, and it penetrates the basal rupture surface of the landslide.
- Water quality monitoring, conducted in general conformance with the requirements of the RWQCB NPDES Permit, indicate that discharges from the dewatering wells and hydraugers were generally in compliance with discharge permit limits.
- Routine maintenance was conducted throughout the year on the dewatering wells and hydraugers. Ongoing maintenance and repair work is essential to maintaining the capacity of the dewatering system. No unusual maintenance issues were encountered.

4.2 CONCLUDING COMMENTS

It is important to recognize that the dewatering facilities installed over the preceding decades are aging and require increasing maintenance and regular replacement. The anticipated lifespan of an average hydrauger is measured in years, not decades. Dewatering

wells may last from a few years to several decades. In order to maintain peak efficiency of the horizontal drains and wells, cleaning and re-development of the dewatering system should be conducted on a regular basis.

Particularly, the combination of increasing groundwater levels and limited production and redundancy of dewatering facilities in the western region is of primary concern. All dewatering facilities within this region should be reviewed on an individual basis and repaired or replaced as necessary in an effort to help reverse the current trend of groundwater level increase.

The geology throughout the Assessment District is not uniform and varies from one location to another. Areas of low permeability, such as in the Eastern Mesa Region, can limit the dewatering production of individual facilities.

Water conservation throughout the Big Rock Mesa area is essential to reduce groundwater recharge. As previously stated, rainfall and imported (household) water usage are the primary sources of groundwater recharge and are the primary factors controlling the movement of the landslide. Seasonal rainfall is beyond the control of homeowners and the City, therefore, water conservation is the most critical remaining means of controlling groundwater recharge on the Mesa.

5.0 REFERENCES

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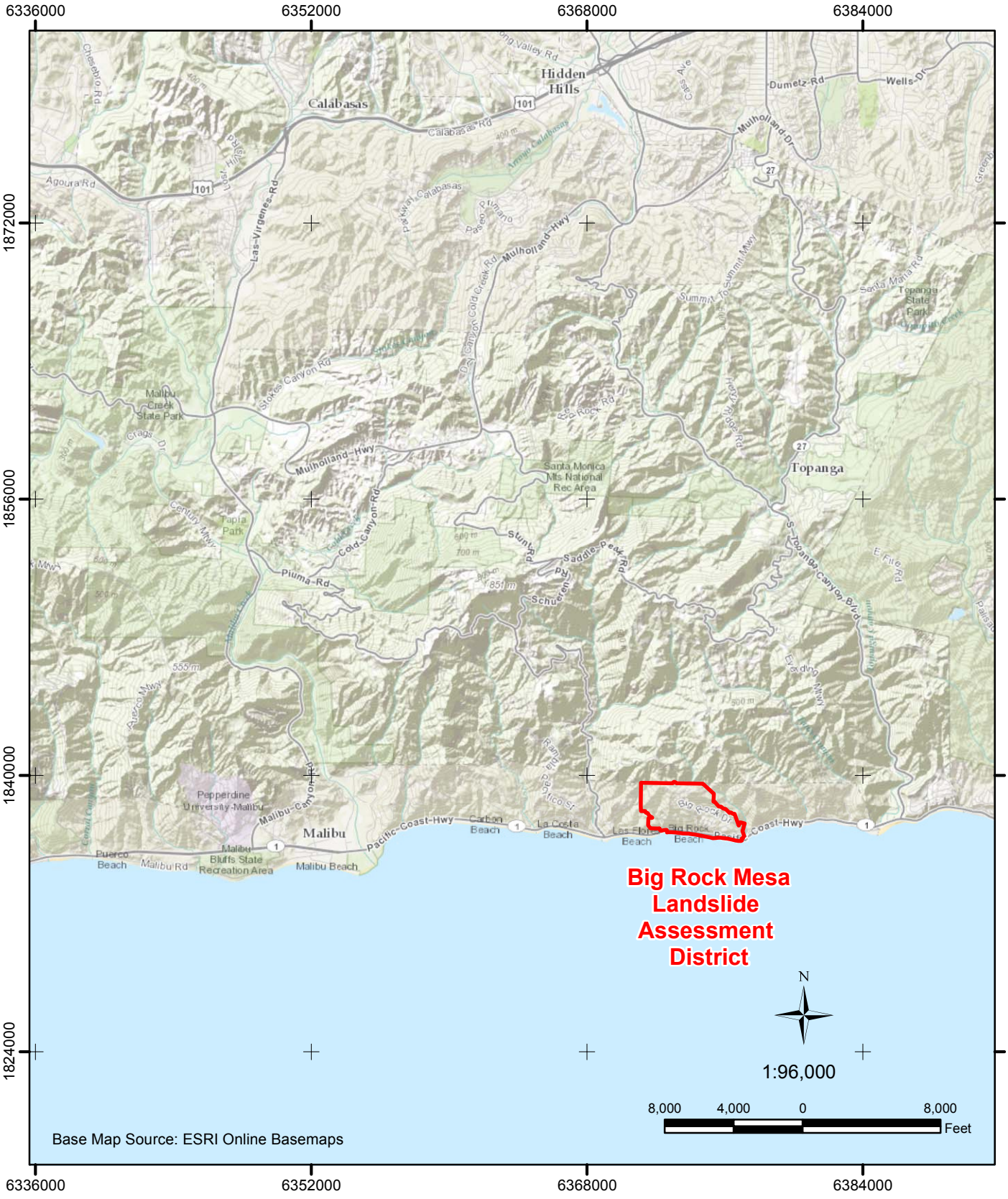
PLATES



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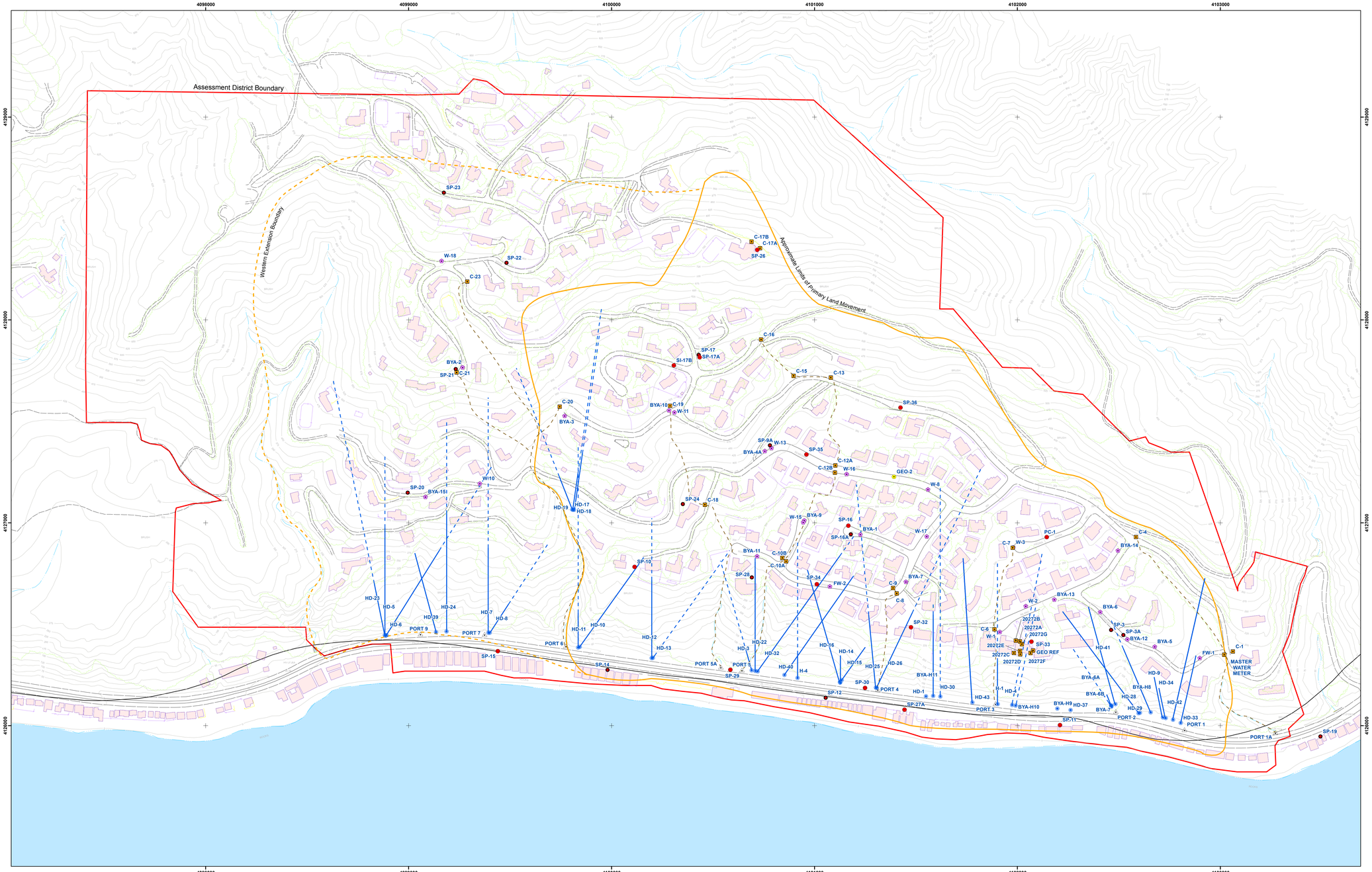
SITE LOCATION MAP
Big Rock Mesa Landslide Assessment District
Malibu, California

PLATE 1



BIG ROCK MESA LANDSLIDE ASSESSMENT DISTRICT MALIBU, CALIFORNIA

ASSESSMENT DISTRICT MAP

March 2014

FUGRO CONSULTANTS, INC.
4820 McGrath St., Suite 100, Ventura, California 93003
Tel: (805) 650-7000, Fax: (805) 650-7010

LEGEND

- Dewatering Well
- Slope Inclinometer that does not Penetrate Rupture Surface
- Slope Inclinometer that does Penetrate Rupture Surface
- Piezometer
- GPS Monument
- Hydrauger
- Storm Drain Outfall
- Catch Basin
- Hydrauger
- Approximate Limits of Primary Land Movement
- Western Extension Boundary
- Big Rock Mesa Landslide Assessment District Boundary
- Storm Drain
- Trees/Brush
- Streams
- Building
- Coordinate Grid: California State Plane, Zone 7, NAD 27, Feet
  Vertical Datum: NAVD88 Feet

N

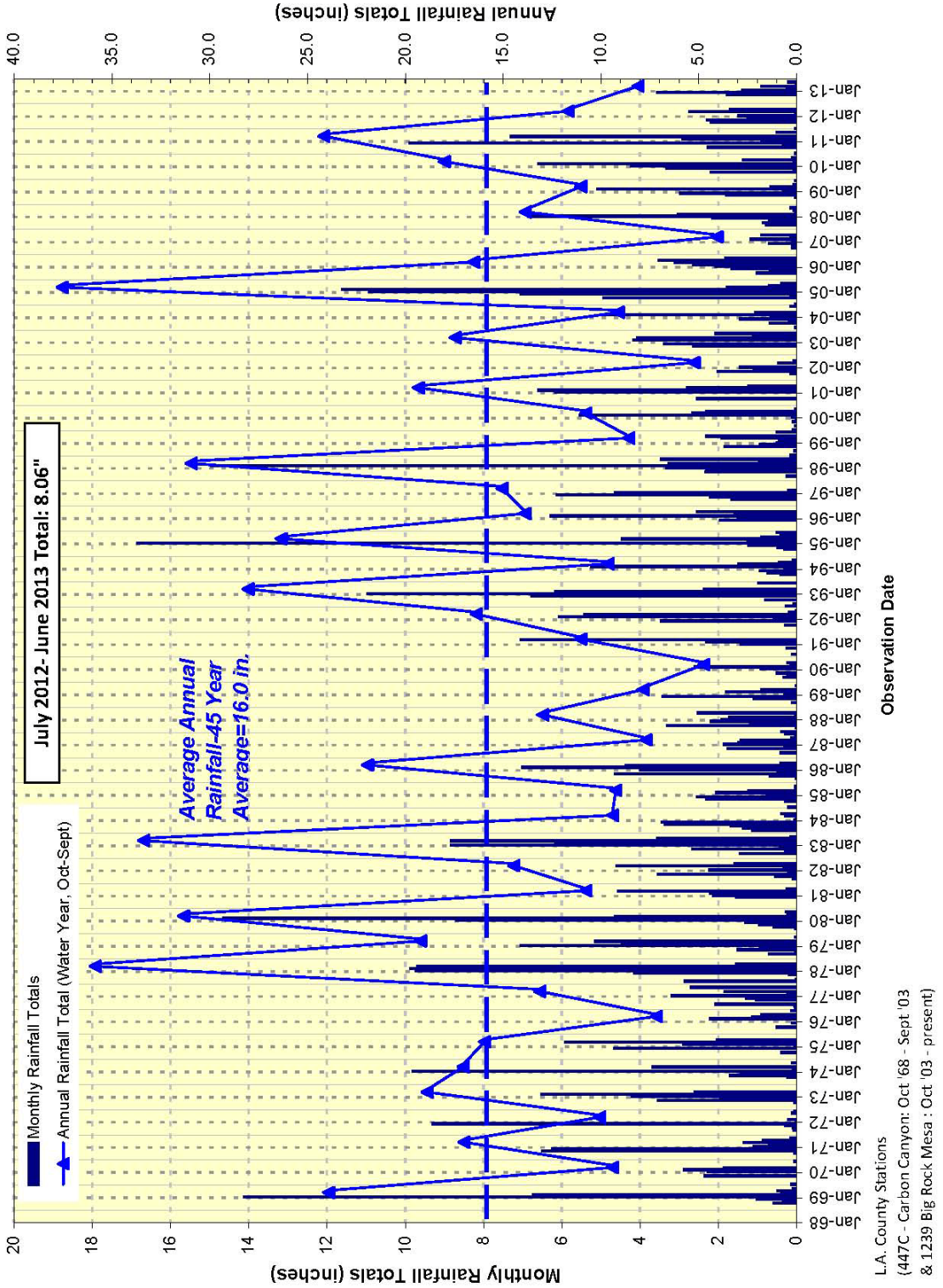
SCALE: 1:2,400

200 100 0 200 Feet

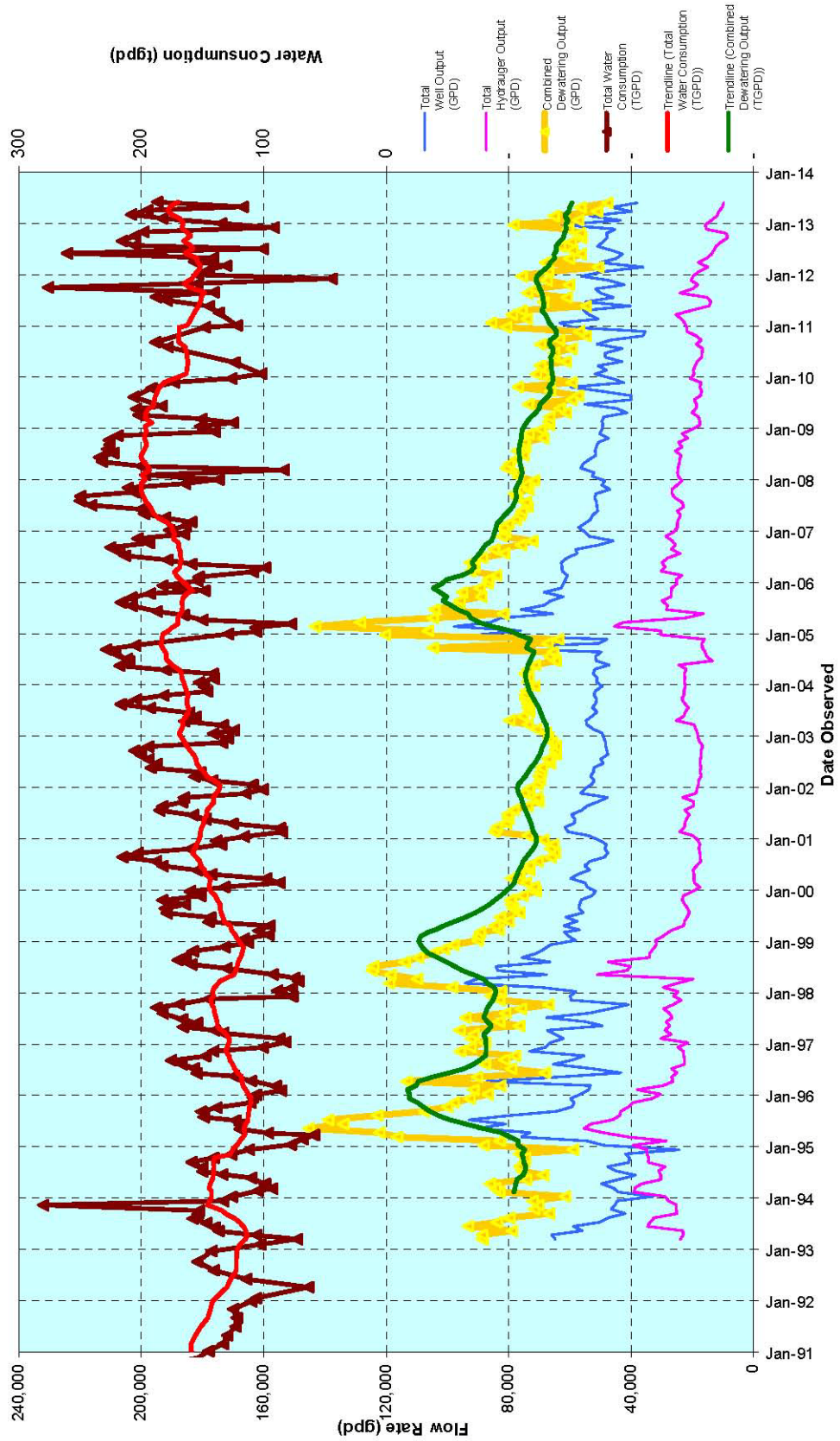
REVISIONS

No.	DATE	DESCRIPTION	BY		No.	DATE	DESCRIPTION	BY
1	08/11/04	GPS Field Results	KRS		4	04/22/11	Update Wells	CBD
2	08/18/04	GPS Field Results	KRS		5	11/26/13	Add SP-17B	CBD
3	09/19/06	Hydraugers	CAB					

DATE:	WORK ORDER:		PLATE NO.:
3/6/2014	04.B3399006		2
DRAWN BY:	CHECKED BY:	APPROVED BY:	
CBD	TC	CD	

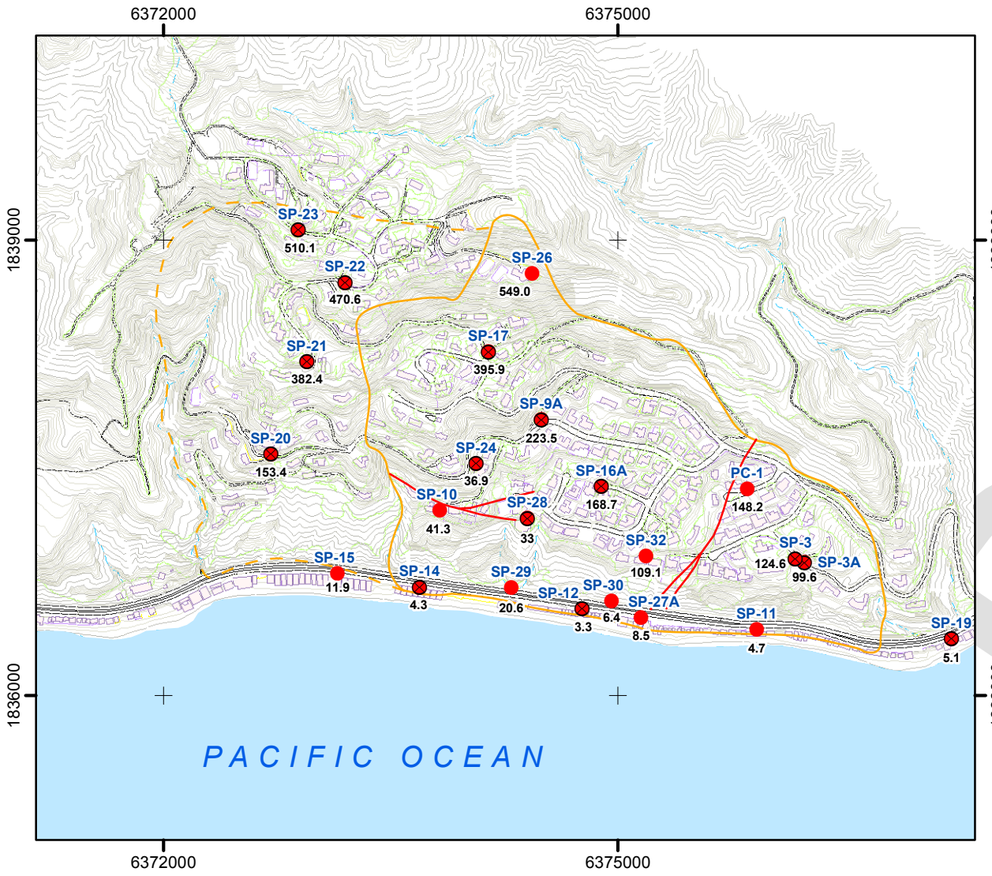


MALIBU AREA MONTHLY & AVERAGE ANNUAL RAINFALL
Big Rock Mesa Landslide Assessment District
Malibu, California

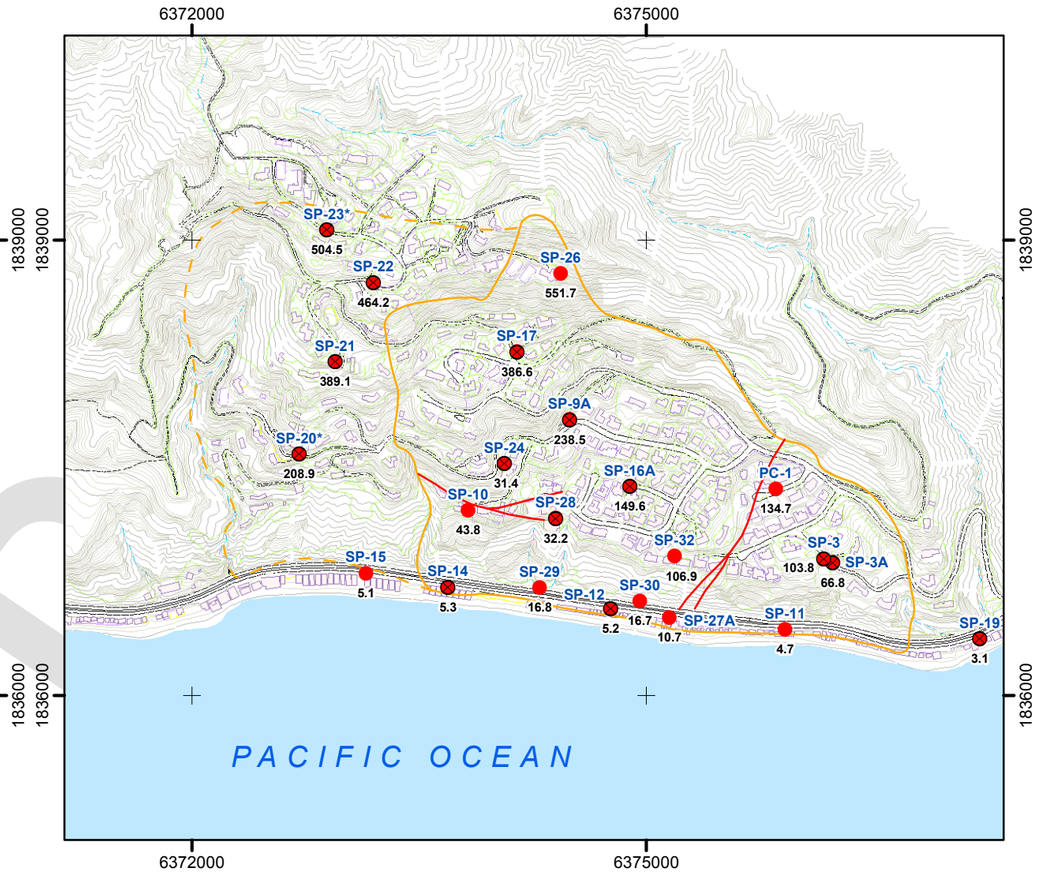


TOTAL DEWATERING RATE VS. TOTAL WATER CONSUMPTION
Wells & Hydraugers (Combined) / Total Water Consumption
Big Rock Mesa Landslide Assessment District
Malibu, California

Groundwater Elevation (May 8, 1995)



Groundwater Elevation (May 3, 2013)



*SP-20 and SP-23- Date of last accurate reading is 4/16/2012

Legend

Instrumentation

- Slope Inclinometer, does not Penetrate Rupture Surface
- Slope Inclinometer, does Penetrate Rupture Surface
- SP-16 / 400 — Instrument Label and Ground Water Elevation in feet

Site Map Features

- Faults
- Approximate Landslide Limits
- Buildings

N

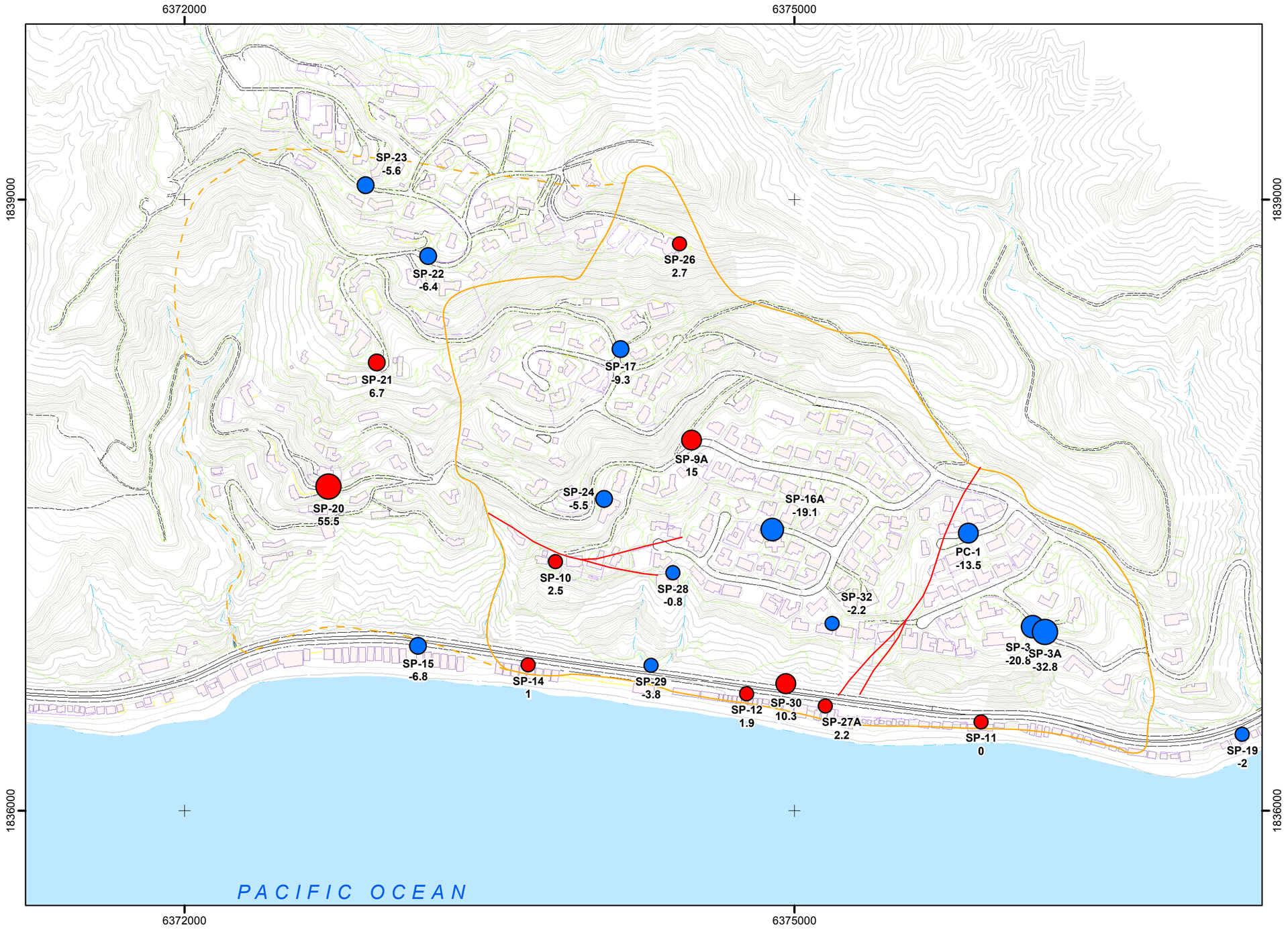
1:12,000

1,000 500 0 1,000 Feet

GROUNDWATER ELEVATION MAP
MAY 1995 AND MAY 2013
Big Rock Mesa Landslide
Assessment District
Malibu, California

PLATE 5a

N:\Projects\3399_CityofMalibu\3399-006_BigRockMesa\Outputs\2014_01_02_AnnualReport\MXD\Plate-05a_WaterLevel_95_13.mxd, 3/6/2014, CDean



Legend

Instrumentation

- Slope Inclinometer, does not Penetrate Rupture Surface
- Slope Inclinometer, does Penetrate Rupture Surface
- sp-16 / 400 — Instrument Label and Ground Water Elevation Change in feet

Site Map Features

- Faults
- Approximate Landslide Limits
- Buildings

Groundwater Elevation Change (Feet)

- < -30
- -30 to -15
- -15 to -10
- -10 to -5
- -5 to 0
- 0 to 5
- 5 to 10
- 10 to 15
- 15 to 20
- > 20

N

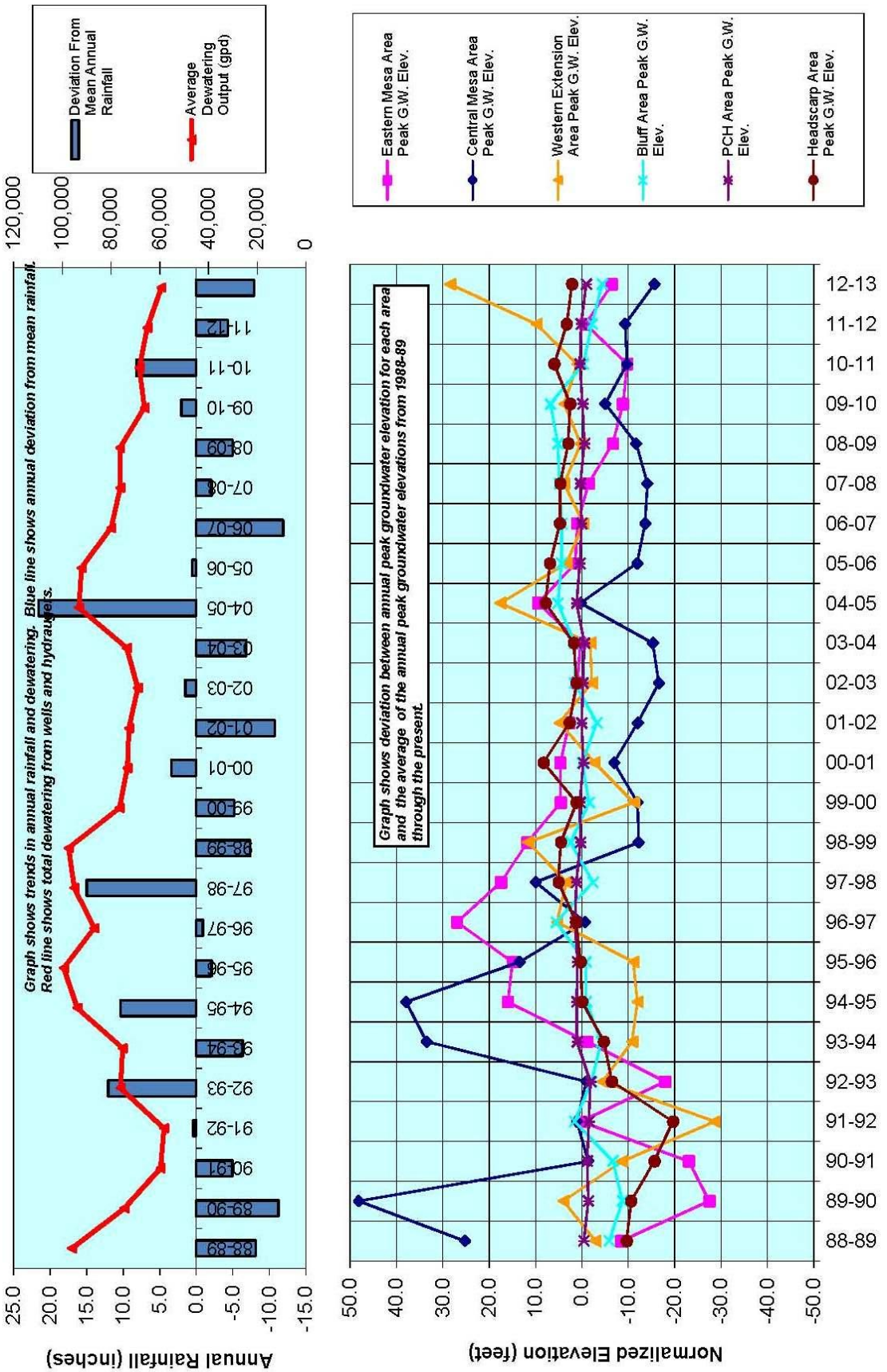
1:6,000

0 125 250 500 750 1,000 Feet

CHANGE IN GROUNDWATER ELEVATION MAY 1995 TO MAY2013
Big Rock Mesa Landslide Assessment District
Malibu, California

PLATE 5b

N:\Projects\3399_CityofMalibu\3399-006_BigRockMesa\Outputs\2014_01_02_AnnualReport\MXD\Plate-05b_WaterLevelChange_95_13.mxd, 3/6/2014, CDean



SUMMARY OF GROUNDWATER LEVELS, DEWATERING, AND RAINFALL
Big Rock Mesa Landslide Assessment District
Malibu, California

PLATE 6

APPENDIX A
GROUNDWATER LEVEL DATA

Big Rock Mesa: Standpipe Piezometer Information				
Piezometer ID	**Surface Elev. (ft)**	**Depth (ft)**	**Perforation Interval**	**Installer**
PCH Standpipe Piezometers				
SP-11	27	58	Unknown	BYA
SP-12	26	40	Unknown	BYA
SP-14	25	30	Unknown	BYA
SP-15	20	82	Unknown	BYA
SP-19	25	82	Unknown	BYA
SP-27A	29	94	Unknown	BYA
SP-29	27	138	Unknown	BYA
SP-30	29	128	Unknown	BYA
Bluff Standpipe Piezometers				
SP-10	295	332	Unknown	BYA
SP-28	270	358	Unknown	BYA
SP-32	233	354	Unknown	BYA
SP-34	270	382	Unknown	BYA
Headscarp Piezometers				
SP-26	745	346	Unknown	BYA
Central Standpipe Piezometers				
SP-9A	365	300	Unknown	BYA
SP-16	285	240	Unknown	BYA
SP-16A	285	392	Unknown	BYA
SP-17	540	192	Unknown	BYA
SP-17A	540	238	Unknown	BYA
SP-24	370	382	Unknown	BYA
SP-35	345	396	Unknown	BYA
SP-36	380	254	Unknown	BYA
Western Standpipe Piezometers				
SP-20	430	326	Unknown	BYA
SP-21	660	280	Unknown	BYA
SP-22	780	332	Unknown	BYA
SP-23	860	398	Unknown	BYA
Eastern Standpipe Piezometers				
PC-1	250	158	Unknown	BYA
SP-3	212	132	Unknown	BYA
SP-3A	203	246	Unknown	BYA
SP-33[1]	208	374	Unknown	BYA

1 - Data not presented

PIEZOMETER INFORMATION
Standpipe Piezometers
Big Rock Mesa Landslide Assessment District
Malibu, California

Big Rock Mesa LAD: Pneumatic Piezometer Information				
Piezometer ID	**Surface Elev. (ft)**	**Tip No.**	**Tip Depth (ft)**	**Installer**
PCH Standpipe Piezometers				
SP-5A*	N/A	TIP-1	N/A	BYA
		TIP-2	N/A	
		TIP-3	N/A	
SP-8A*	N/A	TIP-1	N/A	BYA
		TIP-2	N/A	
		TIP-3	N/A	
Bluff Standpipe Piezometers				
SP-34	270	TIP-1	381	BYA
		TIP-2	282	
		TIP-3	182	
		TIP-4	82	
Central Standpipe Piezometers				
SP-35	345	TIP-1	393	BYA
		TIP-2	293	
		TIP-3	193	
		TIP-4	98	
SP-36	380	TIP-1	255	BYA
		TIP-2	195	
		TIP-3	95	
W-11*	507	N/A	214	BYA
W-15*	295	N/A	164	BYA
SP-17A	540	TIP-1	Unknown	BYA
		TIP-2	Unknown	
		TIP-3	Unknown	
		TIP-4	Unknown	
		TIP-5	Unknown	
BYA-3A*	N/A	TIP-1	N/A	BYA
		TIP-2	N/A	
		TIP-3	N/A	
		TIP-4	N/A	
BYA-4A*	N/A	TIP-1	N/A	BYA
		TIP-2	N/A	
		TIP-3	N/A	
		TIP-4	N/A	
		TIP-5	N/A	
		TIP-6	N/A	
GEO-2 (OB-2)*	305	TIP-1	N/A	GS
		TIP-2	N/A	
		TIP-3	N/A	
W-10*	432	N/A	230	BYA
BYA-2*	665	TIP-1	Unknown	BYA
		TIP-2	Unknown	
		TIP-3	Unknown	
Eastern Standpipe Piezometers				
PC-1	250	TIP-1	120	BYA
		TIP-2	90	
		TIP-3	70	
		TIP-4	40	
		TIP-5	20	
BYA-5A*	NA	TIP-1	N/A	BYA
		TIP-2	N/A	
		TIP-3	N/A	
		TIP-4	N/A	
Unknown Location				
GEO-1*	NA	TIP-1	N/A	GS
		TIP-2	N/A	
		TIP-3	N/A	

NOTE: [ ] - Not functioning or no longer monitored peizometer

PIEZOMETER INFORMATION
Pneumatic Piezometers
Big Rock Mesa Landslide Assessment District
Malibu, California

Piezometer I.D.		1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	**2012-13**	Highest Recorded	Mean '91 - '13	Stand Dev.	12-13 vs 97-98	12-13 vs 11-12	12-13 vs mean
PCH REGION																																						
SP-11	Mean El.						5.7	5.3	4.7	4.5	5.7	5.7	5.5	5.8	5.5	5.8	6.3	5.5	4.8	5.4	5.4	5.2	5.3	5.1	5.4	4.9	4.6	5.1	8.4	7.8	4.7	Feb-11	5.6	0.9	-1.1	-3.1	-0.8
	Highest El.						6.4	5.8	5.5	5.0	6.0	7.4	6.9	7.5	6.7	7.3	8.1	6.5	5.5	8.3	7.0	5.7	5.8	5.9	7.6	5.9	5.2	5.6	11.8	8.8	5.0	11.8	6.8	1.6	-2.3	-3.8	-1.8
SP-12	Mean El.						4.6	5.4	5.5	5.4	5.2	4.8	4.9	5.1	4.8	5.0	5.3	5.3	4.7	4.5	4.8	4.6	5.5	5.2	4.9	4.8	4.7	4.0	4.7	4.2	5.2	Feb-05	4.9	0.4	**0.2**	**1.1**	**0.4**
	Highest El.						4.6	5.4	6.0	6.0	6.0	7.2	6.1	6.3	7.4	7.0	6.4	6.5	7.4	6.4	6.4	6.4	8.3	7.2	6.4	5.8	5.7	5.1	5.3	5.2	5.5	8.30	6.4	0.8	-1.5	**0.3**	-0.8
SP-14	Mean El.					4.5	4.7	4.4	4.8	4.3	4.8	4.9	4.9	4.9	5.0	5.9	5.8	5.6	4.7	4.5	4.6	4.6	4.7	4.8	4.7	4.7	4.3	4.3	4.3	4.1	5.2	Feb-98	4.8	0.5	-0.7	**1.1**	**0.4**
	Highest El.					4.5	4.7	4.4	5.2	5.4	7.1	6.1	5.3	5.9	5.7	8.7	6.9	7.4	5.4	5.7	5.1	5.4	5.4	5.7	5.5	6.0	5.1	5.0	4.6	4.9	5.5	8.7	5.8	1.0	-3.2	**0.7**	-0.3
SP-15	Mean El.					11.3	8.8	10.5	9.1	7.5	10.7	13.4	12.6	15.1	14.5	12.2	12.0	11.7	11.6	11.5	11.7	10.0	11.9	11.6	11.6	11.4	8.9	8.4	7.2	7.6	5.5	Jan-97	10.8	2.4	-6.7	-2.1	-5.3
	Highest El.					11.3	12.2	10.5	11.4	9.1	12.4	19.4	19.5	19.9	20.0	16.3	13.5	12.7	12.4	12.5	12.4	12.2	12.8	12.4	12.2	12.2	11.1	12.2	10.1	10.2	5.9	20.0	13.2	3.7	-10.4	-4.3	-7.4
SP-19	Mean El.							3.6	3.6	3.1	4.5	4.4	4.7	4.6	4.3	4.4	4.5	3.8	3.4	3.7	3.5	3.4	3.9	3.6	3.6	3.5	3.1	3.6	3.7	3.6	3.0	Mar-95	3.8	0.5	-1.3	-0.6	-0.8
	Highest El.							4.1	4.0	3.4	5.0	5.0	5.9	5.4	4.9	5.2	5.0	4.5	3.9	4.3	4.1	4.0	4.2	4.5	4.4	4.1	3.6	4.6	4.0	4.3	3.3	5.9	4.4	0.6	-1.9	-1.0	-1.1
SP-27A	Mean El.						7.1	9.1	8.8	8.7	9.3	9.4	9.7	9.5	9.5	9.7	9.6	10.1	9.2	9.0	9.5	9.3	10.2	9.7	9.5	10.0	9.5	10.0	10.0	9.7	10.5	Ap-00/Feb-08	9.6	0.4	**0.8**	**0.8**	**0.9**
	Highest El.						7.1	10.1	9.2	10.2	10.0	10.2	10.8	10.3	10.4	10.7	10.4	13.7	9.6	9.7	9.9	9.8	13.5	12.5	10.2	13.7	10.1	10.6	10.5	10.5	10.8	13.7	10.8	1.3	**0.1**	**0.3**	0.0
SP-29	Mean El.					19.7	20.4	19.4	18.7	18.0		19.7	20.0	19.2	19.2	19.7	18.8	18.0	18.1	17.0	16.2	16.0	18.0	17.7	16.7	16.3	15.8	15.9	16.2	15.8	16.7	Feb-05	17.6	1.4	-3.0	**0.9**	-0.9
	Highest El.					19.7	21.7	19.4	18.7	18.0		20.9	22.1	20.2	20.5	21.3	19.9	19.1	19.6	18.1	16.7	16.4	22.2	18.7	17.4	16.9	16.1	16.6	16.9	17.1	16.9	22.2	18.6	2.0	-4.4	-0.3	-1.8
SP-30	Mean El.					7.4	7.1	6.4	7.2	6.9	7.7	7.3	7.9	8.1	9.6	8.0	8.5	9.0	9.7	11.3	12.6	12.9	13.0	13.4	13.4	14.4	15.1	15.7	16.2	15.8	16.5	Nov-10	11.5	3.3	**8.5**	**0.7**	**5.0**
	Highest El.					7.4	8.0	6.4	8.0	8.0	8.0	9.3	9.6	9.4	13.3	10.2	9.6	10.1	10.8	12.6	14.3	13.4	14.3	14.1	14.2	15.3	15.5	16.4	17.2	17.0	16.8	17.2	12.7	3.1	**6.6**	-0.2	**4.1**
Area Average	Mean El.					10.7	8.3	8.0	7.8	7.3	6.8	8.7	8.8	9.1	9.1	8.8	8.8	8.6	8.3	8.4	8.5	8.2	9.1	8.9	8.7	8.7	8.2	8.4	8.8	8.6	8.4		8.5	0.5	-0.4	-0.1	-0.1
	Highest El.					10.7	9.2	8.3	8.5	8.1	7.8	10.7	10.8	10.6	11.1	10.8	10.0	10.1	9.3	9.7	9.5	9.2	10.8	10.1	9.7	10.0	9.1	9.5	10.1	9.8	8.7		9.8	0.9	-2.1	-1.0	-1.1
Change vs Prior	Mean El.						-2.4	-0.3	-0.2	-0.5	-0.4	1.8	0.1	0.3	0.0	-0.2	0.0	-0.2	-0.3	0.1	0.2	-0.3	0.8	-0.2	-0.2	0.0	-0.5	0.2	0.4	-0.3	-0.1						
	Highest El.						-1.5	-1.0	0.2	-0.4	-0.4	2.9	0.1	-0.2	0.5	-0.3	-0.9	0.1	-0.7	0.4	-0.2	-0.3	1.7	-0.7	-0.4	0.3	-0.9	0.5	0.5	-0.3	-1.0						
BLUFF REGION																																						
SP-10	Mean El.	144.7	76.0	50.0	50.5	49.2	47.4	45.9	48.8	55.3	44.6	42.9	41.6	42.0	41.6	41.3	42.4	42.8	42.9	43.3	43.7	44.3	45.5	45.2	45.2	44.8	43.7	44.0	43.9	42.6	43.7	Dec-83	44.0	2.8	**2.4**	**1.1**	-0.2
	Highest El.	174.2	130.0	50.0	50.5	50.0	52.0	46.0	55.5	74.0	45.9	44.4	42.2	42.6	41.9	41.6	44.8	43.4	43.3	43.6	44.1	44.4	47.2	45.4	45.4	45.2	44.9	44.6	46.0	44.7	44.1	174.2	45.6	6.5	**2.5**	-0.6	-1.5
SP-28	Mean El.						36.4	33.7	37.5	33.7	33.6	33.7	33.0	32.7	32.2	31.9	32.6	33.2	33.1	33.0	32.9	32.9	34.9	34.7	33.3	33.1	32.8	33.1	32.8	35.2	32.8	Jan-12	33.2	0.8	**0.9**	-2.4	-0.4
	Highest El.						40.5	33.8	40.0	36.0	35.2	35.2	33.1	33.1	32.4	32.2	34.9	33.6	33.2	33.3	33.0	32.9	36.1	36.0	33.6	33.1	33.1	33.4	33.8	42.0	33.7	42.0	34.2	2.1	**1.5**	-8.4	-0.6
SP-32	Mean El.						75.3	79.1	72.6	76.1	90.1	85.9	92.5	92.5	94.9	76.5	84.2	79.7	88.2	70.1	89.9	91.1	99.9	100.2	102.3	102.4	104.4	105.1	102.3	104.8	106.4	Apr-96	92.7	10.7	**29.8**	**1.6**	**13.7**
	Highest El.						78.2	82.3	72.8	83.2	101.0	96.2	110.2	110.2	130.9	107.4	95.3	88.4	97.0	83.6	106.0	105.8	106.7	105.9	105.9	105.8	105.8	105.8	105.9	106.9	106.9	130.9	103.2	10.1	-0.5	0.0	**3.7**
SP-34	Mean El.																74.4	77.6	76.2	76.4	73.5	73.8	80.0	79.7	82.8	84.5	86.0	88.6	53.2	44.7	37.1	Nov-09	72.6	15.3	N/A	-7.6	-35.5
	Highest El.																85.9	79.5	77.3	77.7	74.4	74.5	82.1	81.4	83.8	86.1	88.0	94.5	64.5	48.8	48.7	94.5	76.5	13.2	N/A	0.0	-27.8
Area Average	Mean El.	144.7	76.0	50.0	50.5	49.2	53.0	52.9	53.0	55.0	56.1	54.2	55.7	55.7	56.2	49.9	58.4	58.3	60.1	55.7	60.0	60.5	65.1	64.9	65.9	66.2	66.7	67.7	58.0	56.8	55.0		59.2	4.9	**5.1**	-1.8	-4.2
	Highest El.	174.2	130.0	50.0	50.5	50.0	56.9	54.0	56.1	64.4	60.7	58.6	61.8	62.0	68.4	60.4	65.2	61.2	62.7	59.6	64.4	64.4	68.0	67.2	67.2	67.6	68.0	69.6	62.5	60.6	58.4		63.8	3.5	-2.0	-2.2	-5.4
Change vs Prior	Mean El.		-68.7	-26.0	0.5	-1.3	3.8	-0.2	0.1	2.0	1.1	-1.9	1.5	0.1	0.5	-6.3	8.5	-0.1	1.8	-4.4	4.3	0.5	4.6	-0.1	0.9	0.3	0.5	0.9	-9.6	-1.2	-1.8						
	Highest El.		-44.2	-80.0	0.5	-0.5	6.9	-2.9	2.1	8.3	-3.7	-2.1	3.2	0.1	6.4	-8.0	4.8	-4.0	1.5	-3.2	4.8	0.0	3.6	-0.8	0.0	0.4	0.4	1.6	-7.0	-2.0	-2.2						
HEADSCARP REGION																																						
SP-26	Mean El.				541.9	540.2	538.9	535.8	532.4	527.0	532.6	543.6	543.3	547.8	547.1	549.9	551.9	549.8	550.7	550.6	549.1	550.7	553.1	554.7	553.8	552.9	551.4	551.2	552.5	551.9	551.0	Apr-01	548.5	6.7	**1.1**	-0.9	**2.5**
	Highest El.				542.0	540.2	540.0	539.0	534.0	530.0	543.2	544.9	549.6	549.9	550.9	554.7	554.2	550.8	557.9	552.3	550.8	551.4	557.5	556.5	554.4	554.3	552.6	552.2	555.6	552.9	551.8	557.9	551.3	5.9	-2.9	-1.1	**0.5**
Change vs Prior	Mean El.		0.0	0.0	541.9	-1.6	-1.4	-3.1	-3.3	-5.4	5.6	11.0	-0.3	4.4	-0.7	2.8	2.1	-2.1	0.9	-0.1	-1.5	1.6	2.5	1.5	-0.9	-0.9	-1.5	-0.2	1.4	-0.6	-0.9						
	Highest El.		0.0	0.0	542.0	-1.8	-0.2	-1.0	-5.0	-4.0	13.2	1.7	4.7	0.3	1.0	3.8	-0.5	-3.4	7.1	-5.6	-1.5	0.6	6.1	-1.0	-2.1	-0.1	-1.7	-0.4	3.4	-2.8	-1.1						

Piezometer Not Installed

No Data Recorded

GROUNDWATER ELEVATION DATA ANALYSIS
Big Rock Mesa Landslide Assessment District
Malibu, California

PLATE A-2a

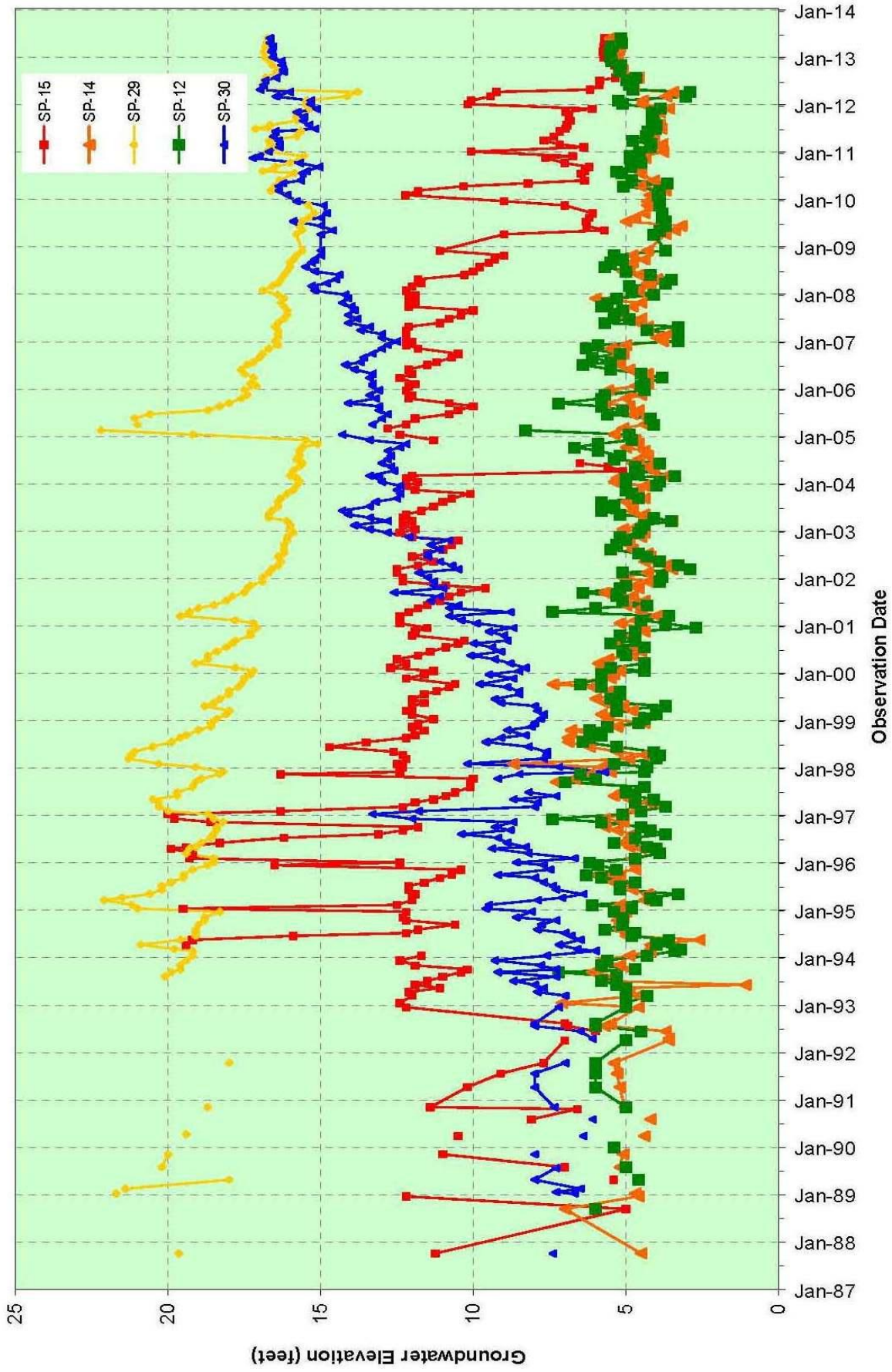
Piezometer I.D.		1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	**2012-13**	Highest Recorded	Mean '91 - '13	Stand Dev.	12-13 vs 97-98	12-13 vs 11-12	12-13 vs mean
CENTRAL MESA																																				
SP-9A	Mean El.	254.7	232.0	232.0	227.5	236.3	222.2	220.0	233.3	215.1	221.9	226.8	220.8	222.0	222.0	224.6	226.8	226.4	228.0	229.3	229.5	230.0	229.7	229.9	228.3	227.5	227.1	227.7	226.6	230.6	238.6	Dec-83	226.8	4.6	**14.0**	**8.0**	**11.8**
	Highest El.	270.0	232.0	232.0	232.0	236.3	224.0	222.2	235.2	222.9	228.5	228.5	225.5	223.8	223.7	231.1	229.0	226.9	231.0	230.6	232.3	231.5	232.5	231.9	229.7	229.7	228.4	229.2	227.5	238.6	238.8	270.0	229.6	4.0	**7.7**	**0.2**	**9.1**
SP-16	Mean El.	226.5	195.4	174.3	171.9	171.5	161.8	113.0	86.5	95.7				68.2	47.9	48.0	46.5	48.4	53.1	47.9	46.0	46.6	87.0	51.6	50.1	50.1	53.7	107.8	117.4	81.8	63.3	Mar-84	63.7	22.8	**15.4**	-18.5	-0.4
	Highest El.	226.5	214.7	180.3	174.2	177.1	182.5	147.8	89.5	121.0				117.8	61.3	66.5	53.5	78.7	89.7	64.4	46.6	49.2	124.0	57.7	50.9	61.8	79.4	121.3	121.1	120.5	75.4	226.5	82.1	29.2	**8.9**	-45.1	-6.7
SP-16A	Mean El.					181.2	153.3	122.0	108.4	108.3	122.2	125.7	147.9	127.6	113.4	126.0	126.8	149.2	180.8	146.0	105.0	133.0	185.1	182.1	180.1	165.8	173.7	166.3	136.0	106.3	149.4	Jan-05	143.5	26.5	**23.5**	**43.1**	**5.9**
	Highest El.					181.2	180.3	148.8	124.5	124.5	184.5	169.1	186.3	182.3	154.9	185.5	182.4	189.4	184.5	183.9	170.0	183.0	196.2	183.8	182.8	184.4	181.8	183.1	153.7	131.9	149.7	196.2	174.0	19.0	-35.8	**17.8**	-24.3
SP-17	Mean El.	406.0	401.8	395.3	399.1	398.3	393.3	392.0	385.1	382.7		385.5	390.1	389.3	388.3	393.6	390.0	385.6	389.1	386.9	387.9	388.6	393.8	393.6	391.9	388.4	386.8	386.1	387.5	385.4	386.0	Jan-84	388.4	3.0	-7.6	**0.6**	-2.4
	Highest El.	410.0	403.0	395.3	400.1	400.0	401.0	394.1	386.0	383.2		389.8	404.3	396.5	396.5	408.8	395.5	386.9	399.2	389.1	396.4	392.0	406.5	398.1	401.5	392.5	394.8	397.0	393.0	388.0	386.1	410.0	395.0	6.7	-22.7	-1.9	-8.9
SP-17A	Mean El.						360.1	377.4	376.6	374.5	379.2	379.8	377.8	379.3	377.2	379.1	379.1	375.3	376.6	375.6	374.9	376.0	378.0	379.4	378.4	375.3	374.2	372.8	373.4	374.6	376.5	Feb-94	376.7	2.2	-2.6	**1.9**	-0.1
	Highest El.						372.4	378.5	377.7	375.7	385.0	389.8	384.4	381.6	380.5	386.7	382.9	376.4	381.1	377.3	376.5	377.2	385.2	383.4	380.7	376.3	376.3	373.7	375.0	376.2	377.0	389.8	380.0	4.4	-9.7	**0.7**	-3.0
SP-24	Mean El.	195.3	102.1	49.0	49.2		49.0		35.1	38.6	38.5	38.9	37.2	39.0	39.1	40.0	41.6	41.4	41.7	42.3	41.4	43.3	46.3	47.6	46.1	45.3	45.6	47.0	46.7	43.0	36.8	Mar-84	42.2	3.4	-3.2	-6.2	-5.3
	Highest El.	220.6	170.0	50.0	52.0		52.0		39.6	40.0	38.9	41.0	39.6	39.6	39.8	42.0	43.3	42.2	43.0	43.7	41.8	44.0	51.0	50.2	48.2	46.0	46.0	49.0	47.5	45.1	38.9	220.6	43.7	3.8	-3.1	-6.3	-4.8
SP-35	Mean El.																92.2	88.3	93.6	97.4	90.5	89.4	90.8	88.2	86.8	85.9	86.0	89.4	88.1	104.1	94.8	Jul-11	91.0	4.9		-9.3	**3.8**
	Highest El.																101.3	91.0	104.0	102.9	92.7	90.6	95.2	89.0	87.2	86.4	90.2	95.8	94.1	112.9	96.9	112.9	95.3	7.3		-15.9	**1.6**
SP-36	Mean El.																193.3	193.0	192.8	192.3	191.4	191.0	191.4	191.3	191.0	190.7	190.1	190.4	190.6	191.3	191.5	Jun-12	191.5	1.0		**0.2**	0.0
	Highest El.																195.2	193.4	193.0	192.7	191.9	191.2	192.2	191.8	191.3	190.9	190.5	191.4	191.3	193.0	193.1	195.2	192.2	1.2		0.0	**0.9**
Area Average	Mean El.	270.6	232.8	212.6	211.9	246.8	223.3	244.9	204.1	202.5	190.4	231.3	234.7	204.2	198.0	201.9	187.0	188.4	194.5	189.7	183.3	187.2	200.3	195.4	194.1	191.1	192.1	198.4	195.8	189.6	192.1		197.4	12.8	-9.7	**2.5**	-5.3
	Highest El.	281.8	254.9	214.4	214.6	248.7	235.4	258.3	208.8	211.2	209.2	243.6	248.0	223.6	209.5	220.1	197.9	198.1	203.2	198.1	193.5	194.8	210.4	198.2	196.5	196.0	198.4	205.1	200.4	200.8	194.5		206.9	15.0	-25.6	-6.3	-12.4
Change vs Prior	Mean El.		-37.8	-20.2	-0.7	34.9	-23.5	21.6	-40.8	-1.7	-12.0	40.9	3.4	-30.5	-6.2	3.9	-14.8	1.4	6.0	-4.7	-6.4	3.9	13.0	-4.8	-1.4	-3.0	1.0	6.3	-2.7	-6.1	2.5						
	Highest El.		-26.9	-40.5	0.2	34.1	-13.3	22.9	-49.5	2.5	-2.0	34.4	4.4	-24.4	-14.2	10.7	-22.2	0.2	5.1	-5.1	-4.6	1.3	15.5	-12.1	-1.7	-0.5	2.4	6.6	-4.7	0.4	-6.3						
WESTERN EXTENSION																																				
SP-20	Mean El.	317.0	254.6	220.5	213.3	194.5	217.5	186.2	198.8	160.3	184.9	175.1	149.8	155.0	162.1	165.5	231.8	196.9	204.6	195.8	186.4	183.1	219.7	228.8	230.9	237.6	221.0	215.9	214.3	212.3	N/A	Feb-84	196.7	27.9	N/A	N/A	N/A
	Highest El.	350.0	277.0	224.0	216.7	194.5	231.0	214.5	202.4	165.5	233.0	223.3	159.4	158.6	211.6	224.7	290.1	202.4	221.4	247.1	187.6	196.3	248.2	234.7	235.8	245.6	237.3	234.4	226.0	219.0	N/A	350.0	219.1	32.2	N/A	N/A	N/A
SP-21	Mean El.		436.7	407.0		404.0	403.1	402.2	390.5	351.1	353.5	356.0	369.8	368.9	368.7	372.4	374.6	379.5	388.5	387.7	379.4	378.6	390.4	394.0	391.2	388.1	383.9	385.8	386.3	392.3	389.7	Apr-94	378.7	12.9	**17.3**	-2.6	**11.0**
	Highest El.		450.9	407.0		405.0	407.0	410.4	399.1	358.9	361.2	358.0	393.9	374.3	377.1	396.4	379.3	389.6	401.2	393.0	385.5	381.9	408.9	403.3	396.4	393.2	387.5	392.5	394.7	395.0	389.9	450.9	386.9	13.9	-6.5	-5.1	**3.0**
SP-22	Mean El.		461.1	450.5	451.9	447.5	450.5	451.4	451.0	454.3	457.5	455.3	463.9	462.1	468.9	466.0	468.6	468.8	469.2	470.8	473.0	471.2	471.9	470.2	469.9	469.1	467.9	470.0	470.7	466.9	464.8	Dec-96	466.9	5.3	-1.2	-2.2	-2.1
	Highest El.		493.5	450.5	454.1	450.9	455.7	451.4	451.3	468.0	471.3	464.5	477.0	469.6	501.5	470.4	470.7	471.0	474.2	471.1	476.6	475.1	475.1	471.0	470.9	470.9	469.7	470.9	472.8	470.6	465.0	501.5	472.6	7.2	-5.4	-5.6	-7.6
SP-23	Mean El.					514.2	491.0	499.2	495.6	486.0	496.6	500.8	508.6	511.6	501.5	500.4	486.7	478.0	473.9	476.2	488.9	486.1	496.1	490.7	489.8	494.1	499.8	503.6	495.4	503.1	N/A	May-12	493.7	10.2	N/A	N/A	N/A
	Highest El.					514.2	491.0	536.0	509.1	489.4	513.1	507.3	518.2	549.6	527.6	518.4	502.7	488.7	488.6	504.5	538.1	535.7	534.6	500.5	492.0	502.0	503.1	514.0	506.7	504.5	N/A	549.6	511.4	17.4	N/A	N/A	N/A
Area Average	Mean El.	317.0	384.2	359.3	332.6	390.0	390.5	384.7	384.0	362.9	373.1	371.8	373.0	374.4	375.3	376.1	390.4	380.8	384.0	382.6	381.9	379.8	394.5	395.9	395.5	397.2	393.1	393.9	391.7	393.7	427.2		385.9	13.5	**51.2**	**33.6**	**41.4**
	Highest El.	350.0	407.1	360.5	335.4	391.2	396.2	403.1	390.5	370.5	394.7	388.3	387.1	388.0	404.5	402.5	410.7	387.9	396.4	403.9	397.0	397.3	416.7	402.4	398.8	402.9	399.4	402.9	400.1	397.3	427.5		398.9	11.4	25.0	30.2	28.5
Change vs Prior	Mean El.		67.2	-24.8	-26.7	57.4	0.5	-5.8	-0.8	-21.0	10.2	-1.4	1.2	1.4	0.9	0.8	14.4	-9.6	3.2	-1.4	-0.7	-2.2	14.8	1.4	-0.5	1.7	-4.1	0.7	-2.2	2.0	33.6						
	Highest El.		57.1	-46.6	-25.1	55.8	5.0	6.9	-12.6	-20.0	24.2	-6.4	-1.1	0.9	16.4	-2.0	8.2	-22.8	8.4	7.6	-7.0	0.3	19.4	-14.3	-3.6	4.1	-3.5	3.5	-2.9	-2.8	30.2						
EASTERN MESA																																				
PC-1	Mean El.												148.0	142.4	148.1	139.4	138.4	136.6	137.6	138.4	138.3	139.1	140.2	141.9	139.8	136.2	136.7	138.9	139.1	137.4	134.8	Dec-96	139.5	3.5	-4.6	-2.6	-4.7
	Highest El.												148.2	145.2	190.0	153.5	138.9	137.5	138.8	138.9	139.2	139.6	142.4	142.5	141.5	137.2	138.1	140.4	140.0	140.2	135.2	190.0	143.5	12.0	-18.3	-5.0	-8.3
SP-3	Mean El.	125.5	119.8	118.5	121.3	122.0	118.3			117.7		119.7	120.6	121.6	118.7	119.2	119.1	117.9	118.0	117.1	111.4	111.7	109.0	116.2	115.4	110.3	94.0	87.0	87.7	108.6	103.6	Nov-83	111.6	10.4	-15.6	-5.0	-8.1
	Highest El.	126.1	120.0	118.5	121.5	125.9	120.0			118.4		120.7	124.6	123.7	120.7	120.6	120.2	118.4	118.4	118.5	114.8	114.9	117.9	117.1	116.9	115.5	100.6	91.7	91.0	113.2	103.8	126.1	114.4	9.5	-16.8	-9.4	-10.5
SP-3A	Mean El.		105.0	74.0	79.5	75.7	79.2	80.5	82.5	89.5	86.3	88.6	87.6	99.1	94.1	96.1	96.8	79.2	77.0	75.1	72.3	62.5	67.8	68.7	68.5	67.1	65.7	64.7	64.1	67.0	64.7	Apr-85	77.4	12.5	-31.3	-2.3	-12.7
	Highest El.		105.0	74.0	81.4	78.4	80.0	81.0	85.4	99.0	90.5	94.0	100.3	101.2	95.6	103.6	101.4	83.0	82.2	76.1	74.1	72.0	93.5	70.2	69.7	68.2	66.7	66.8	65.1	69.8	66.9	105.0	82.3	14.1	-36.7	-2.9	-15.4
Area Average	Mean El.	125.5	112.4	96.3	100.4	98.8	98.7	80.5	82.5	103.6	86.3	104.1	118.7	121.0	120.3	118.2	118.1	111.3	110.9	110.2	107.3	104.5	105.7	108.9	107.9	104.5	98.8	96.9	97.0	104.3	101.0		107.3	8.7	-17.2	-3.3	-6.2
	Highest El.	126.1	112.5	96.3	101.5	102.2	100.0	81.0	85.4	108.7	90.5	107.4	124.4	123.4	135.4	125.9	120.2	113.0	113.1	111.2	109.4	108.8	117.9	109.9	109.4	107.0	101.8	99.6	98.7	107.7	102.0		111.1	10.3	-23.9	-5.7	-9.2
Change vs Prior	Mean El.		-13.1	-16.1	4.1	-1.6	-0.1	-18.2	1.9	21.1	-17.3	17.8	14.6	2.3	-0.7	-2.1	-0.1	-6.8	-0.4	-0.7	-2.9	-2.9	1.2	3.3	-1.0	-3.4	-5.7	-1.9	0.1	7.4	-3.3						
	Highest El.		-13.6	-16.3	5.2	0.7	-2.2	-19.1	4.5	23.3	-18.2	16.9	17.0	-1.0	12.1	-9.5	-5.7	-7.2	0.2	-2.0	-1.8	-0.5	9.1	-8.0	-0.6	-2.4	-5.2	-2.2	-0.9	9.0	-5.7						

Piezometer Not Installed

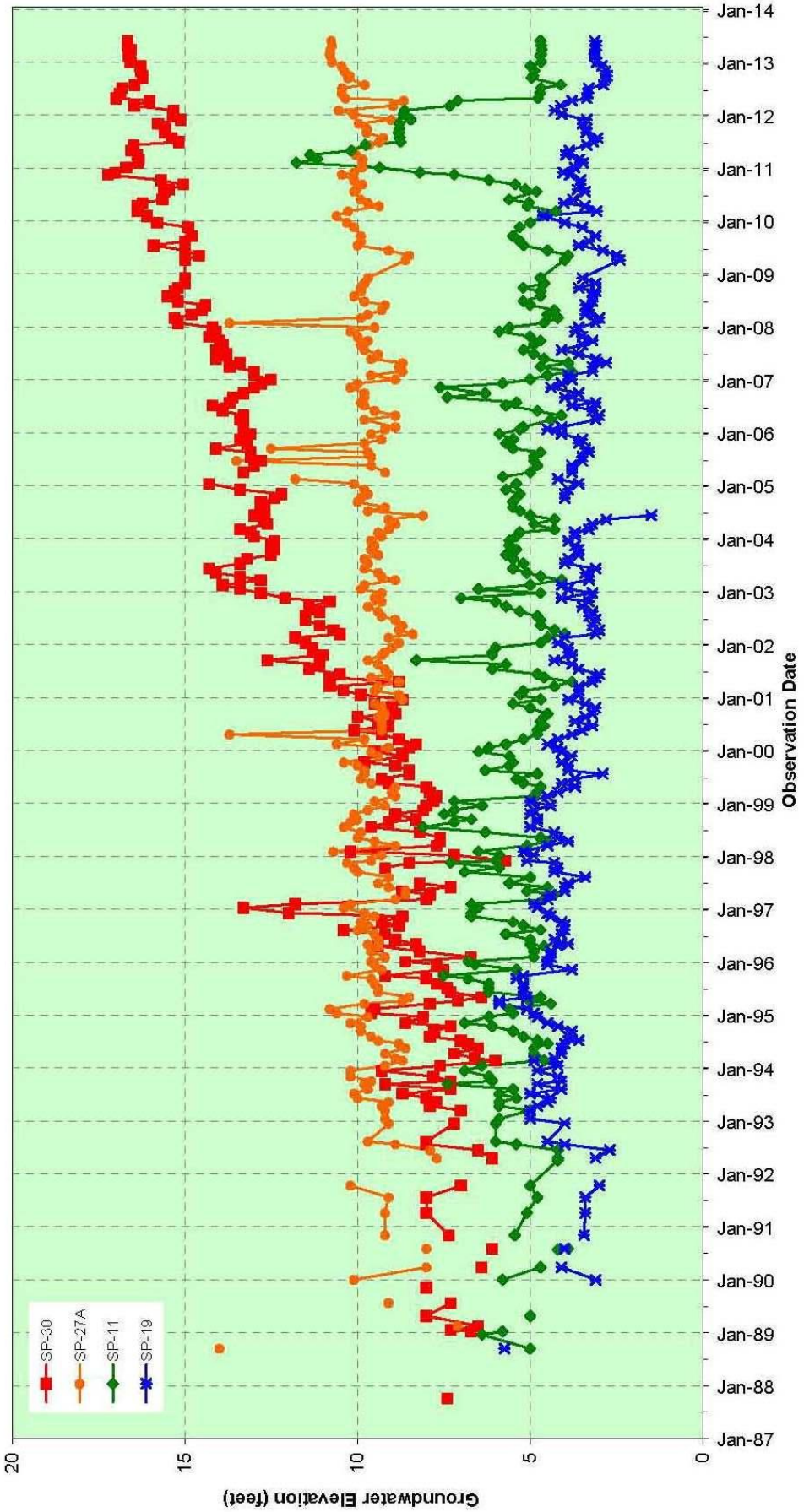
No Data Recorded

GROUNDWATER ELEVATION DATA ANALYSIS
Big Rock Mesa Landslide Assessment District
Malibu, California

PLATE A-2b

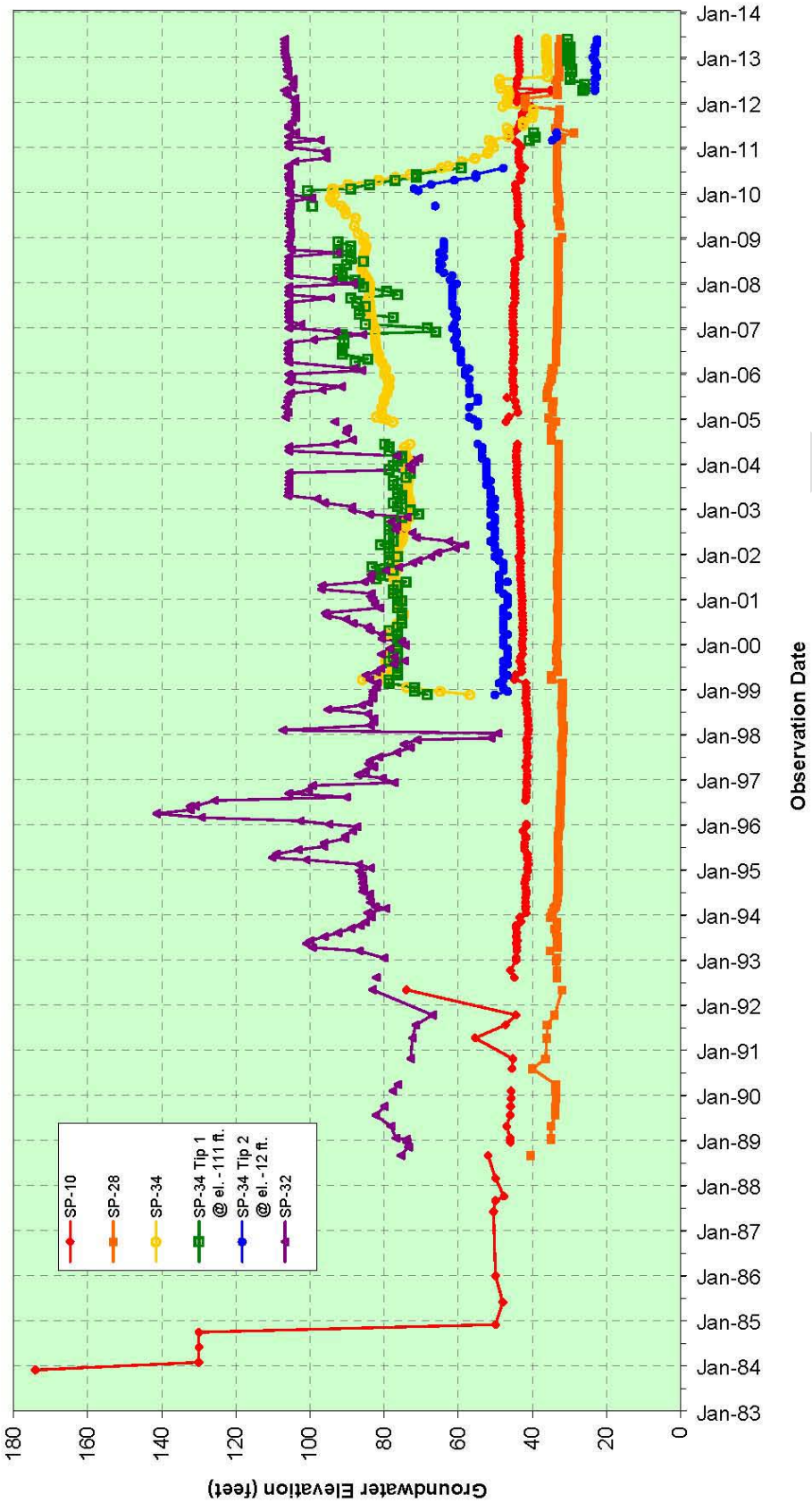


GROUNDWATER ELEVATION DATA – PCH REGION (WESTERN HALF)
Big Rock Mesa Landslide Assessment District
Malibu, California

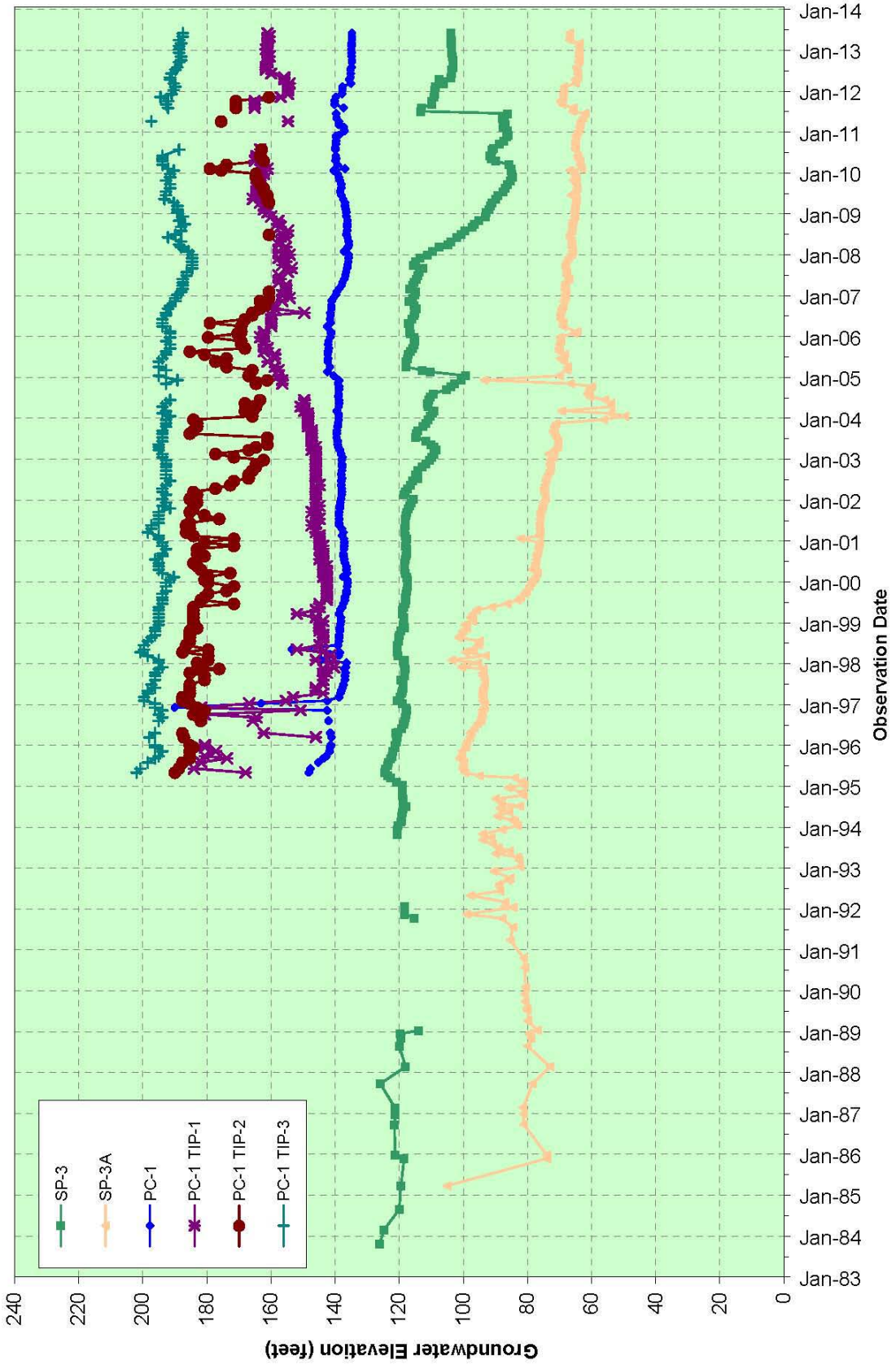


GROUNDWATER ELEVATION DATA – PCH REGION (EASTERN HALF)
Big Rock Mesa Landslide Assessment District
Malibu, California

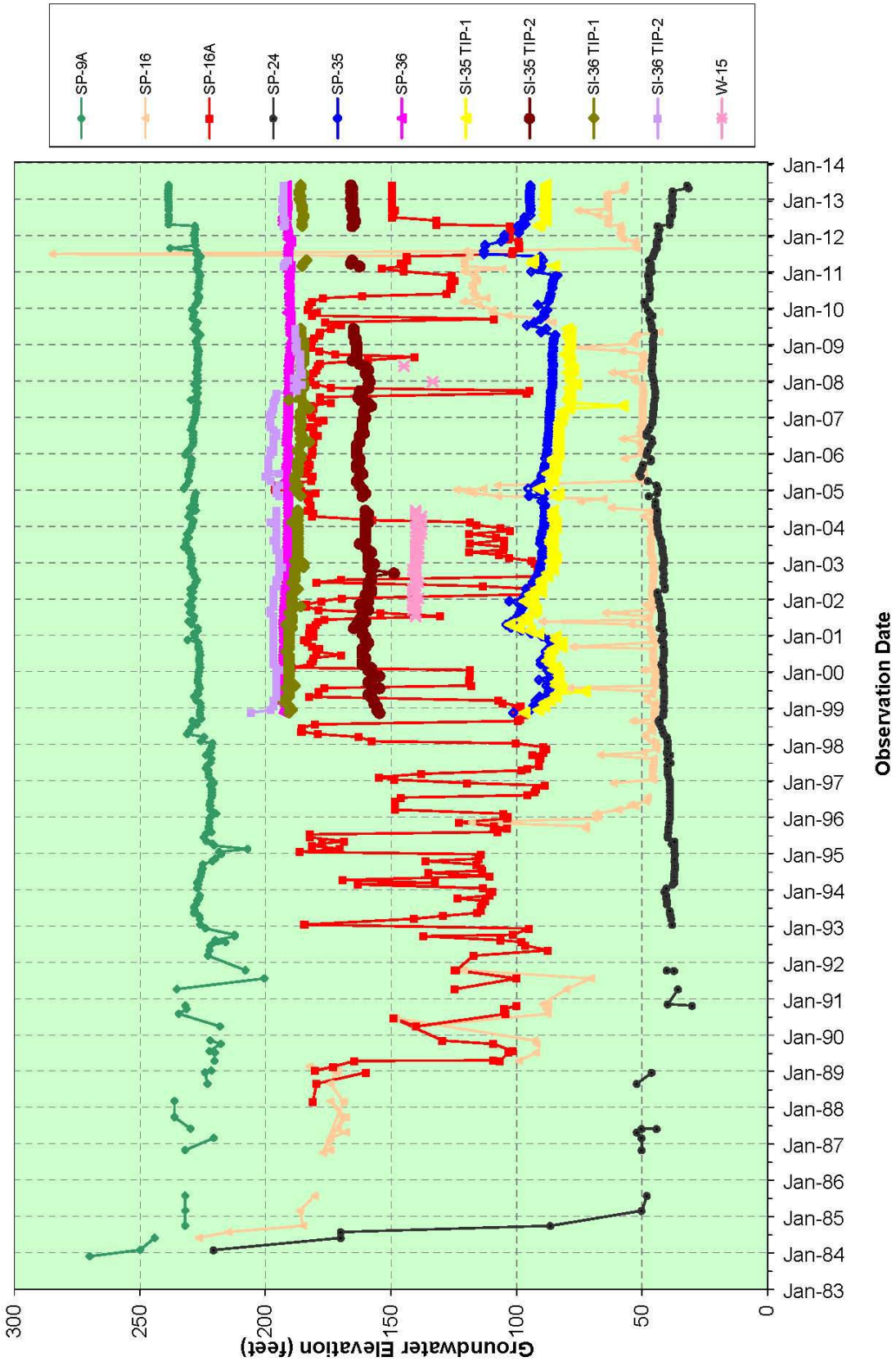
PLATE A-3b



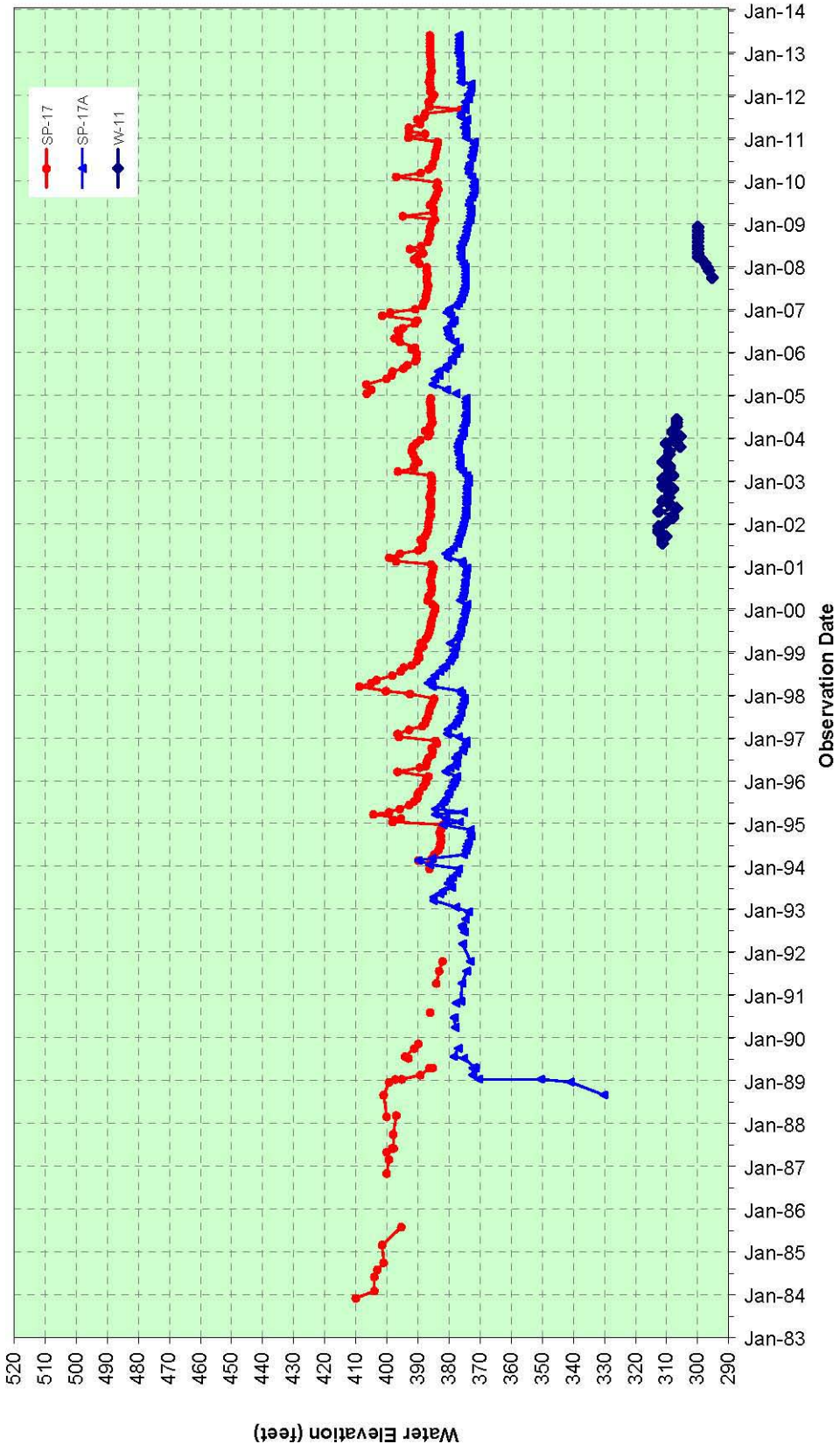
GROUNDWATER ELEVATION DATA - BLUFF REGION
Big Rock Mesa Landslide Assessment District
Malibu, California



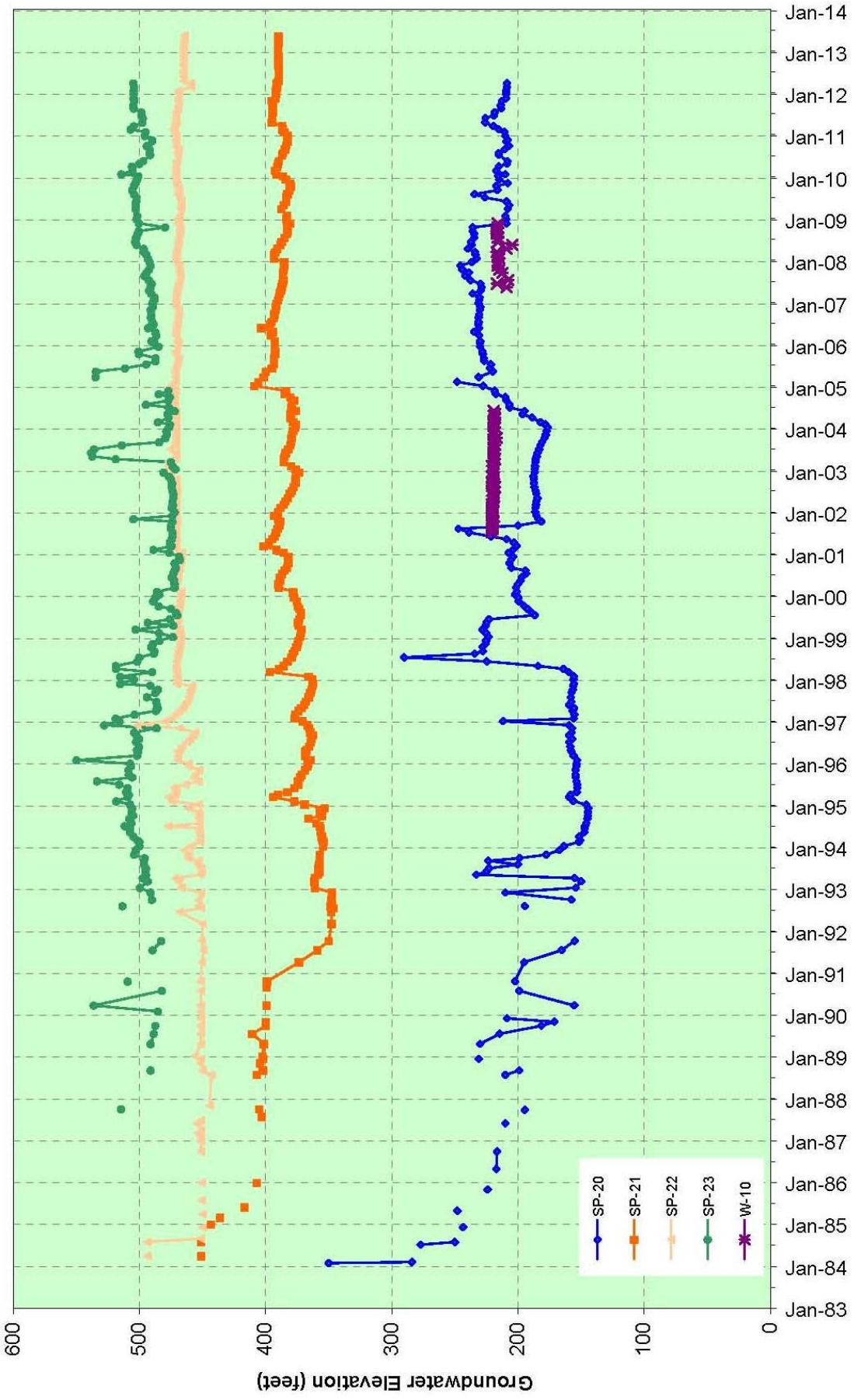
GROUNDWATER ELEVATION DATA - EASTERN MESA REGION
Big Rock Mesa Landslide Assessment District
Malibu, California



GROUNDWATER ELEVATION DATA - CENTRAL MESA REGION
Big Rock Mesa Landslide Assessment District
Malibu, California

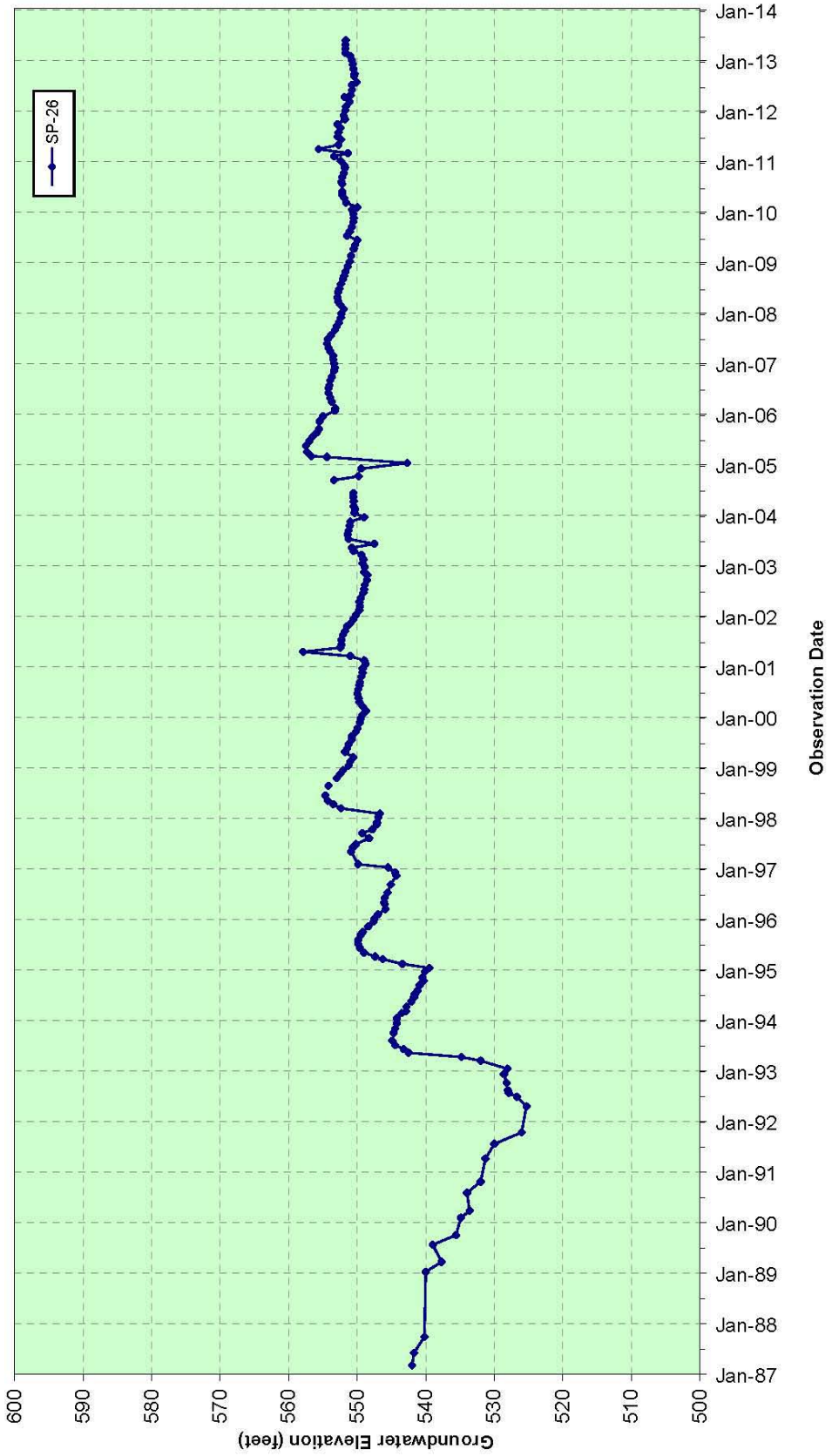


GROUNDWATER ELEVATION DATA - CENTRAL MESA REGION
Big Rock Mesa Landslide Assessment District
Malibu, California



GROUNDWATER ELEVATION DATA – WESTERN EXTENSION
Big Rock Mesa Landslide Assessment District
Malibu, California

PLATE A-7



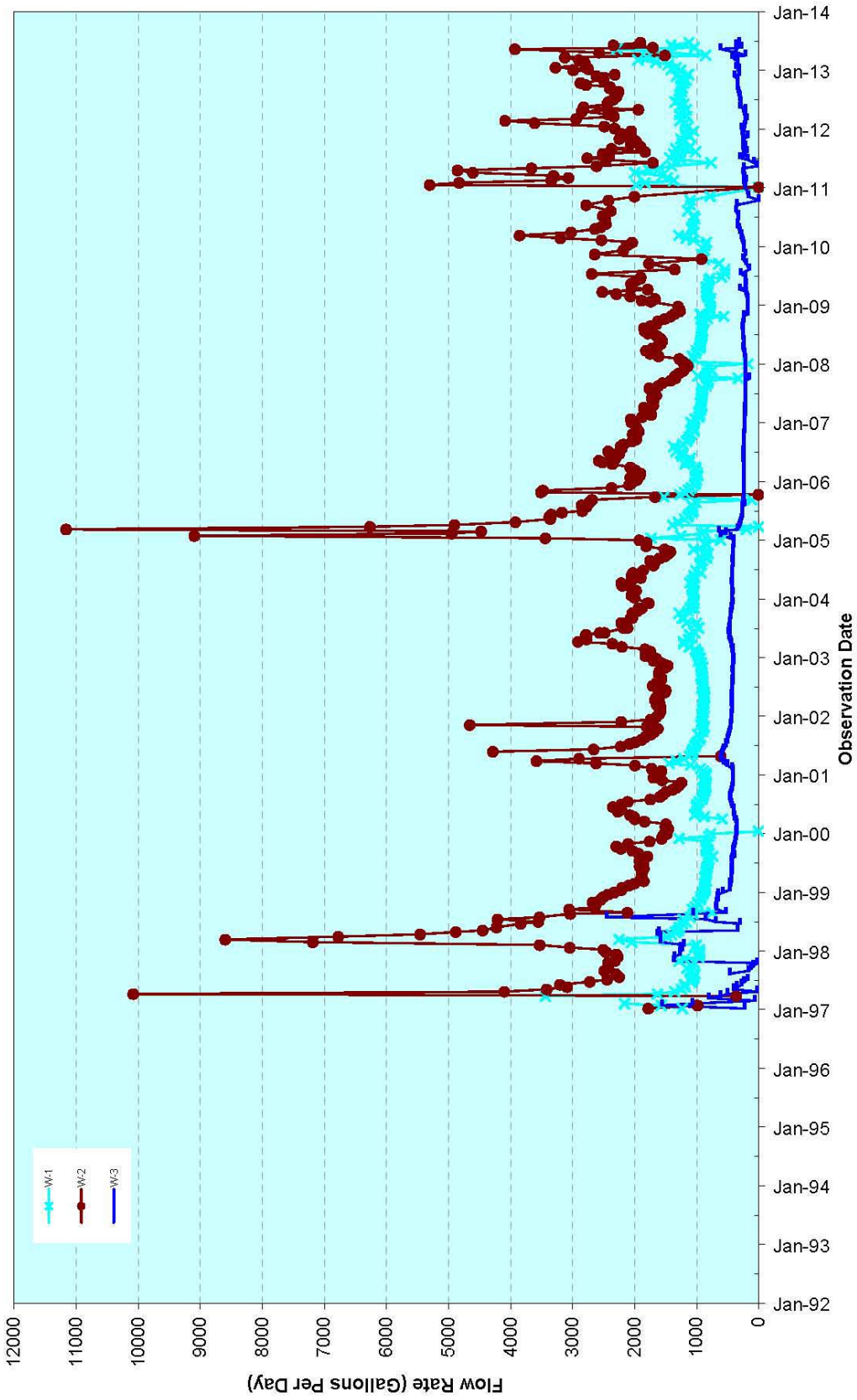
GROUNDWATER ELEVATION DATA - HEADSCARP AREA
Big Rock Mesa Landslide Assessment District
Malibu, California

APPENDIX B
DEWATERING WELL DATA

Big Rock Mesa Landslide Assessment District: Dewatering Well Information								
Well I.D.	TOP ELEV. (ft.)	BOTTOM ELEV. (ft.)	PUMP ELEV. (ft.)	PUMP SIZE (HP)	2012-13 PUMPING RATE (GPD)	% of TOTAL PRODUCTION	Rank	COMMENT
W-1	210.5	-30	14.5	1.5	1,361	3%	11	
W-2	219	41	44	1.5	2,569	5%	7	
W-3	243.5	65.5	70.5	3/4	343	1%	22	
W-4	248	-10	N/A	N/A	0	0%	24	Casing Perforations closed due to siltation
W-5	280	252	N/A	N/A	0	0%	24	Capped 4/4/84
W-6	174	80	N/A	N/A	0	0%	24	Static water level at bottom of casing
W-7	257	171	N/A	N/A	0	0%	24	Static water level at bottom of casing
W-8	287	93	98	1	6,006	13%	2	
W-9	282	87	N/A	N/A	0	0%	24	Static water level at bottom of casing
W-10	432	192	194	3/4	0	0%	24	Static water level
W-11	507	285	292	3/4	0	0%	24	
W-12	375	195	N/A	N/A	0	0%	24	Casing sheared at static water level
W-13	361	184	193	1	1,541	3%	9	
W-14	283	131	N/A	N/A	0	0%	24	Static water level at bottom of casing
W-15	295	121	130	3/4	0	0%	24	Static water level at bottom of casing
W-16	325	107	113	3/4	5,171	11%	3	
W-17	270	41	50	3/4	2,729	6%	6	
W-18	750	179	225	3	8,407	18%	1	
BYA-1	281	-162	-128	3	1,148	2%	13	
BYA-2	665	215	242	1.5	590	1%	19	
BYA-3	510	-40	29	3	2,219	5%	8	
BYA-4	372	-68	-28	1.5	4,948	10%	4	
BYA-5	189	-231	-211	1.5	517	1%	20	
BYA-6	220	-280	-275	0.75	375	1%	21	
BYA-7	240	-120	-115	0.75	783	2%	16	
BYA-9	295	-105	-100	7.5(5)	3,201	7%	5	
BYA-10	510	210	215	1	791	2%	15	
BYA-11	275	-125	-120	0.75	1,495	3%	10	
BYA-12	207	-140	-137	0.5	165	0%	23	Installed 4/99
BYA-13	329	-14	-18	0.5	1,104	2%	14	Installed 4/99
BYA-14	265	38	40	0.5	692	1%	17	Installed 4/99
BYA-15	425				0	0%	24	
FW-1	170				652	1%	18	Installed 5/08
FW-2	270	-130			1,179	2%	12	Installed 2/10

Note:
- Not functioning or no longer monitored dewatering well

DEWATERING WELL INFORMATION
Big Rock Mesa Landslide Assessment District
Malibu, California



DISCHARGE RATE FOR DEWATERING WELLS
Eastern Mesa Region
Big Rock Mesa Landslide Assessment District
Malibu, California

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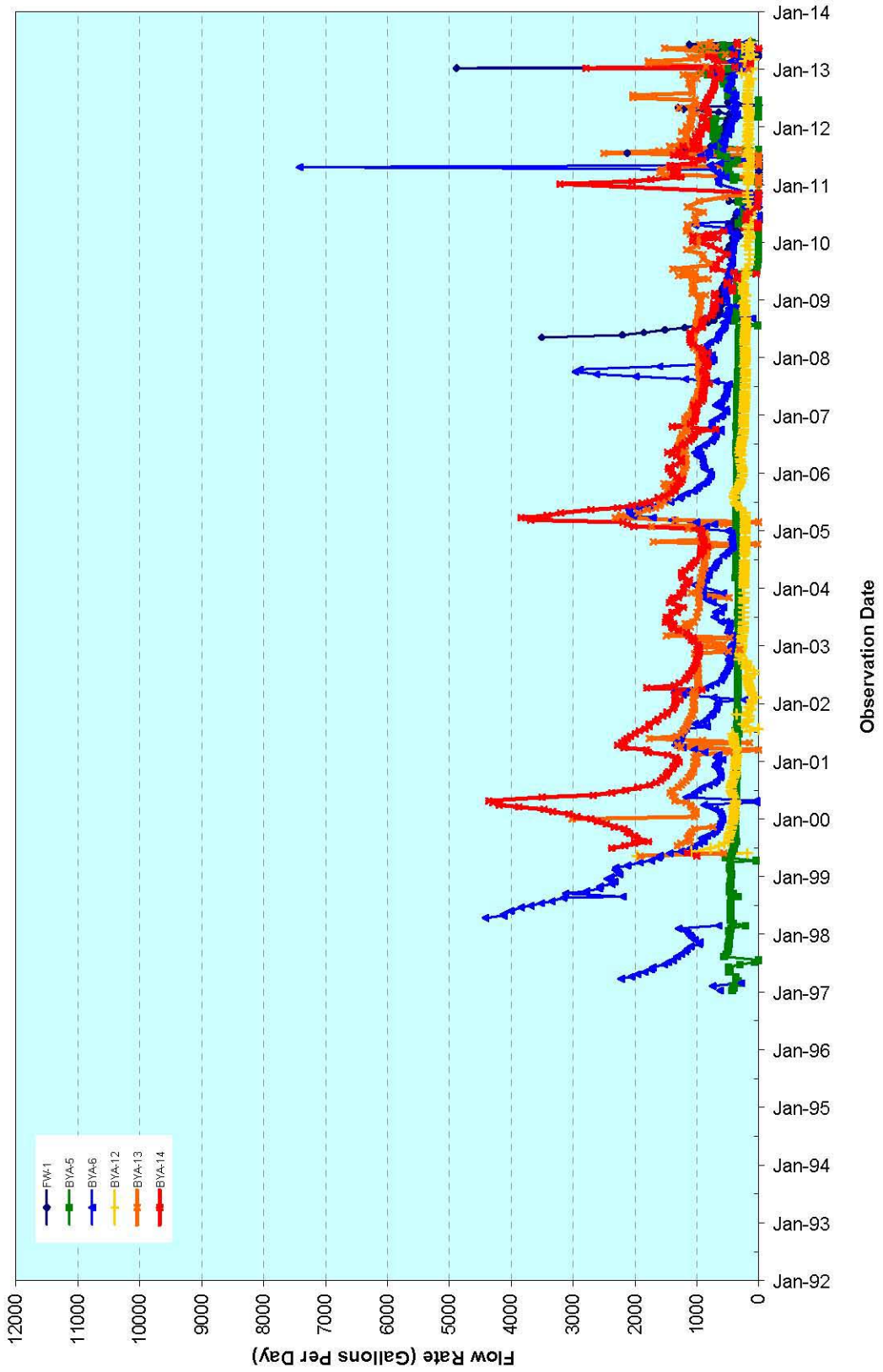
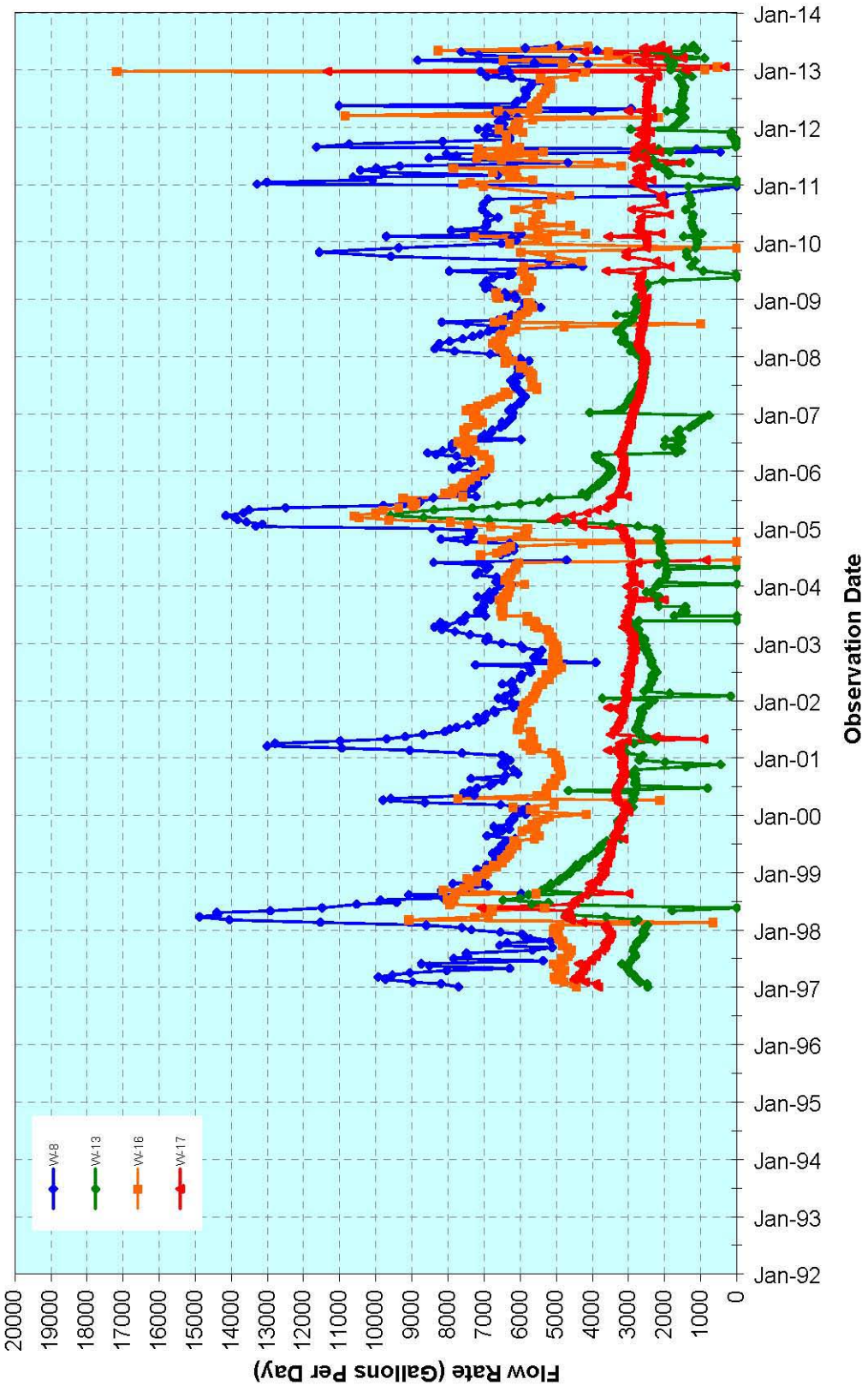
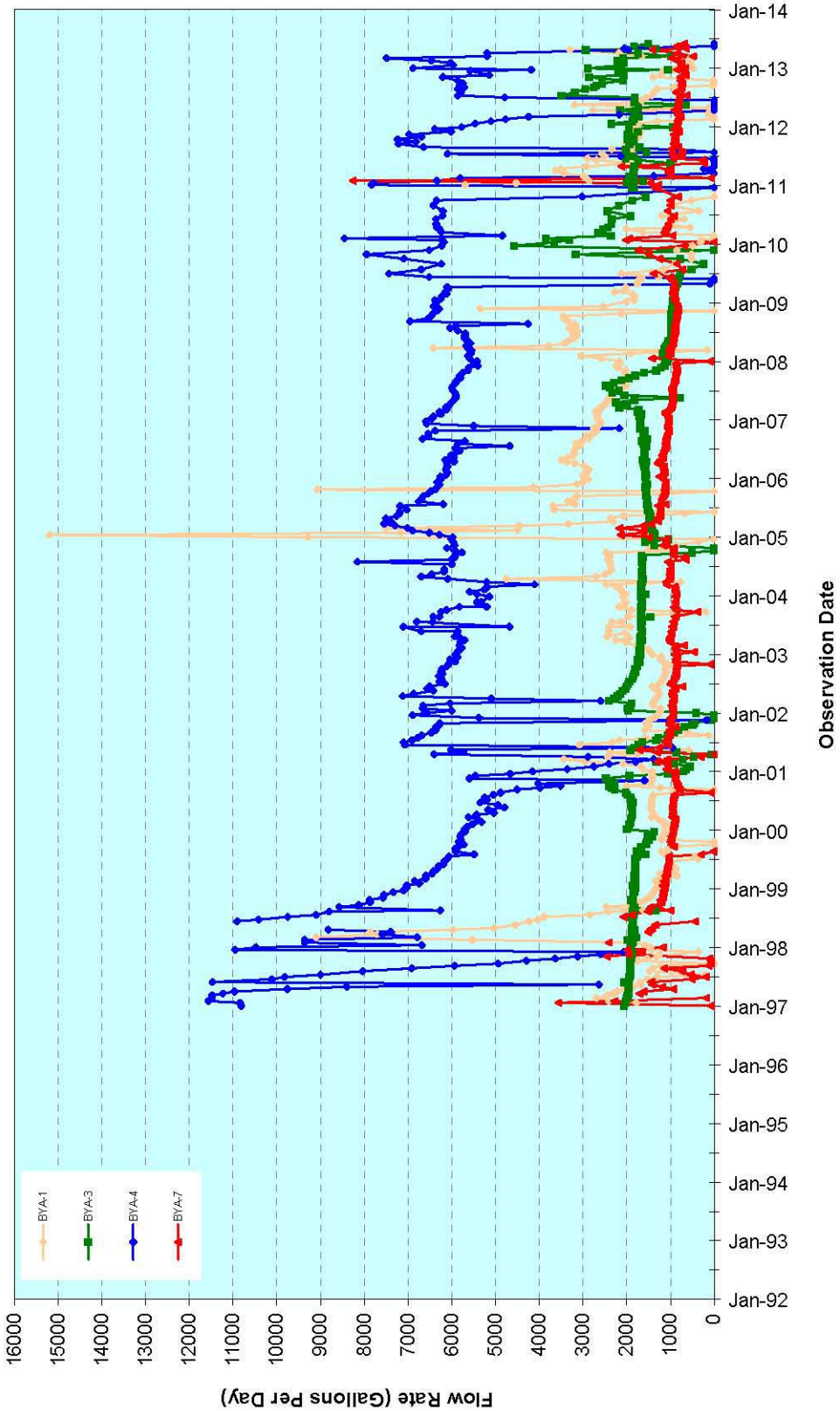
PLATE B-2a



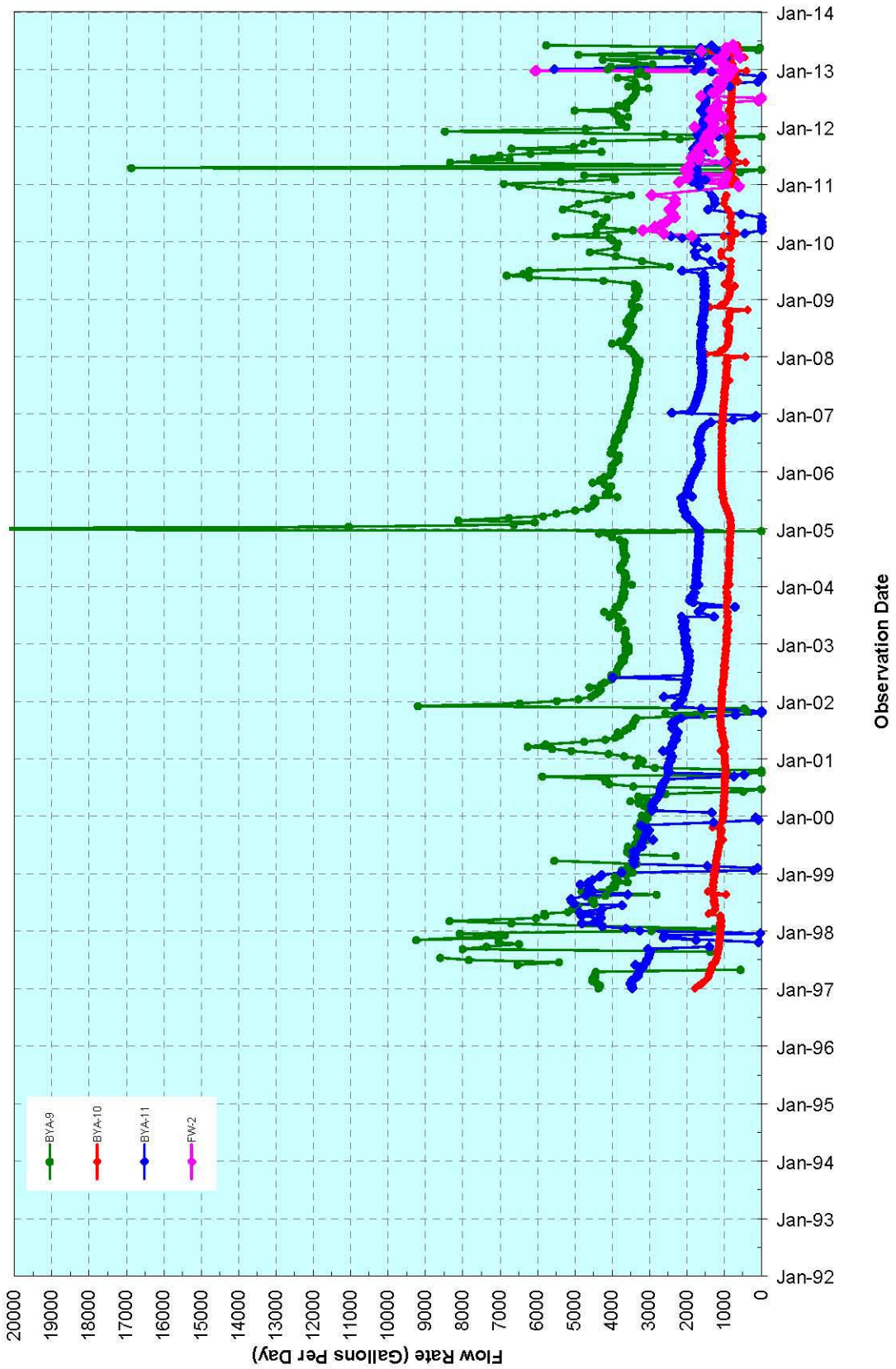
DISCHARGE RATE FOR DEWATERING WELLS
Eastern Mesa Region
Big Rock Mesa Landslide Assessment District
Malibu, California



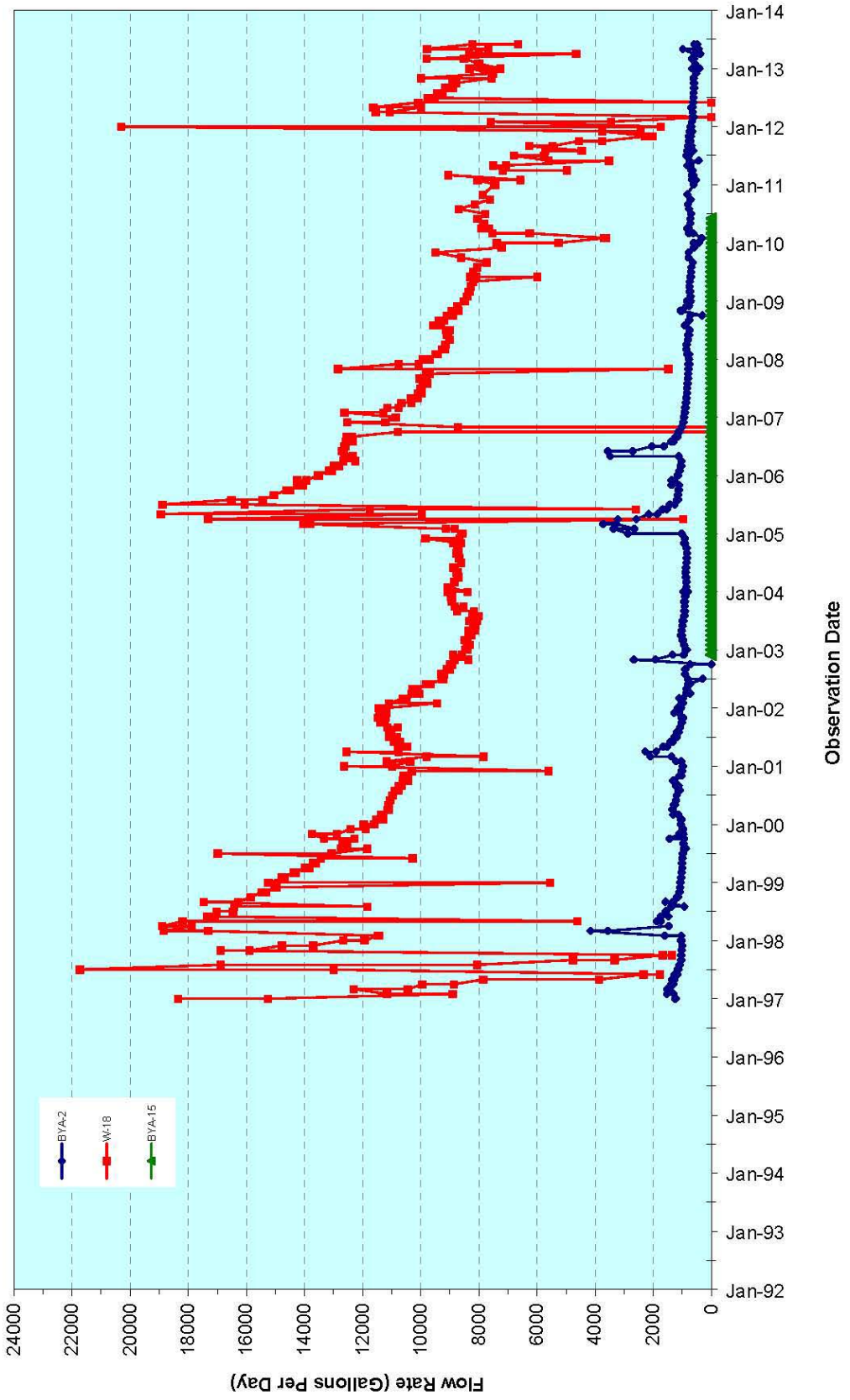
DISCHARGE RATE FOR DEWATERING WELLS
Central Mesa Region
Big Rock Mesa Landslide Assessment District
Malibu, California



DISCHARGE RATE FOR DEWATERING WELLS
Central Mesa Region
Big Rock Mesa Landslide Assessment District
Malibu, California



DISCHARGE RATE FOR DEWATERING WELLS
Central Mesa Region
Big Rock Mesa Landslide Assessment District
Malibu, California



DISCHARGE RATE FOR DEWATERING WELLS
Western Extension
Big Rock Mesa Landslide Assessment District
Malibu, California

APPENDIX C
HYDRAUGER DATA

Big Rock Mesa: Hydrauger Data							
HYDRAUGER ID	INSTALLED LENGTH (ft.)	OPEN LENGTH (ft.)**	Orientation/ Slope	2012-2013 Average Flow (GPD)	% OF TOTAL PRODUCTION	Rank	INSTALLED BY
H-1	700	210**	S115W / 3	17	0.1%	22	MT
HD-4	760	10	-	1155	9.9%	4	D.E.
HD-5	890	530**	-	715	6.1%	5	D.E.
HD-6	980	490**	-	551	4.7%	9	D.E.
HD-7	1160	420**	-	108	0.9%	17	D.E.
HD-9	205	205**	-	604	5.2%	8	D.E.
HD-10	990	170**	-	341	2.9%	13	D.E.
HD-11	540	540**	-	83	0.7%	18	D.E.
HD-12	690	385**	-	1216	10.4%	3	D.E.
HD-15	200	200**	-	215	1.8%	15	D.E.
HD-22	568	540**	-	1522	13.0%	2	D.E.
HD-23	1280	260**	-	1925	16.4%	1	D.E.
HD-24	1030	580**	-	289	2.5%	14	D.E.
HD-25	1005	360**	-	75	0.6%	20	D.E.
HD-26	1200	410**	S37W / 1	344	2.9%	12	D.E.
HD-28	1420	595**	-	4	0.0%	24	D.E.
HD-29	1150	450**	-	79	0.7%	19	D.E.
HD-30	1040	10**	S13W / 7	399	3.4%	11	D.E.
HD-33	340	340	S23W / 5	37	0.3%	21	BYA
HD-41	500	500	S18E / 3	154	1.3%	16	BYA
BYA-H8	500	345**	-	14	0.1%	23	BYA
BYA-H10	500	10**	-	622	5.3%	7	BYA
HD-42	700	700		705	6.0%	6	FWI
HD-43	700	700		545	4.7%	10	FWI
H-2*	Unknown	0	-		--		MT
H-3a*	Unknown	0	-		--		MT
H-3b*	Unknown	0	-		--		MT
H-3c*	Unknown	0	-		--		MT
H-4	680	115**	-		--		MT
H-5a*	Unknown	0	-		--		MT
H-5b*	Unknown	0	-		--		MT
H-6a*	100	96	-		--		CT
H-6b*	100	96	-		--		CT
H-7a*	100	100	-		--		CT
H-7b*	100	96	-		--		CT
H-7c*	50	0	-		--		CT
H-8*	Unknown	0	-		--		CT
HD-1*	350	340**	-		--		D.E.
HD-2a*	70	33	-		--		D.E.
HD-2b*	Unknown	0	-		--		D.E.
HD-2c*	460	0	-		--		D.E.
HD-3	560	90**	-		--		D.E.
HD-8*	530	170**	-		--		D.E.
HD-13*	650	14	-		--		D.E.
HD-14*	130	130**	-		--		D.E.
HD-16	575	575**	-		--		D.E.
HD-17*	750	176	-		--		D.E.
HD-18*	870	285	-		--		D.E.
HD-19*	1000	182	-		--		D.E.
HD-20*	1000	446	-		--		D.E.
HD-21*	1560	147	-		--		D.E.
HD-27*	700	327	-		--		D.E.
HD-31*	140	113	-		--		D.E.
HD-32*	835	700**	-		--		D.E.
HD-34	150	150	S40W / 10		--		BYA
HD-35*	40	40	-		--		BYA
HD-36*	150	150	-		--		BYA
HD-37*	430	50	-		--		BYA
HD-38A*	140	140	S23W / 5		--		BYA
HD-38B*	140	140	S18W / 6		--		BYA
HD-39	400	400	S15E / 5		--		BYA
HD-40*	595	595	S25W / 6		--		BYA
BYA-6a*	350	20**	-		--		BYA
BYA-6b	60	60	-		--		BYA
BYA-7	400	375**	-		--		BYA
BYA-H9*	550	550**	-		--		BYA
BYA-H11*	450	400**	S7E / 3		--		BYA

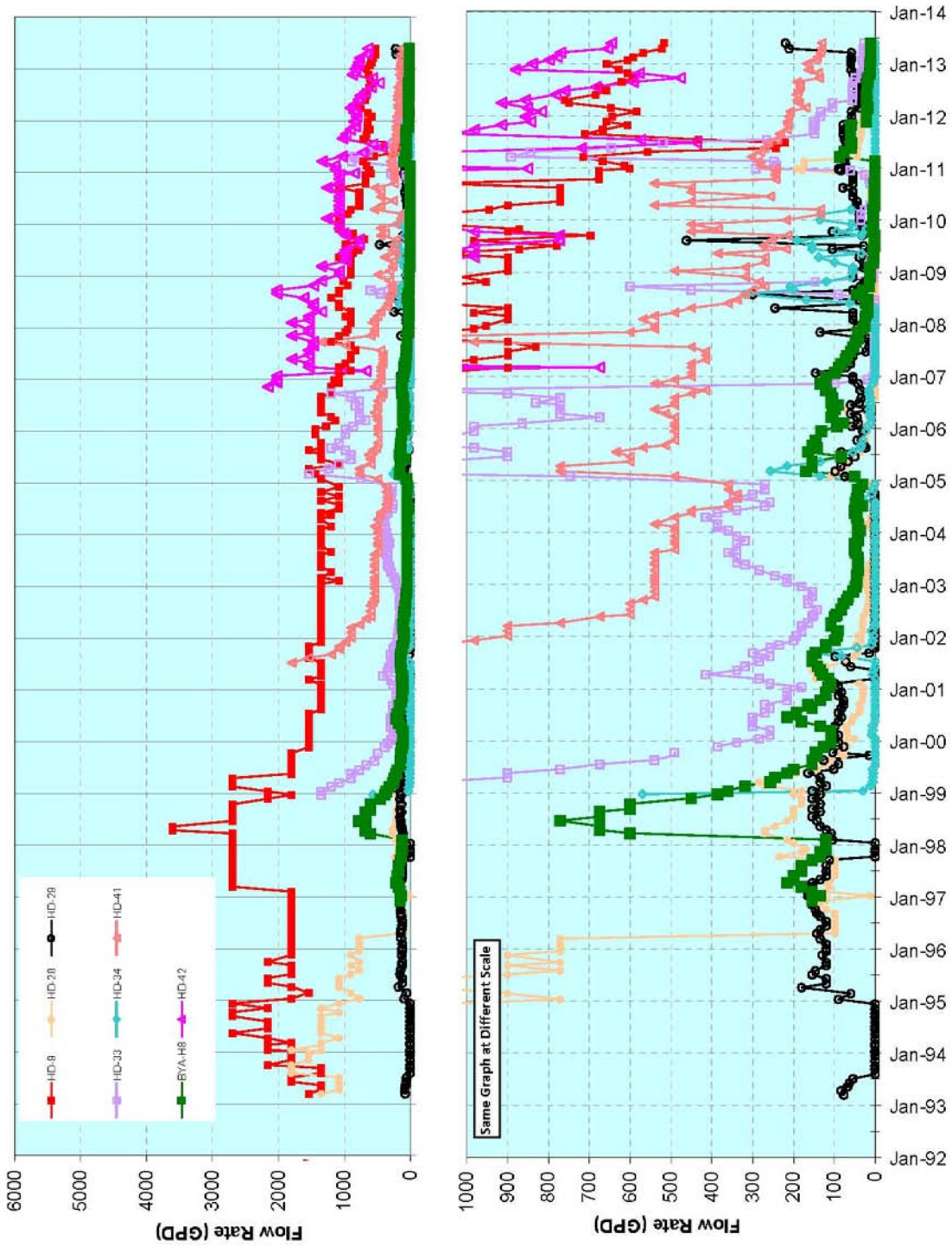
** Not functioning or no longer monitored hydrauger*

*** Open Length is Measured on 10-1997 by BYA*

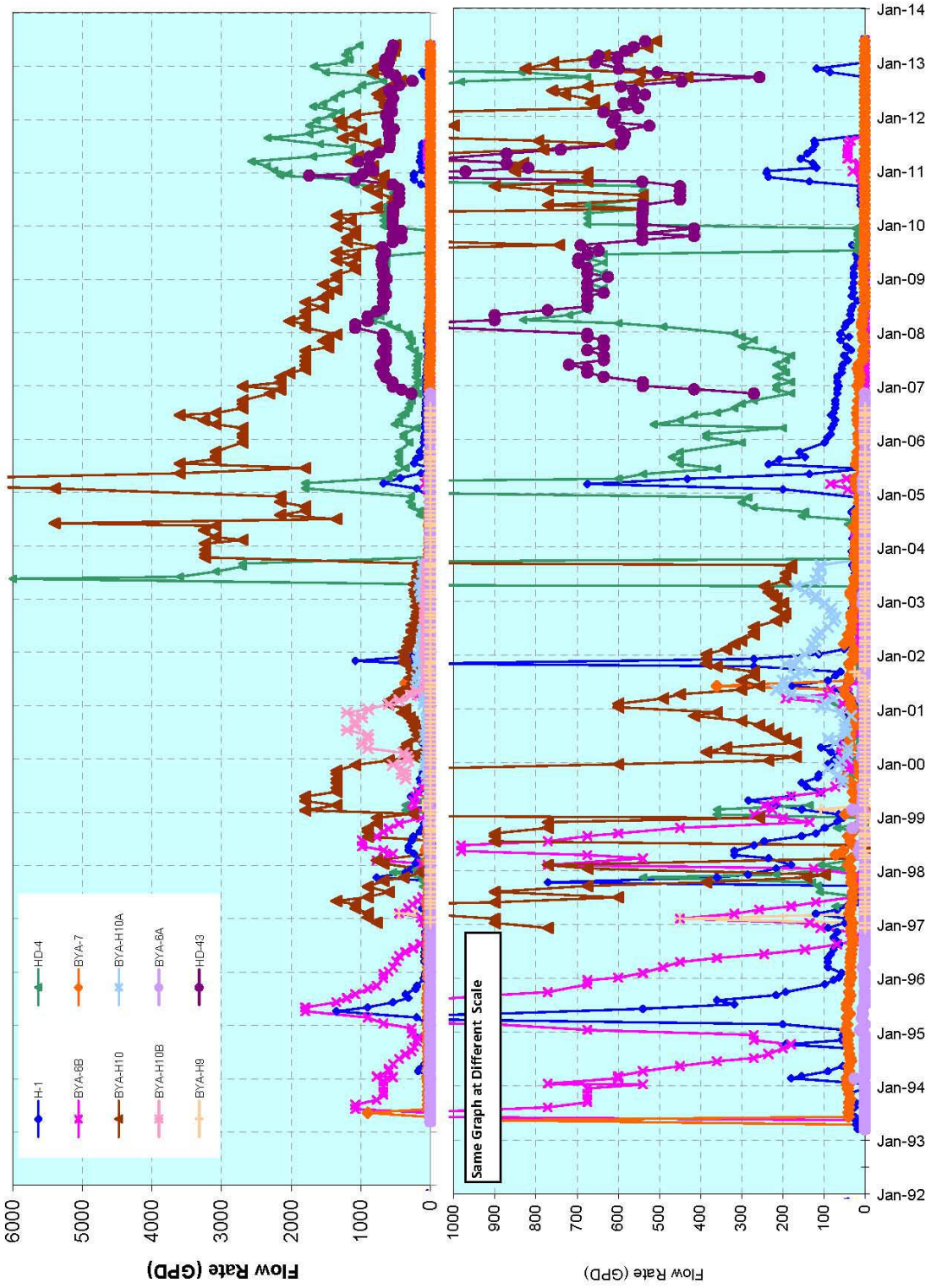
Installed by: MT = Moore & Taber; CT = Caltrans; D.E. = D.A. Evans; BYA = Bing Yen & Associates; FWI = Fugro West, Inc.

SUMMARY OF HYDRAUGER INFORMATION

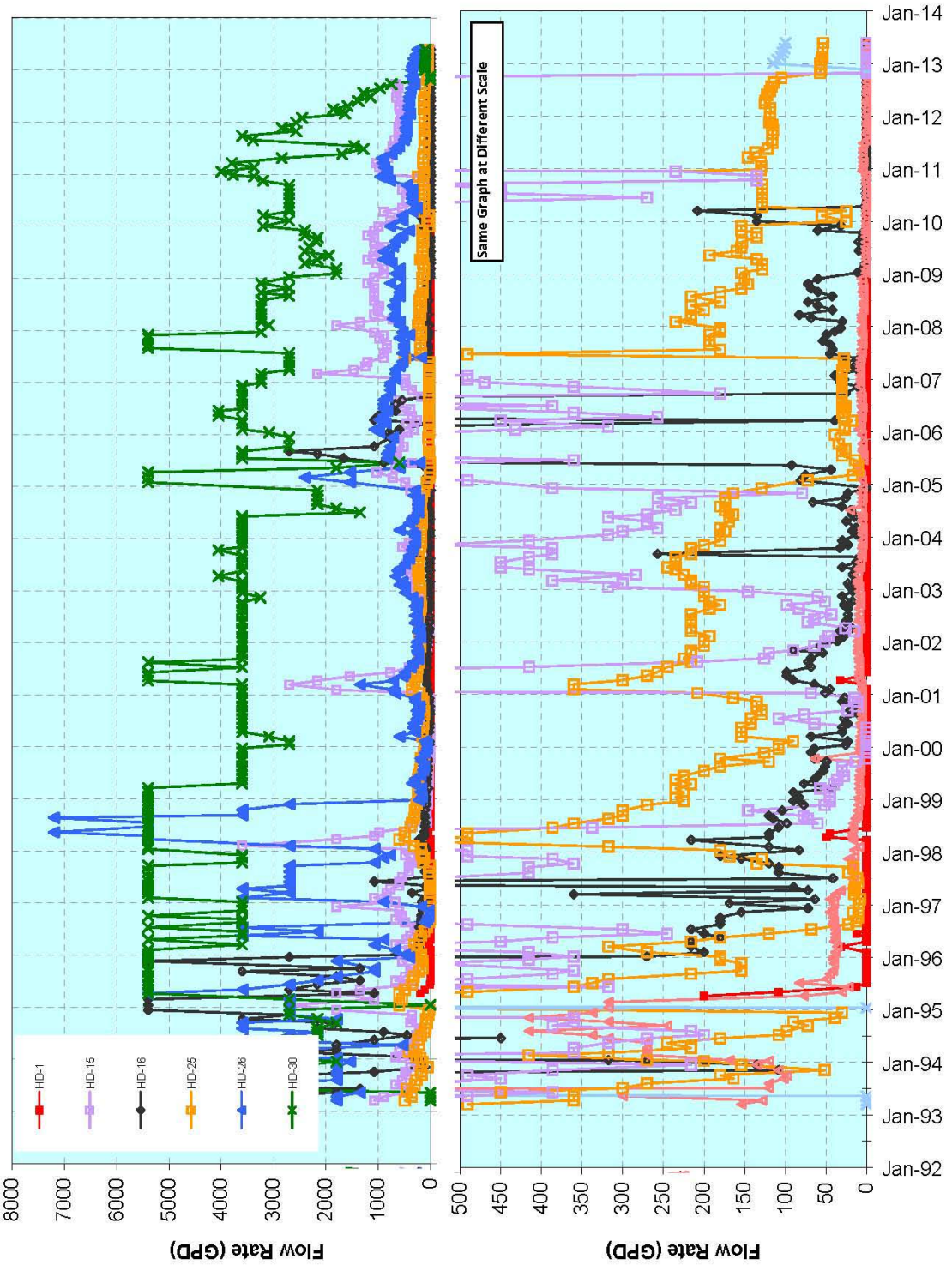
Big Rock Mesa Landslide Assessment District
Malibu, California



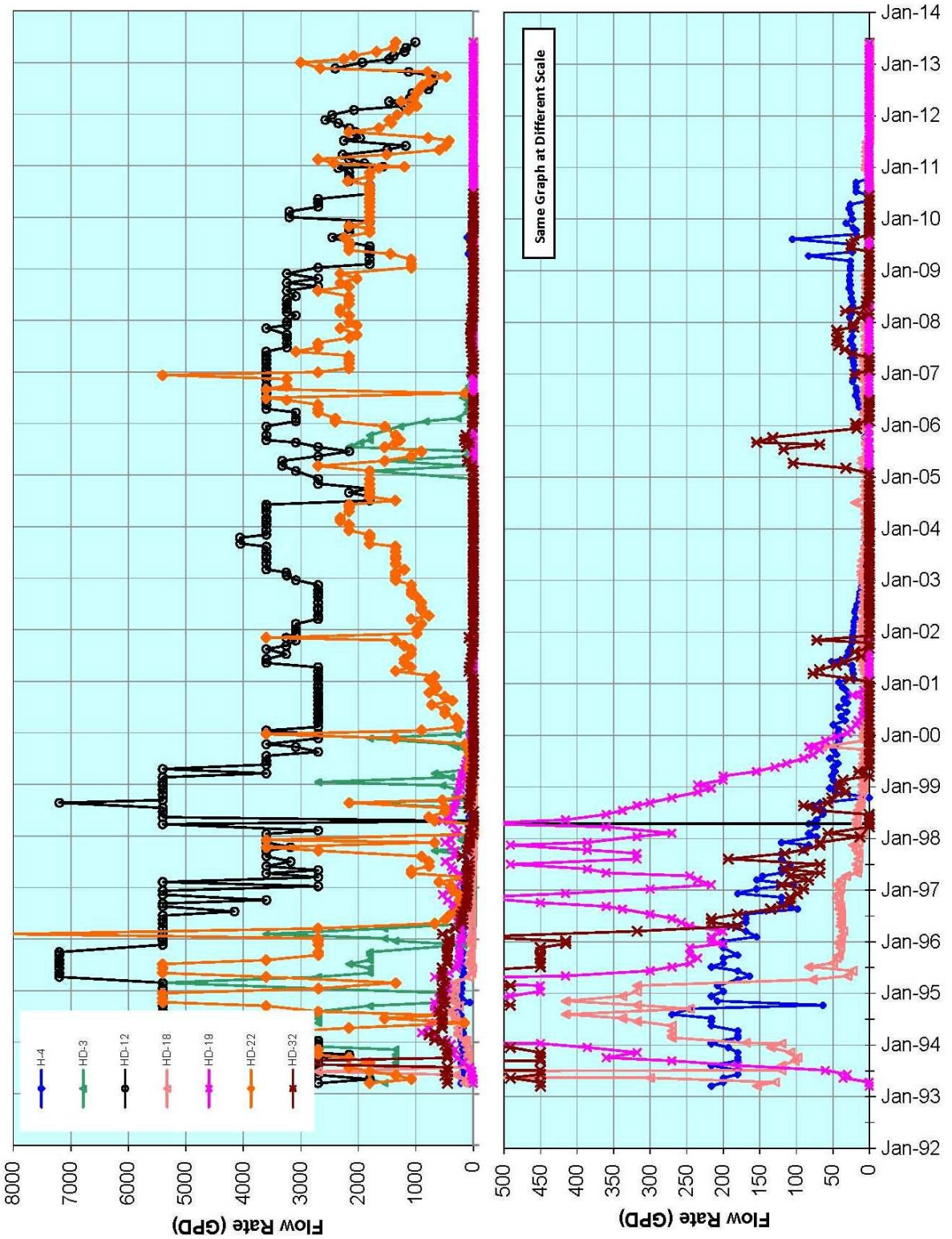
DISCHARGE RATE FOR HYDRAUGERS
Eastern Mesa Region
Big Rock Mesa Landslide Assessment District
Malibu, California



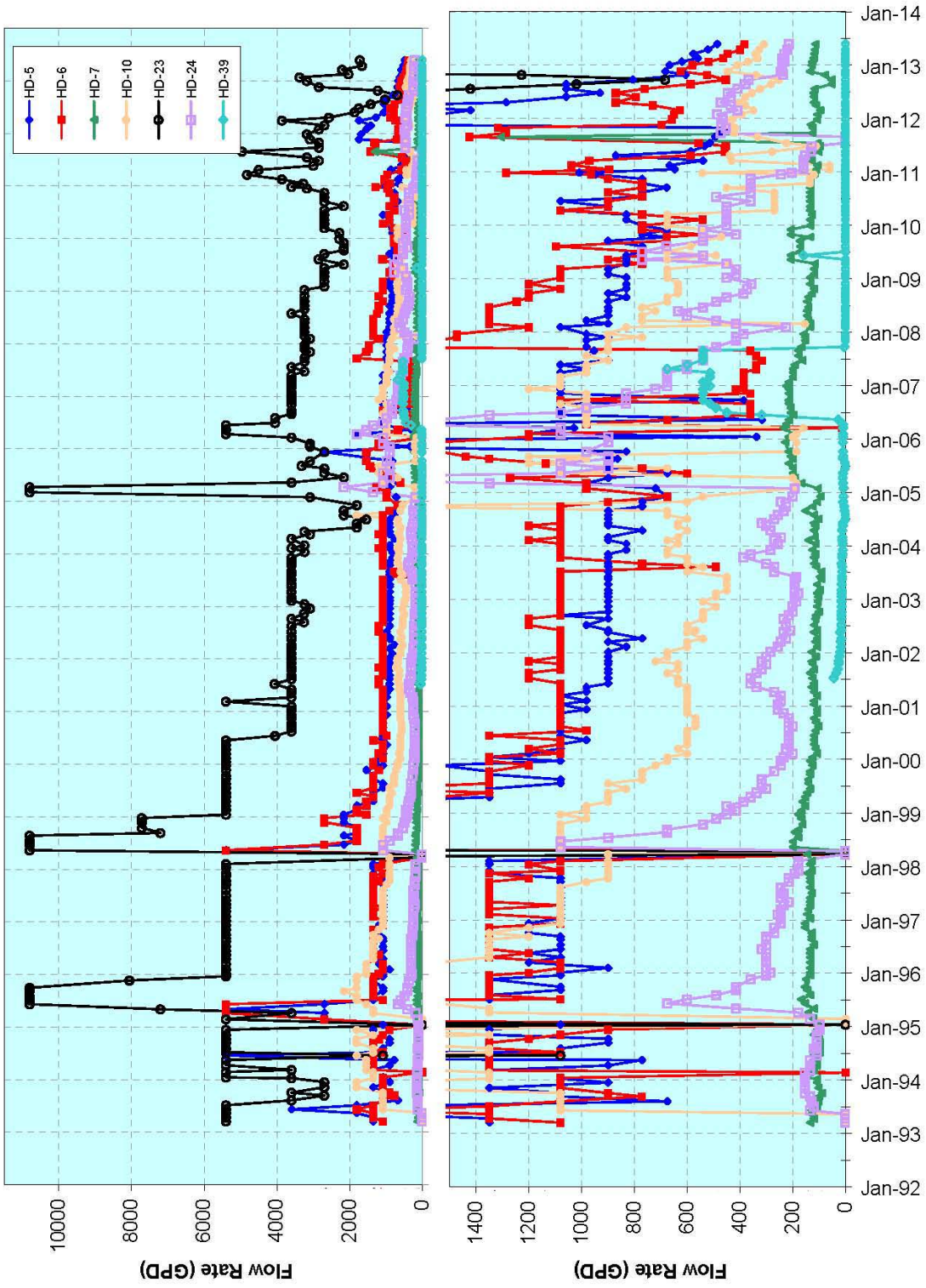
DISCHARGE RATE FOR HYDRAUGERS
Eastern Mesa Region
Big Rock Mesa Landslide Assessment District
Malibu, California



DISCHARGE RATE FOR HYDRAUGERS
Central Mesa Region
Big Rock Mesa Landslide Assessment District
Malibu, California



DISCHARGE RATE FOR HYDRAUGERS
Central Mesa Region
Big Rock Mesa Landslide Assessment District
Malibu, California



DISCHARGE RATE FOR HYDRAUGERS
Western Extension
Big Rock Mesa Landslide Assessment District
Malibu, California

APPENDIX D
SLOPE INCLINOMETER PLOT/DATA

Big Rock Mesa: Slope Inclinometer Interpretation Summary

	PCH																	BLUFF			EAST						CENTRAL											WESTERN				HEAD	
	SP-1	SP-11	SP-12	SP-14	SP-15	SP-19	SP-27A	SP-29	SP-30	SP-2	SP-5	SP-5A	SP-6	SP-7	SP-8	SP-8A	SP-31	SP-37	SP-10	SP-28	SP-32	PC-1	SP-3	SP-3A	SP-33	BYA-5A	SP-18	SP-9A	SP-16A	SP-17	SP-17A	SP-17B	SP-24	SP-34	SP-35	SP-36	SP-4	SP-16	SP-20	SP-21	SP-22	SP-23	SP-26	SP-38
Installation Details																																												
Surface Elev.	NI	27	26	25	20	25	29	27	29	NI	NI	NI	NI	NI	NI	NI	NI	NI	295	270	233	250	212	203	318	NI	NI	365	285	540	540	540	370	270	345	380	NI	285	430	660	780	860	745	NI
Original Depth (ft)	43	59	95	32	88	95	100	140	155	32	98	146	102	Unknown	Unknown	106	140	336	330	365	360	160	240	295	375	300	78	378	390	192	325	250	390	360	360	200	245	380	330	380	335	390	350	Unknown
Measured Depth (ft)	NI	56	38	30	80	82	92	138	126	NI	NI	146	NI	NI	NI	106	NI	NI	332	250	350	158	132	244	374	186	NI	298	392	190	238	250	384	380	394	254	96	240	322	280	330	396	342	NI
Casing Diameter	NI	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	NI	NI	2.75	NI	NI	NI	2.75	NI	NI	2.75	2.75	2.75	2.75	2.75	2.75	2.75	NI	NI	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	NI	NI	3.5	2.75	2.75	3.5	3.5	NI
Casing Type	NI	SI/cc	Alum/cc	SI/cc	Alum/cc	Alum/cc	Alum/cc	SI	SI	NI	NI	NI	NI	NI	NI	NI	NI	NI	Alum/cc	Alum	Alum/cc/ mod	SI/1.5"	Alum/cc	Alum/cc	Alum/cc/ mod	NI	NI	Alum	Alum/cc	SI/cc	SI	SI	Alum	SI	SI	SI	NI	NI	Alum/3.5 "/cc	Alum/cc	Alum	Alum/3.5 "	Alum/3.5"	NI
Perforated interval	NI	-31 to -26	-14 to -9	-5 to 0	-62 to -57	-57 to -52	-65 to -60	-111 to -106	-99 to -94	NI	NI	bottom	NI	NI	NI	bottom	NI	NI	-37 to -32	-88 to -83	-121 to -116	92 to 97	80 to 85	-43 to -38	-56 to -51	NI	NI	65 to 70	-107 to -102	348 to 353	302 to 307	None	NI	-112 to -107	-51 to -46	126 to 131	NI	45 to 50	104 to 204	380 to 385	448 to 453	462 to 562	NI	NI
Backfill	NI	Sand	NI	NI	NI	NI	NI	NI	NI	NI	NI	Grout	NI	NI	NI	Grout	NI	NI	NI	NI	NI	Grout	Sand	Sand	NI	NI	NI	NI	NI	NI	Grout	Grout	NI	Grout	Grout	Grout	NI	NI	Filter	NI	NI	NI	Sand	NI
Installed By	KB	EVANS	EVANS	EVANS	EVANS	EVANS	EVANS	EVANS	EVANS	KB	CT	BYA	CT	CT	CT	BYA	EVANS	CT	EVANS	EVANS	EVANS	BYA	EVANS	EVANS	EVANS	BYA	LS	EVANS	EVANS	EVANS	BYA	Fugro	CONV	BYA	BYA	BYA	EVANS	EVANS	CONV	EVANS	CONV	CONV	CONV	EVANS
Reading Interval	NR	Quart	Quart	Quart	Semi.	Semi.	Quart	Quart	Quart	NR	NR	NR	NR	NR	NR	NR	NR	NR	Quart	Quart	Quart	Quart	Semi.	Quart	Quart	NR	NR	Semi.	Semi.	NR	NR	Quart	Semi.	Quart	Quart	Quart	NR	NR	Semi.	Semi.	Semi.	Semi.	Quart	NR
Status	D	F	F	F	F	F	F	F	F	D	D	D	D	D	D	D	D	D	F	F	F	F	F	F	F	D	D	F	F	F	F	F	F	F	F	F	D	D	F	F	F	F	F	D
Date 1st Base Reading	10/31/63	9/13/88	9/13/88	9/13/88	3/10/88	9/3/89	12/10/87	10/19/88	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	11/5/87	9/6/88	9/7/88	6/8/95	9/7/88	NI	6/3/87	NI	NI	3/10/88	3/10/88	NI	2/10/89	11/13/12	9/6/88	2/19/99	11/24/98	11/20/98	11/18/83	NI	11/5/87	7/2/87	7/2/87	9/6/88	9/13/88	NI
Displacement Depth		0 to 25	23, 43		58	60	25-30	48-54	39	NI	NI	NI	NI	NI	NI	NI	NI	NI	>330	245	110,250	143, 50	132, 170, 220	247, 200	210, 50	NI	NI	305	380	140,184	196	NI					78	NI	251	142	NI	NI	NI	45,130	NI
A+ axis direction	NI	34	44	35	20	30	350	64	10	NI	NI	NI	NI	NI	NI	NI	NI	NI	39	204	18	190	32	60	20	NI	NI	340	330	10	60	NI	326	210	184	164	NI	NI	1	300	345	5	45	NI
Region	PCH	PCH	PCH	PCH	PCH	PCH	PCH	PCH	PCH	PCH	PCH	PCH	PCH	PCH	PCH	PCH	PCH	PCH	BLUFF	BLUFF	BLUFF	EAST	EAST	EAST	EAST	EAST	EAST	CENT.	CENT.	CENT.	CENT.	CENT	CENT.	CENT.	CENT.	CENT.	CENT.	CENT.	WEST.	WEST.	WEST.	WEST.	HEAD	HEAD
Basal Surf. Penetrated		YES	NO	NO	NO	NO	YES	YES	YES										NO	NO	YES	YES	NO	NO	YES			NO	NO	NO	YES	YES	YES	YES	YES	YES	NI	NI	NO	NO	NO	NO	YES	NI
Interpretation Movement (inches)																																												
2012-2013	NA	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	NA	NA	<0.1	<0.1	NA	NA	<0.1	<0.1	<0.1	<0.1	<0.1	NA	NA	<0.1	<0.1	<0.1	0.1	<0.1	NA
2011-2012	NA	<0.1	--	--	--	--	<0.1	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.5	<0.1	0.2	0.05	--	0.2	0.2	NA	NA	--	--	0.25	0.1		--	--	--	0.3	NA	NA	0.2	0.2	0.4	0.1	0.1	NA
2010-2011	NA	<0.1	--	--	--	--	<0.1	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	<0.1	<0.1	--	--	0.2	<0.1	NA	NA	--	--	0.5	--		--	--	--	--	NA	NA	--	--	--	<0.1	--	NA
2009-2010	NA	--	--	--	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	0.1	--	--	--	--	<0.1	NA	NA	--	--	--	--		--	--	--	--	NA	NA	--	--	--	0.1	<0.05	NA
2008-2009	NA	--	--	--	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	0.10	--	0.1	NA	NA	--	--	--	--		--	--	--	--	NA	NA	--	--	--	--	--	NA
2007-2008	NA	--	--	--	--	--	0.05	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	0.1	NA	NA	--	--	--	--		--	--	--	--	NA	NA	--	--	--	--	--	NA
2006-2007	NA	--	--	--	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	0.1	NA	NA	--	--	--	--		--	--	--	--	NA	NA	--	--	--	--	--	NA
2005-2006	NA	--	--	--	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	NA	--	--	--	--	--	NA	NA	--	--	--	0.1		--	--	--	--	NA	NA	--	--	--	--	0.22	NA
2004-2005	NA	0.09	0.03	--	0.03	0.01	0.04	0.04	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	0.05	0.02	--	--	0.10	0.06	NA	NA	?	0.06	0.09	0.09		0.15	--	--	--	NA	NA	--	--	--	--	0.35	NA
2003-2004	NA	--	--	--	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	NA	NA	--	--	--	--		--	--	--	--	NA	NA	--	--	--	--	--	NA
2002-2003	NA	--	--	--	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	NA	NA	--	--	--	--		--	--	--	--	NA	NA	--	--	--	--	--	NA
2001-2002	NA	--	--	--	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	NA	NA	--	--	--	--		--	--	--	--	NA	NA	--	--	--	--	--	NA
2000-2001	NA	--	--	--	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	~0.02-0.04"	--	--	--	--	~0.05"	NA	NA	--	--	--	0.02-0.04"		--	--	--	--	NA	NA	--	--	--	--	0.2	NA
1999-2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	--	--	--	NA	NA
1998-1999	NA	~0.1	--	--	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--	--	<0.5	--	--	--	NA	NA	--	--	--	--		--	--	--	--	NA	NA	--	--	--	--	1.9	NA
1997-1998	NA	0.3	--	--	--	--	0.08	0.04	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--	--	0.08	--	0.02	0.08	NA	NA	--	--	--	0.03		--				NA	NA	--	--	--	--	1	NA
1996-1997	NA	<0.1	--	--	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--	--	<0.1	--	0.5	--	NA	NA	--	--	--	--		--				NA	NA	--	--	--	--	0.7	NA
1995-1996	NA	0.08	<0.1	--	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--	--	0.07	--	--	--	NA	NA	--	--	--	0.04		--				NA	NA	--	--	--	--	3.5	NA
1994-1995	NA	0.1	0.08	--	--	--	0.15	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--	--	0.04, 0.05	--	--	0.1, 0.2	NA	NA	--	--	--	--		--				NA	NA	--	--	--	--	5	NA
1993-1994	NA									NA	NA	NA	NA	NA	NA	NA	NA	NA								NA	NA										NA	NA						NA
1/1993-7/1993	NA	0.08	--	--	--	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--	--		--	0.2	--	NA	NA	--	--	--	--		--				NA	NA	--	--	--	--	1.1	NA
7/1992-12/1992	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA					NA	NA	NA	NA	NA	NA	NA	NA
1988-1991	NA	0.2	0.05	--	0.08	--	0.15	0.1	0.14	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--	--		--	0.3	0.05	NA	NA	--	--	--	--	0.1					NA	NA	--	--	--	--	0.3	NA
1983-1984	2.28	3.4					1.4																8.4							4.8							4.7							

NI	No Information	--	No quanitifiable measurement	Installation Designations:	KB	Kovacs-Byer, Inc.	GS	GeoSoils
Semi	Semi-Annually	NA	Data not available		EVANS	D.A. Evans	BYA	Bing Yen & Associates
Quart	Quarterly	NR	No Reading		CT	Caltrans	LS	Lockwood-Singh
F	Functioning				CONV	Converse Consultants		
D	Destroyed							

-- Shaded Blue to indicate inclinometer does NOT penetrate the basal rupture

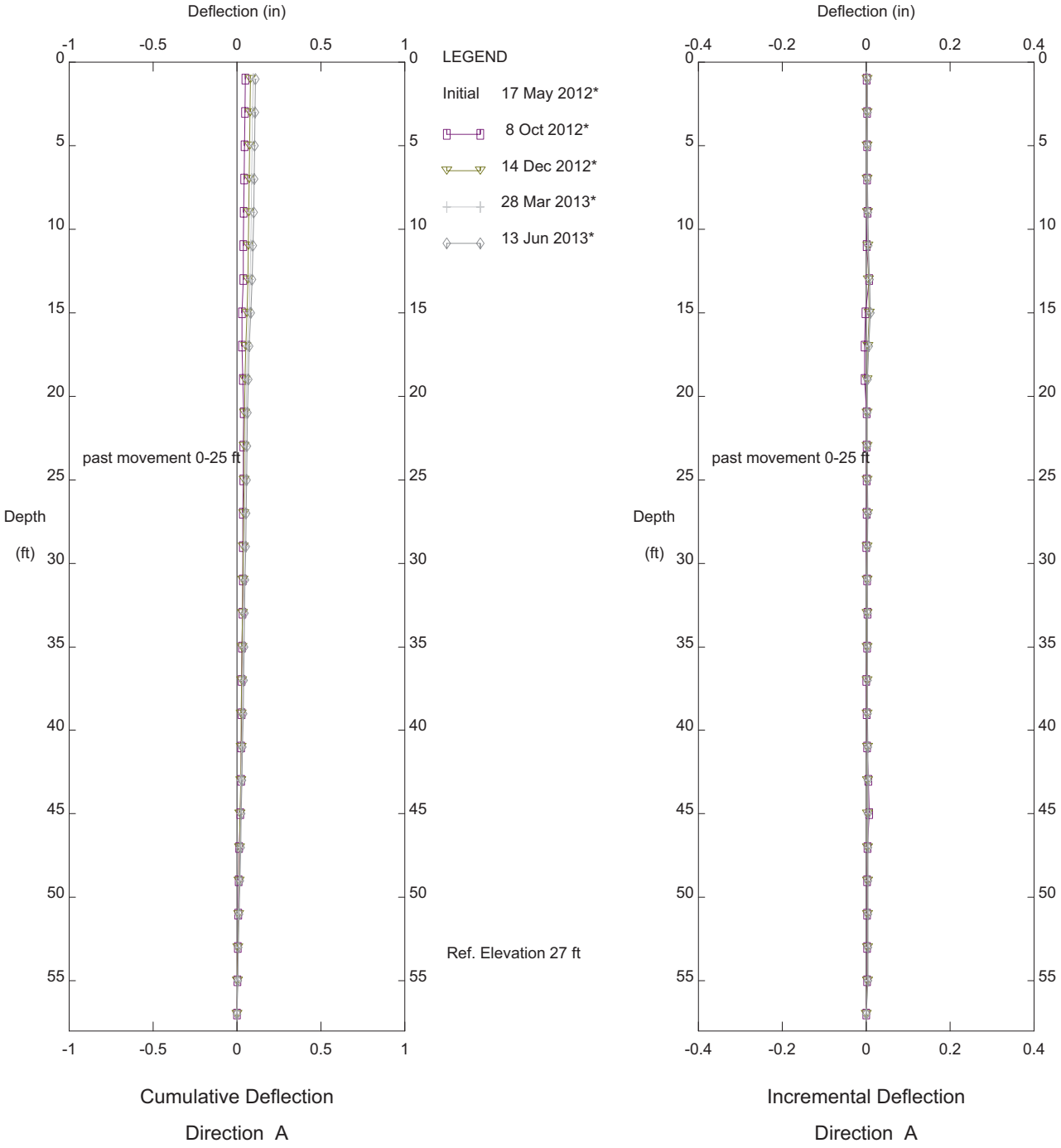
-- Shaded yellow to indicated inclinometer does penetrate basal rupture

-- Shaded gray to indicated inclinometer is no longer monitored

SLOPE INCLINOMETER INFORMATION
Big Rock Mesa Landslide Assessment District
Malibu, California

PLATE D-1

Fugro West, Inc. - Ventura, CA



BIG ROCK MESA, Inclinometer SP-11

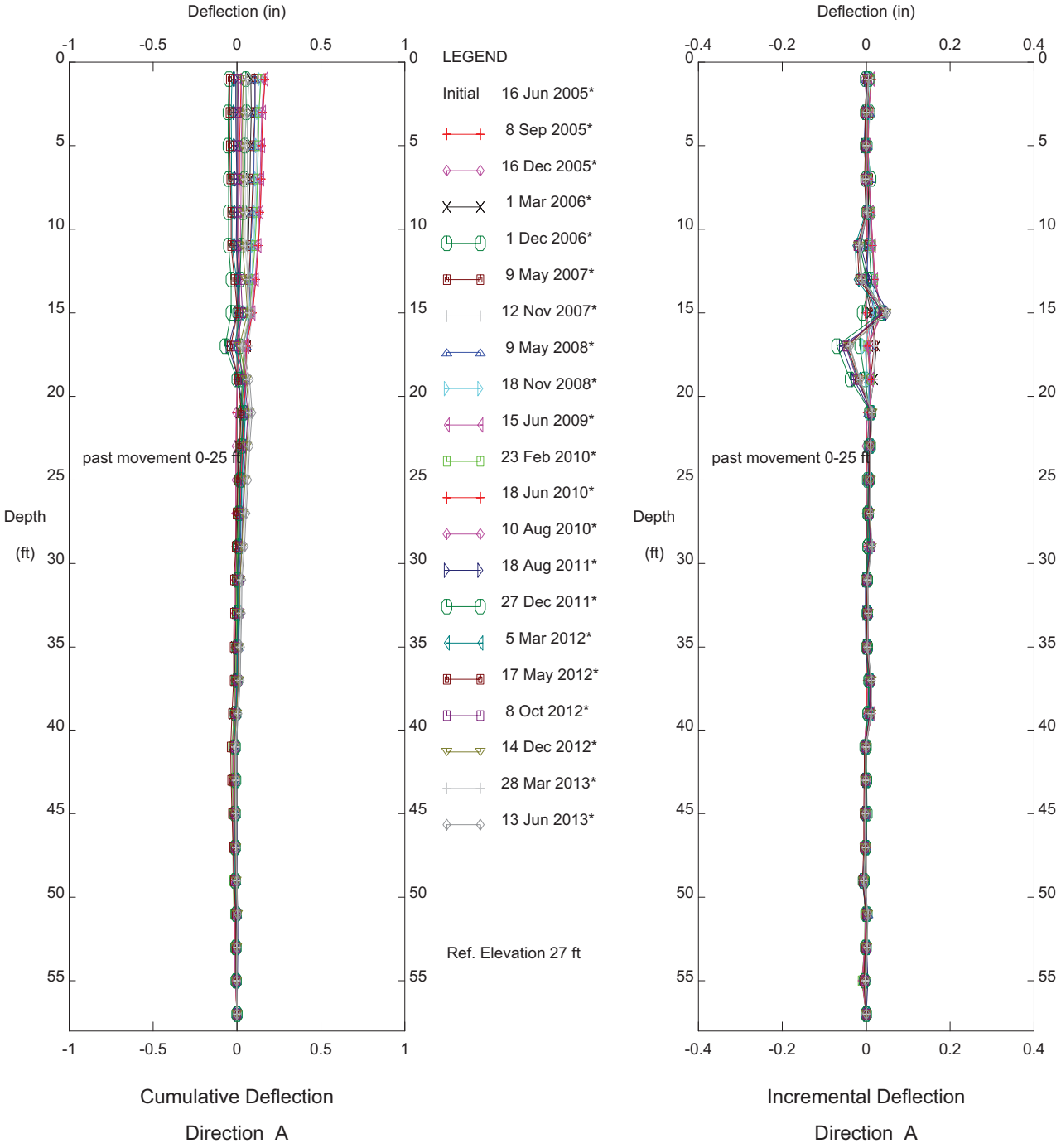
PCH REGION

Sets marked * include zero shift and/or rotation corrections.

C:\USERS\JREEVES\DESKTOP\FUGRO STUFF\DATA\BIG ROCK\SI DATA\SP11.GTL

PLATE D-2a

Fugro West, Inc. - Ventura, CA



Cumulative Deflection

Direction A

Incremental Deflection

Direction A

BIG ROCK MESA, Inclinometer SP-11

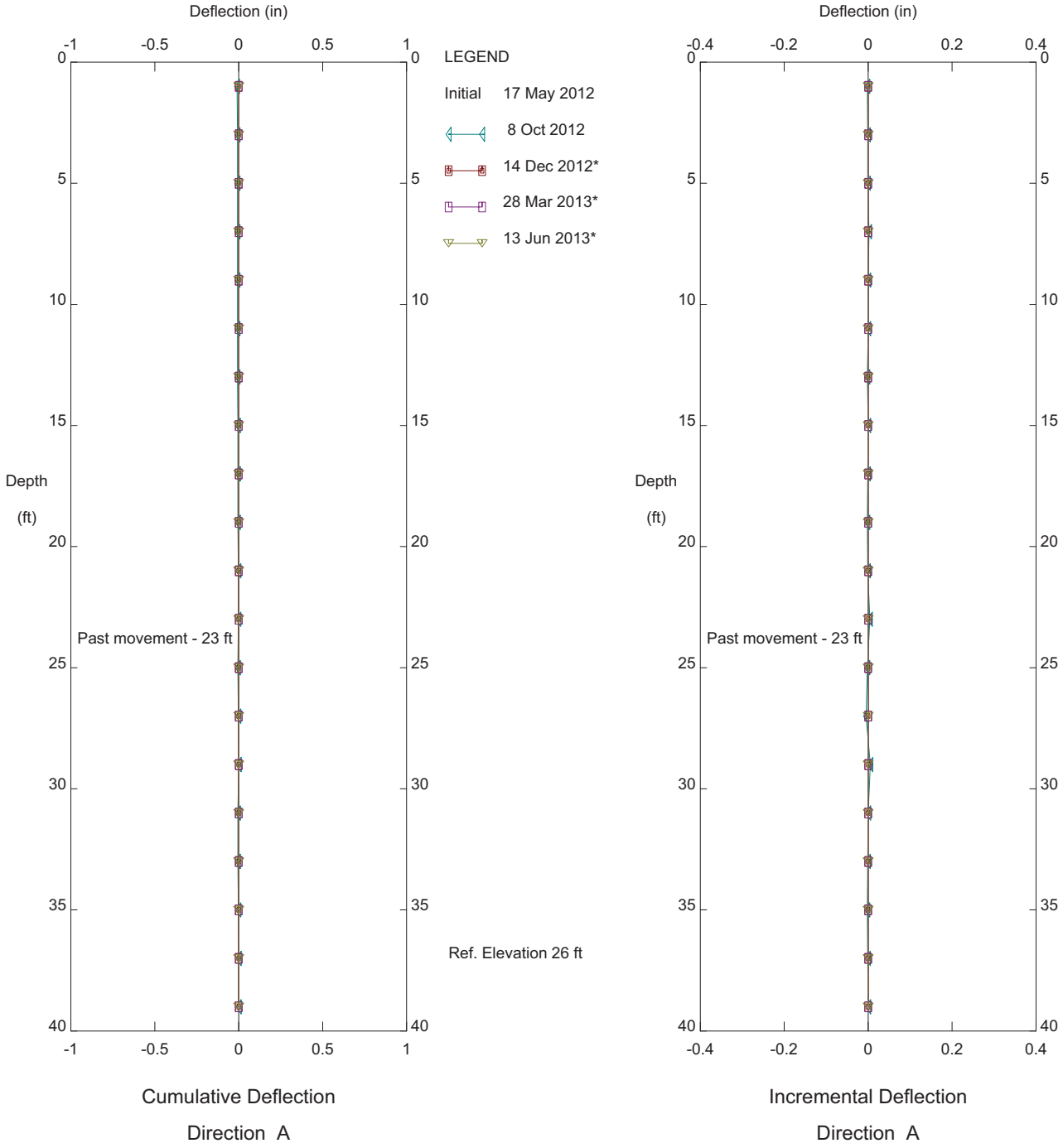
PCH REGION

Sets marked * include zero shift and/or rotation corrections.

C:\USERS\JREEVES\DESKTOP\FUGRO STUFF\DATA\BIG ROCK\SI DATA\SP11.GTL

PLATE D-2b

Fugro West, Inc. - Ventura, CA



BIG ROCK MESA, Inclinometer SP-12

PCH REGION

Sets marked * include zero shift and/or rotation corrections.

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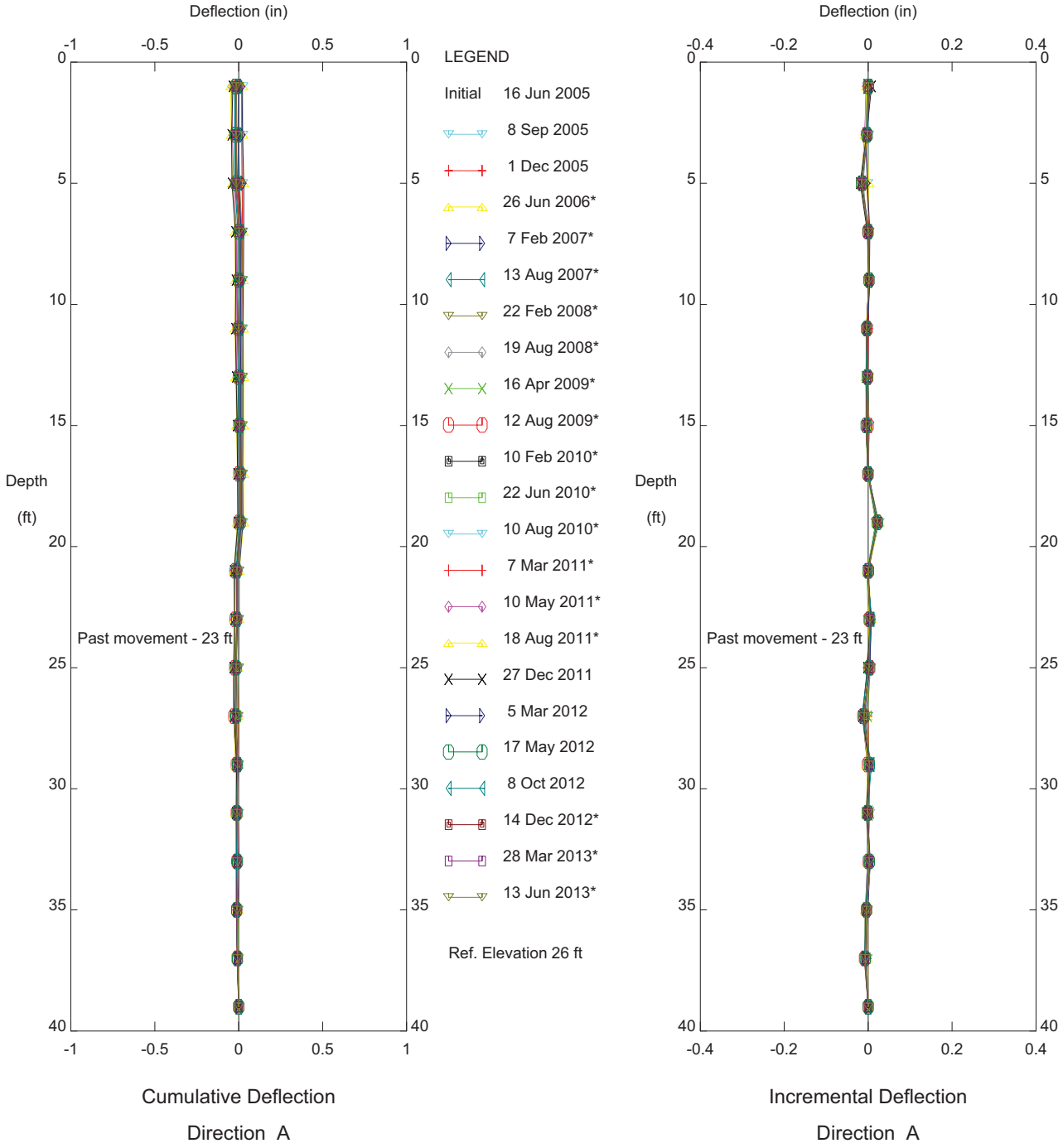
PLATE D-3a

Fugro West, Inc. - Ventura, CA



Cumulative Deflection

Direction A

Incremental Deflection

Direction A

BIG ROCK MESA, Inclinometer SP-12

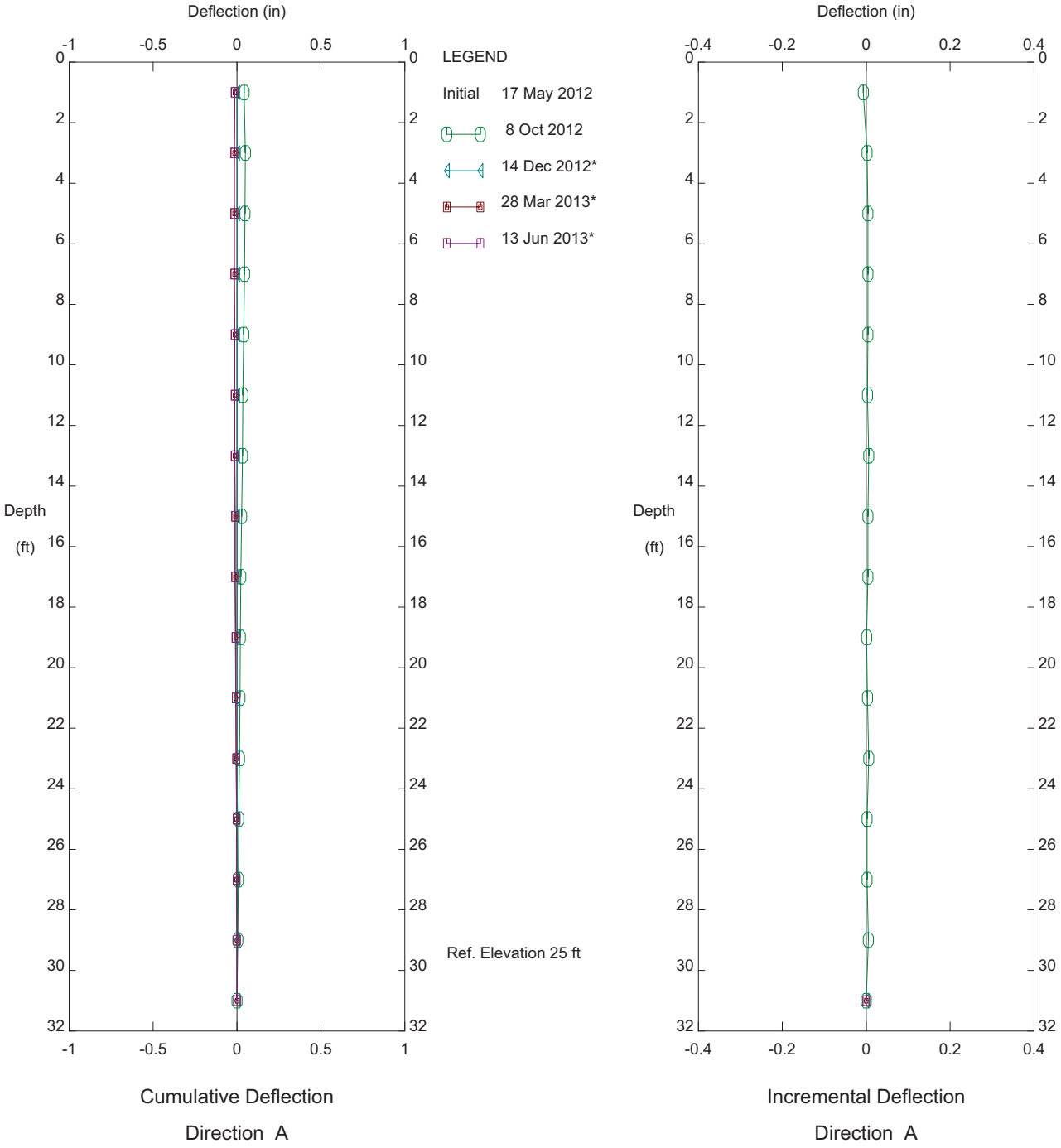
PCH REGION

Sets marked * include zero shift and/or rotation corrections.

C:\USERS\JREEVES\DESKTOP\FUGRO STUFF\DATA\BIG ROCK\SI DATA\SP12.GTL

PLATE D-3b

Fugro West, Inc. - Ventura, CA



BIG ROCK MESA, Inclinometer SP-14

PCH REGION

Sets marked * include zero shift and/or rotation corrections.

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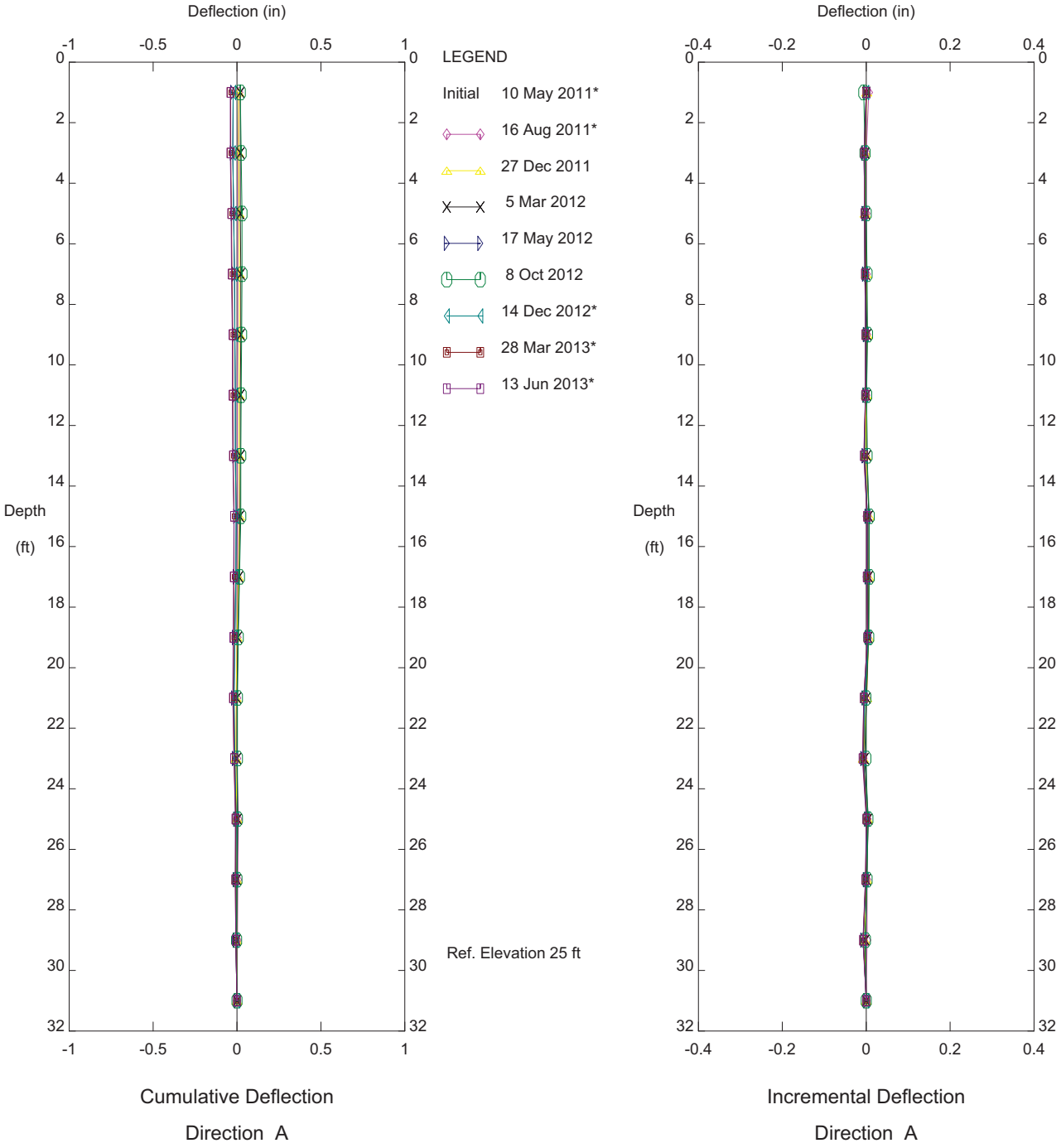
PLATE D-4a

Fugro West, Inc. - Ventura, CA



BIG ROCK MESA, Inclinometer SP-14

PCH REGION

Sets marked * include zero shift and/or rotation corrections.

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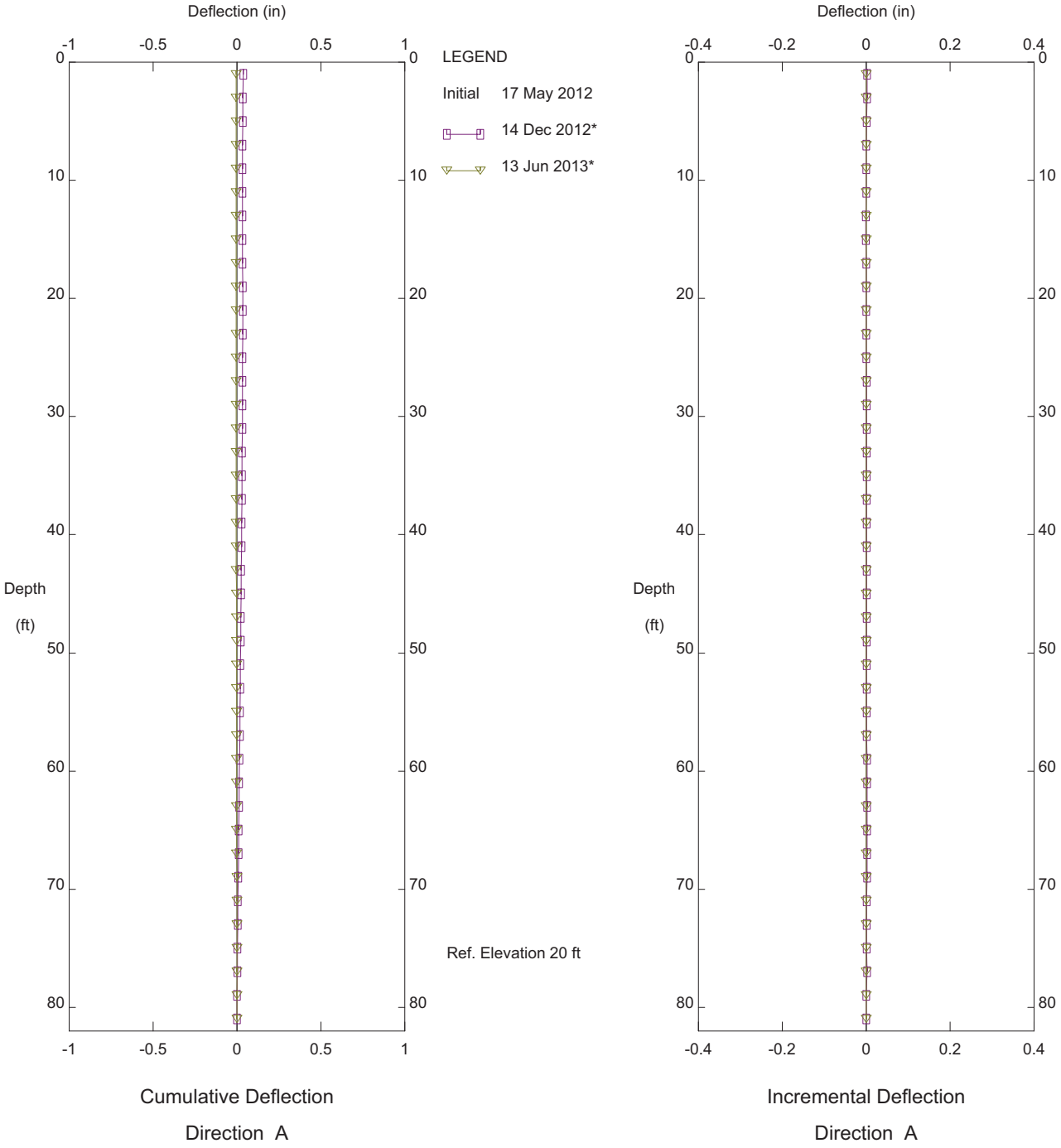
PLATE D-4b

Fugro West, Inc. - Ventura, CA



BIG ROCK MESA, Inclinometer SP-15

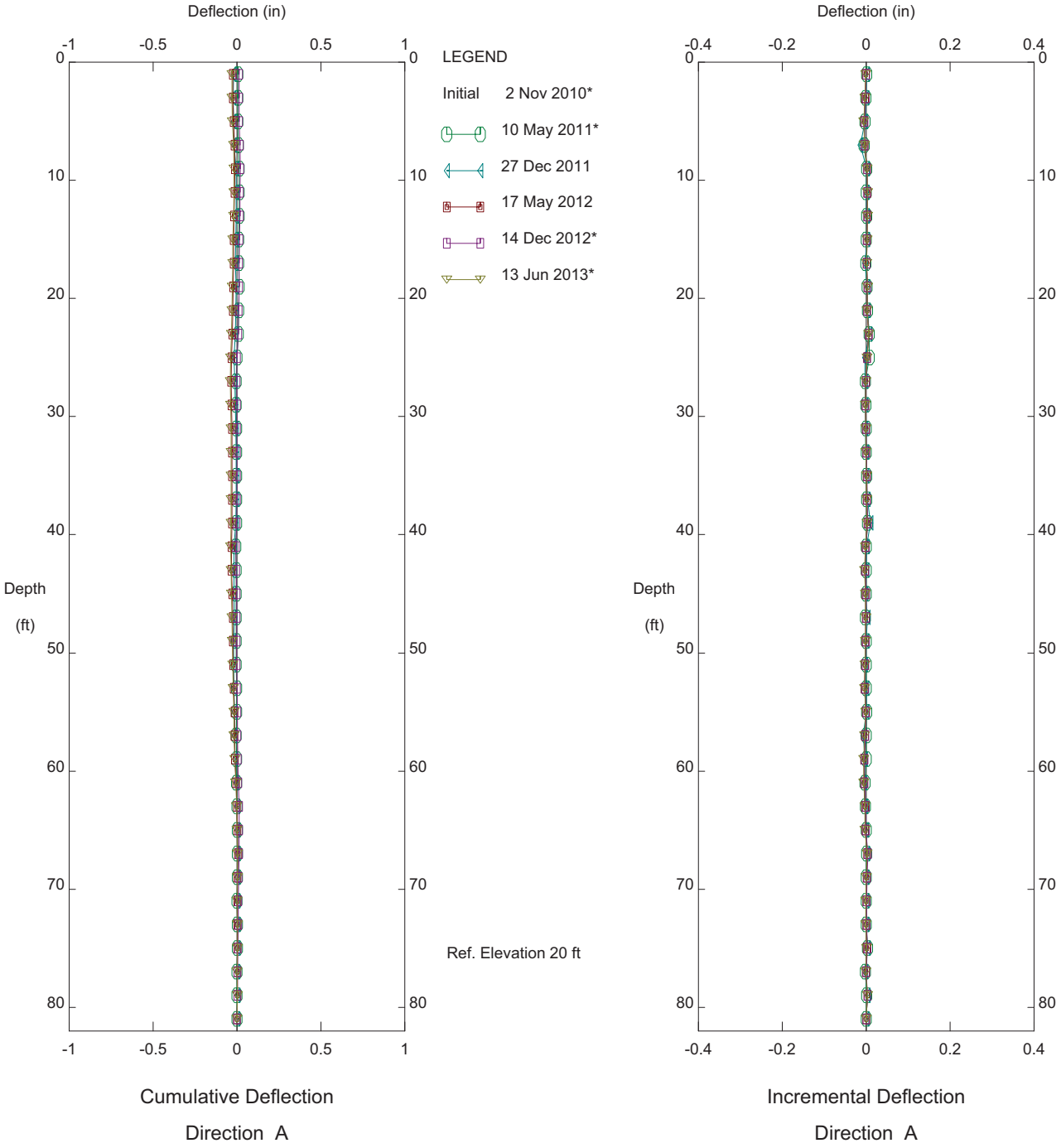
PCH REGION

Sets marked * include zero shift and/or rotation corrections.

C:\USERS\JREEVES\DESKTOP\FUGRO STUFF\DATA\BIG ROCK\SI DATA\SP15.GTL

PLATE D-5a

Fugro West, Inc. - Ventura, CA



BIG ROCK MESA, Inclinometer SP-15

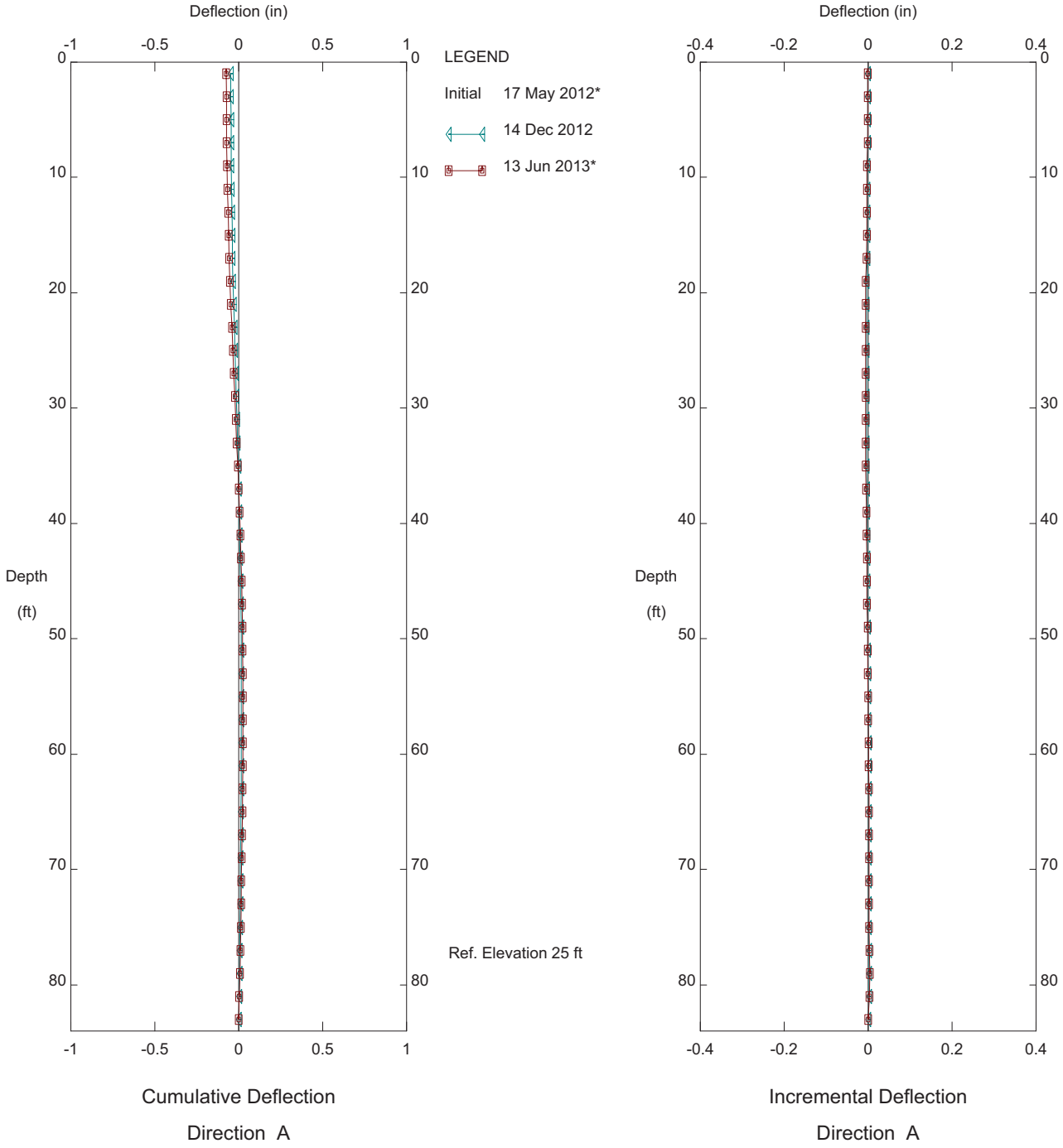
PCH REGION

Sets marked * include zero shift and/or rotation corrections.

C:\USERS\JREEVES\DESKTOP\FUGRO STUFF\DATA\BIG ROCK\SI DATA\SP15.GTL

PLATE D-5b

Fugro West, Inc. - Ventura, CA



BIG ROCK MESA, Inclinometer SP-19

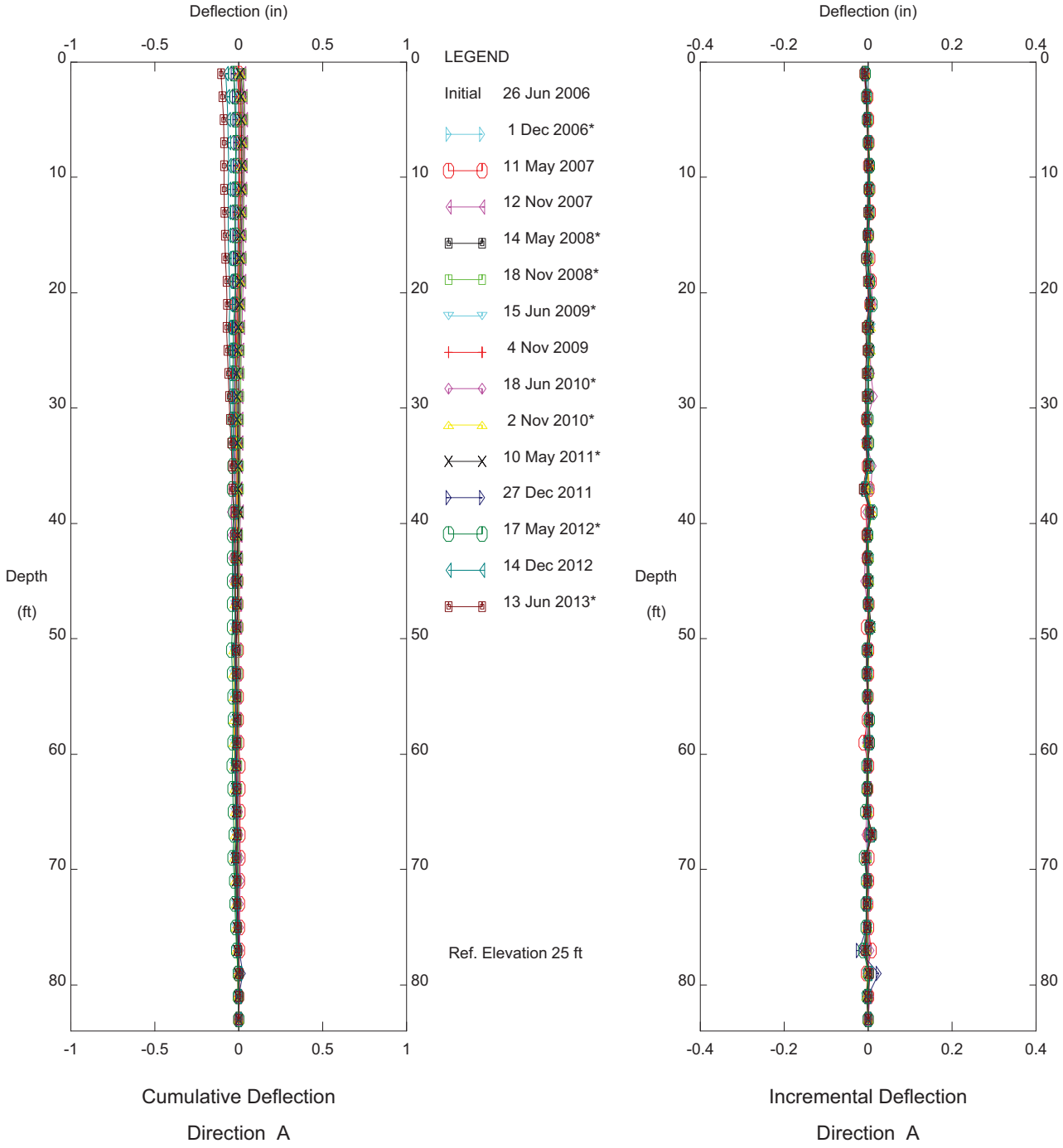
PCH REGION

Sets marked * include zero shift and/or rotation corrections.

C:\USERS\JREEVES\DESKTOP\FUGRO STUFF\DATA\BIG ROCK\SI DATA\SP19.GTL

PLATE D-6a

Fugro West, Inc. - Ventura, CA



BIG ROCK MESA, Inclinometer SP-19

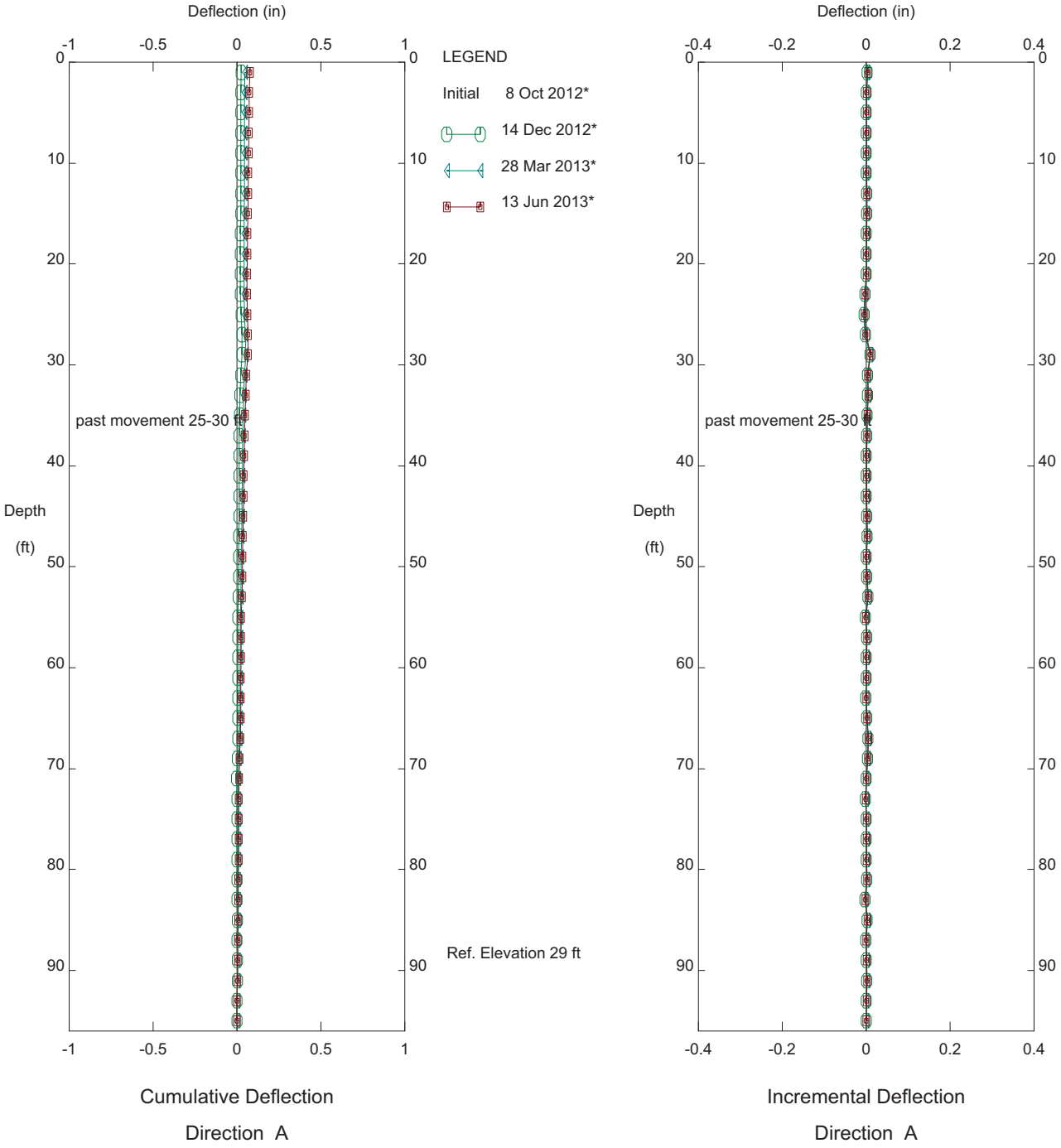
PCH REGION

Sets marked * include zero shift and/or rotation corrections.

C:\USERS\JREEVES\DESKTOP\FUGRO STUFF\DATA\BIG ROCK\SI DATA\SP19.GTL

PLATE D-6b

Fugro West, Inc. - Ventura, CA



BIG ROCK MESA, Inclinometer SP-27A

PCH REGION

Sets marked * include zero shift and/or rotation corrections.

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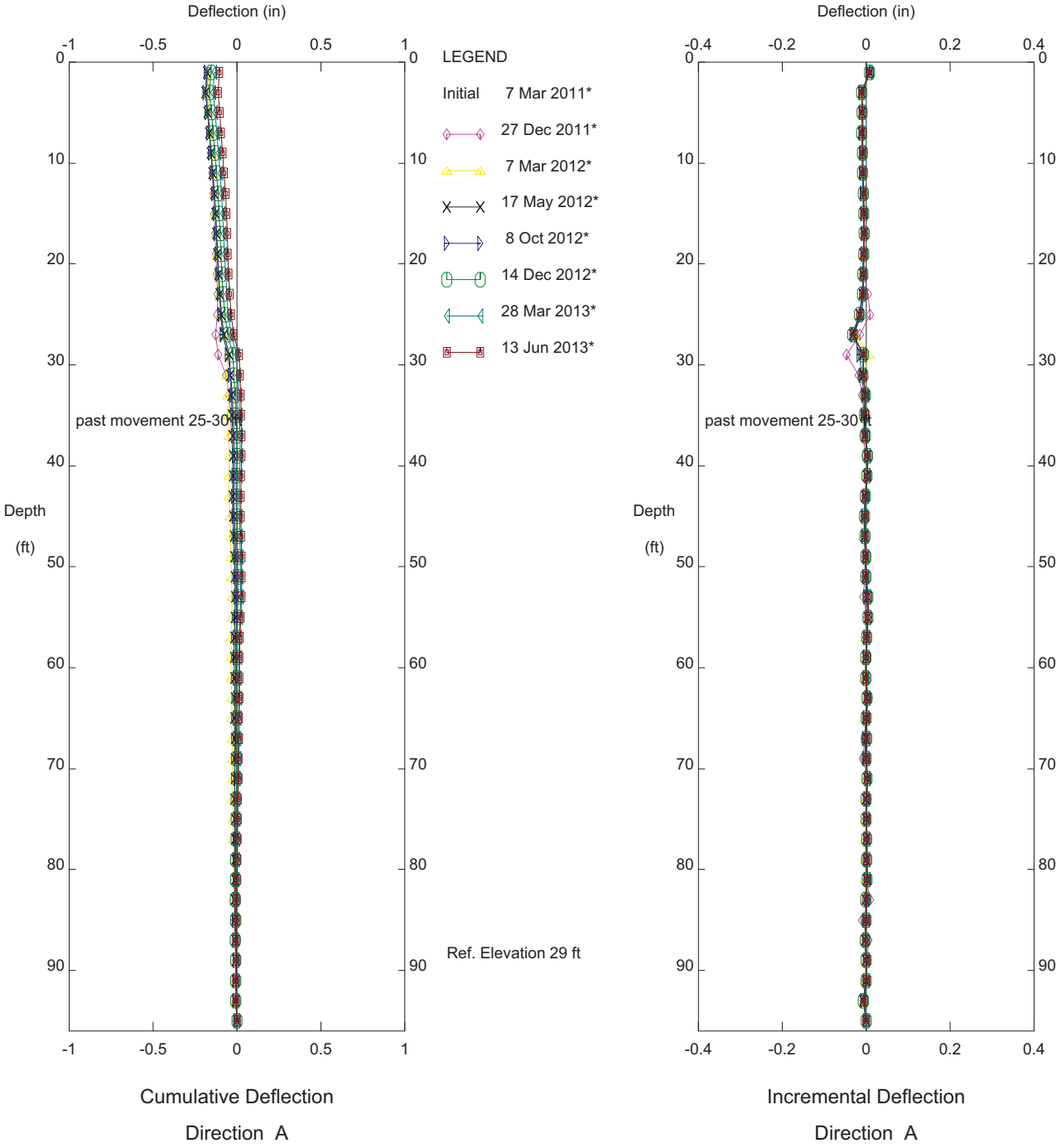
PLATE D-7a

Fugro West, Inc. - Ventura, CA



BIG ROCK MESA, Inclinometer SP-27A

PCH REGION

Sets marked * include zero shift and/or rotation corrections.

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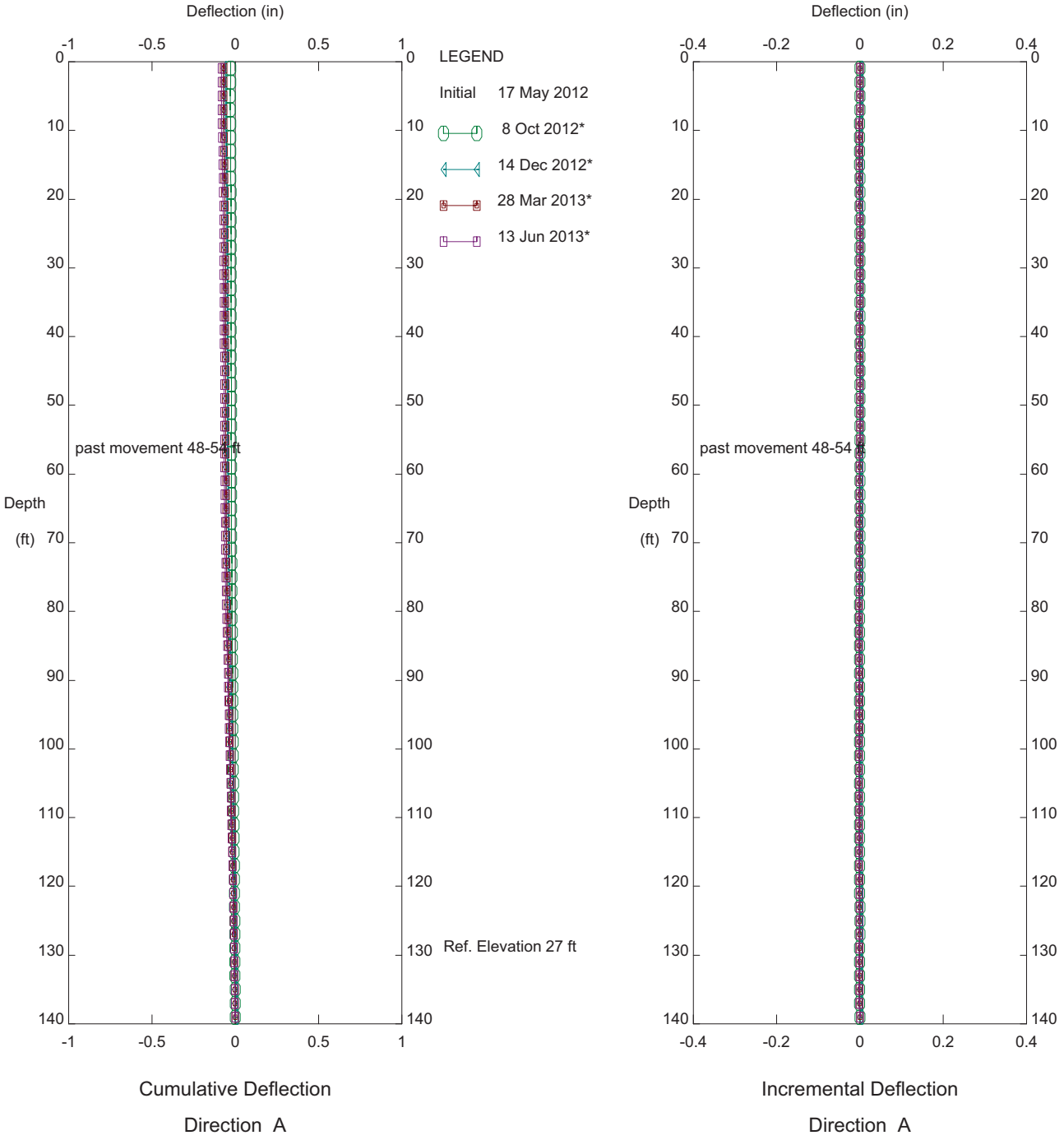
PLATE D-7b

Fugro West, Inc. - Ventura, CA



BIG ROCK MESA, Inclinometer SP-29

PCH REGION

Sets marked * include zero shift and/or rotation corrections.

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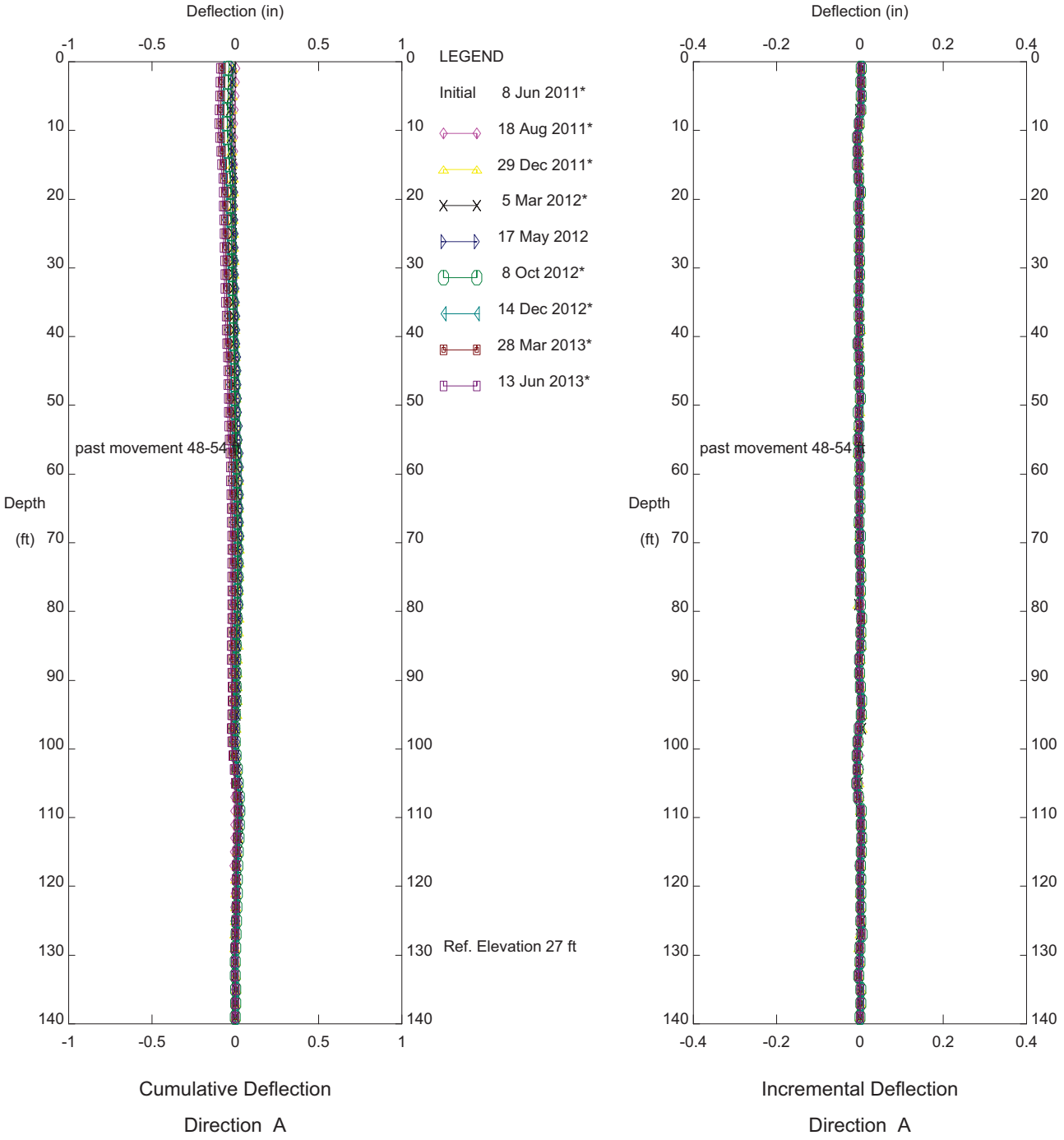
PLATE D-8a

Fugro West, Inc. - Ventura, CA



BIG ROCK MESA, Inclinometer SP-29

PCH REGION

Sets marked * include zero shift and/or rotation corrections.

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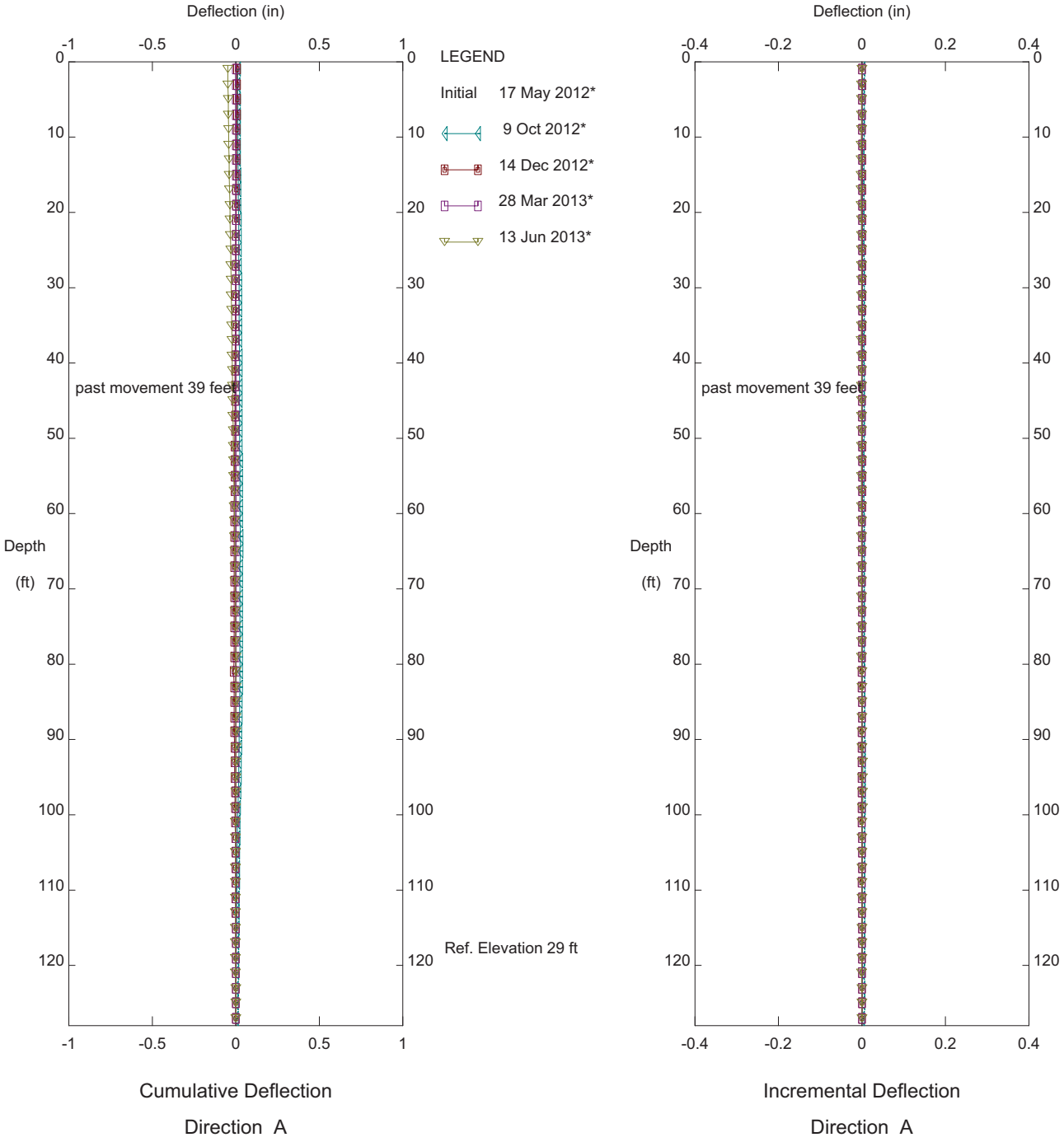
PLATE D-8b

Fugro West, Inc. - Ventura, CA



BIG ROCK MESA, Inclinometer SP-30

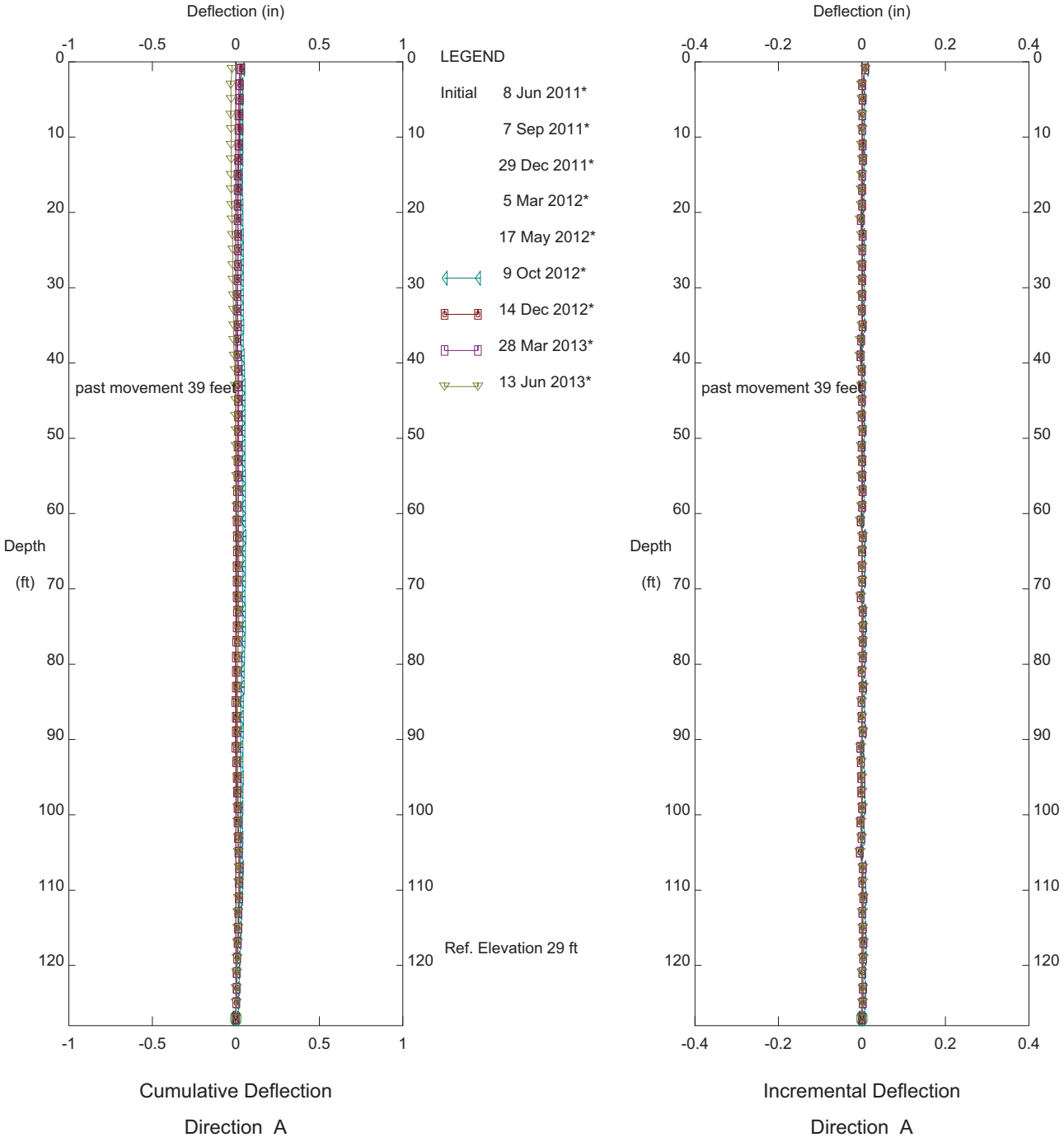
PCH REGION

Sets marked * include zero shift and/or rotation corrections.

C:\USERS\JREEVES\DESKTOP\FUGRO STUFF\DATA\BIG ROCK\SI DATA\SP30.GTL

PLATE D-9a

Fugro West, Inc. - Ventura, CA



BIG ROCK MESA, Inclinometer SP-30

PCH REGION

Sets marked * include zero shift and/or rotation corrections.

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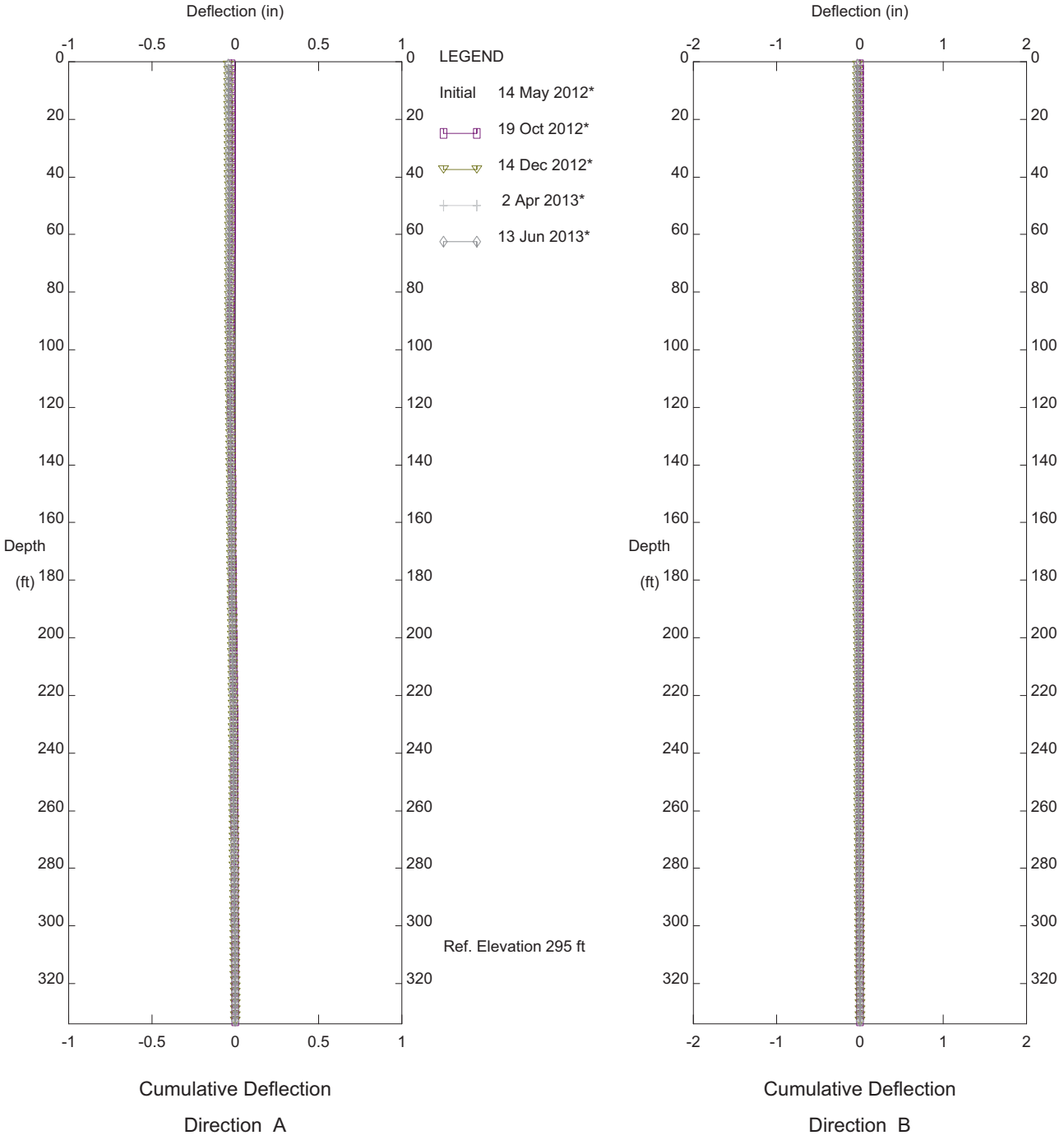
PLATE D-9b

Fugro West, Inc. - Ventura, CA



BIG ROCK MESA, Inclinometer SP-10

BLUFF REGION

Sets marked * include zero shift and/or rotation corrections.

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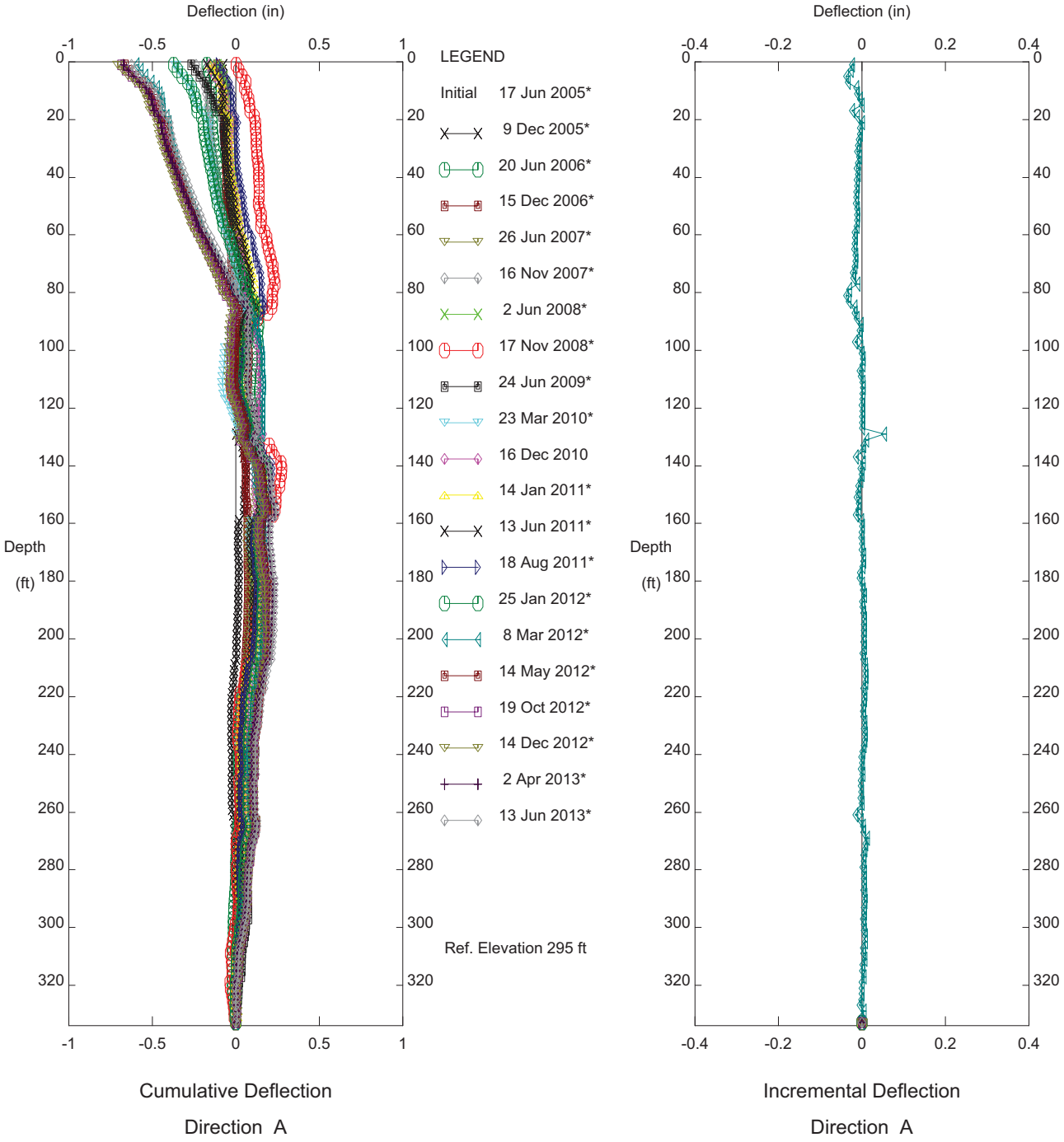
PLATE D-10a

Fugro West, Inc. - Ventura, CA



Cumulative Deflection

Direction A

Incremental Deflection

Direction A

BIG ROCK MESA, Inclinometer SP-10

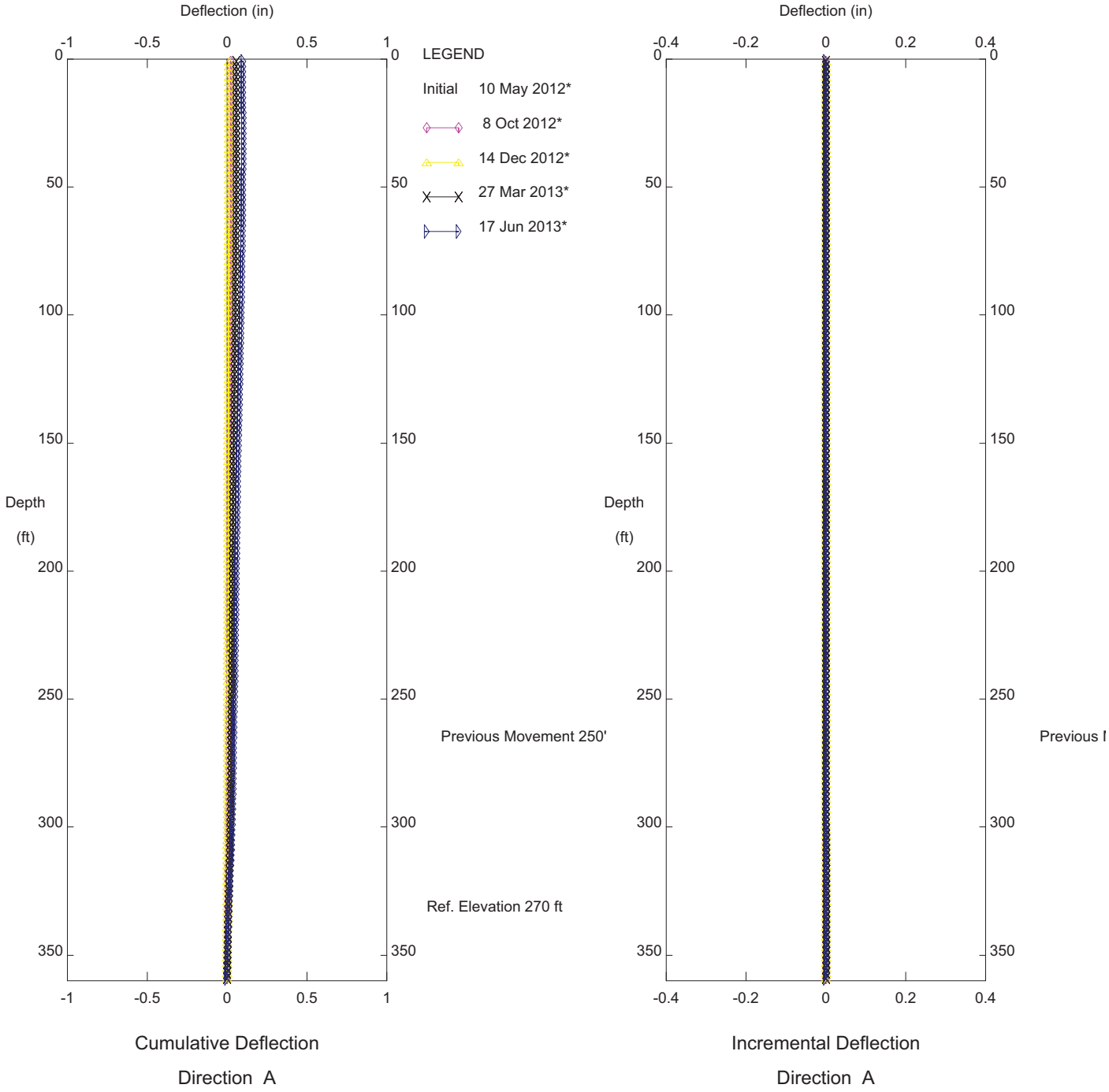
BLUFF REGION

Sets marked * include zero shift and/or rotation corrections.

C:\USERS\JREEVES\DESKTOP\FUGRO STUFF\DATA\BIG ROCK\SI DATA\SP10.GTL

PLATE D-10b

Fugro West, Inc. - Ventura, CA



BIG ROCK MESA, Inclinometer SP-28

BLUFF REGION

Sets marked * include zero shift and/or rotation corrections.

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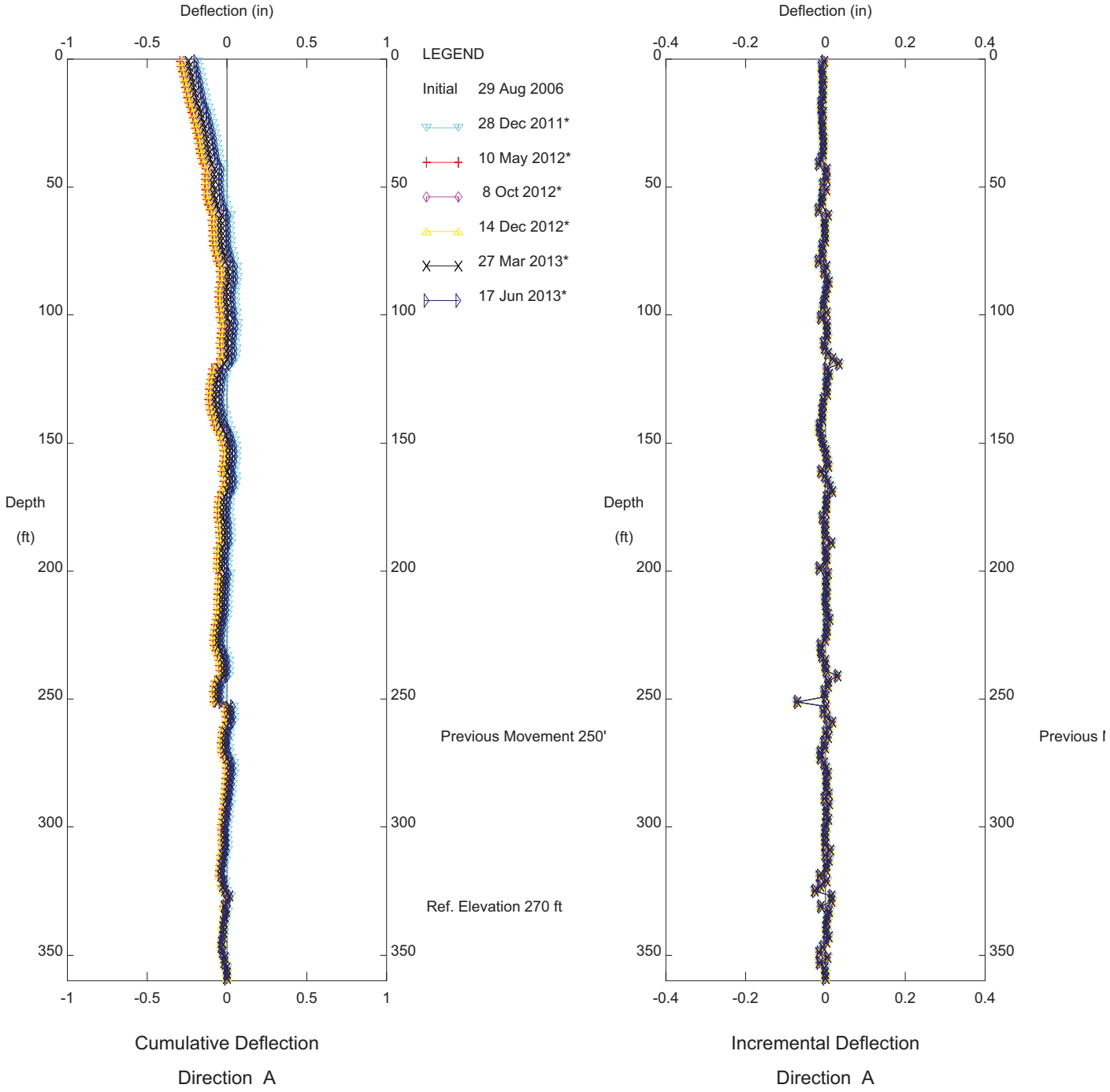
PLATE D-11a

Fugro West, Inc. - Ventura, CA



BIG ROCK MESA, Inclinometer SP-28

BLUFF REGION

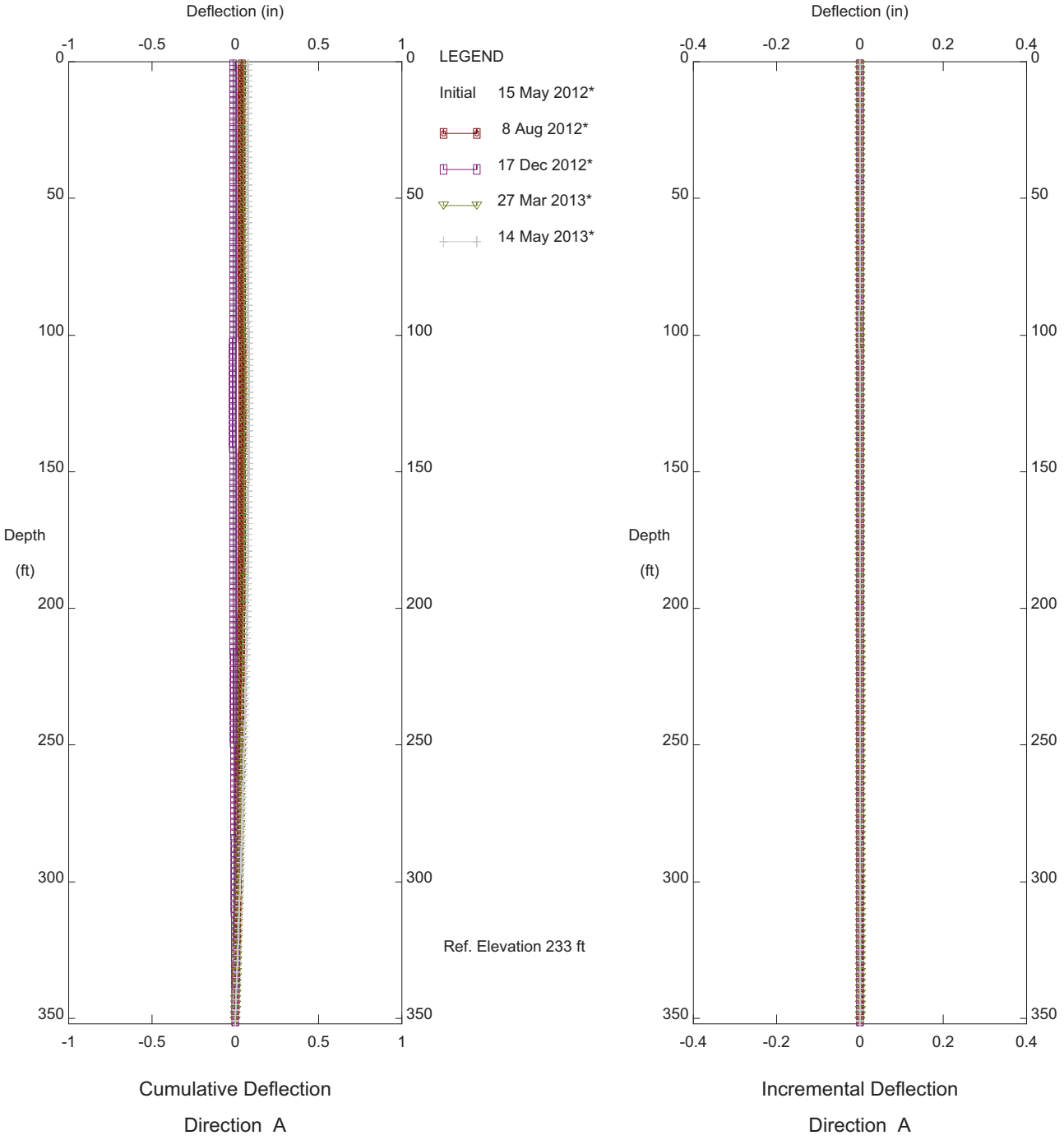
Sets marked * include zero shift and/or rotation corrections.

C:\USERS\JREEVES\DESKTOP\FUGRO STUFF\DATA\BIG ROCK\SI DATA\SP28.GTL

t

PLATE D-11b

Fugro West, Inc. - Ventura, CA



BIG ROCK MESA, Inclinometer SP-32

BLUFF REGION

Sets marked * include zero shift and/or rotation corrections.

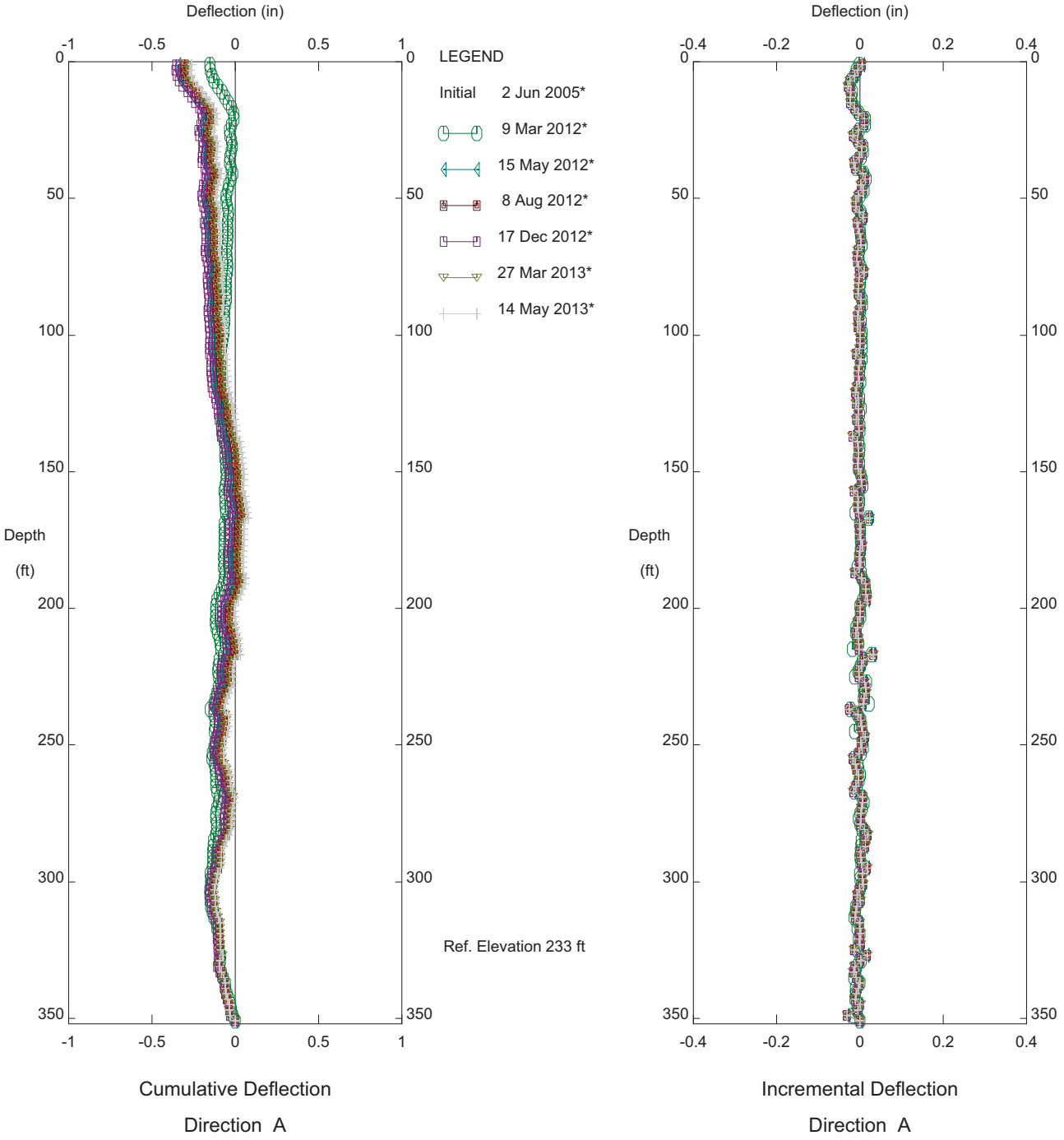
C:\USERS\JREEVES\DESKTOP\FUGRO STUFF\DATA\BIG ROCK\SI DATA\SP32.GTL

past movement 250 feet

past movement 250 feet

PLATE D-12a

Fugro West, Inc. - Ventura, CA



BIG ROCK MESA, Inclinometer SP-32

BLUFF REGION

Sets marked * include zero shift and/or rotation corrections.

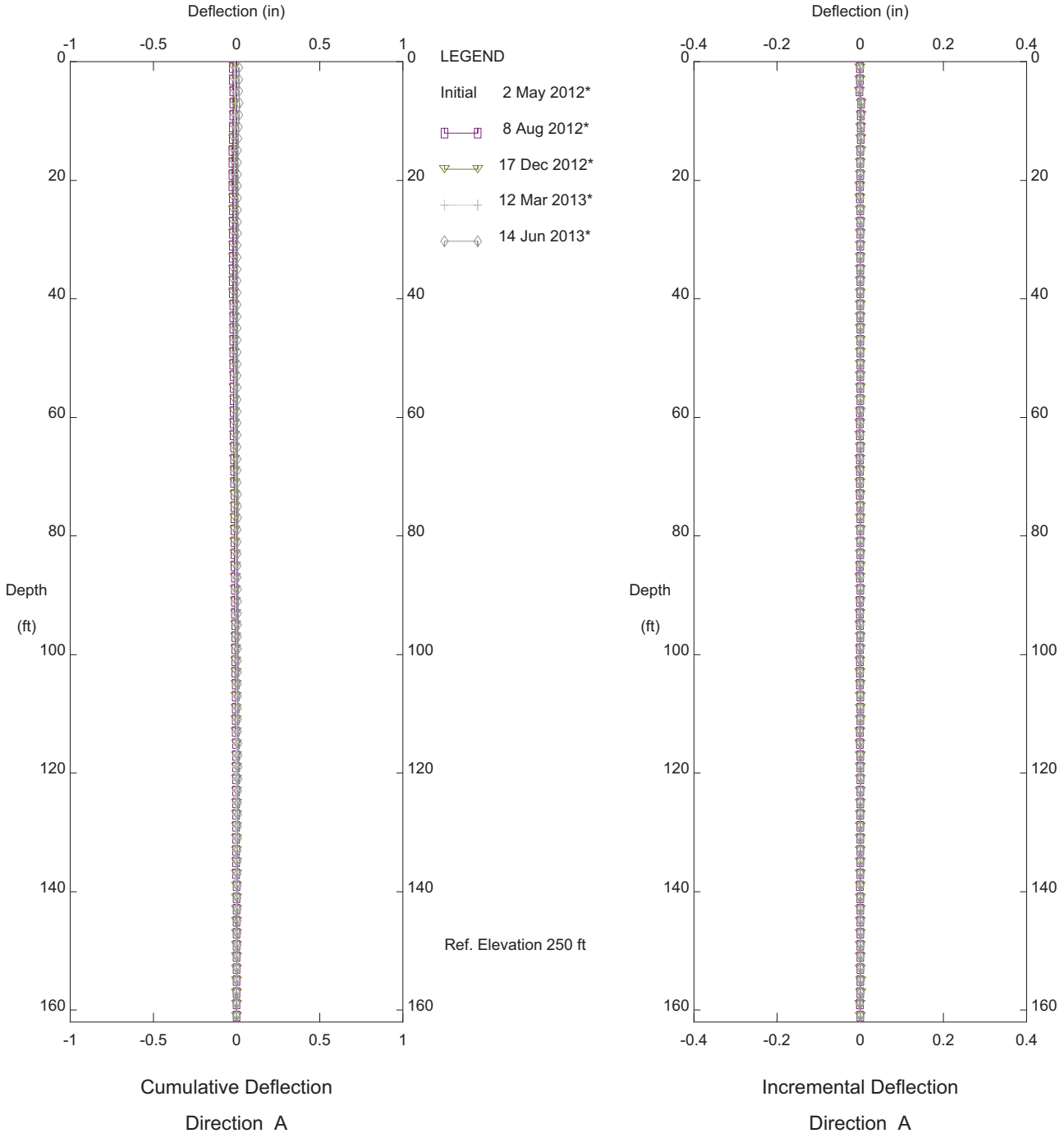
C:\USERS\JREEVES\DESKTOP\FUGRO STUFF\DATA\BIG ROCK\SI DATA\SP32.GTL

past movement 250 feet

past movement 250 feet

PLATE D-12b

Fugro West, Inc. - Ventura, CA



BIG ROCK MESA, Inclinometer PC-1

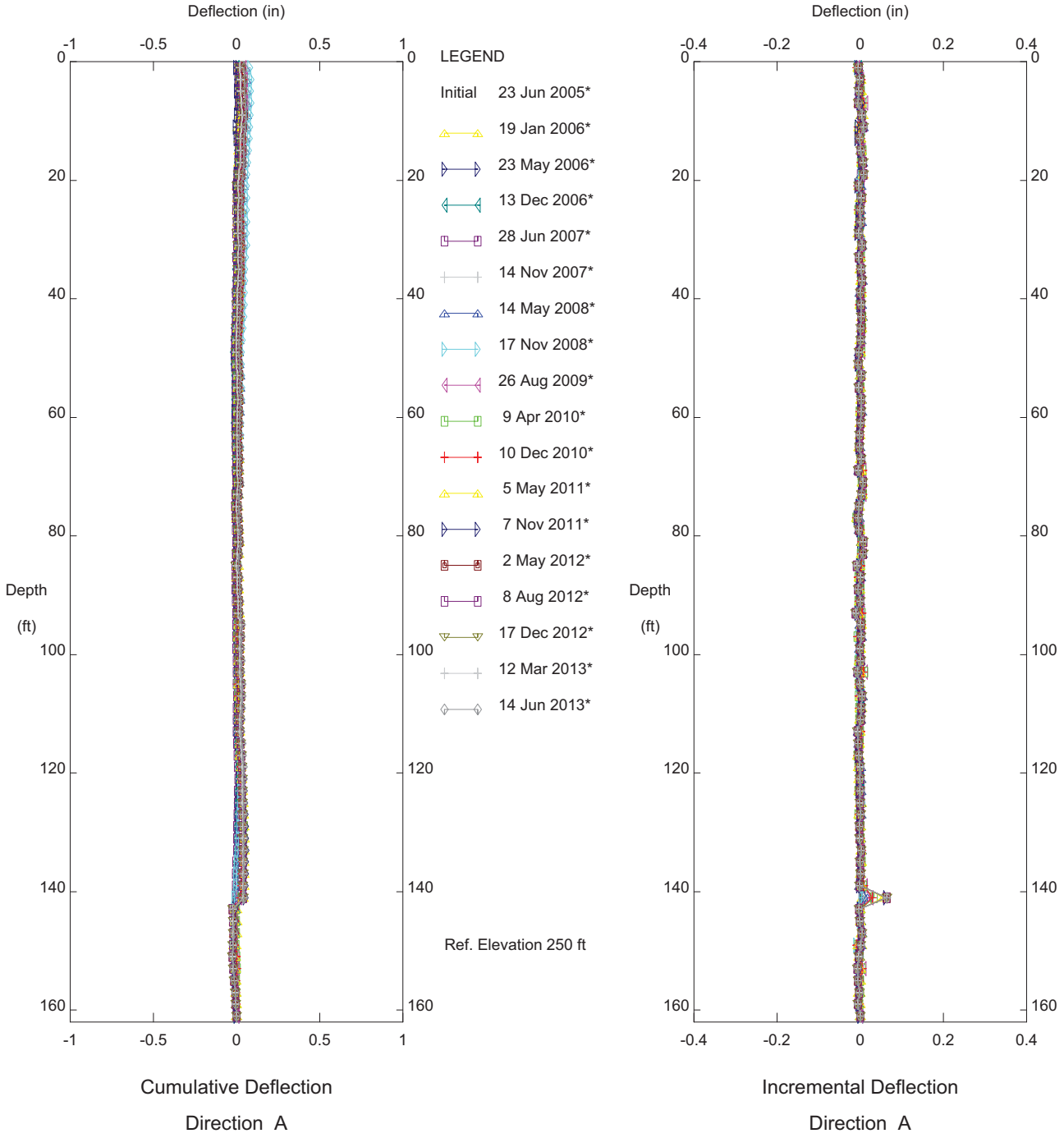
EASTERN REGION

Sets marked * include zero shift and/or rotation corrections.

\\VENWEST06\DATA6\MANAGEMENT\3399_MALIBU\3399-006_BIG_ROCK_MESA\03_DATA\SI_DATA\2012-2013\MAY 2013\PC-1.GTL

PLATE D-13a

Fugro West, Inc. - Ventura, CA



BIG ROCK MESA, Inclinometer PC-1

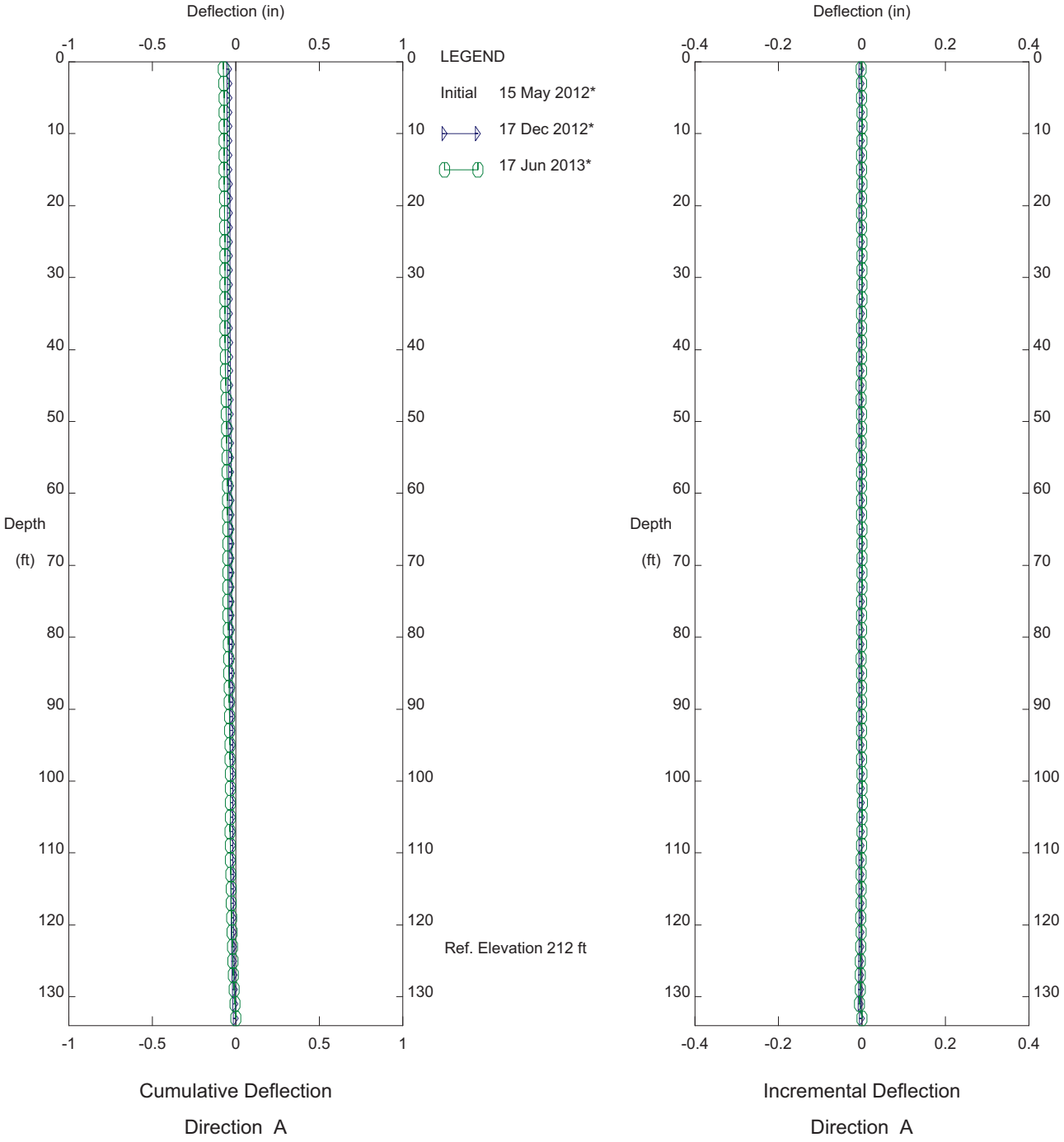
EASTERN REGION

Sets marked * include zero shift and/or rotation corrections.

\\VENWEST06\DATA6\MANAGEMENT\3399_MALIBU\3399-006_BIG_ROCK_MESA\03_DATA\SI_DATA\2012-2013\MAY 2013\PC-1.GTL

PLATE D-13b

Fugro West, Inc. - Ventura, CA



BIG ROCK MESA, Inclinometer SP-3

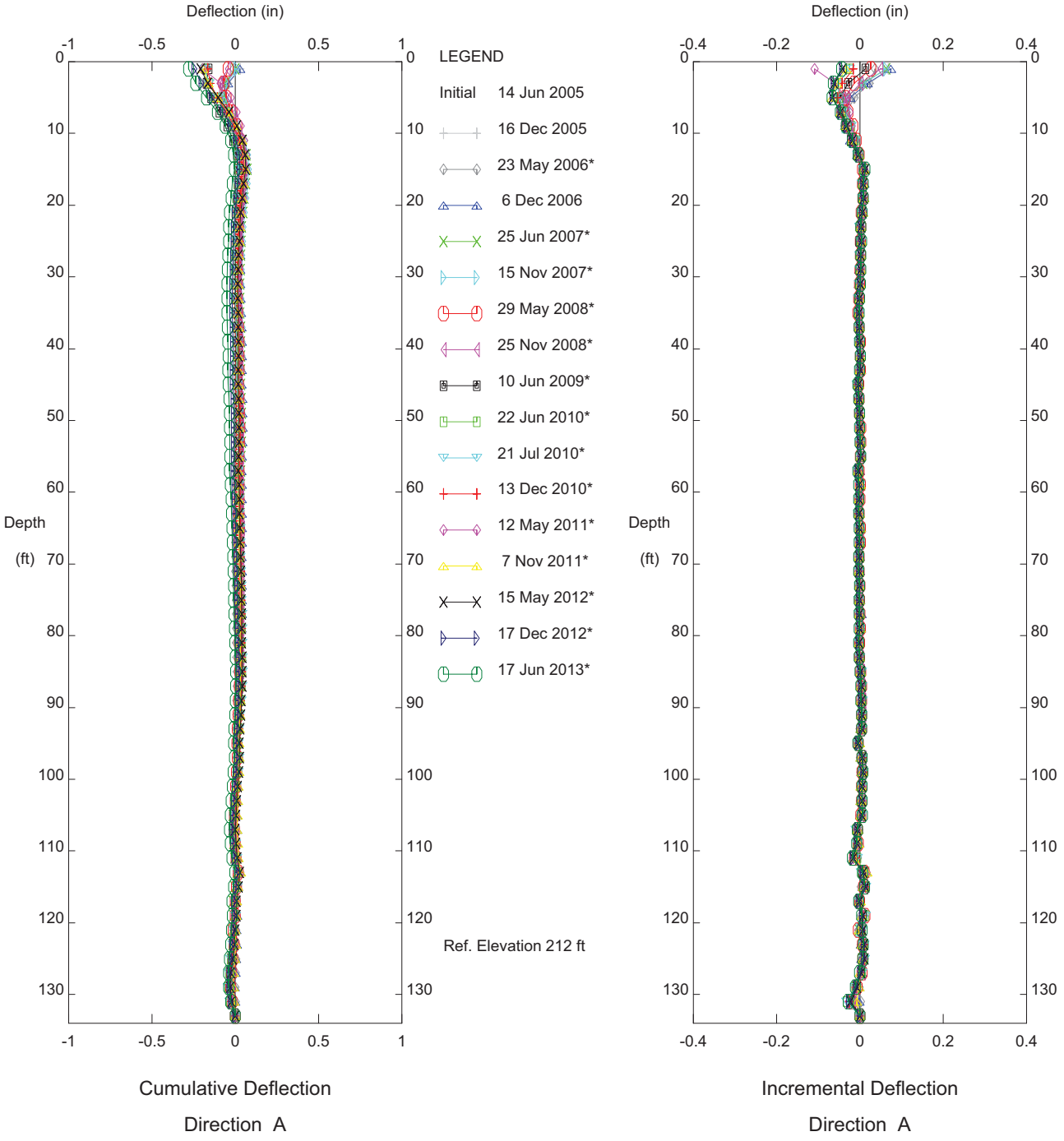
EASTERN REGION

Sets marked * include zero shift and/or rotation corrections.

C:\USERS\JREEVES\DESKTOP\FUGRO STUFF\DATA\BIG ROCK\SI DATA\SP3.GTL

PLATE D-14a

Fugro West, Inc. - Ventura, CA



Cumulative Deflection

Direction A

Incremental Deflection

Direction A

BIG ROCK MESA, Inclinometer SP-3

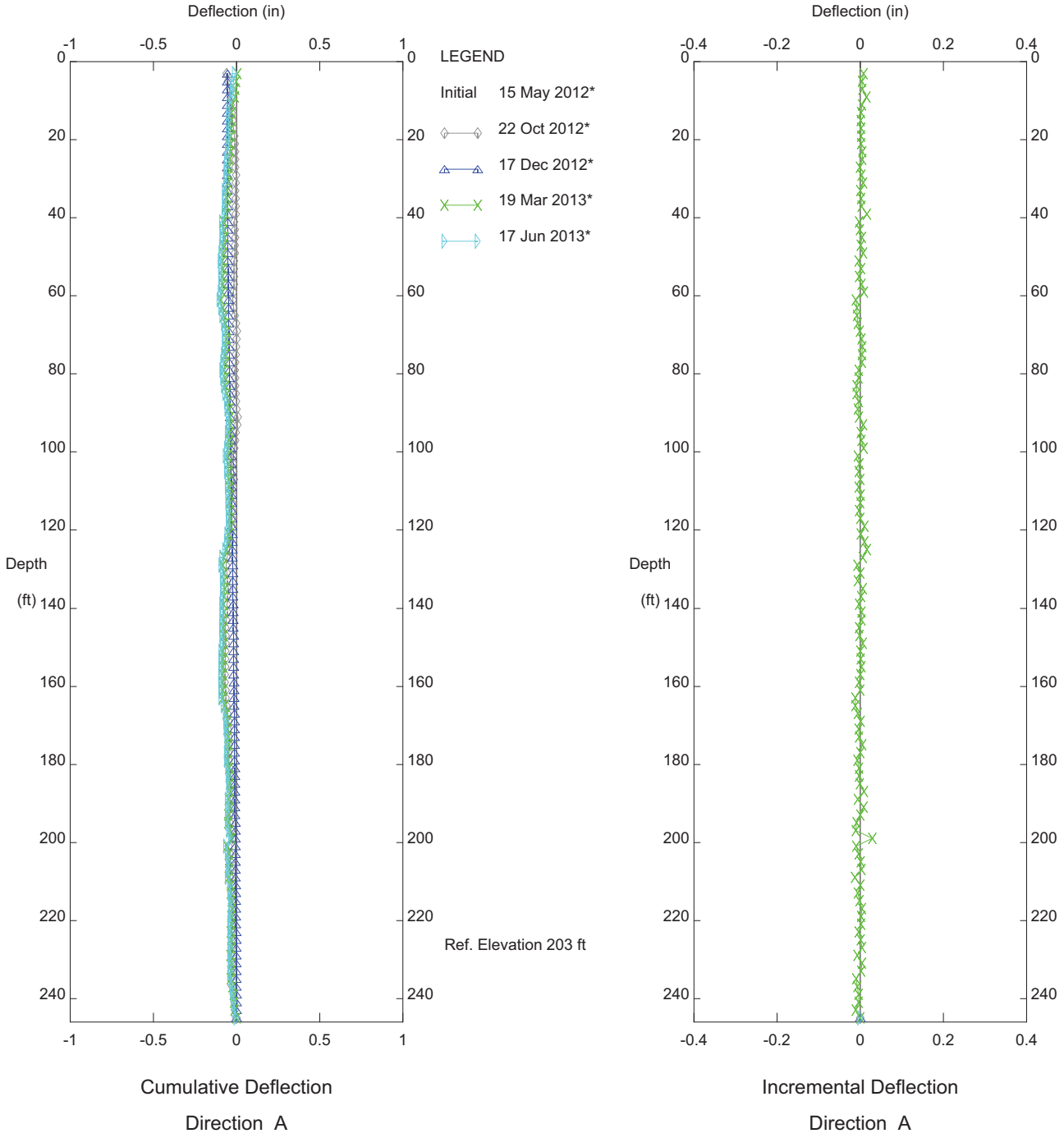
EASTERN REGION

Sets marked * include zero shift and/or rotation corrections.

C:\USERS\JREEVES\DESKTOP\FUGRO STUFF\DATA\BIG ROCK\SI DATA\SP3.GTL

PLATE D-14b

Fugro West, Inc. - Ventura, CA



BIG ROCK MESA, Inclinometer SP-3A

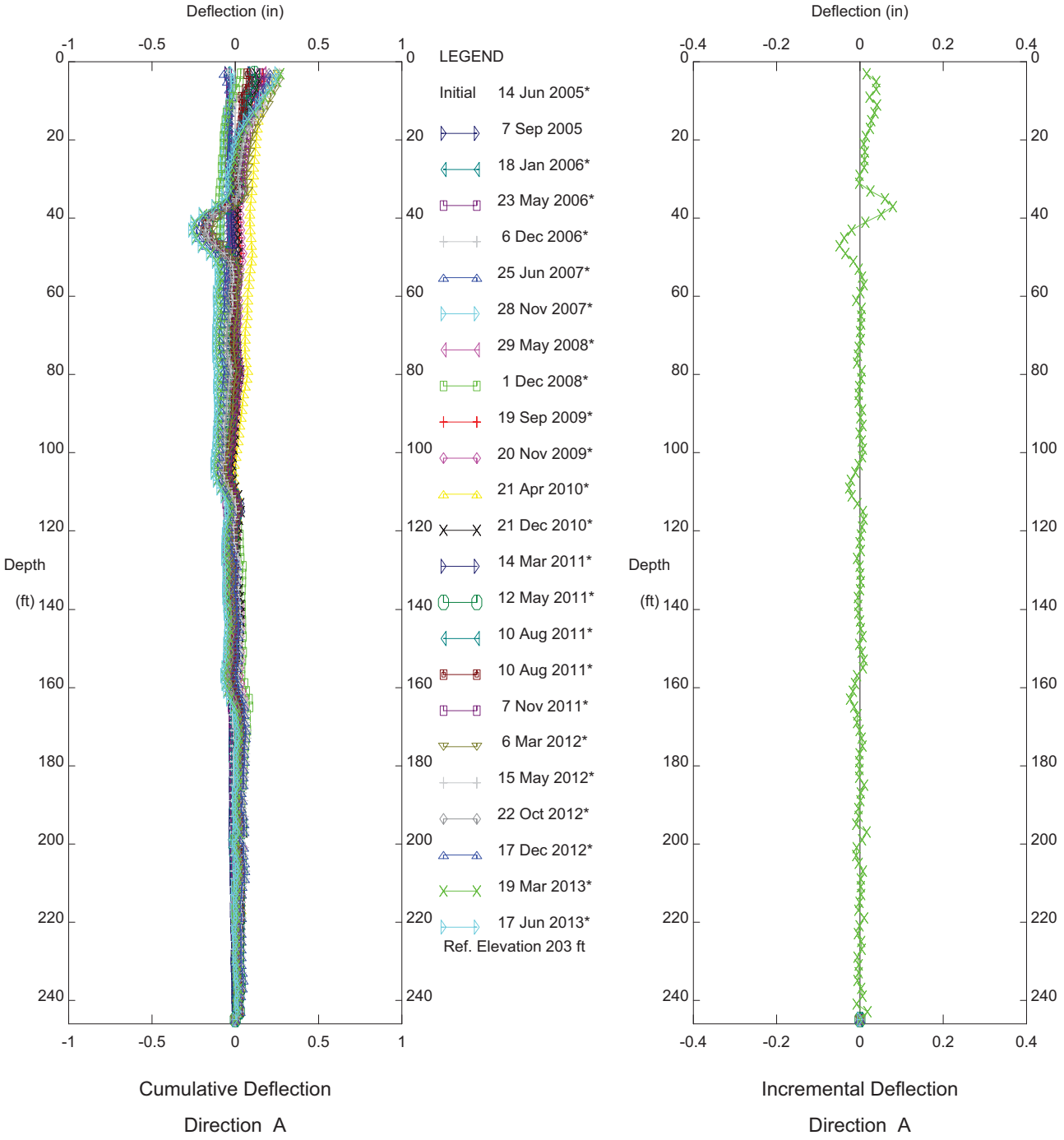
EASTERN REGION

Sets marked * include zero shift and/or rotation corrections.

C:\USERS\JREEVES\DESKTOP\FUGRO STUFF\DATA\BIG ROCK\SI DATA\SP3A.GTL

PLATE D-15a

Fugro West, Inc. - Ventura, CA



Cumulative Deflection

Direction A

Incremental Deflection

Direction A

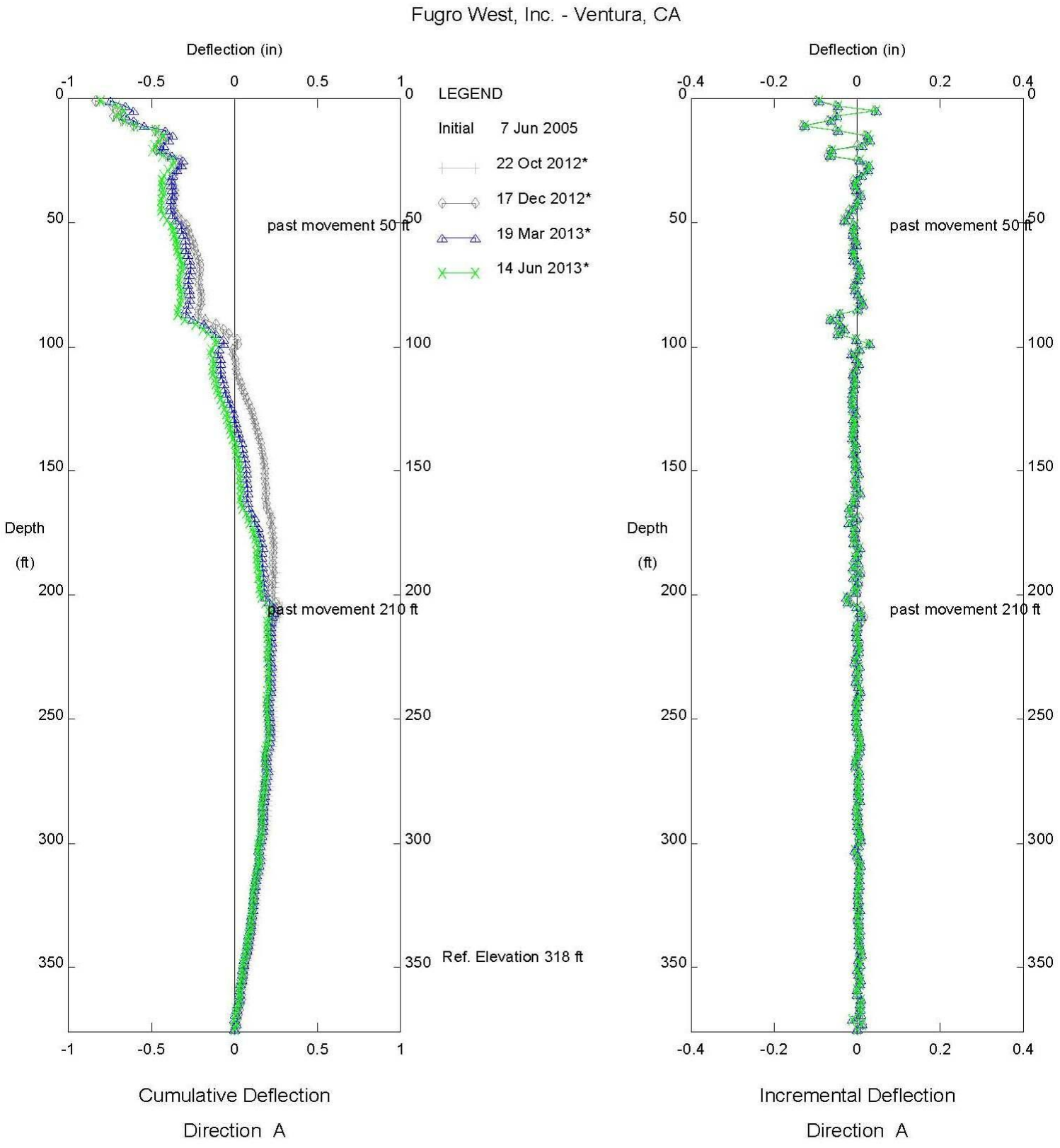
BIG ROCK MESA, Inclinometer SP-3A

EASTERN REGION

Sets marked * include zero shift and/or rotation corrections.

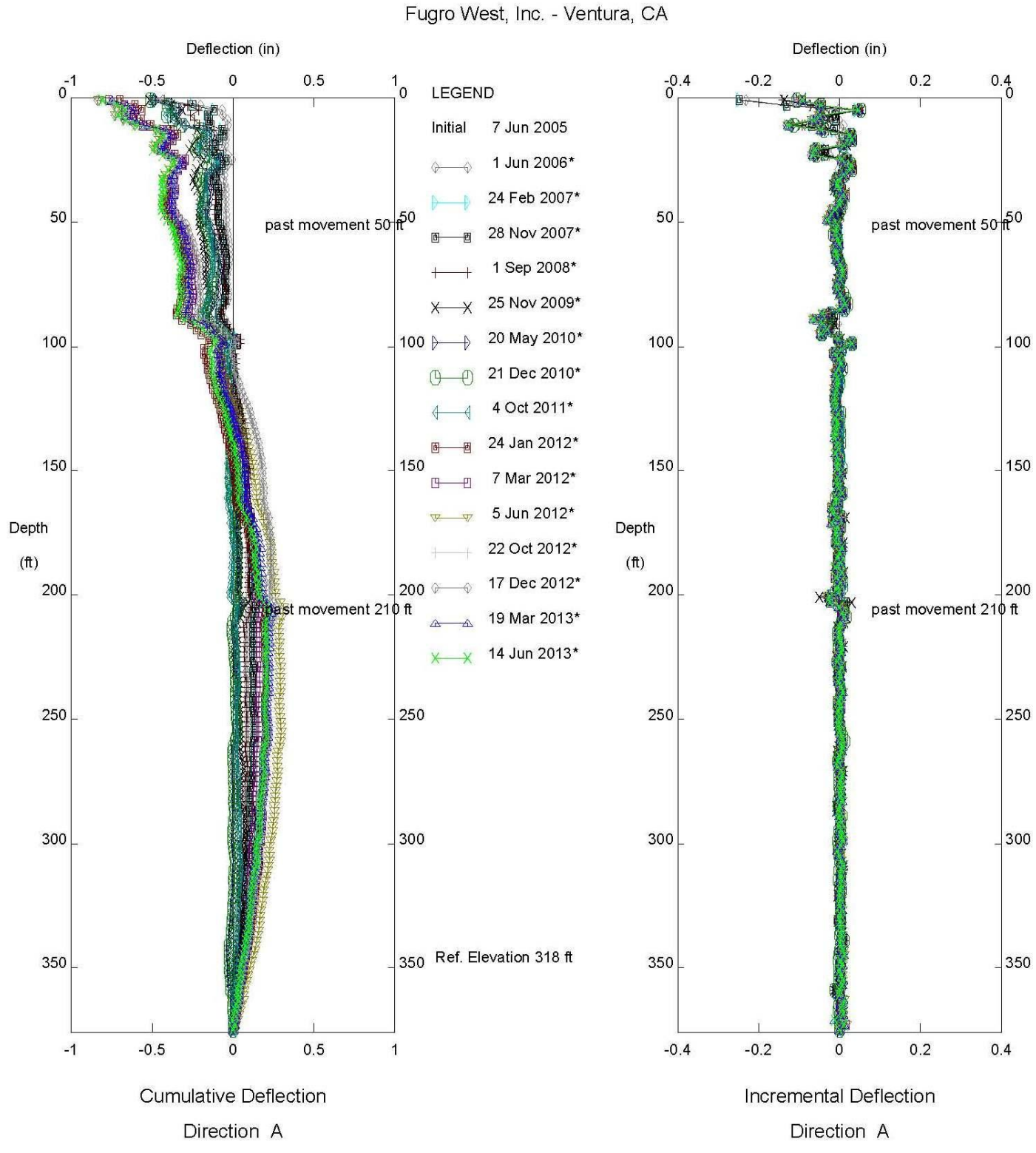
C:\USERS\JREEVES\DESKTOP\FUGRO STUFF\DATA\BIG ROCK\SI DATA\SP3A.GTL

PLATE D-15b



BIG ROCK MESA, INCLINOMETER SP-33
EASTERN REGION
Sets marked * include zero shift and/or rotation corrections

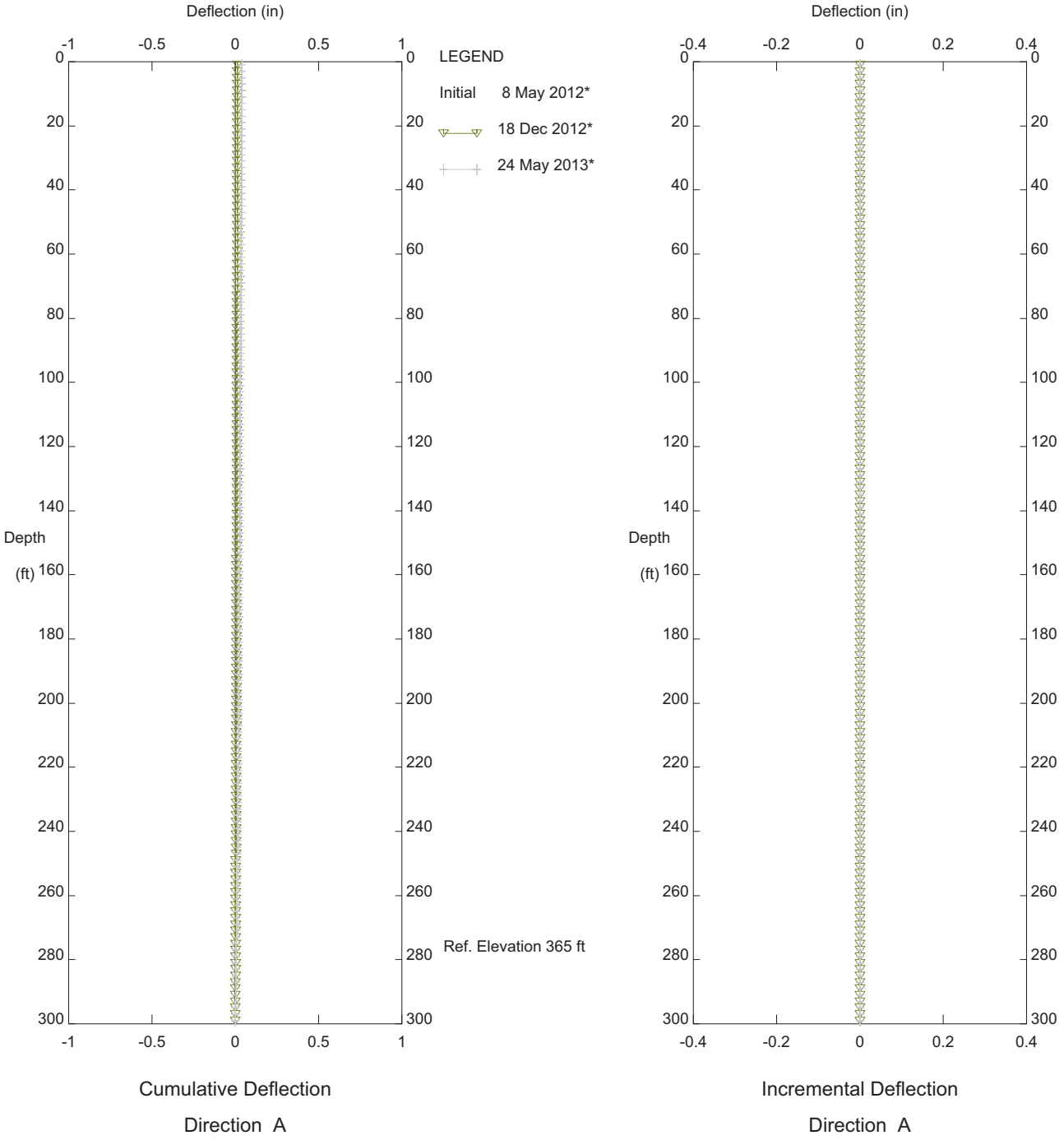
PLATE D-16a



BIG ROCK MESA, INCLINOMETER SP-33
EASTERN REGION
Sets marked * include zero shift and/or rotation corrections

PLATE D-16b

Fugro West, Inc. - Ventura, CA



BIG ROCK MESA, Inclinometer SP-9A

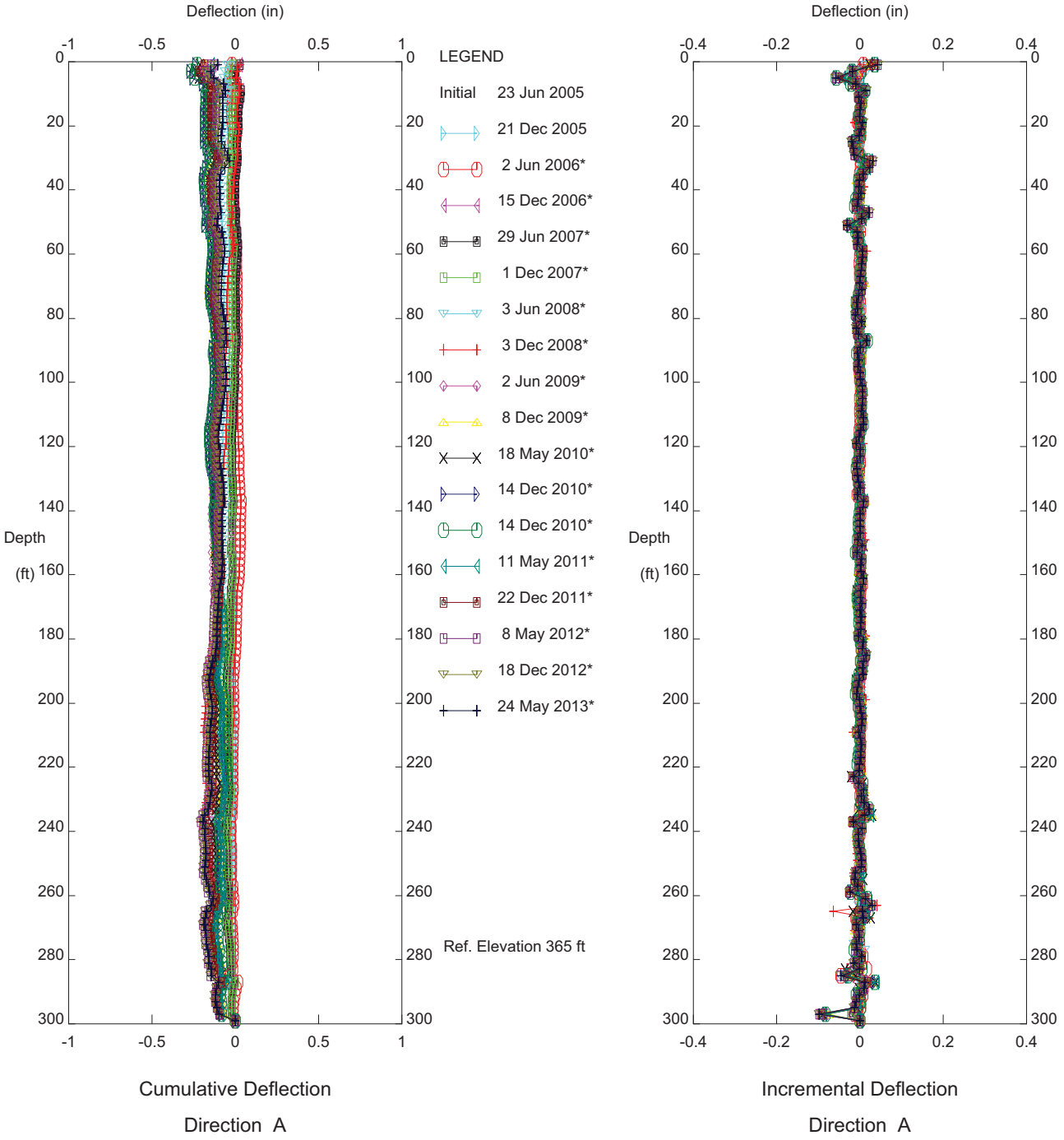
CENTRAL REGION

Sets marked * include zero shift and/or rotation corrections.

C:\USERS\JREEVES\DESKTOP\FUGRO STUFF\DATA\BIG ROCK\SI DATA\SP9A.GTL

PLATE D-17a

Fugro West, Inc. - Ventura, CA



Cumulative Deflection

Direction A

Incremental Deflection

Direction A

BIG ROCK MESA, Inclinometer SP-9A

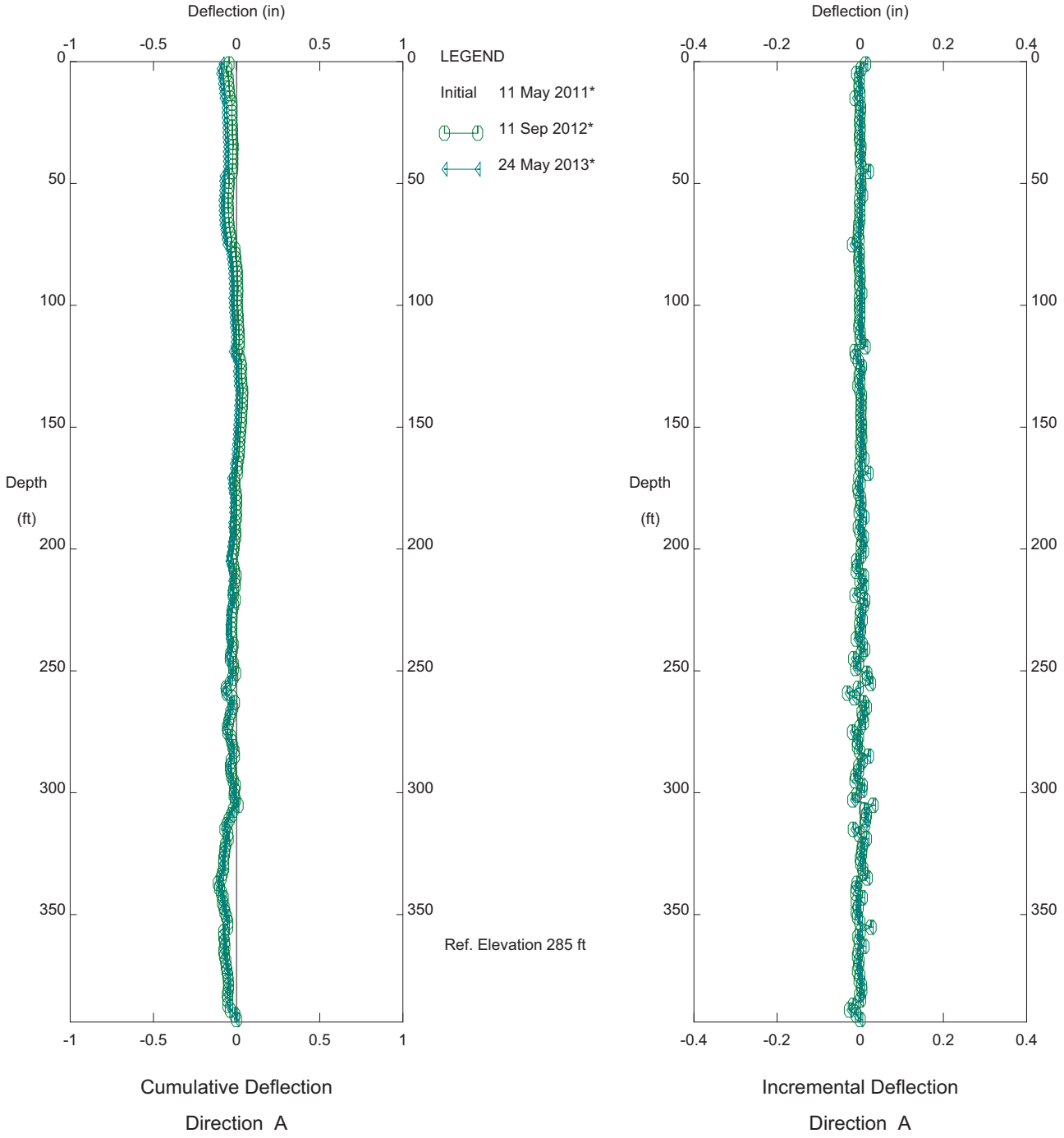
CENTRAL REGION

Sets marked * include zero shift and/or rotation corrections.

C:\USERS\JREEVES\DESKTOP\FUGRO STUFF\DATA\BIG ROCK\SI DATA\SP9A.GTL

PLATE D-17b

Fugro West, Inc. - Ventura, CA



BIG ROCK MESA, Inclinometer SP-16A

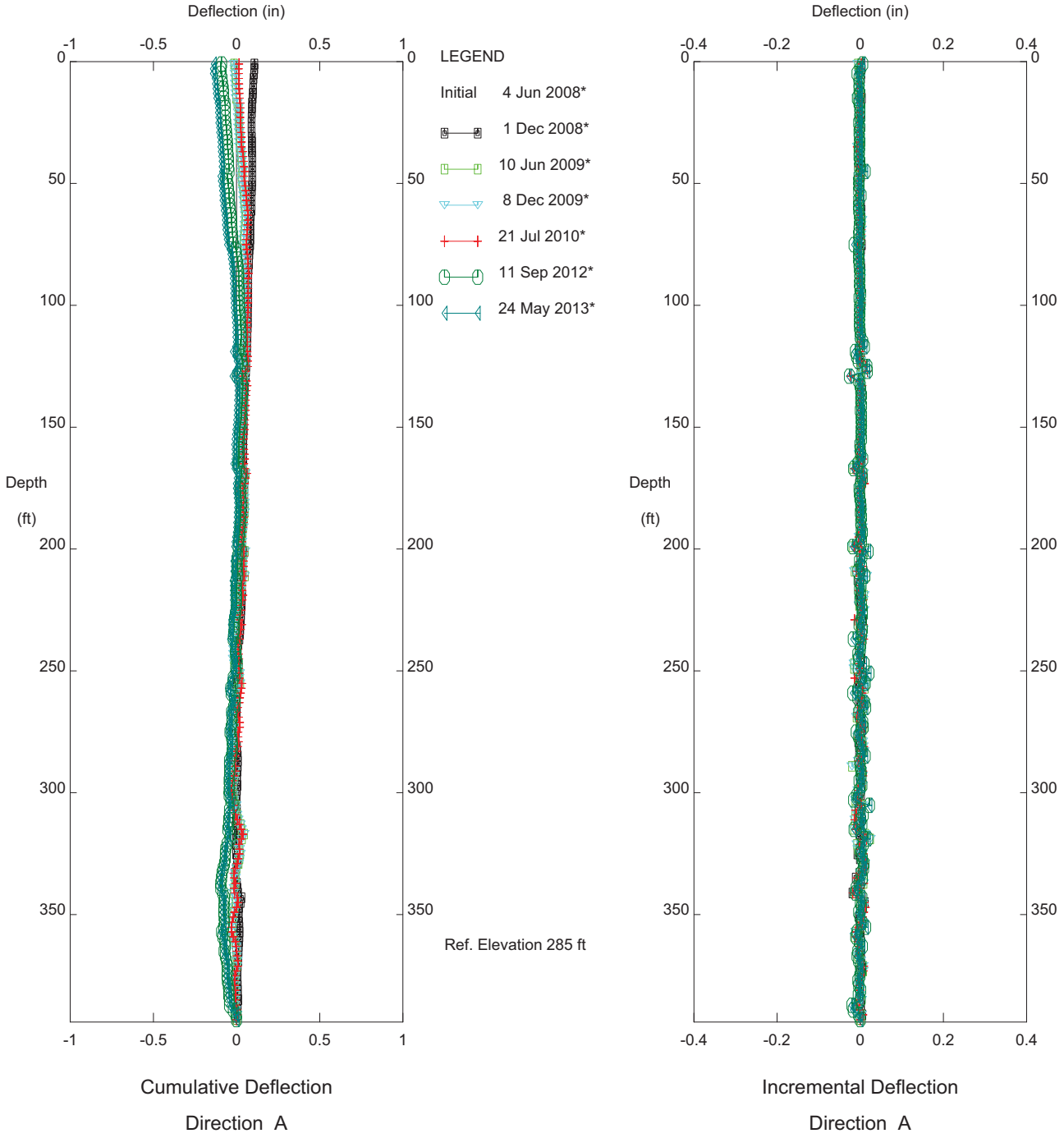
CENTRAL REGION

Sets marked * include zero shift and/or rotation corrections.

C:\USERS\JREEVES\DESKTOP\FUGRO STUFF\DATA\BIG ROCK\SI DATA\SP16A.GTL

PLATE D-18a

Fugro West, Inc. - Ventura, CA



BIG ROCK MESA, Inclinometer SP-16A

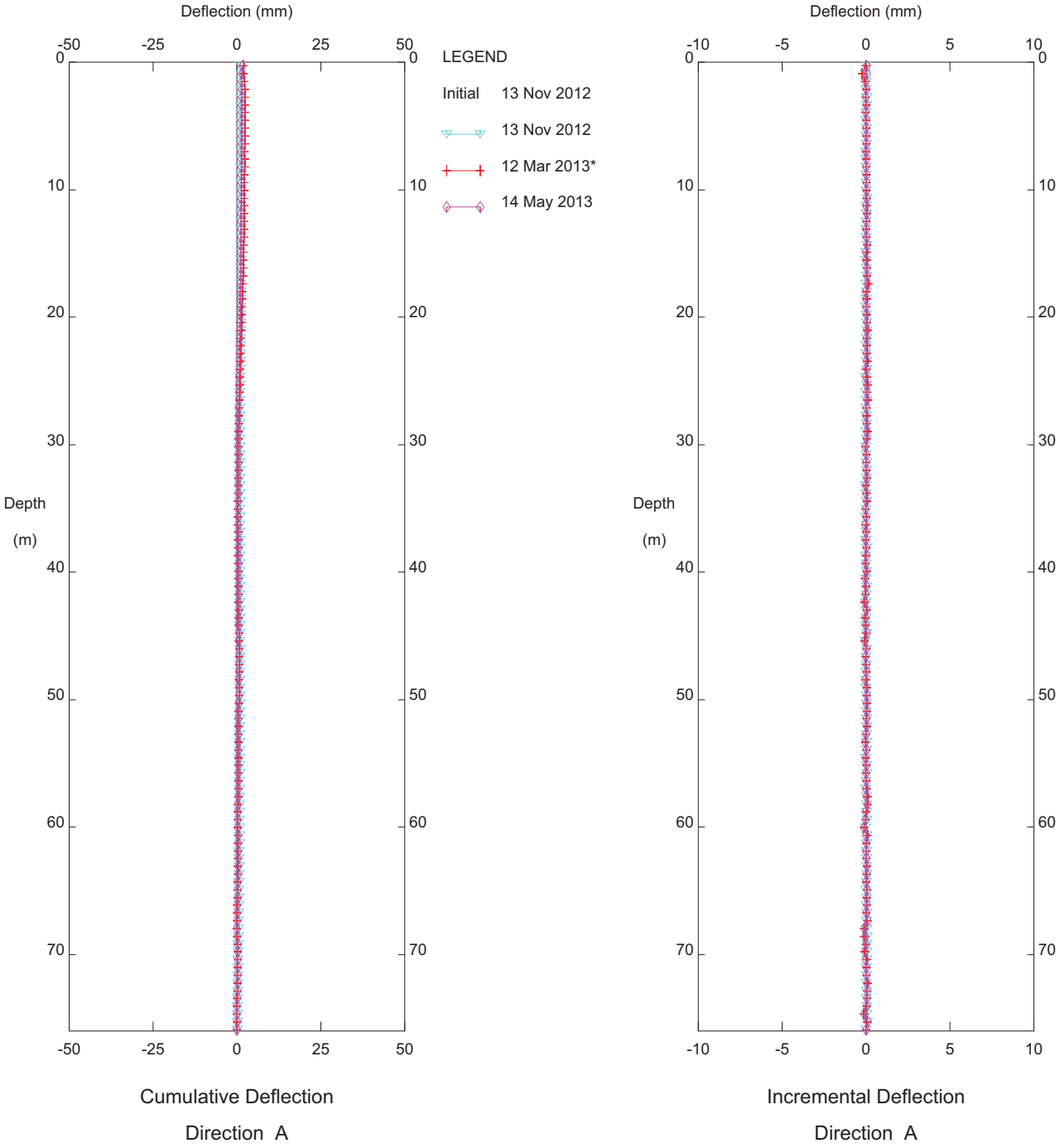
CENTRAL REGION

Sets marked * include zero shift and/or rotation corrections.

C:\USERS\JREEVES\DESKTOP\FUGRO STUFF\DATA\BIG ROCK\SI DATA\SP16A.GTL

PLATE D-18b

Fugro West, Inc. - Ventura, CA



BRM, Inclinometer SP-17B

Sets marked * include zero shift and/or rotation corrections.

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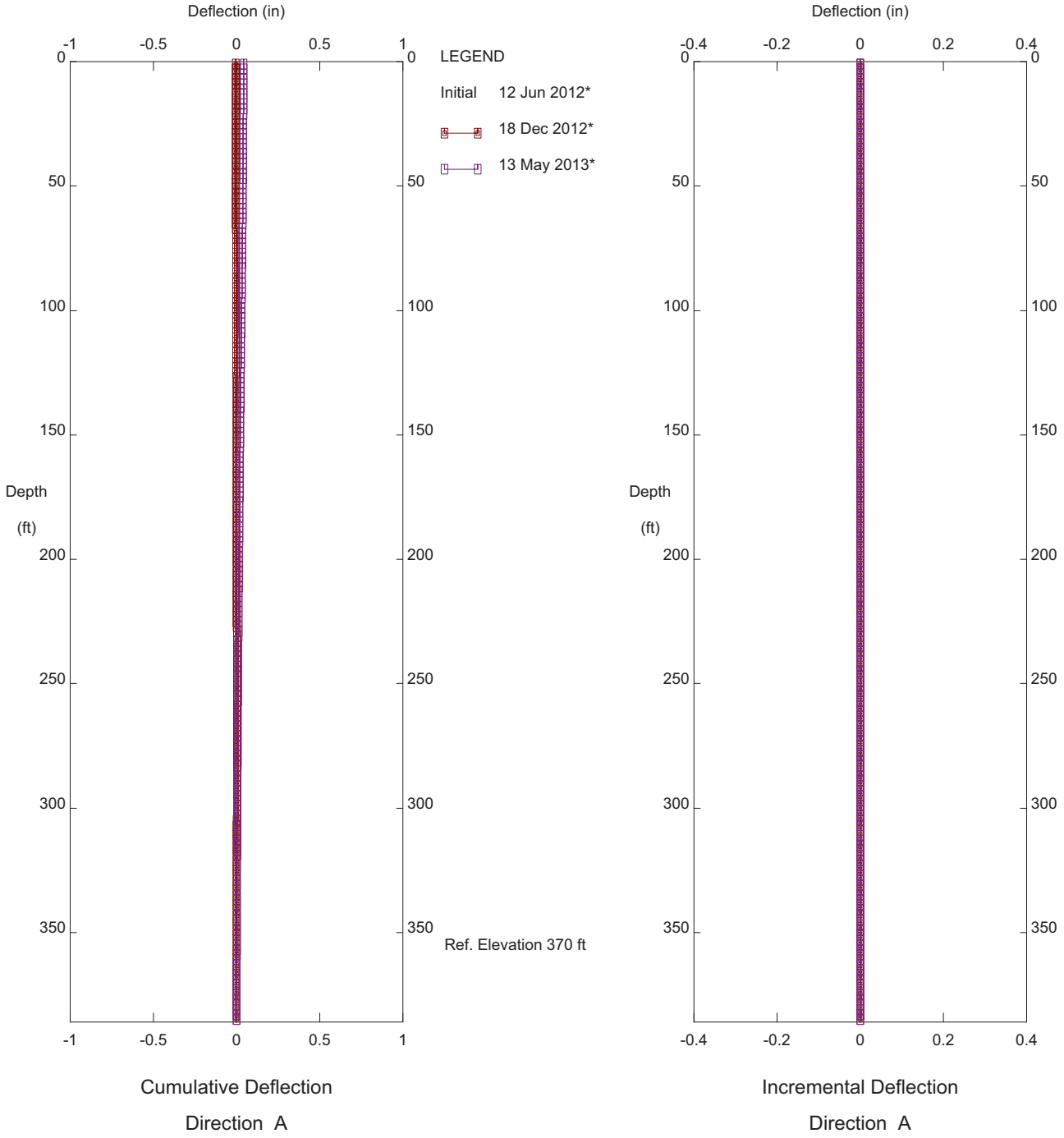
Fugro West, Inc. - Ventura, CA



BIG ROCK MESA, Inclinometer SP-24

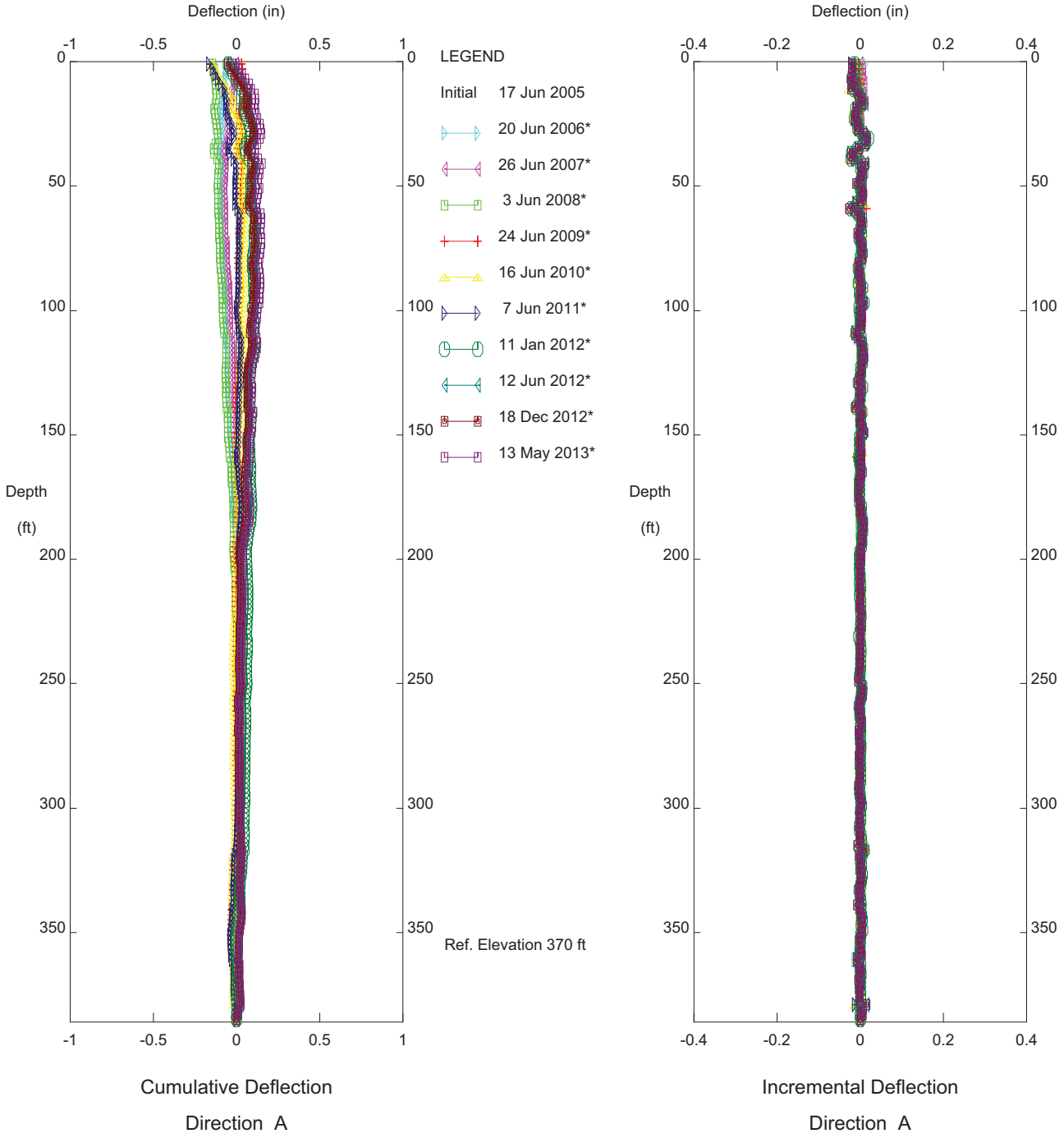
CENTRAL REGION

Sets marked * include zero shift and/or rotation corrections.

C:\USERS\JREEVES\DESKTOP\FUGRO STUFF\DATA\BIG ROCK\SI DATA\SP24.GTL

PLATE D-20a

Fugro West, Inc. - Ventura, CA



BIG ROCK MESA, Inclinometer SP-24

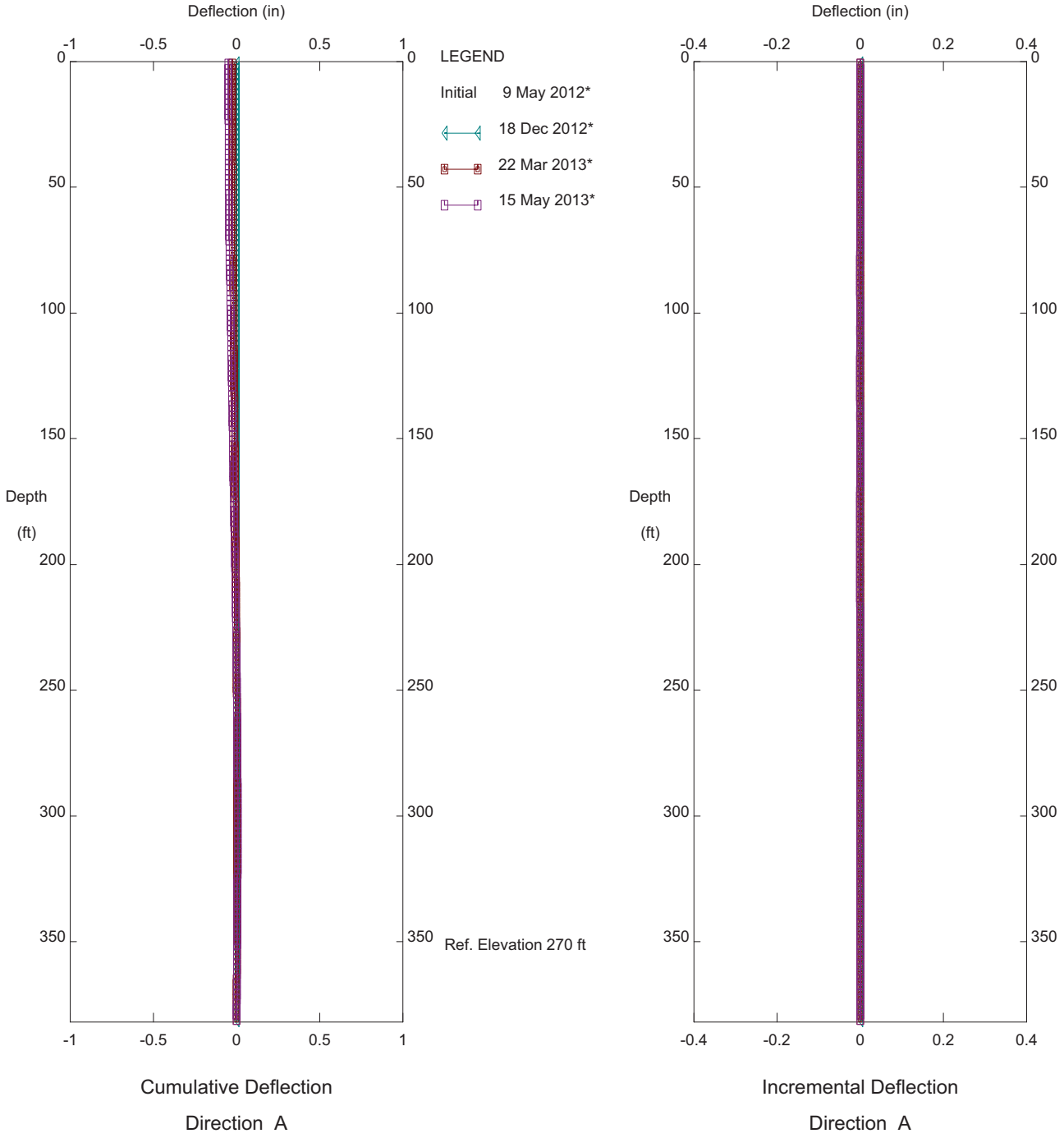
CENTRAL REGION

Sets marked * include zero shift and/or rotation corrections.

C:\USERS\JREEVES\DESKTOP\FUGRO STUFF\DATA\BIG ROCK\SI DATA\SP24.GTL

PLATE D-20b

Fugro West, Inc. - Ventura, CA



BIG ROCK MESA, Inclinometer SP-34

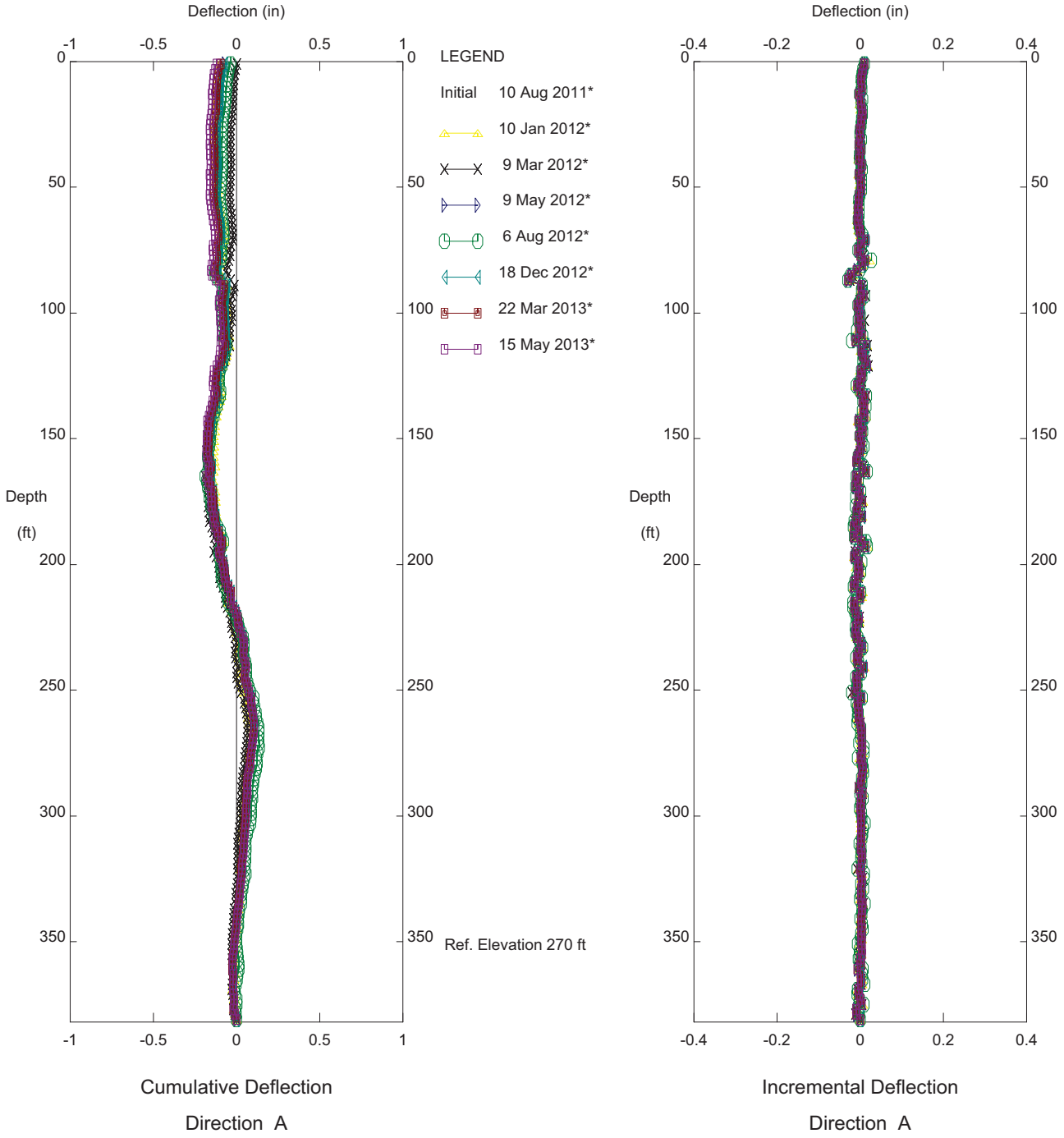
CENTRAL REGION

Sets marked * include zero shift and/or rotation corrections.

C:\USERS\JREEVES\DESKTOP\FUGRO STUFF\DATA\BIG ROCK\SI DATA\SP34.GTL

PLATE D-21a

Fugro West, Inc. - Ventura, CA



BIG ROCK MESA, Inclinometer SP-34

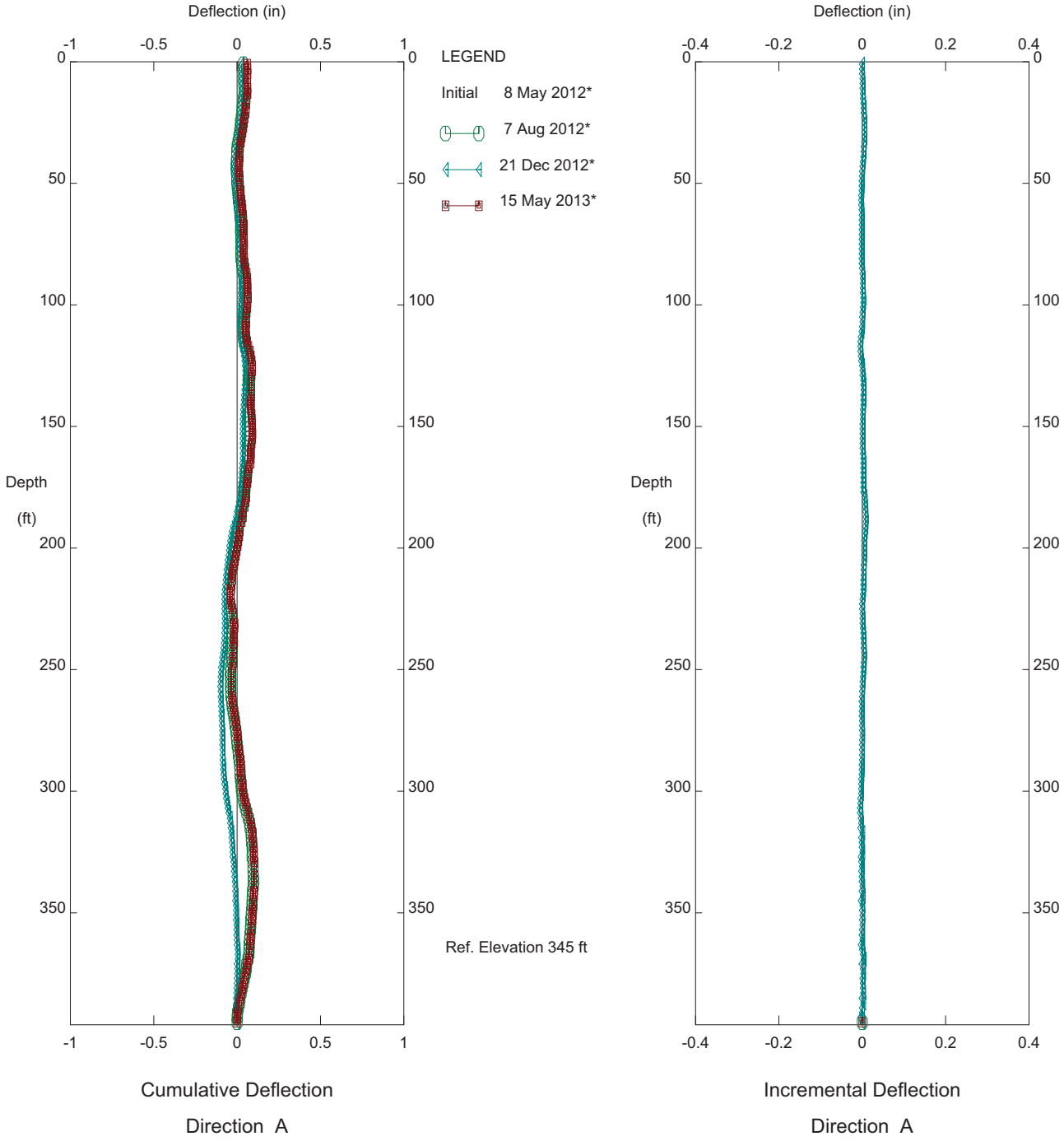
CENTRAL REGION

Sets marked * include zero shift and/or rotation corrections.

C:\USERS\JREEVES\DESKTOP\FUGRO STUFF\DATA\BIG ROCK\SI DATA\SP34.GTL

PLATE D-21b

Fugro West, Inc. - Ventura, CA



BIG ROCK MESA, Inclinometer SP-35

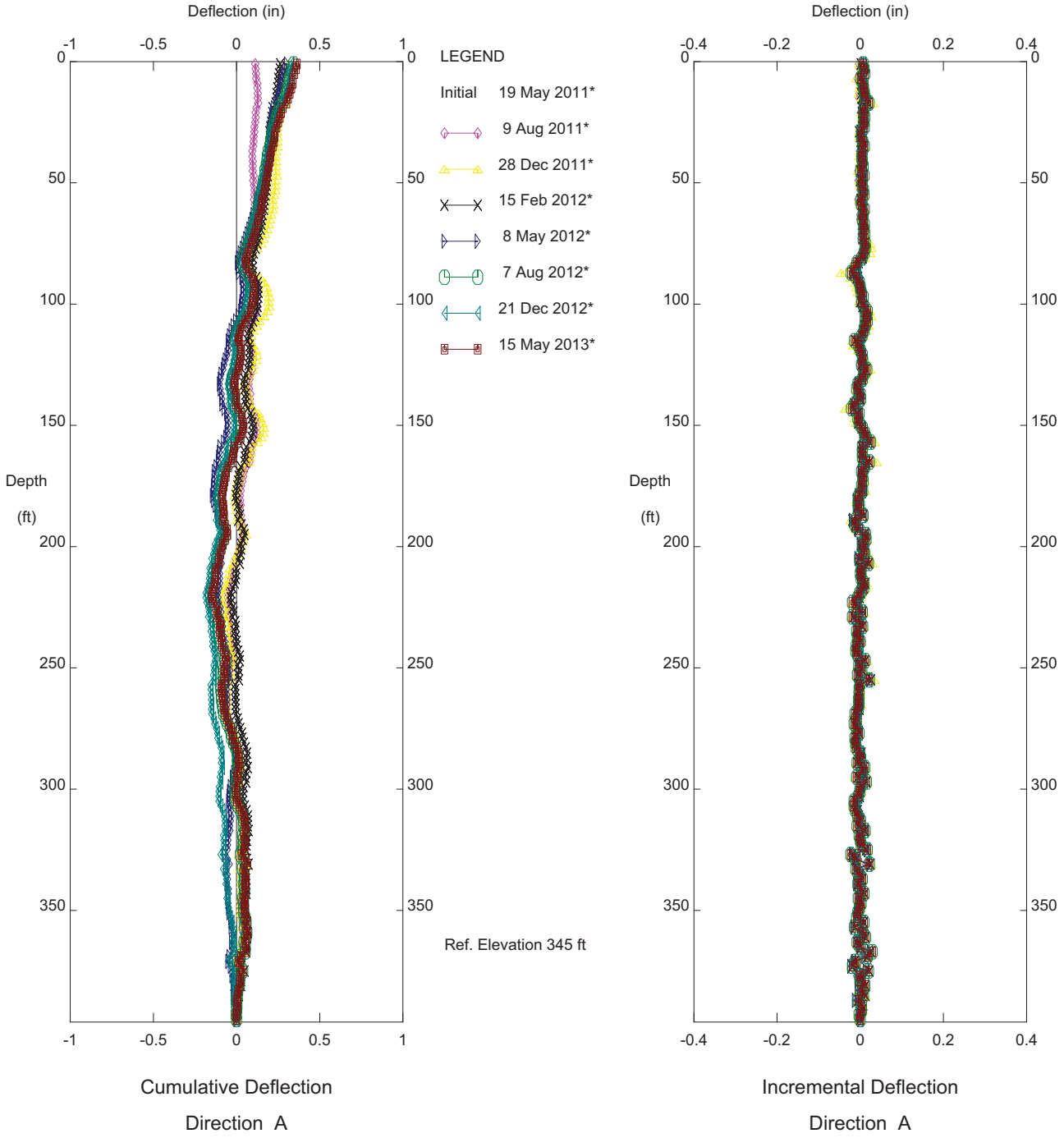
CENTRAL REGION

Sets marked * include zero shift and/or rotation corrections.

C:\USERS\JREEVES\DESKTOP\FUGRO STUFF\DATA\BIG ROCK\SI DATA\SP35.GTL

PLATE D-22a

Fugro West, Inc. - Ventura, CA



BIG ROCK MESA, Inclinometer SP-35

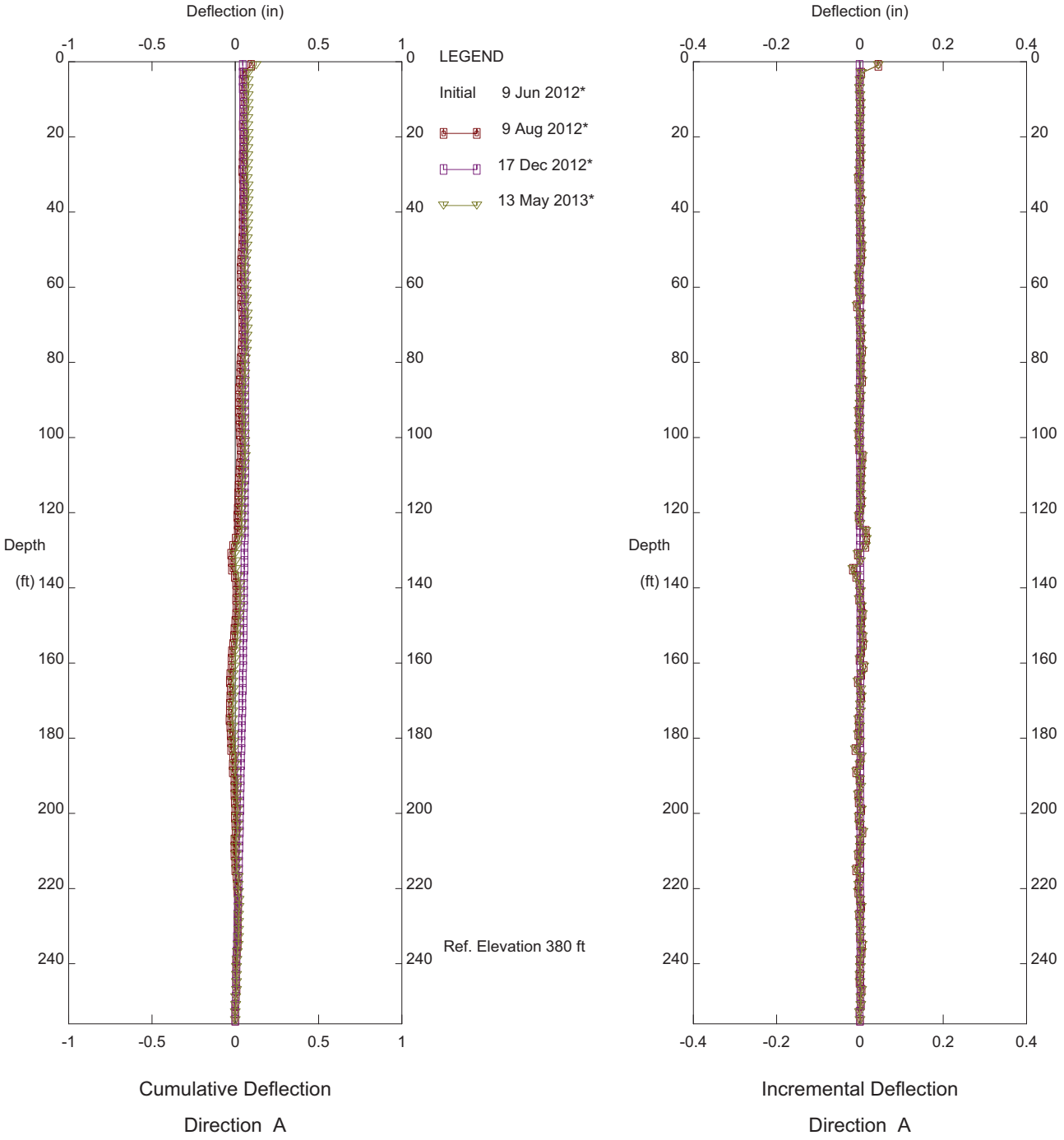
CENTRAL REGION

Sets marked * include zero shift and/or rotation corrections.

C:\USERS\JREEVES\DESKTOP\FUGRO STUFF\DATA\BIG ROCK\SI DATA\SP35.GTL

PLATE D-22b

Fugro West, Inc. - Ventura, CA



BIG ROCK MESA, Inclinometer SP-36

CENTRAL REGION

Sets marked * include zero shift and/or rotation corrections.

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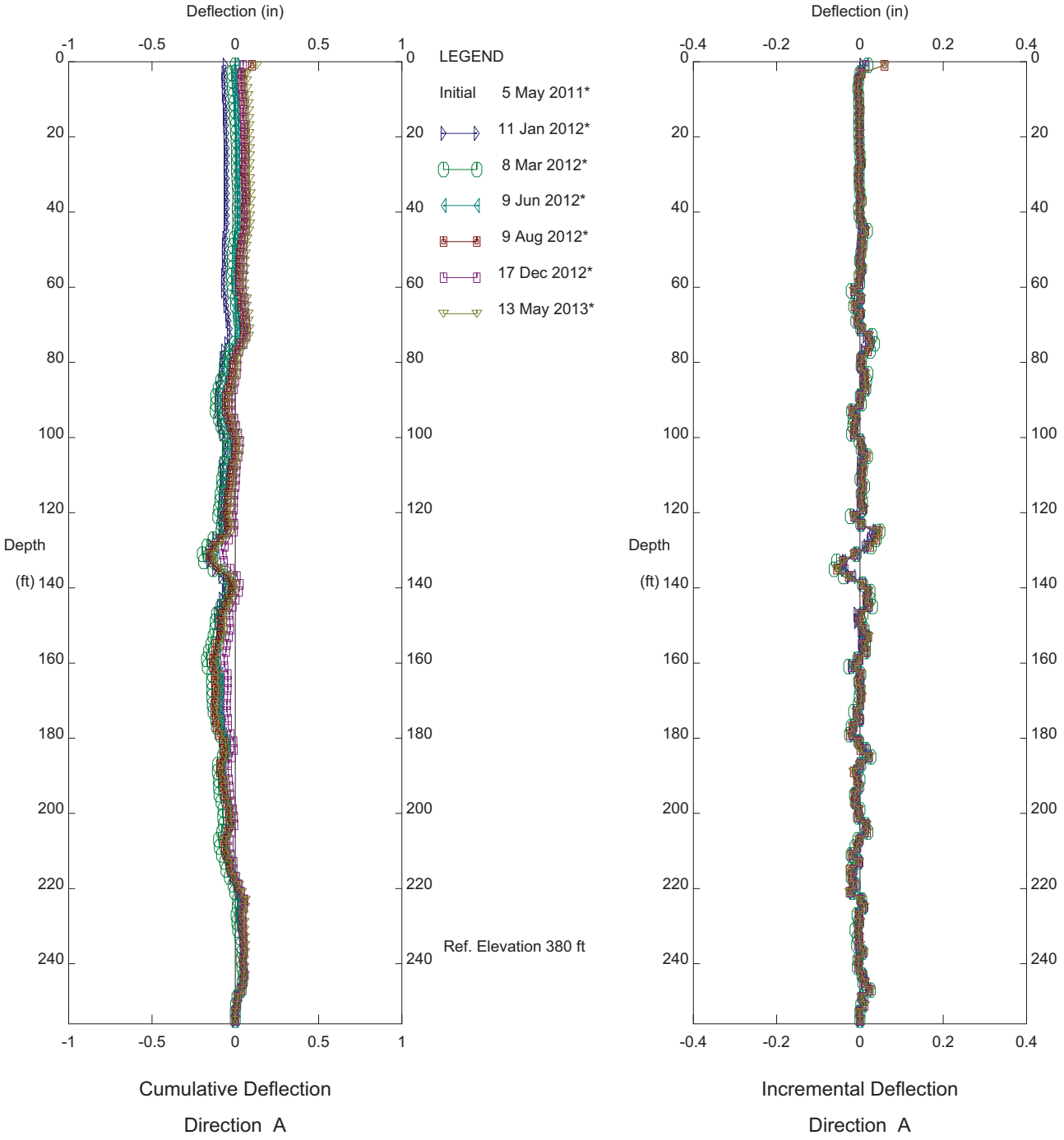
PLATE D-23a

Fugro West, Inc. - Ventura, CA



BIG ROCK MESA, Inclinometer SP-36

CENTRAL REGION

Sets marked * include zero shift and/or rotation corrections.

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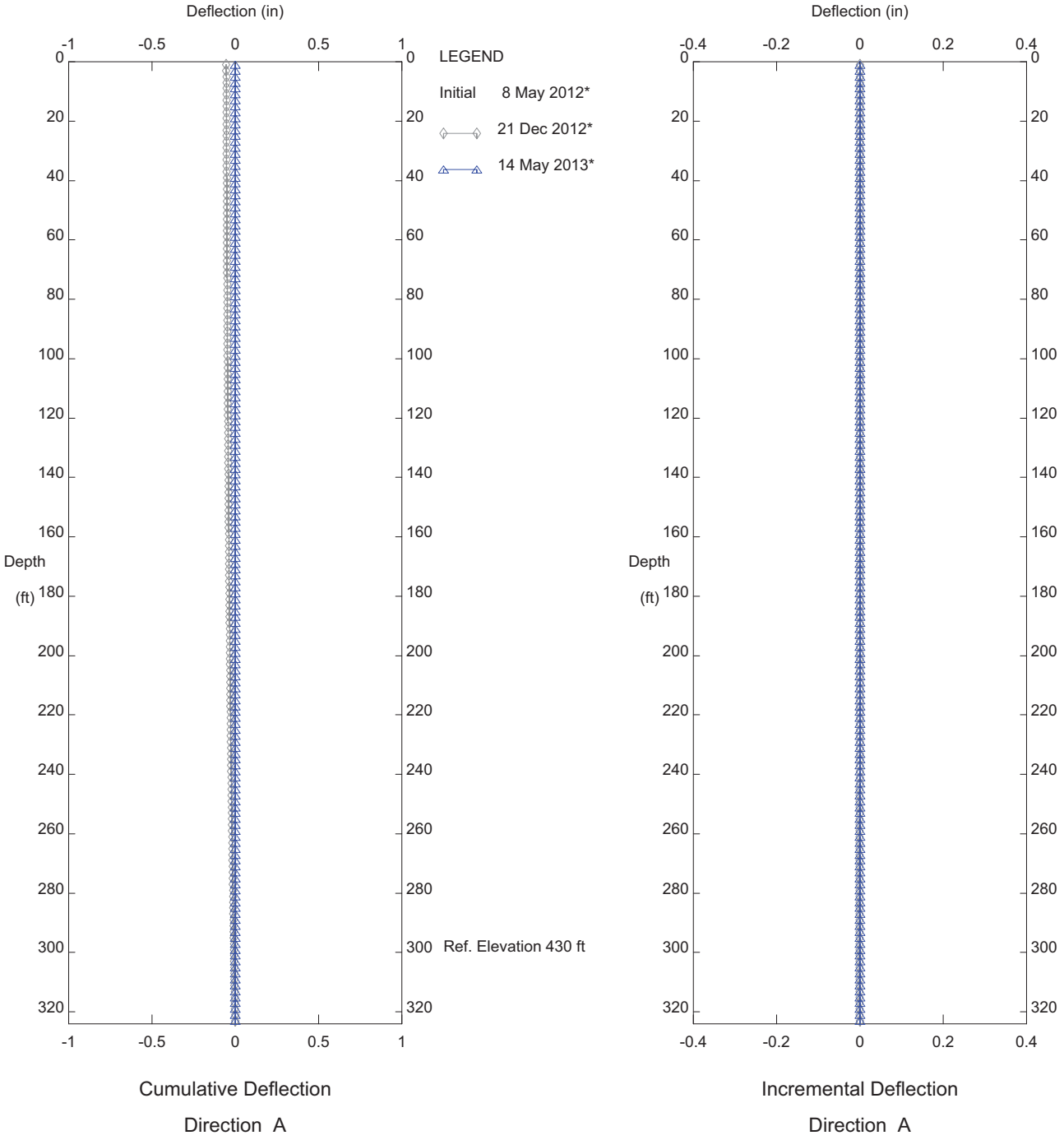
PLATE D-23b

Fugro West, Inc. - Ventura, CA



BIG ROCK MESA, Inclinometer SP-20

WESTERN REGION

Sets marked * include zero shift and/or rotation corrections.

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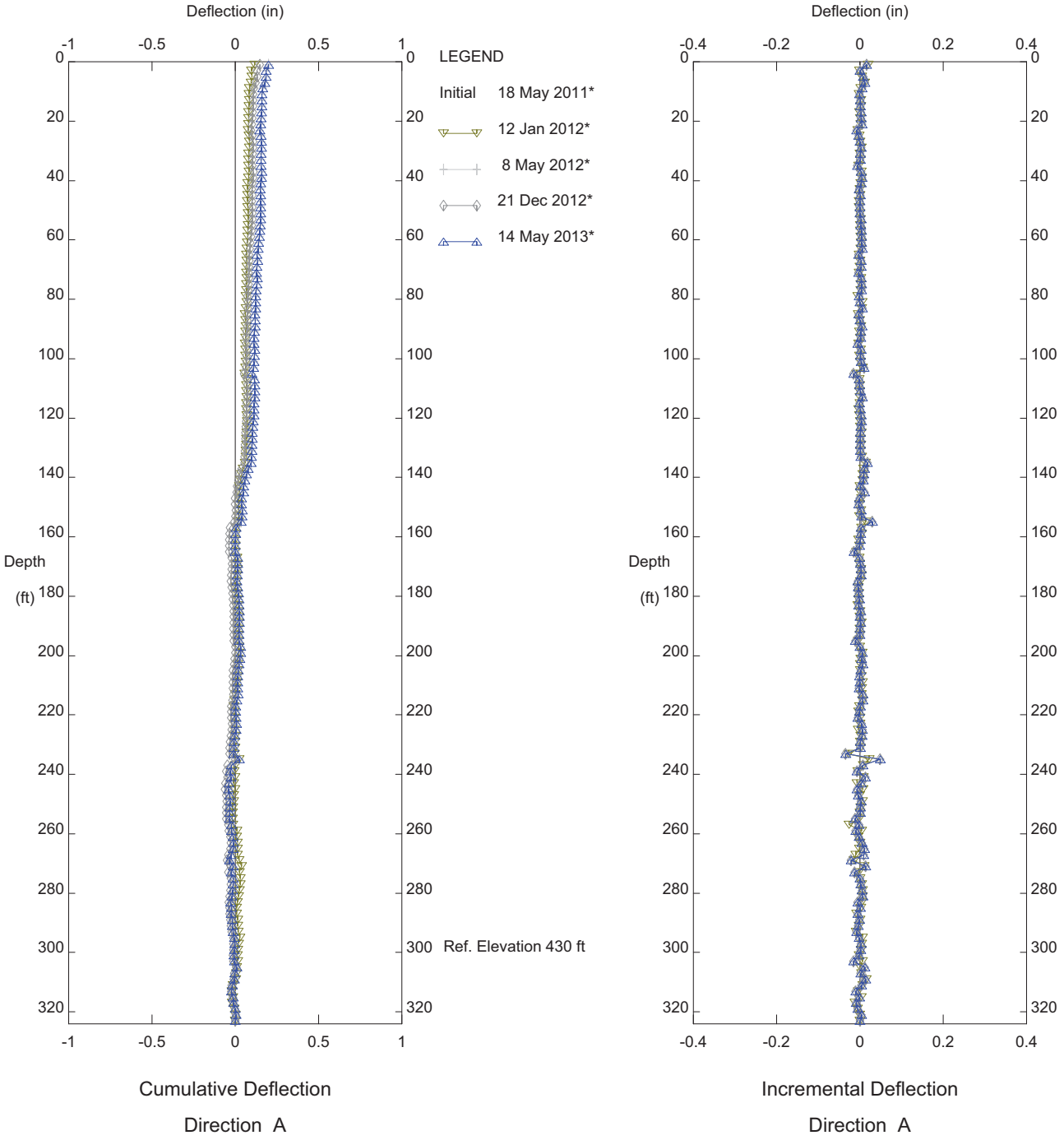
PLATE D-24a

Fugro West, Inc. - Ventura, CA



BIG ROCK MESA, Inclinometer SP-20

WESTERN REGION

Sets marked * include zero shift and/or rotation corrections.

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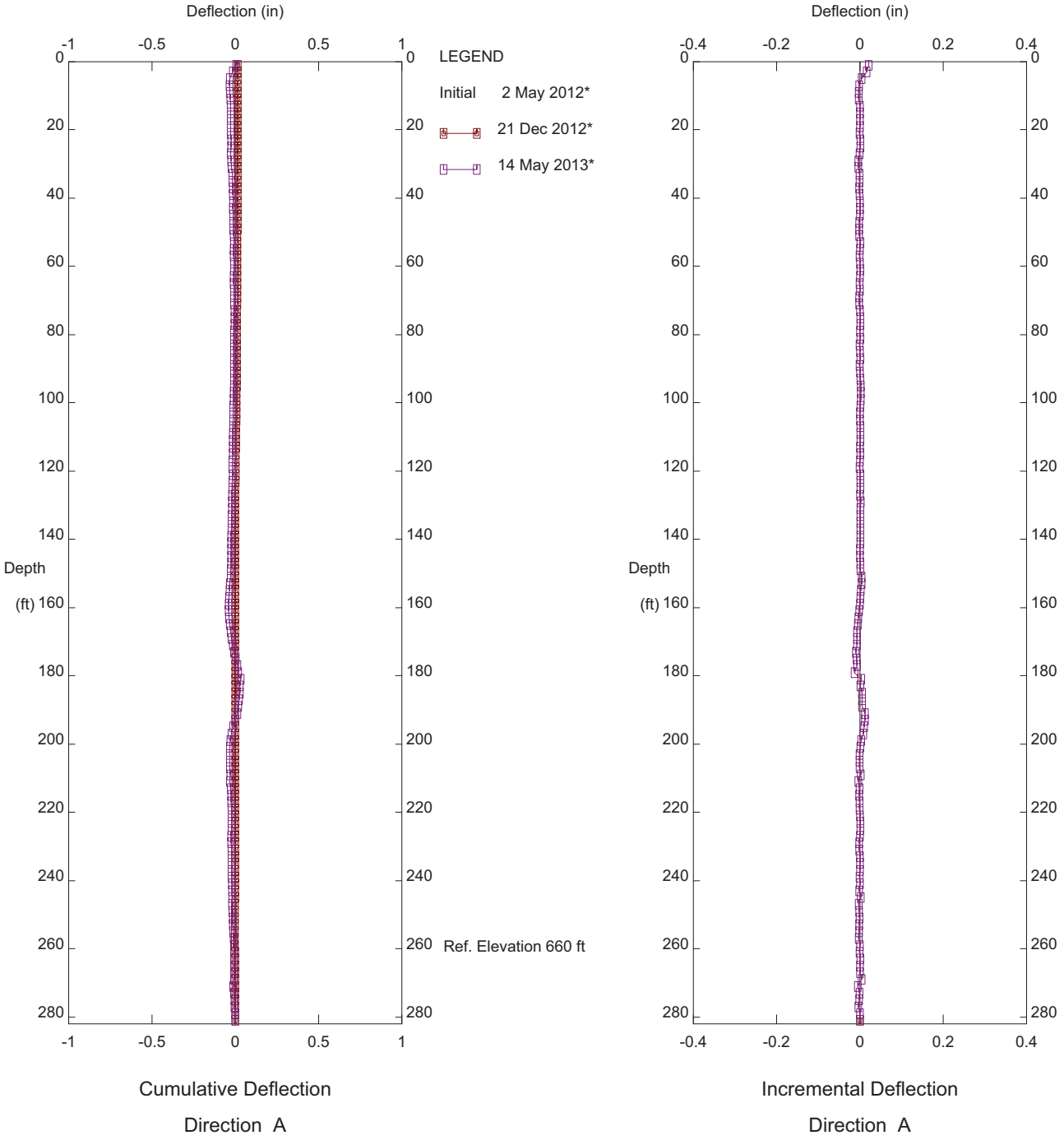
PLATE D-24b

Fugro West, Inc. - Ventura, CA



BIG ROCK MESA, Inclinometer SP-21

WESTERN REGION

Sets marked * include zero shift and/or rotation corrections.

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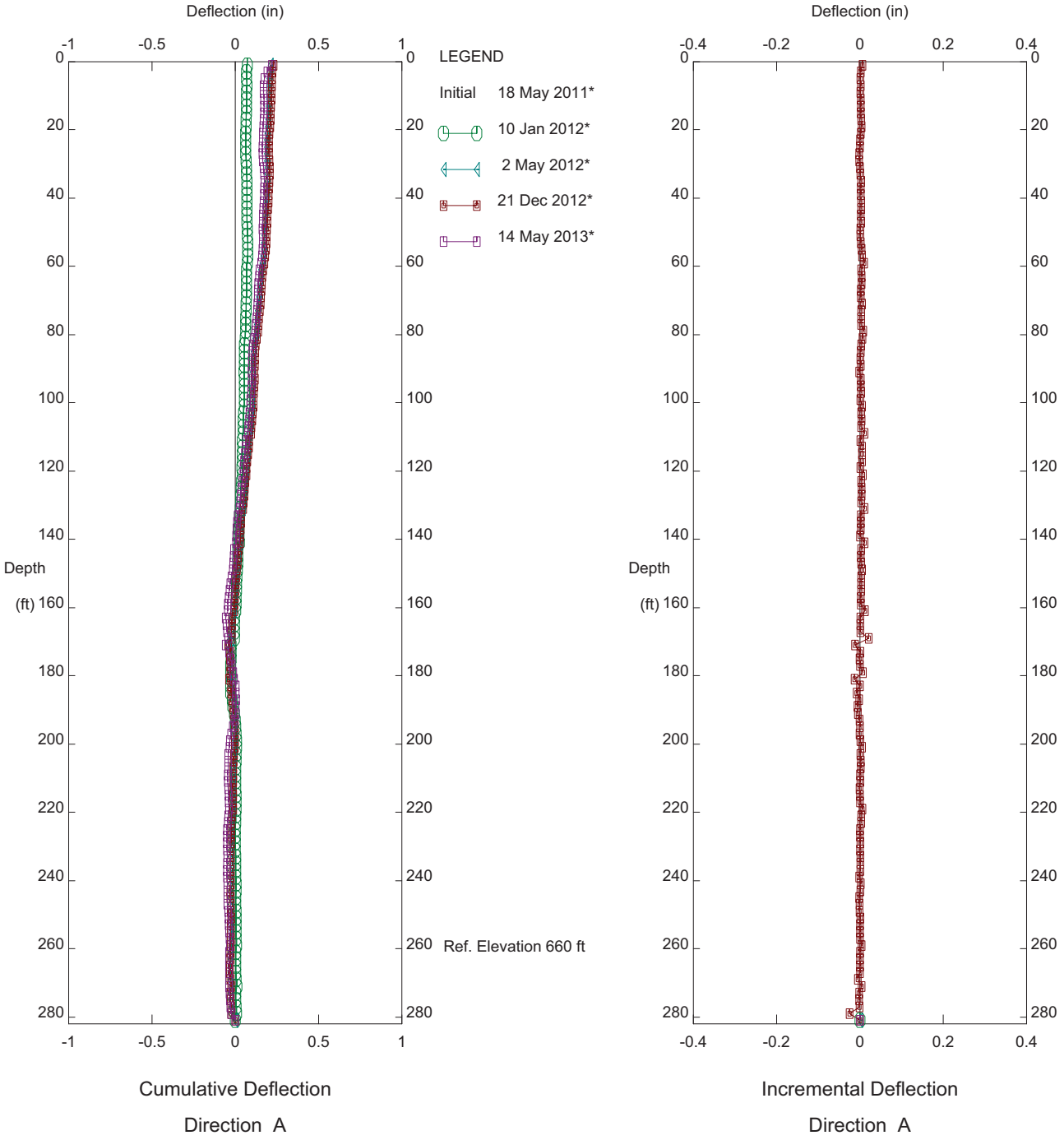
PLATE D-25a

Fugro West, Inc. - Ventura, CA



BIG ROCK MESA, Inclinometer SP-21

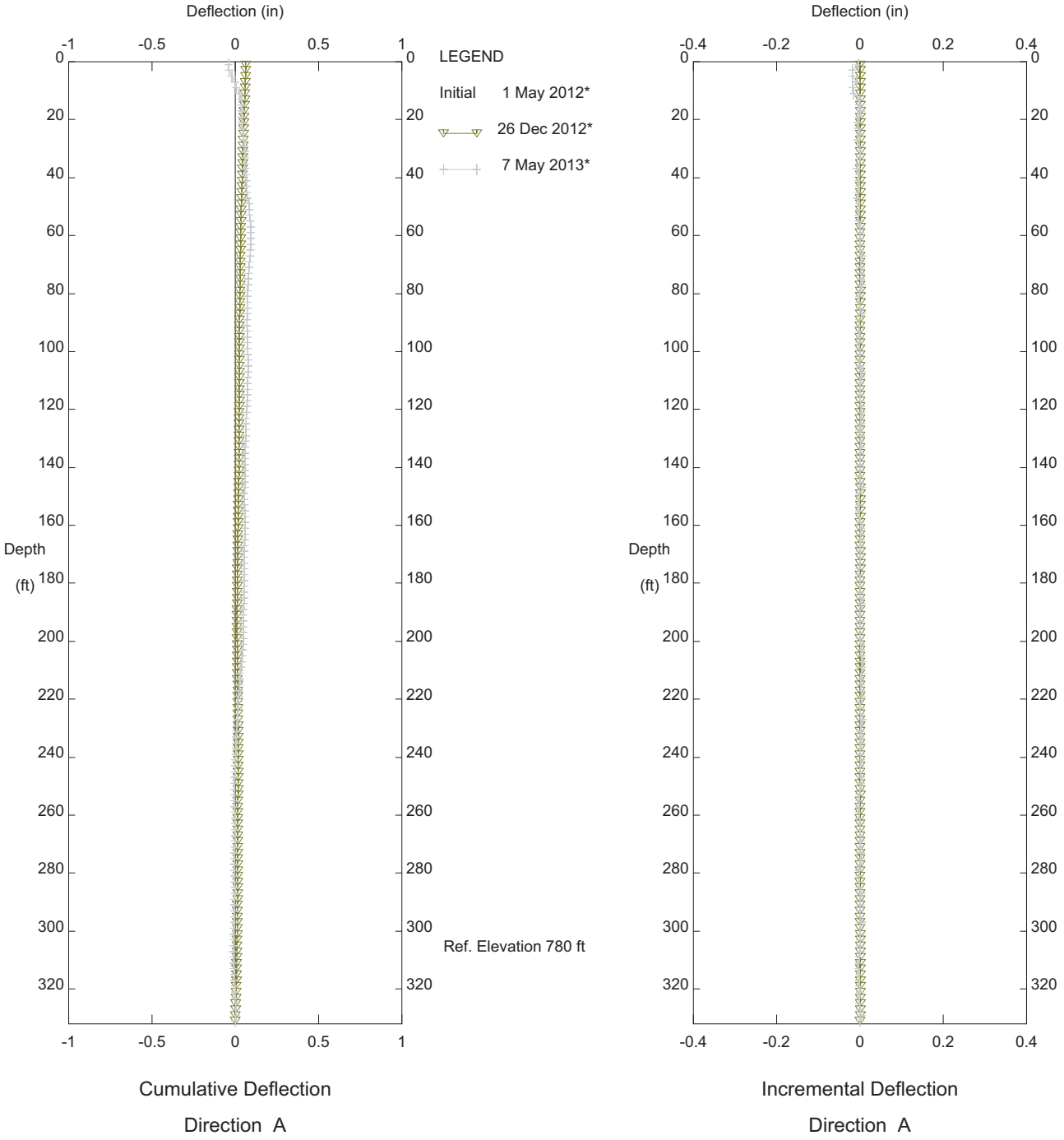
WESTERN REGION

Sets marked * include zero shift and/or rotation corrections.

C:\USERS\JREEVES\DESKTOP\FUGRO STUFF\DATA\BIG ROCK\SI DATA\SP21.GTL

PLATE D-25b

Fugro West, Inc. - Ventura, CA



BIG ROCK MESA, Inclinometer SP-22

WESTERN REGION

Sets marked * include zero shift and/or rotation corrections.

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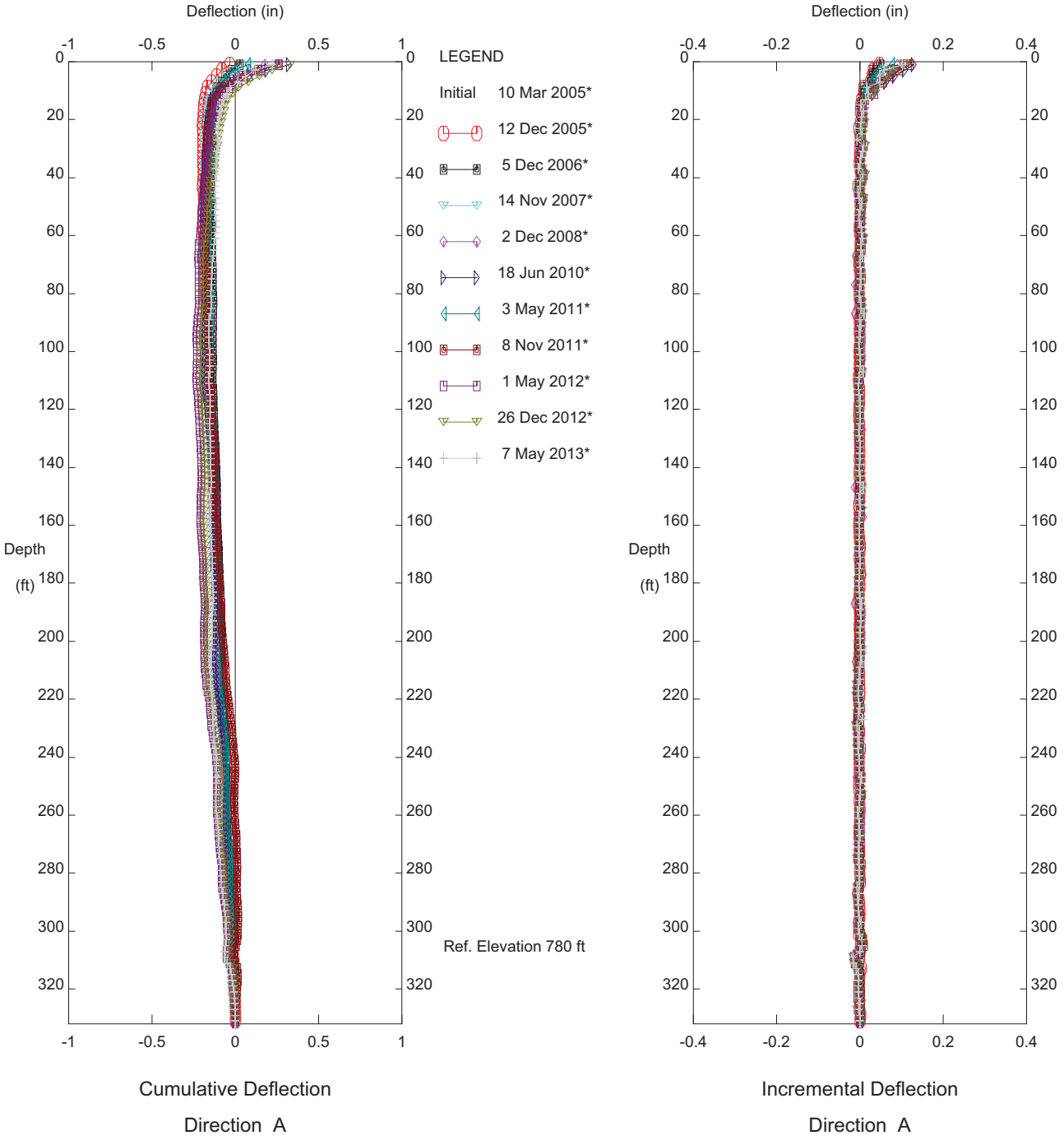
PLATE D-26a

Fugro West, Inc. - Ventura, CA



BIG ROCK MESA, Inclinometer SP-22

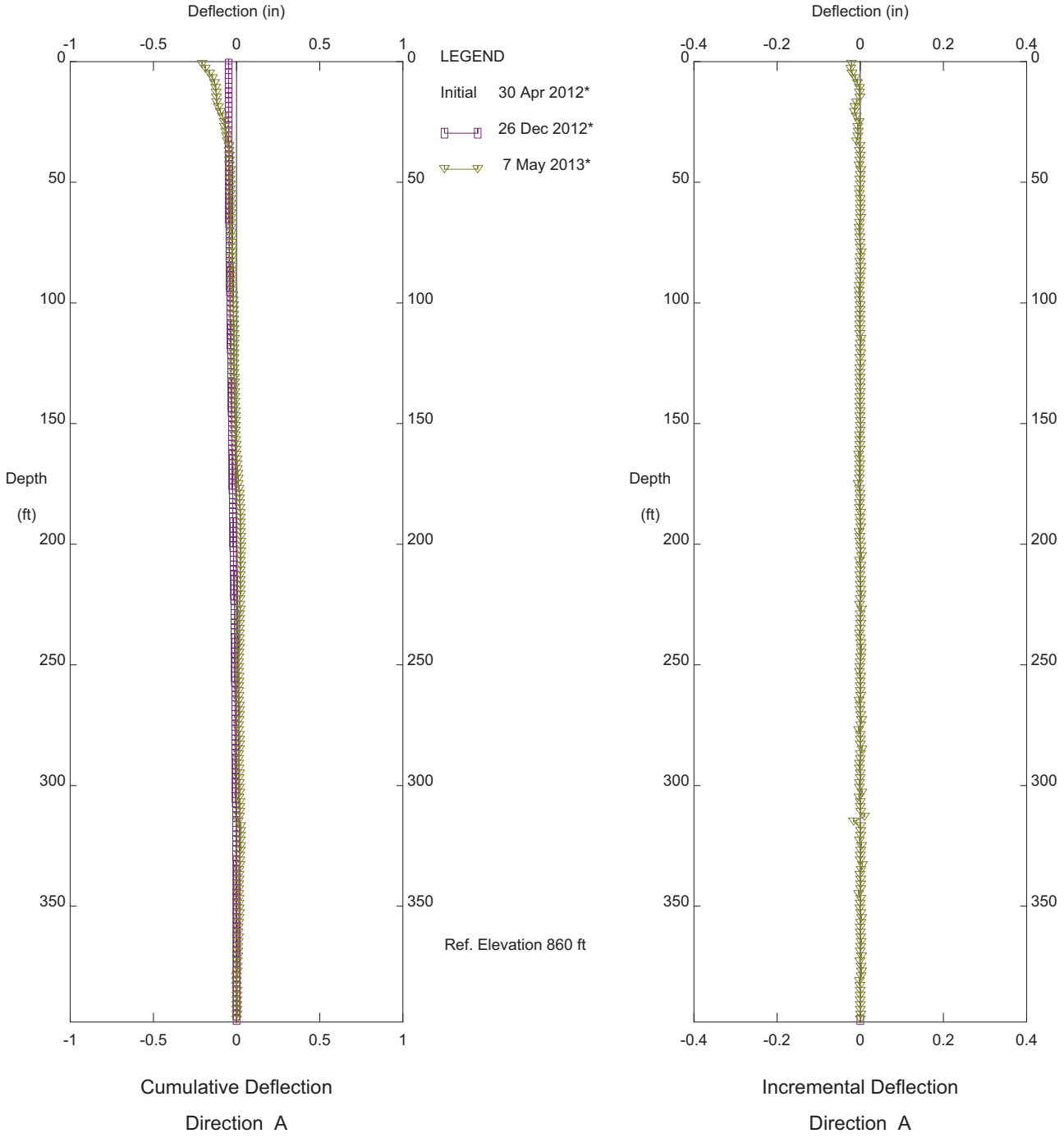
WESTERN REGION

Sets marked * include zero shift and/or rotation corrections.

C:\USERS\JREEVES\DESKTOP\FUGRO STUFF\DATA\BIG ROCK\SI DATA\SP22.GTL

PLATE D-26b

Fugro West, Inc. - Ventura, CA



BIG ROCK MESA, Inclinometer SP-23

WESTERN REGION

Sets marked * include zero shift and/or rotation corrections.

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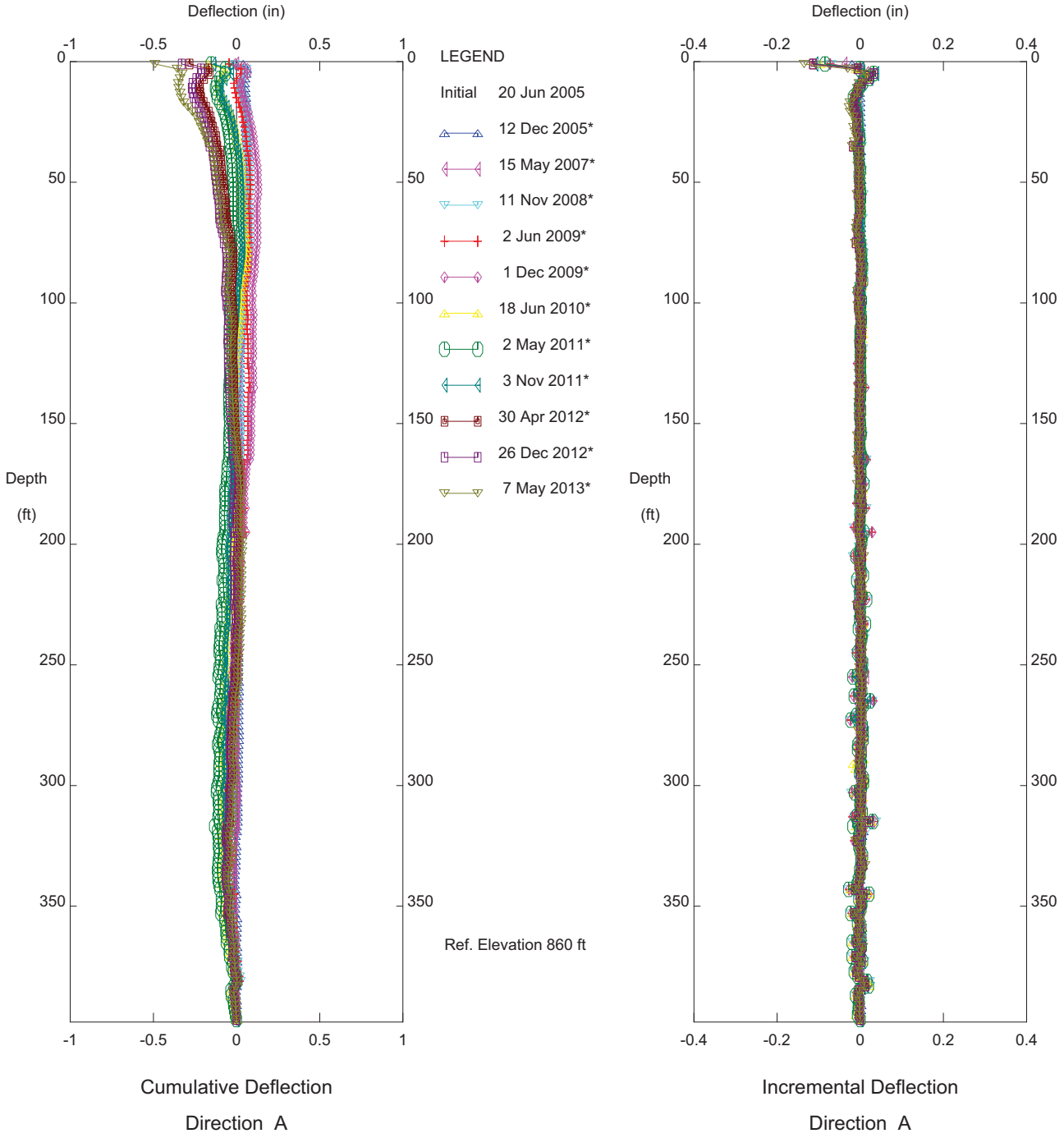
PLATE D-27a

Fugro West, Inc. - Ventura, CA



BIG ROCK MESA, Inclinometer SP-23

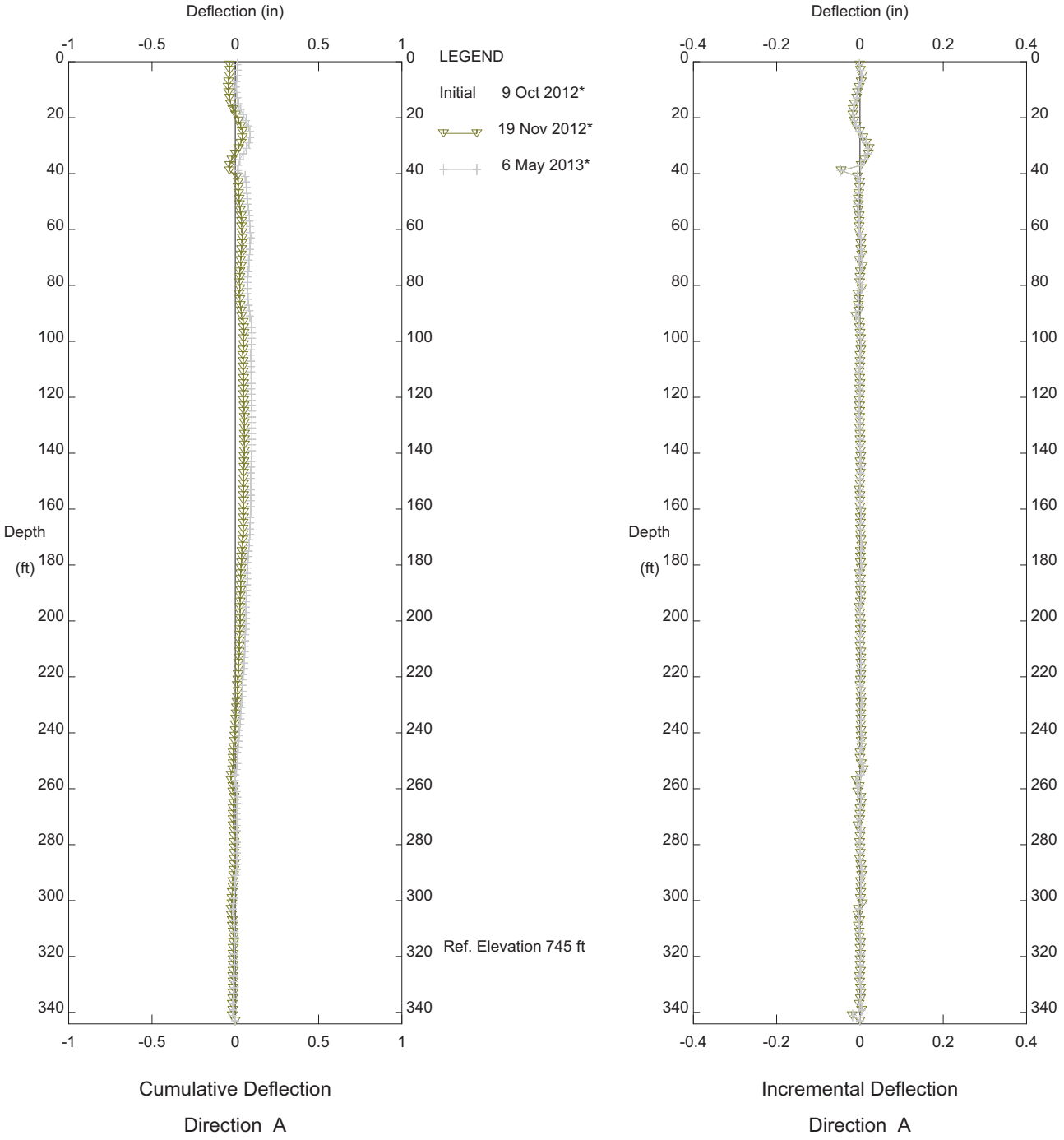
WESTERN REGION

Sets marked * include zero shift and/or rotation corrections.

C:\USERS\JREEVES\DESKTOP\FUGRO STUFF\DATA\BIG ROCK\SI DATA\SP23.GTL

PLATE D-27b

Fugro West, Inc. - Ventura, CA



BIG ROCK MESA, Inclinometer SP-26

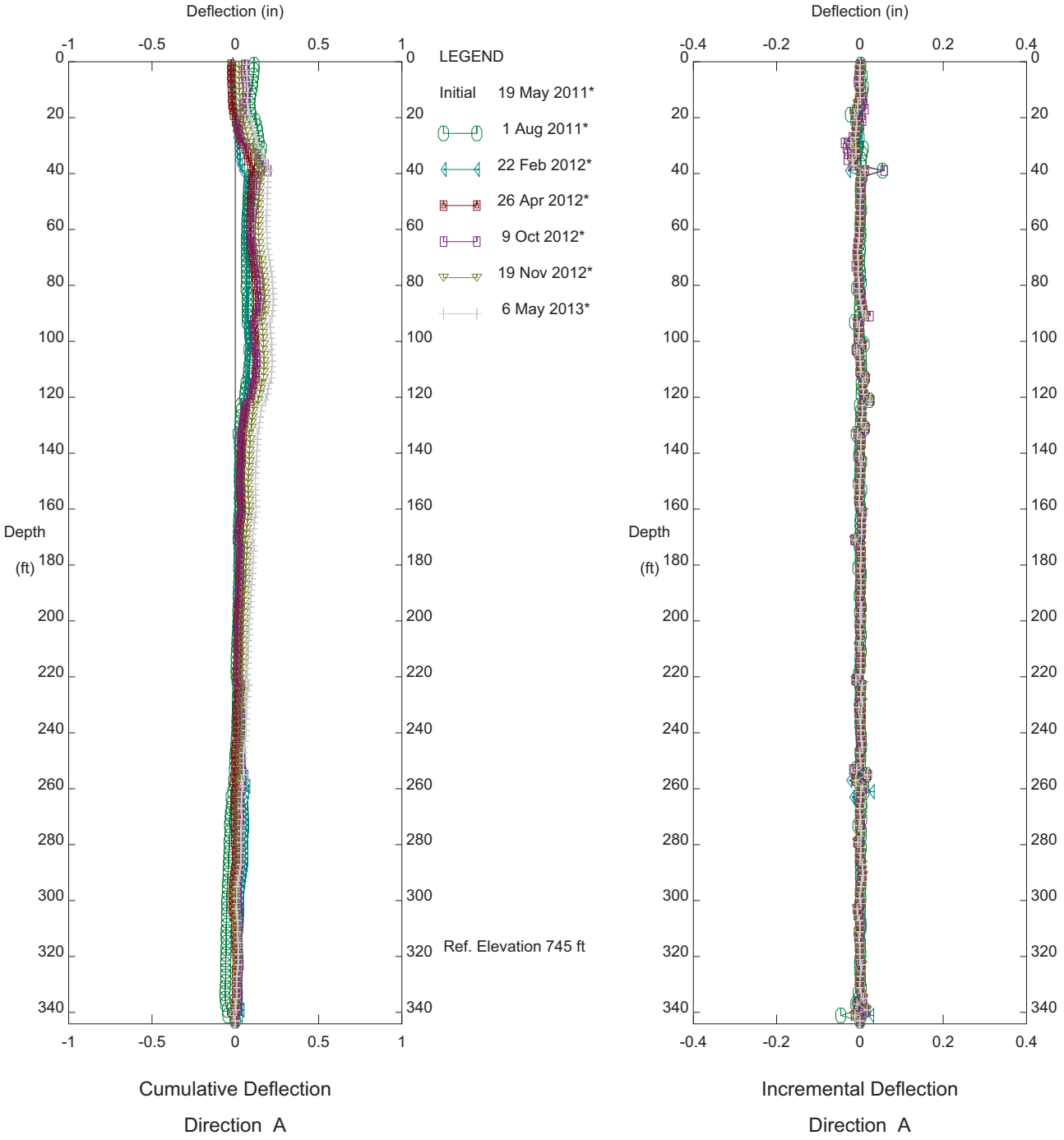
HEADSCARP REGION

Sets marked * include zero shift and/or rotation corrections.

C:\USERS\JREEVES\DESKTOP\FUGRO STUFF\DATA\BIG ROCK\SI DATA\SP26.GTL

PLATE D-28a

Fugro West, Inc. - Ventura, CA



BIG ROCK MESA, Inclinometer SP-26

HEADSCARP REGION

Sets marked * include zero shift and/or rotation corrections.

C:\USERS\JREEVES\DESKTOP\FUGRO STUFF\DATA\BIG ROCK\SI DATA\SP26.GTL

PLATE D-28b

APPENDIX E
WATER QUALITY TESTING

Date Sampled	INORGANIC NON-METALS (Aqueous Matrix)												
	Well/Hydrauger Identification	pH	Temperature	Biochemical Oxygen Demand	Surfactants (MBAS)	Oil & Grease	Settleable Solids	Sulfides	Phenols	Residual Chlorine	Total Suspended Solids	Turbidity	Acute Toxicity***
Units:			*°F*	*mg/L*	*mg/L*	*mg/L*	*mL/L*	*mg/L*	*mg/L*	*mg/l*	*mg/L*	*NTU*	*% Survival*
Discharges to Port 2													
7/17/2012	HD-9	7.2	71.4	ND	ND	ND	BQL	ND	ND	BQL	ND	0.6	–
8/16/2012	HD-9	7.1	72.0	ND	ND	ND	BQL	ND	ND	BQL	ND	0.4	–
9/13/2012	HD-9	7.1	71.4	ND	ND	ND	BQL	ND	ND	BQL	ND	0.6	–
Discharges to Port 3													
7/17/2012	W-2	6.8	72.7	ND	ND	ND	BQL	ND	ND	BQL	ND	0.3	–
8/16/2012	W-2	6.8	73.6	ND	ND	ND	BQL	ND	ND	BQL	ND	0.3	–
9/13/2012	W-2	6.9	71.1	ND	ND	ND	BQL	ND	ND	BQL	ND	0.3	–
7/17/2012	HD-30	7.1	71.1	ND	ND	ND	BQL	ND	ND	BQL	ND	0.2	–
8/16/2012	HD-30	7.0	72.0	ND	ND	ND	BQL	ND	ND	BQL	ND	0.2	–
9/13/2012	HD-30	7.6	71.1	ND	ND	ND	BQL	ND	ND	BQL	ND	0.2	–
7/17/2012	HD-43	7.2	72.9	ND	ND	ND	BQL	ND	ND	BQL	ND	0.5	–
8/16/2012	HD-43	7.6	72.5	ND	ND	ND	BQL	ND	ND	BQL	ND	0.2	–
9/13/2012	HD-43	7.0	70.9	ND	ND	ND	BQL	ND	ND	BQL	ND	0.3	–
Discharges to Port 4													
7/17/2012	W-8	6.7	71.8	ND	ND	ND	BQL	ND	ND	BQL	ND	0.1	–
8/16/2012	W-8	6.6	72.9	ND	ND	ND	BQL	ND	ND	BQL	ND	0.1	–
9/13/2012	W-8	6.7	72.1	ND	ND	ND	BQL	ND	ND	BQL	ND	0.2	–
7/17/2012	BYA-7	7.2	73.4	ND	ND	ND	BQL	ND	ND	BQL	ND	0.3	–
8/16/2012	BYA-7	7.3	71.2	ND	ND	ND	BQL	ND	ND	BQL	ND	0.2	–
9/13/2012	BYA-7	7.3	73.6	ND	ND	ND	BQL	ND	ND	BQL	1.2	0.8	–
Discharges to Port 5													
7/17/2012	BYA-4	7.0	72.3	ND	ND	ND	BQL	ND	ND	BQL	2.5	0.9	–
8/16/2012	BYA-4	7.0	73.4	ND	ND	ND	BQL	ND	ND	BQL	1.4	0.9	–
9/13/2012	BYA-4	6.9	72.5	ND	ND	ND	BQL	ND	ND	BQL	ND	0.5	–
7/17/2012	HD-22	7.0	72.5	ND	ND	ND	BQL	ND	ND	BQL	ND	0.6	–
8/16/2012	HD-22	7.1	71.2	ND	ND	ND	BQL	ND	ND	BQL	11	16	–
9/13/2012	HD-22	7.2	21.5	ND	ND	ND	BQL	ND	ND	BQL	5.2	6.2	–
Discharges to Port 6													
7/17/2012	HD-12	7.2	73.0	ND	ND	ND	BQL	ND	ND	BQL	3.1	0.4	–
8/16/2012	HD-12	7.1	72.9	ND	ND	ND	BQL	ND	ND	BQL	2.7	0.5	–
9/13/2012	HD-12	7.1	72.1	ND	ND	ND	BQL	ND	ND	BQL	5.6	6.7	–
Discharges to Port 7													
7/17/2012	HD-7	7.8	73.8	1.3	ND	ND	BQL	ND	ND	BQL	3	0.4	–
8/16/2012	HD-7	7.1	73.6	0.94	ND	ND	BQL	ND	ND	BQL	1.3	0.4	–
9/13/2012	HD-7	7.0	71.2	ND	ND	ND	BQL	ND	ND	BQL	4.6	7.9	–
Effluent Limit (Daily Max.)		6.5-8.5	--	30	0.5	15	0.3	0.1	1	0.1	150	150	--
Effluent Limit (Monthly Avg.)		6.5-8.5	--	20	---	10	0.1	---	---	---	50	50	--

* -- = Not tested for during monthly monitoring period

**BQL = Below Practical Quantitation Limit (see attached wet chemistry analysis summary)

***Acute Toxicity Samples were collected on 11/27/11

SUMMARY OF WATER QUALITY MONITORING DATA
Third Quarter (July-September) 2012
Big Rock Mesa Landslide Assessment District
Malibu, California

Date Sampled	INORGANIC NON-METALS (Aqueous Matrix)												
	Well/Hydrauger Identification	pH	Temperature	Biochemical Oxygen Demand	Surfactants (MBAS)	Oil & Grease	Settleable Solids	Sulfides	Phenols	Residual Chlorine	Total Suspended Solids	Turbidity	Acute Toxicity***
Units:			°F	mg/L	mg/L	mg/L	mL/L	mg/L	mg/L	mg/l	mg/L	NTU	% Survival
Discharges to Port 1A													
10/17/2012	BYA-14	6.9	74.5	ND	ND	ND	BQL	ND	ND	BQL	ND	0.3	–
11/15/2012	BYA-14	6.9	70.9	0.51	ND	ND	BQL	ND	ND	BQL	ND	0.4	–
12/15/2012	BYA-14	7.1	63.7	ND	ND	ND	BQL	ND	ND	BQL	2.6	0.3	–
Discharges to Port 1													
10/17/2012	HD-42	6.9	72.0	ND	ND	ND	BQL	ND	ND	BQL	ND	1.0	–
11/15/2012	HD-42	7.3	70.2	ND	ND	ND	BQL	ND	ND	BQL	ND	0.2	–
12/15/2012	HD-42	6.4	69.3	ND	ND	ND	BQL	ND	ND	BQL	1.4	0.2	–
Discharges to Port 2													
10/17/2012	HD-41	7.1	70.9	1.8	ND	ND	BQL	ND	ND	BQL	3.4	0.7	–
11/15/2012	HD-41	7.1	70.3	ND	ND	ND	BQL	ND	ND	BQL	ND	0.2	–
12/15/2012	HD-41	6.9	68.0	ND	ND	ND	BQL	ND	ND	BQL	ND	0.2	–
Discharges to Port 3													
10/17/2012	BYA-H10	6.9	71.8	1.8	ND	ND	BQL	ND	ND	BQL	ND	0.5	–
11/15/2012	BYA-H10	6.9	70.3	0.54	ND	ND	BQL	ND	ND	BQL	2	3.0	–
12/15/2012	BYA-H10	7.1	70.3	ND	ND	ND	BQL	ND	ND	BQL	1.2	0.4	–
Discharges to Port 4													
10/17/2012	W-17	7.1	72.7	ND	ND	ND	BQL	ND	ND	BQL	ND	0.3	–
11/15/2012	W-17	7.1	71.2	ND	ND	ND	BQL	ND	ND	BQL	ND	0.2	–
12/15/2012	W-17	7.5	68.9	ND	ND	ND	BQL	ND	ND	BQL	1.6	0.3	–
10/17/2012	HD-25	7.0	71.6	1.7	ND	ND	BQL	ND	ND	BQL	ND	0.2	–
11/15/2012	HD-25	7.0	72.5	ND	ND	ND	BQL	ND	ND	BQL	1.1	0.8	–
12/15/2012	HD-25	7.1	71.1	0.98	ND	ND	BQL	ND	ND	BQL	ND	0.2	–
Discharges to Port 5													
10/17/2012	W-16	6.8	74.1	ND	ND	ND	BQL	ND	ND	BQL	ND	0.2	–
11/15/2012	W-16	6.8	71.8	0.57	ND	ND	BQL	ND	ND	BQL	ND	0.1	–
12/15/2012	W-16	6.8	72.3	ND	ND	ND	BQL	ND	ND	BQL	ND	0.2	–
10/17/2012	BYA-11	6.7	74.1	ND	ND	ND	BQL	ND	ND	BQL	1.0	0.9	–
11/15/2012	BYA-11	7.1	72.9	0.44	ND	ND	BQL	ND	ND	BQL	ND	0.2	–
12/15/2012	BYA-11	7.4	70.3	0.78	ND	ND	BQL	ND	ND	BQL	1.4	0.3	–
Discharges to Port 6													
10/17/2012	W-18	6.9	74.7	ND	ND	ND	BQL	ND	ND	BQL	1.8	4.6	–
11/15/2012	W-18	7.1	66.0	0.5	ND	ND	BQL	ND	ND	BQL	ND	0.2	–
12/15/2012	W-18	7.0	71.2	ND	ND	ND	BQL	ND	ND	BQL	3	3.3	–
Discharges to Port 9													
10/17/2012	HD-23	7.0	71.2	1.9	ND	ND	BQL	ND	ND	BQL	1.6	0.5	–
11/15/2012	HD-23	7.2	72.1	ND	ND	ND	BQL	ND	ND	BQL	ND	0.2	–
12/15/2012	HD-23	7.0	70.3	ND	ND	ND	BQL	ND	ND	BQL	ND	0.2	–
Effluent Limit (Daily Max.)		6.5-8.5	--	30	0.5	15	0.3	0.1	1	0.1	150	150	--
Effluent Limit (Monthly Avg.)		6.5-8.5	--	20	---	10	0.1	---	---	---	50	50	--

* -- = Not tested for during monthly monitoring period

**BQL = Below Practical Quantitation Limit (see attached wet chemistry analysis summary)

SUMMARY OF WATER QUALITY MONITORING DATA
Fourth Quarter (October-December) 2012
Big Rock Mesa Landslide Assessment District
Malibu, California

Date Sampled	INORGANIC NON-METALS (Aqueous Matrix)												
	Well/Hydrauger Identification	pH	Temperature	Biochemical Oxygen Demand	Surfactants (MBAS)	Oil & Grease	Settleable Solids	Sulfides	Phenols	Residual Chlorine	Total Suspended Solids	Turbidity	Acute Toxicity *
Units:			*°F*	*mg/L*	*mg/L*	*mg/L*	*mL/L*	*mg/L*	*mg/L*	*mg/l*	*mg/L*	*NTU*	*% Survival*
Discharges to Port 1													
1/14/2013	BYA-5	6.9	71.2	ND	ND	ND	BQL	ND	ND	BQL	ND	0.4	100
2/18/2013	BYA-5	6.9	68.7	ND	ND	ND	BQL	ND	ND	BQL	1.2	1.4	–
3/14/2013	BYA-5	6.8	69.4	ND	ND	ND	BQL	ND	ND	BQL	ND	0.4	–
Discharges to Port 3													
1/14/2013	W-1	7.0	66.2	ND	ND	ND	BQL	ND	ND	BQL	ND	0.6	95
2/18/2013	W-1	6.9	66.9	ND	ND	ND	BQL	ND	ND	BQL	ND	0.5	–
3/14/2013	W-1	6.9	68.0	ND	ND	ND	BQL	ND	ND	BQL	ND	0.4	–
1/14/2013	HD-30	7.0	70.7	ND	ND	ND	BQL	ND	ND	BQL	ND	0.2	100
2/18/2013	HD-30	7.2	70.9	ND	ND	ND	BQL	ND	ND	BQL	ND	0.1	–
3/14/2013	HD-30	7.1	69.6	2.2	ND	ND	BQL	ND	ND	BQL	12	4.1	–
Discharges to Port 4													
1/14/2013	BYA-1	7.0	71.1	ND	ND	ND	BQL	ND	ND	BQL	ND	0.2	90
2/18/2013	BYA-1	6.7	70.2	ND	ND	ND	BQL	ND	ND	BQL	ND	0.5	–
3/14/2013	BYA-1	6.9	70.3	ND	ND	ND	BQL	ND	ND	BQL	ND	0.5	–
1/14/2013	W-8	6.7	70.0	ND	ND	ND	BQL	ND	ND	BQL	ND	0.3	90
2/18/2013	W-8	6.7	71.6	ND	ND	ND	BQL	ND	ND	BQL	ND	ND	–
3/14/2013	W-8	6.7	71.1	ND	ND	ND	BQL	ND	ND	BQL	ND	0.2	–
Discharges to Port 5													
1/14/2013	BYA-4	6.9	71.1	ND	ND	ND	BQL	ND	ND	BQL	1.3	1.1	100
2/18/2013	BYA-4	6.8	72.0	ND	ND	ND	BQL	ND	ND	BQL	1.8	1.0	–
3/14/2013	BYA-4	6.9	72.3	0.55	ND	ND	BQL	ND	ND	BQL	1.8	1.2	–
1/14/2013	BYA-9	6.8	73.6	ND	ND	ND	BQL	ND	ND	BQL	ND	0.6	90 **
2/18/2013	BYA-9	6.6	73.4	ND	ND	ND	BQL	ND	ND	BQL	2.6	5.8	–
3/14/2013	BYA-9	6.7	73.0	ND	ND	ND	BQL	ND	ND	BQL	1.7	5.3	–
Discharges to Port 6													
1/14/2013	BYA-3	6.7	71.8	ND	ND	ND	BQL	ND	ND	BQL	1.2	0.8	100
2/18/2013	BYA-3	7.2	76.6	ND	ND	ND	BQL	ND	ND	BQL	1.6	0.6	–
3/14/2013	BYA-3	6.9	70.7	ND	ND	ND	BQL	ND	ND	BQL	ND	0.3	–
1/14/2013	HD-12	6.9	70.3	ND	ND	ND	BQL	ND	ND	BQL	3.0	0.9	100
2/18/2013	HD-12	7.1	70.2	ND	ND	ND	BQL	ND	ND	BQL	ND	0.2	–
3/14/2013	HD-12	7.1	70.2	2.3	ND	ND	BQL	ND	ND	BQL	ND	0.2	–
Discharges to Port 9								ND					
1/14/2013	HD-5	6.9	69.6	ND	ND	ND	BQL	ND	ND	BQL	ND	0.3	100
2/18/2013	HD-5	7.1	69.4	ND	ND	ND	BQL	ND	ND	BQL	ND	0.1	–
3/14/2013	HD-5	7.1	70.9	2.3	ND	ND	BQL	ND	ND	BQL	ND	0.3	–
Effluent Limit (Daily Max.)		6.5-8.5	--	30	0.5	15	0.3	0.1	1	0.1	150	150	90
Effluent Limit (Monthly Avg.)		6.5-8.5	--	20	---	10	0.1	---	---	---	50	50	--

* Acute Toxicity Samples collected January 18, 2013

** 48-Hour Acute Toxicity

First Quarter (January - March) 2013

Big Rock Mesa Landslide Assessment District

Malibu, California

Date Sampled	Well/Hydrauger Identification	pH	Temperature	Biochemical Oxygen Demand	Surfactants (MBAS)	Oil & Grease	Settleable Solids	Sulfides	Phenols	Residual Chlorine	Total Suspended Solids	Turbidity	Acute Toxicity *
	INORGANIC NON-METALS (Aqueous Matrix)												
Units:			*°F*	*mg/L*	*mg/L*	*mg/L*	*mL/L*	*mg/L*	*mg/L*	*mg/l*	*mg/L*	*NTU*	*% Survival*
Discharges to Port 1A													
4/17/2013	FW-1	7.2	72.7	ND	ND	ND	BQL	ND	ND	BQL	ND	0.3	--
5/20/2013	FW-1	7.2	71.4	4	ND	2	BQL	ND	ND	BQL	9.4	50	--
6/12/2013	FW-1	7.7	73.6	13	ND	ND	BQL	**12 ****	ND	BQL	ND	29.0	--
Discharges to Port 3													
4/17/2013	W-2	6.9	71.4	ND	ND	ND	BQL	ND	ND	BQL	ND	0.4	--
5/20/2013	W-2	6.9	73.2	ND	ND	ND	BQL	ND	ND	BQL	ND	0.2	--
6/12/2013	W-2	6.9	70.0	ND	ND	ND	BQL	ND	ND	BQL	ND	0.7	--
4/17/2013	BYA-13	7.0	72.1	ND	ND	ND	BQL	ND	ND	BQL	ND	0.2	--
5/20/2013	BYA-13	7.1	73.6	ND	ND	ND	BQL	ND	ND	BQL	6.6	11	--
6/12/2013	BYA-13	6.9	70.3	0.5	ND	1	BQL	ND	ND	BQL	ND	1.6	--
4/17/2013	HD-4	6.9	71.8	0.6	ND	ND	BQL	ND	ND	BQL	ND	0.2	--
5/20/2013	HD-4	6.9	73.2	ND	ND	ND	BQL	ND	ND	BQL	2	1.4	--
6/12/2013	HD-4	6.9	71.1	ND	ND	ND	BQL	ND	ND	BQL	ND	0.4	--
Discharges to Port 4													
4/17/2013	FW-2	7.3	72.9	ND	ND	ND	BQL	ND	ND	BQL	1.4	0.6	--
5/20/2013	FW-2	7.4	74.3	ND	ND	ND	BQL	ND	ND	BQL	2.4	1.3	--
6/12/2013	FW-2	7.4	70.5	ND	ND	1	BQL	ND	ND	BQL	ND	0.7	--
4/17/2013	HD-15	7.1	70.9	0.42	ND	1.2	BQL	ND	ND	BQL	ND	0.3	--
5/20/2013	HD-15	7.0	72.9	ND	ND	ND	BQL	ND	ND	BQL	1.2	1.2	--
6/12/2013	HD-15	6.9	70.7	ND	ND	ND	BQL	ND	ND	BQL	ND	0.5	--
Discharges to Port 5													
4/17/2013	W-16	6.8	73.9	ND	ND	ND	BQL	ND	ND	BQL	ND	BQL	--
5/20/2013	W-16	6.8	74.8	ND	ND	ND	BQL	ND	ND	BQL	ND	0.1	--
6/12/2013	W-16	6.8	69.8	ND	ND	ND	BQL	ND	ND	BQL	ND	0.2	--
Discharges to Port 6													
4/17/2013	W-18	7.0	72.3	ND	ND	1.1	BQL	ND	ND	BQL	3.2	3.9	--
5/20/2013	W-18	7.0	73.9	ND	ND	ND	BQL	ND	ND	BQL	4.6	5.7	--
6/12/2013	W-18	7.1	73.6	0.84	ND	ND	BQL	ND	ND	BQL	4.4	7.8	--
4/17/2013	HD-11	7.1	71.2	0.52	ND	1.2	BQL	ND	ND	BQL	1.6	0.4	--
5/20/2013	HD-11	7.1	71.6	ND	ND	ND	BQL	ND	ND	BQL	ND	0.5	--
6/12/2013	HD-11	7.1	70.9	ND	ND	ND	BQL	ND	ND	BQL	ND	0.2	--
Discharges to Port 9													
4/17/2013	HD-23	7.1	71.2	0.52	ND	ND	BQL	ND	ND	BQL	1.2	0.4	--
5/20/2013	HD-23	7.6	73.8	1.2	ND	1	BQL	ND	ND	BQL	2	0.8	--
6/12/2013	HD-23	7.1	70.7	ND	ND	ND	BQL	ND	ND	BQL	ND	0.1	--
Effluent Limit (Daily Max.)		6.5-8.5	--	30	0.5	15	0.3	0.1	1	0.1	150	150	90
Effluent Limit (Monthly Avg.)		6.5-8.5	--	20	---	10	0.1	---	---	---	50	50	--

* Acute Toxicity Samples collected January 18, 2013

** Follow-up samles for total sulfide collected June 26 (19 mg/l), July 9 (20.7 mg/l), July 16 (36.6) and July 23 (18.3 mg/l).

SUMMARY OF WATER QUALITY MONITORING DATA
Second Quarter (April - June) 2013
Big Rock Mesa Landslide Assessment District
Malibu, California

PLATE E-1d

CAPCO
Analytical Services, Inc.

Environmental and Analytical Services-Since 1994
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

Prepared for: Fugro West, Inc.
4820 McGrath St. Suite 100
Ventura, CA 93003
Attn: Danya Pollard

Report Date: July 26, 2012
Laboratory Number: 122119
Project Name: Big Rock Mesa-NPDES
Project No: 3399006
Sampled by: Client

On July 17, 2012, Capco Analytical Services, Inc.(CAS), received ten(10) samples to be analyzed. The samples were identified and assigned the laboratory ID numbers listed below:

SAMPLE DESCRIPTION	CAS LAB NUMBER ID
BYA-4	122119-01
W-8	122119-02
BYA-7	122119-03
W-2	122119-04
HD-22	122119-05
HD-9	122119-06
HD-30	122119-07
HD-43	122119-08
HD-12	122119-09
HD-7	122119-10

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Alin E. Repede, MS
Director - Analytical Operations

If you have any further questions or concerns, please contact me at your convenience. This report consists of 11 pages excluding the cover letter and the Chain of Custody.

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 122119
Analyst: AN

Date Sampled: 07/17/12
Date Received: 07/17/12
Date Analyzed: 07/18/12
Sample Matrix: Water

TURBIDITY
EPA Method 180.1

CAS Lab #	Sample ID	RESULTS (NTU)	Dilution Factor	PQL (NTU)
122119-01	BYA-4	0.88	1	0.1
122119-02	W-8	0.12	1	0.1
122119-03	BYA-7	0.31	1	0.1
122119-04	W-2	0.33	1	0.1
122119-05	HD-22	0.59	1	0.1
122119-06	HD-9	0.62	1	0.1
122119-07	HD-30	0.21	1	0.1
122119-08	HD-43	0.54	1	0.1
122119-09	HD-12	0.35	1	0.1
122119-10	HD-7	0.44	1	0.1

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 122119
Analyst: AN

Date Sampled: 07/17/12
Date Received: 07/17/12
Date Analyzed: 07/17/12
Sample Matrix: Water

BIOCHEMICAL OXYGEN DEMAND
SM 5210 B

CAS Lab #	Sample ID	RESULTS (mg/L)	Dilution Factor	MDL (mg/l)	PQL (mg/L)
122119-01	BYA-4	ND	1	0.4	2.0
122119-02	W-8	ND	1	0.4	2.0
122119-03	BYA-7	ND	1	0.4	2.0
122119-04	W-2	ND	1	0.4	2.0
122119-05	HD-22	ND	1	0.4	2.0
122119-06	HD-9	ND	1	0.4	2.0
122119-07	HD-30	ND	1	0.4	2.0
122119-08	HD-43	ND	1	0.4	2.0
122119-09	HD-12	ND	1	0.4	2.0
122119-10	HD-7	1.3	1	0.4	2.0

mg/L: Milligrams/Liter(ppm)

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 122119
Analyst: GM

Date Sampled: 07/12/12
Date Received: 07/12/12
Date Analyzed: 07/18/12-07/20/12
Sample Matrix: Water

OIL & GREASE
EPA Method 1664

CAS Lab #	Sample ID	RESULTS (mg/L)	Dilution Factor	MDL (mg/l)	PQL (mg/L)
122119-01	BYA-4	ND	1	1.0	5.0
122119-02	W-8	ND	1	1.0	5.0
122119-03	BYA-7	ND	1	1.0	5.0
122119-04	W-2	ND	1	1.0	5.0
122119-05	HD-22	ND	1	1.0	5.0
122119-06	HD-9	ND	1	1.0	5.0
122119-07	HD-30	ND	1	1.0	5.0
122119-08	HD-43	ND	1	1.0	5.0
122119-09	HD-12	ND	1	1.0	5.0
122119-10	HD-7	ND	1	1.0	5.0

mg/L: Milligrams/Liter(ppm)
ND: Not Detected

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 122119
Analyst: GM

Date Sampled: 07/17/12
Date Received: 07/17/12
Date Analyzed: 07/19/12
Sample Matrix: Water

MBAS
SM 5540 C

CAS Lab #	Sample ID	RESULTS (mg/L)	Dilution Factor	PQL (mg/L)	MDL (mg/L)
122119-01	BYA-4	ND	1	0.1	0.02
122119-02	W-8	ND	1	0.1	0.02
122119-03	BYA-7	ND	1	0.1	0.02
122119-04	W-2	ND	1	0.1	0.02
122119-05	HD-22	ND	1	0.1	0.02
122119-06	HD-9	ND	1	0.1	0.02
122119-07	HD-30	ND	1	0.1	0.02
122119-08	HD-43	ND	1	0.1	0.02
122119-09	HD-12	ND	1	0.1	0.02
122119-10	HD-7	ND	1	0.1	0.02

mg/L: Milligrams/Liter(ppm)
ND: Not Detected

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 122119
Analyst: AN

Date Sampled: 07/17/12
Date Received: 07/17/12
Date Analyzed: 07/23/12
Sample Matrix: Water

TOTAL PHENOL
EPA METHOD 420.1

CAS Lab #	Sample ID	RESULTS (mg/L)	Dilution Factor	PQL (mg/L)	MDL (mg/L)
122119-01	BYA-4	ND	1	0.1	0.02
122119-02	W-8	ND	1	0.1	0.02
122119-03	BYA-7	ND	1	0.1	0.02
122119-04	W-2	ND	1	0.1	0.02
122119-05	HD-22	ND	1	0.1	0.02
122119-06	HD-9	ND	1	0.1	0.02
122119-07	HD-30	ND	1	0.1	0.02
122119-08	HD-43	ND	1	0.1	0.02
122119-09	HD-12	ND	1	0.1	0.02
122119-10	HD-7	ND	1	0.1	0.02

mg/L: Milligrams/Liter(ppm)
ND: Not Detected

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 122119
Analyst: AN

Date Sampled: 07/17/12
Date Received: 07/17/12
Date Analyzed: 07/18/12
Sample Matrix: Water

TOTAL RESIDUAL CHLORINE
SM 4500CL G

CAS Lab #	Sample ID	RESULTS (mg/L)	Dilution Factor	PQL (mg/L)
122119-01	BYA-4	BQL	1	0.05
122119-02	W-8	BQL	1	0.05
122119-03	BYA-7	BQL	1	0.05
122119-04	W-2	BQL	1	0.05
122119-05	HD-22	BQL	1	0.05
122119-06	HD-9	BQL	1	0.05
122119-07	HD-30	BQL	1	0.05
122119-08	HD-43	BQL	1	0.05
122119-09	HD-12	BQL	1	0.05
122119-10	HD-7	BQL	1	0.05

mg/L: Milligrams/Liter(ppm)

CERTIFICATE OF ANALYSIS

Client: Fugro West, Inc.
CAS LAB NO: 122119
Analyst: AN

Date Sampled: 07/17/12
Date Received: 07/17/12
Date Analyzed: 07/18/12
Sample Matrix: Water

SETTLEABLE SOLIDS
SM 2540 F

CAS Lab #	Sample ID	RESULTS (ml/L)	Dilution Factor	PQL (ml/L)
122119-01	BYA-4	BQL	1	0.1
122119-02	W-8	BQL	1	0.1
122119-03	BYA-7	BQL	1	0.1
122119-04	W-2	BQL	1	0.1
122119-05	HD-22	BQL	1	0.1
122119-06	HD-9	BQL	1	0.1
122119-07	HD-30	BQL	1	0.1
122119-08	HD-43	BQL	1	0.1
122119-09	HD-12	BQL	1	0.1
122119-10	HD-7	BQL	1	0.1

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 122119
Analyst: AN

Date Sampled: 07/17/12
Date Received: 07/17/12
Date Analyzed: 07/20/12
Sample Matrix: Water

TOTAL SULFIDE
SM 4500-S^{-2}D

CAS LAB #	Sample ID	RESULTS (mg/L)	Dilution Factor	MDL (mg/L)	PQL (mg/L)
122119-01	BYA-4	ND	1	0.004	0.02
122119-02	W-8	ND	1	0.004	0.02
122119-03	BYA-7	ND	1	0.004	0.02
122119-04	W-2	ND	1	0.004	0.02
122119-05	HD-22	ND	1	0.004	0.02
122119-06	HD-9	ND	1	0.004	0.02
122119-07	HD-30	ND	1	0.004	0.02
122119-08	HD-43	ND	1	0.004	0.02
122119-09	HD-12	ND	1	0.004	0.02
122119-10	HD-7	ND	1	0.004	0.02

mg/L: Milligrams/Liter(ppm)

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 122119
Analyst: AN

Date Sampled: 07/17/12
Date Received: 07/17/12
Date Analyzed: 07/18/12
Sample Matrix: Water

TOTAL SUSPENDED SOLIDS
SM 2540 D

CAS Lab #	Sample ID	RESULTS (mg/L)	Dilution Factor	MDL (mg/l)	PQL (mg/L)
122119-01	BYA-4	2.5	1	1.0	5.0
122119-02	W-8	ND	1	1.0	5.0
122119-03	BYA-7	ND	1	1.0	5.0
122119-04	W-2	ND	1	1.0	5.0
122119-05	HD-22	ND	1	1.0	5.0
122119-06	HD-9	ND	1	1.0	5.0
122119-07	HD-30	ND	1	1.0	5.0
122119-08	HD-43	ND	1	1.0	5.0
122119-09	HD-12	3.1	1	1.0	5.0
122119-10	HD-7	3.0	1	1.0	5.0

mg/L: Milligrams/Liter(ppm)
ND: Not Detected

QUALITY CONTROL SECTION

Client: Fugro Consultants
CAS LAB NO: 122119
Analyst: AN/GM

Sample Matrix: Water

COMPOUND	RESULT	UNITS	DF	MDL	PQL	METHOD	ANALYZED
B.O.D.	ND	mg/L	1	0.4	2	5210 B	07/17/12
Oil and Grease	ND	mg/L	1	1	5	1664	07/18/12 07/20/12
MBAS	ND	mg/L	1	0.02	0.1	5540 C	07/19/12
Phenol (Total)	ND	mg/L	1	0.02	0.1	420.1	07/23/12
Residual Chlorine	BQL	mg/L	1	--	0.05	4500CLG	07/18/12
Settleable Solid	BQL	ml/L	1	--	0.1	2540 F	07/18/12
Sulfide (Total)	ND	mg/L	1	0.004	0.02	4500S^{2-}D	07/20/12
T.S.S.	ND	mg/L	1	1	5	2540 D	07/18/12

mg/L: Milligrams/Liter(ppm)

Certificate of Analysis

Notes:

The Chain of Custody document is part of the analytical report.
Any remaining sample(s) for testing will be disposed of one month from the final report date unless other arrangements are made in advance.
All results are expressed on wet weight basis unless otherwise specified.

Authorized Signature

Keith Chang, Ph.D. (QA/QC Supervisor)

The results in this report apply to the samples analyzed in accordance with the chain of custody document. Capco Analytical certifies that the test results meet all requirements of ELAP unless noted in the Case Narrative. This analytical report must be reproduced in its entirety.

Legend for Abbreviations:

PQL	Practical Quantitation Limit
BQL	Below Practical Quantitation Limit
ND	NOT DETECTED at or above the Reporting Limit. If J-value reported, then NOT DETECTED at or above the Method Detection Limit (MDL).
MDL	Method Detection Limit
MRL	Method Reporting Limit
MDA	Minimum Detectable Activity
MCL	Maximum Contamination Level

7/25

CAPCO ANALYTICAL SERVICES

1536 Eastman Avenue
Ventura, CA 93003
(805) 644-1095 Fax 644-9947

CHAIN OF CUSTODY RECORD

REPORT Fax 805-650-7010
Company Fugro Consultants
Address 4820 McGrath Street, Suite 100
Ventura,CA93003
Phone 650-7000 Contact DANYA POLLARD

BILL TO: P.O.#
Company same
Address
Phone Contact

PROJ. NO | PROJECT NAME: Big Rock Mesa-NPDES

SAMPLERS: (Signature)

CONTAINER TYPES
A = AMBER B = BRASS G = GLASS
P = PLASTIC V = VOA VIAL O = OTHER

12/21/19

12211 9

SAMPLE NO.	DATE SAMPLED	TIME SAMPLED	COMP	GRAB	SAMPLE DESCRIPTION	MATRIX: WATER	SOIL	SLUDGE	OTHER	CONTAINER #: 5	CONTAINER TYPE: P+G	ANALYSIS: TSS, Setteable Solids	BOD	Oil & Grease	MBAS	Sulfide	Phenols	Residual Chlorine	Turbidity	REMARKS: pH	Temp °C
1	7/17/12	10:00			BYA-4	X				5	P+G									6.98	22.4
2		10:15			W-8	X														6.67	22.1
3		10:35			BYA-7	X														7.16	23
4		11:00			W-2	X														6.83	22.6
5		11:15			HD-22	X														6.95	22.5
6		11:45			HD-9	X														7.17	21.9
7		12:15			HD-30	X														7.10	21.7
8		12:45			HD-43	X														7.18	22.7
9		1:15			HD-12	X														7.21	22.8
10	V	1:45			HD-7	X														7.80	23.2

CHECK ONE BOX:
DISPOSE SAMPLES
RETURN SAMPLES

The undersigned hereby acknowledges having received a copy of the Fee Schedule/General Information and Conditions, the provisions of which are a part of this agreement.

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
	7/17/12 2:56		07/17/12		
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time		

TURN AROUND TIME

24 Hr.		5 Day			
48 Hr.		Standard			
72 Hr.		Other			

WHITE COPY CANARY COPY PINK COPY

CAPCO
Analytical Services, Inc.

Environmental and Analytical Services-Since 1994
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

Prepared for: Fugro West, Inc.
4820 McGrath St. Suite 100
Ventura, CA 93003
Attn: Tm Nicely

Report Date: August 27, 2012
Laboratory Number: 122431
Project Name: Malibu-NPDES
Sampled by: Client

On August 16, 2012, Capco Analytical Services, Inc.(CAS), received ten(10) samples to be analyzed. The samples were identified and assigned the laboratory ID numbers listed below:

SAMPLE DESCRIPTION	CAS LAB NUMBER ID
BYA-4	122431-01
W-8	122431-02
BYA-7	122431-03
W-2	122431-04
HD-9	122431-05
HD-30	122431-06
HD-43	122431-07
HD-22	122431-08
HD-12	122431-09
HD-7	122431-10

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Alin E. Repede, MS
Director - Analytical Operations

If you have any further questions or concerns, please contact me at your convenience. This report consists of 11 pages excluding the cover letter and the Chain of Custody.

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 122431
Analyst: AN

Date Sampled: 08/16/12
Date Received: 08/16/12
Date Analyzed: 08/17/12
Sample Matrix: Water

TOTAL SUSPENDED SOLIDS
SM 2540 D

CAS Lab #	Sample ID	RESULTS (mg/L)	Dilution Factor	MDL (mg/l)	PQL (mg/L)
122431-01	BYA-4	1.4	1	1.0	5.0
122431-02	W-8	ND	1	1.0	5.0
122431-03	BYA-7	ND	1	1.0	5.0
122431-04	W-2	ND	1	1.0	5.0
122431-05	HD-9	ND	1	1.0	5.0
122431-06	HD-30	ND	1	1.0	5.0
122431-07	HD-43	ND	1	1.0	5.0
122431-08	HD-22	11	1	1.0	5.0
122431-09	HD-12	2.7	1	1.0	5.0
122431-10	HD-7	1.3	1	1.0	5.0

mg/L: Milligrams/Liter(ppm)
ND: Not Detected

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 122431
Analyst: GM

Date Sampled: 08/16/12
Date Received: 08/16/12
Date Analyzed: 08/20/12&08/22/12
Sample Matrix: Water

OIL & GREASE
EPA Method 1664

CAS Lab #	Sample ID	RESULTS (mg/L)	Dilution Factor	MDL (mg/l)	PQL (mg/L)
122431-01	BYA-4	ND	1	1.0	5.0
122431-02	W-8	ND	1	1.0	5.0
122431-03	BYA-7	ND	1	1.0	5.0
122431-04	W-2	ND	1	1.0	5.0
122431-05	HD-9	ND	1	1.0	5.0
122431-06	HD-30	ND	1	1.0	5.0
122431-07	HD-43	ND	1	1.0	5.0
122431-08	HD-22	ND	1	1.0	5.0
122431-09	HD-12	ND	1	1.0	5.0
122431-10	HD-7	ND	1	1.0	5.0

mg/L: Milligrams/Liter(ppm)
ND: Not Detected

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 122431
Analyst: AN

Date Sampled: 08/16/12
Date Received: 08/16/12
Date Analyzed: 08/16/12
Sample Matrix: Water

BIOCHEMICAL OXYGEN DEMAND
SM 5210 B

CAS Lab #	Sample ID	RESULTS (mg/L)	Dilution Factor	MDL (mg/l)	PQL (mg/L)
122431-01	BYA-4	ND	1	0.4	2.0
122431-02	W-8	ND	1	0.4	2.0
122431-03	BYA-7	ND	1	0.4	2.0
122431-04	W-2	ND	1	0.4	2.0
122431-05	HD-9	ND	1	0.4	2.0
122431-06	HD-30	ND	1	0.4	2.0
122431-07	HD-43	ND	1	0.4	2.0
122431-08	HD-22	ND	1	0.4	2.0
122431-09	HD-12	ND	1	0.4	2.0
122431-10	HD-7	0.94	1	0.4	2.0

mg/L: Milligrams/Liter(ppm)

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 122431
Analyst: AN

Date Sampled: 08/16/12
Date Received: 08/16/12
Date Analyzed: 08/17/12
Sample Matrix: Water

TOTAL SULFIDE
SM 4500-S^{-2}D

CAS LAB #	Sample ID	RESULTS (mg/L)	Dilution Factor	MDL (mg/L)	PQL (mg/L)
122431-01	BYA-4	ND	1	0.004	0.02
122431-02	W-8	ND	1	0.004	0.02
122431-03	BYA-7	ND	1	0.004	0.02
122431-04	W-2	ND	1	0.004	0.02
122431-05	HD-9	ND	1	0.004	0.02
122431-06	HD-30	ND	1	0.004	0.02
122431-07	HD-43	ND	1	0.004	0.02
122431-08	HD-22	ND	1	0.004	0.02
122431-09	HD-12	ND	1	0.004	0.02
122431-10	HD-7	ND	1	0.004	0.02

mg/L: Milligrams/Liter(ppm)

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 122431
Analyst: AN

Date Sampled: 08/16/12
Date Received: 08/16/12
Date Analyzed: 08/16/12
Sample Matrix: Water

TOTAL RESIDUAL CHLORINE
SM 4500CL G

CAS Lab #	Sample ID	RESULTS (mg/L)	Dilution Factor	PQL (mg/L)
122431-01	BYA-4	BQL	1	0.05
122431-02	W-8	BQL	1	0.05
122431-03	BYA-7	BQL	1	0.05
122431-04	W-2	BQL	1	0.05
122431-05	HD-9	BQL	1	0.05
122431-06	HD-30	BQL	1	0.05
122431-07	HD-43	BQL	1	0.05
122431-08	HD-22	BQL	1	0.05
122431-09	HD-12	BQL	1	0.05
122431-10	HD-7	BQL	1	0.05

mg/L: Milligrams/Liter(ppm)

CERTIFICATE OF ANALYSIS

Client: Fugro West, Inc.
CAS LAB NO: 122431
Analyst: AN

Date Sampled: 08/16/12
Date Received: 08/16/12
Date Analyzed: 08/17/12
Sample Matrix: Water

SETTLEABLE SOLIDS
SM 2540 F

CAS Lab #	Sample ID	RESULTS (ml/L)	Dilution Factor	PQL (ml/L)
122431-01	BYA-4	BQL	1	0.1
122431-02	W-8	BQL	1	0.1
122431-03	BYA-7	BQL	1	0.1
122431-04	W-2	BQL	1	0.1
122431-05	HD-9	BQL	1	0.1
122431-06	HD-30	BQL	1	0.1
122431-07	HD-43	BQL	1	0.1
122431-08	HD-22	BQL	1	0.1
122431-09	HD-12	BQL	1	0.1
122431-10	HD-7	BQL	1	0.1

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 122431
Analyst: AN

Date Sampled: 08/16/12
Date Received: 08/16/12
Date Analyzed: 08/17/12
Sample Matrix: Water

TURBIDITY
EPA Method 180.1

CAS Lab #	Sample ID	RESULTS (NTU)	Dilution Factor	PQL (NTU)
122431-01	BYA-4	0.93	1	0.1
122431-02	W-8	0.13	1	0.1
122431-03	BYA-7	0.2	1	0.1
122431-04	W-2	0.3	1	0.1
122431-05	HD-9	0.36	1	0.1
122431-06	HD-30	0.17	1	0.1
122431-07	HD-43	0.18	1	0.1
122431-08	HD-22	16	1	0.1
122431-09	HD-12	0.50	1	0.1
122431-10	HD-7	0.38	1	0.1

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 122431
Analyst: GM

Date Sampled: 08/16/12
Date Received: 08/16/12
Date Analyzed: 08/17/12
Sample Matrix: Water

MBAS
SM 5540 C

CAS Lab #	Sample ID	RESULTS (mg/L)	Dilution Factor	PQL (mg/L)	MDL (mg/L)
122431-01	BYA-4	ND	1	0.1	0.02
122431-02	W-8	ND	1	0.1	0.02
122431-03	BYA-7	ND	1	0.1	0.02
122431-04	W-2	ND	1	0.1	0.02
122431-05	HD-9	ND	1	0.1	0.02
122431-06	HD-30	ND	1	0.1	0.02
122431-07	HD-43	ND	1	0.1	0.02
122431-08	HD-22	ND	1	0.1	0.02
122431-09	HD-12	ND	1	0.1	0.02
122431-10	HD-7	ND	1	0.1	0.02

mg/L: Milligrams/Liter(ppm)
ND: Not Detected

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 122431
Analyst: AN

Date Sampled: 08/16/12
Date Received: 08/16/12
Date Analyzed: 08/20/12
Sample Matrix: Water

TOTAL PHENOL
EPA METHOD 420.1

CAS Lab #	Sample ID	RESULTS (mg/L)	Dilution Factor	PQL (mg/L)	MDL (mg/L)
122431-01	BYA-4	ND	1	0.1	0.02
122431-02	W-8	ND	1	0.1	0.02
122431-03	BYA-7	ND	1	0.1	0.02
122431-04	W-2	ND	1	0.1	0.02
122431-05	HD-9	ND	1	0.1	0.02
122431-06	HD-30	ND	1	0.1	0.02
122431-07	HD-43	ND	1	0.1	0.02
122431-08	HD-22	ND	1	0.1	0.02
122431-09	HD-12	ND	1	0.1	0.02
122431-10	HD-7	ND	1	0.1	0.02

mg/L: Milligrams/Liter(ppm)
ND: Not Detected

QUALITY CONTROL SECTION

Client: Fugro Consultants
CAS LAB NO: 122431
Analyst: AN/GM

Sample Matrix: Water

COMPOUND	RESULT	UNITS	DF	MDL	PQL	METHOD	ANALYZED
B.O.D.	ND	mg/L	1	0.4	2	5210 B	08/16/12
Oil and Grease	ND	mg/L	1	1	5	1664	08/20/12 08/22/12
MBAS	ND	mg/L	1	0.02	0.1	5540 C	08/17/12
Phenol (Total)	ND	mg/L	1	0.02	0.1	420.1	08/20/12
Residual Chlorine	BQL	mg/L	1	--	0.05	4500CLG	08/16/12
Settleable Solid	BQL	ml/L	1	--	0.1	2540 F	08/17/12
Sulfide (Total)	ND	mg/L	1	0.004	0.02	4500S^{2-}D	08/17/12
T.S.S.	ND	mg/L	1	1	5	2540 D	08/17/12

mg/L: Milligrams/Liter(ppm)

Certificate of Analysis

Notes:

The Chain of Custody document is part of the analytical report.
Any remaining sample(s) for testing will be disposed of one month from the final report date unless other arrangements are made in advance.
All results are expressed on wet weight basis unless otherwise specified.

Authorized Signature

Keith Chang, Ph.D. (QA/QC Supervisor)

The results in this report apply to the samples analyzed in accordance with the chain of custody document. Capco Analytical certifies that the test results meet all requirements of ELAP unless noted in the Case Narrative. This analytical report must be reproduced in its entirety.

Legend for Abbreviations:

PQL	Practical Quantitation Limit
BQL	Below Practical Quantitation Limit
ND	NOT DETECTED at or above the Reporting Limit. If J-value reported, then NOT DETECTED at or above the Method Detection Limit (MDL).
MDL	Method Detection Limit
MRL	Method Reporting Limit
MDA	Minimum Detectable Activity
MCL	Maximum Contamination Level

8/23

CAPCO ANALYTICAL SERVICES

1536 Eastman Avenue
Ventura, CA 93003
(805) 644-1095 Fax 644-9947

CHAIN OF CUSTODY RECORD

REPORT
Fax 805-650-7010
Company Fugro Consultants
Address 4820 McGrath Street, Suite 100
Ventura,CA93003
Phone 650-7000 Contact Tim Nicely

BILL TO: P.O.#
Company same
Address
Phone Contact

PROJ. NO
PROJECT NAME: Malibu-NPDES

SAMPLERS: (Signature)

CONTAINER TYPES
A = AMBER B = BRASS G = GLASS
P = PLASTIC V = VOA VIAL O = OTHER

SAMPLE NO.	DATE SAMPLED	TIME SAMPLED	COMP	GRAB	SAMPLE DESCRIPTION	MATRIX: WATER	SOIL	SLUDGE	OTHER	CONTAINER #: #	TYPE	ANALYSIS: TSS, Setteable Solids	BOD5	Oil & Grease	MBAS	Sulfide	Phenols	Residual Chlorine	Turbidity	REMARKS: pH	°C
1	8/16/12	10:05			B4A-4	x				5	P+G									6.96	23.0°C
2		10:30			W-8	x														6.64	22.7
3		11:00			B4A-7	x														7.29	21.8
4		11:30			W-2	x														6.81	23.1
5		12:00			HD-9	x														7.05	22.2
6		12:15			HD-30	x														7.01	22.2
7		12:30			HD-43	x														7.63	22.5
8		12:45			HD-22	x														7.14	21.8
9		1:00			HD-12	x														7.10	22.7
10	↓	1:15			HD-7	x				↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	7.13	23.2

CHECK ONE BOX:
DISPOSE SAMPLES
RETURN SAMPLES

The undersigned hereby acknowledges having received a copy of the Fee Schedule/General Information and Conditions, the provisions of which are a part of this agreement.

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
	8/16/12 7:07				
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time		

TURN AROUND TIME

24 Hr.		5 Day	
48 Hr.		Standard	X
72 Hr.		Other	

WHITE COPY CANARY COPY PINK COPY

CAPCO
Analytical Services, Inc.

Environmental and Analytical Services-Since 1994
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

Prepared for: Fugro West, Inc.
4820 McGrath St. Suite 100
Ventura, CA 93003
Attn: Tm Nicely

Report Date: September 24, 2012
Laboratory Number: 122732
Project Name: Malibu-NPDES
Sampled by: Client

On September 13, 2012, Capco Analytical Services, Inc.(CAS), received ten(10) samples to be analyzed. The samples were identified and assigned the laboratory ID numbers listed below:

SAMPLE DESCRIPTION	CAS LAB NUMBER ID
BYA-4	122732-01
W-8	122732-02
BYA-7	122732-03
W-2	122732-04
HD-9	122732-05
HD-30	122732-06
HD-43	122732-07
HD-22	122732-08
HD-12	122732-09
HD-7	122732-10

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Alin E. Repede, MS
Director - Analytical Operations

If you have any further questions or concerns, please contact me at your convenience. This report consists of 11 pages excluding the cover letter and the Chain of Custody.

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 122732
Analyst: GM

Date Sampled: 09/13/12
Date Received: 09/13/12
Date Analyzed: 09/17/12
Sample Matrix: Water

OIL & GREASE
EPA Method 1664

CAS Lab #	Sample ID	RESULTS (mg/L)	Dilution Factor	MDL (mg/l)	PQL (mg/L)
122732-01	BYA-4	ND	1	1.0	5.0
122732-02	W-8	ND	1	1.0	5.0
122732-03	BYA-7	ND	1	1.0	5.0
122732-04	W-2	ND	1	1.0	5.0
122732-05	HD-9	ND	1	1.0	5.0
122732-06	HD-30	ND	1	1.0	5.0
122732-07	HD-43	ND	1	1.0	5.0
122732-08	HD-22	ND	1	1.0	5.0
122732-09	HD-12	ND	1	1.0	5.0
122732-10	HD-7	ND	1	1.0	5.0

mg/L: Milligrams/Liter(ppm)
ND: Not Detected

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 122732
Analyst: AN

Date Sampled: 09/13/12
Date Received: 09/13/12
Date Analyzed: 09/14/12
Sample Matrix: Water

TOTAL SUSPENDED SOLIDS
SM 2540 D

CAS Lab #	Sample ID	RESULTS (mg/L)	Dilution Factor	MDL (mg/l)	PQL (mg/L)
122732-01	BYA-4	ND	1	1.0	5.0
122732-02	W-8	ND	1	1.0	5.0
122732-03	BYA-7	1.2	1	1.0	5.0
122732-04	W-2	ND	1	1.0	5.0
122732-05	HD-9	ND	1	1.0	5.0
122732-06	HD-30	ND	1	1.0	5.0
122732-07	HD-43	ND	1	1.0	5.0
122732-08	HD-22	5.2	1	1.0	5.0
122732-09	HD-12	5.6	1	1.0	5.0
122732-10	HD-7	4.6	1	1.0	5.0

mg/L: Milligrams/Liter(ppm)
ND: Not Detected

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 122732
Analyst: AN

Date Sampled: 09/13/12
Date Received: 09/13/12
Date Analyzed: 09/19/12
Sample Matrix: Water

TOTAL SULFIDE
SM 4500-S^{-2}D

CAS LAB #	Sample ID	RESULTS (mg/L)	Dilution Factor	MDL (mg/L)	PQL (mg/L)
122732-01	BYA-4	ND	1	0.004	0.02
122732-02	W-8	ND	1	0.004	0.02
122732-03	BYA-7	ND	1	0.004	0.02
122732-04	W-2	ND	1	0.004	0.02
122732-05	HD-9	ND	1	0.004	0.02
122732-06	HD-30	ND	1	0.004	0.02
122732-07	HD-43	ND	1	0.004	0.02
122732-08	HD-22	ND	1	0.004	0.02
122732-09	HD-12	ND	1	0.004	0.02
122732-10	HD-7	ND	1	0.004	0.02

mg/L: Milligrams/Liter(ppm)

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 122732
Analyst: AN

Date Sampled: 09/13/12
Date Received: 09/13/12
Date Analyzed: 09/13/12
Sample Matrix: Water

TOTAL RESIDUAL CHLORINE
SM 4500CL G

CAS Lab #	Sample ID	RESULTS (mg/L)	Dilution Factor	PQL (mg/L)
122732-01	BYA-4	BQL	1	0.05
122732-02	W-8	BQL	1	0.05
122732-03	BYA-7	BQL	1	0.05
122732-04	W-2	BQL	1	0.05
122732-05	HD-9	BQL	1	0.05
122732-06	HD-30	BQL	1	0.05
122732-07	HD-43	BQL	1	0.05
122732-08	HD-22	BQL	1	0.05
122732-09	HD-12	BQL	1	0.05
122732-10	HD-7	BQL	1	0.05

mg/L: Milligrams/Liter(ppm)

CERTIFICATE OF ANALYSIS

Client: Fugro West, Inc.
CAS LAB NO: 122732
Analyst: AN

Date Sampled: 09/13/12
Date Received: 09/13/12
Date Analyzed: 09/13/12
Sample Matrix: Water

SETTLEABLE SOLIDS
SM 2540 F

CAS Lab #	Sample ID	RESULTS (ml/L)	Dilution Factor	PQL (ml/L)
122732-01	BYA-4	BQL	1	0.1
122732-02	W-8	BQL	1	0.1
122732-03	BYA-7	BQL	1	0.1
122732-04	W-2	BQL	1	0.1
122732-05	HD-9	BQL	1	0.1
122732-06	HD-30	BQL	1	0.1
122732-07	HD-43	BQL	1	0.1
122732-08	HD-22	BQL	1	0.1
122732-09	HD-12	BQL	1	0.1
122732-10	HD-7	BQL	1	0.1

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 122732
Analyst: AN

Date Sampled: 09/13/12
Date Received: 09/13/12
Date Analyzed: 09/14/12
Sample Matrix: Water

TURBIDITY
EPA Method 180.1

CAS Lab #	Sample ID	RESULTS (NTU)	Dilution Factor	PQL (NTU)
122732-01	BYA-4	0.52	1	0.1
122732-02	W-8	0.16	1	0.1
122732-03	BYA-7	0.8	1	0.1
122732-04	W-2	0.3	1	0.1
122732-05	HD-9	0.57	1	0.1
122732-06	HD-30	0.18	1	0.1
122732-07	HD-43	0.29	1	0.1
122732-08	HD-22	6.2	1	0.1
122732-09	HD-12	6.7	1	0.1
122732-10	HD-7	7.9	1	0.1

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 122732
Analyst: GM

Date Sampled: 09/13/12
Date Received: 09/13/12
Date Analyzed: 09/14/12
Sample Matrix: Water

MBAS
SM 5540 C

CAS Lab #	Sample ID	RESULTS (mg/L)	Dilution Factor	PQL (mg/L)	MDL (mg/L)
122732-01	BYA-4	ND	1	0.1	0.02
122732-02	W-8	ND	1	0.1	0.02
122732-03	BYA-7	ND	1	0.1	0.02
122732-04	W-2	ND	1	0.1	0.02
122732-05	HD-9	ND	1	0.1	0.02
122732-06	HD-30	ND	1	0.1	0.02
122732-07	HD-43	ND	1	0.1	0.02
122732-08	HD-22	ND	1	0.1	0.02
122732-09	HD-12	ND	1	0.1	0.02
122732-10	HD-7	ND	1	0.1	0.02

mg/L: Milligrams/Liter(ppm)
ND: Not Detected

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 122732
Analyst: AN

Date Sampled: 09/13/12
Date Received: 09/13/12
Date Analyzed: 09/21/12
Sample Matrix: Water

TOTAL PHENOL
EPA METHOD 420.1

CAS Lab #	Sample ID	RESULTS (mg/L)	Dilution Factor	PQL (mg/L)	MDL (mg/L)
122732-01	BYA-4	ND	1	0.1	0.02
122732-02	W-8	ND	1	0.1	0.02
122732-03	BYA-7	ND	1	0.1	0.02
122732-04	W-2	ND	1	0.1	0.02
122732-05	HD-9	ND	1	0.1	0.02
122732-06	HD-30	ND	1	0.1	0.02
122732-07	HD-43	ND	1	0.1	0.02
122732-08	HD-22	ND	1	0.1	0.02
122732-09	HD-12	ND	1	0.1	0.02
122732-10	HD-7	ND	1	0.1	0.02

mg/L: Milligrams/Liter(ppm)
ND: Not Detected

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 122732
Analyst: AN

Date Sampled: 09/13/12
Date Received: 09/13/12
Date Analyzed: 09/13/12
Sample Matrix: Water

BIOCHEMICAL OXYGEN DEMAND
SM 5210 B

CAS Lab #	Sample ID	RESULTS (mg/L)	Dilution Factor	MDL (mg/l)	PQL (mg/L)
122732-01	BYA-4	ND	1	0.4	2.0
122732-02	W-8	ND	1	0.4	2.0
122732-03	BYA-7	ND	1	0.4	2.0
122732-04	W-2	ND	1	0.4	2.0
122732-05	HD-9	ND	1	0.4	2.0
122732-06	HD-30	ND	1	0.4	2.0
122732-07	HD-43	ND	1	0.4	2.0
122732-08	HD-22	ND	1	0.4	2.0
122732-09	HD-12	ND	1	0.4	2.0
122732-10	HD-7	ND	1	0.4	2.0

mg/L: Milligrams/Liter(ppm)

QUALITY CONTROL SECTION

Client: Fugro Consultants
CAS LAB NO: 122732
Analyst: AN/GM

Sample Matrix: Water

COMPOUND	RESULT	UNITS	DF	MDL	PQL	METHOD	ANALYZED
B.O.D.	ND	mg/L	1	0.4	2	5210 B	09/13/12
Oil and Grease	ND	mg/L	1	1	5	1664	09/17/12
MBAS	ND	mg/L	1	0.02	0.1	5540 C	09/14/12
Phenol (Total)	ND	mg/L	1	0.02	0.1	420.1	09/21/12
Residual Chlorine	BQL	mg/L	1	--	0.05	4500CLG	09/13/12
Settleable Solid	BQL	ml/L	1	--	0.1	2540 F	09/13/12
Sulfide (Total)	ND	mg/L	1	0.004	0.02	4500S^{2-}D	09/19/12
T.S.S.	ND	mg/L	1	1	5	2540 D	09/14/12

mg/L: Milligrams/Liter(ppm)

Certificate of Analysis

Notes:

The Chain of Custody document is part of the analytical report.
Any remaining sample(s) for testing will be disposed of one month from the final report date unless other arrangements are made in advance.
All results are expressed on wet weight basis unless otherwise specified.

Authorized Signature

Keith Chang, Ph.D. (QA/QC Supervisor)

The results in this report apply to the samples analyzed in accordance with the chain of custody document. Capco Analytical certifies that the test results meet all requirements of ELAP unless noted in the Case Narrative. This analytical report must be reproduced in its entirety.

Legend for Abbreviations:

PQL	Practical Quantitation Limit
BQL	Below Practical Quantitation Limit
ND	NOT DETECTED at or above the Reporting Limit. If J-value reported, then NOT DETECTED at or above the Method Detection Limit (MDL).
MDL	Method Detection Limit
MRL	Method Reporting Limit
MDA	Minimum Detectable Activity
MCL	Maximum Contamination Level

CAPCO ANALYTICAL SERVICES

1536 Eastman Avenue
Ventura, CA 93003
(805) 644-1095 Fax 644-9947

CHAIN OF CUSTODY RECORD

REPORT
Fax 805-650-7010
Company Fugro Consultants
Address 4820 McGrath Street, Suite 100
Ventura, CA93003
Phone 650-7000 Contact Tim Nicely

BILL TO: P.O.# 9/20
Company same
Address 122732
Phone _____ Contact _____

PROJ. NO
PROJECT NAME: Malibu-NPDES

SAMPLERS: (Signature)

CONTAINER TYPES
A = AMBER B = BRASS G = GLASS
P = PLASTIC V = VOA VIAL O = OTHER

SAMPLE NO.	DATE SAMPLED	TIME SAMPLED	COMP	GRAB	SAMPLE DESCRIPTION	MATRIX: WATER	SOIL	SLUDGE	OTHER	CONTAINER #: #	TYPE	ANALYSIS: TSS, Setteable Solids	BOD	Oil & Grease	MBAS	Sulfide	Phenols	Residual Chlorine	Turbidity	pH	REMARKS
1	9/13/12	10:00			B4A-4	X				5	P+G									6.94	22.5
2		10:15			W-8	X														6.68	22.3
3		10:35			B4A-7	X														7.31	23.1
4		10:50			W-2	X														6.86	21.7
5		11:15			HD-9	X														7.11	21.9
6		11:35			HD-30	X														7.58	21.7
7		11:45			HD-43	X														6.97	21.6
8		12:10			HD-22	X														7.19	21.5
9		12:30			HD-12	X														7.11	22.3
10		1:00			HD-7	X														7.04	21.8

CHECK ONE BOX:
DISPOSE SAMPLES [X]
RETURN SAMPLES [ ]

The undersigned hereby acknowledges having received a copy of the Fee Schedule/General Information and Conditions, the provisions of which are a part of this agreement.

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
	9/13/12 2:10	Charles Maine			
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time		

TURN AROUND TIME

24 Hr.		5 Day	
48 Hr.		Standard	X
72 Hr.		Other	

WHITE COPY _____ CANARY COPY _____ PINK COPY _____

Prepared for: Fugro West, Inc.
4820 McGrath St. Suite 100
Ventura, CA 93003
Attn: Tim Nicely

Report Date: October 26, 2012
Laboratory Number: 123104 & 123116
Project Name: Malibu-NPDES
Sampled by: Client

On October 17 & 18, 2012, Capco Analytical Services, Inc.(CAS), received ten(10) samples to be analyzed. The samples were identified and assigned the laboratory ID numbers listed below:

SAMPLE DESCRIPTION	CAS LAB NUMBER ID
W-17	123104-01
W-16	123104-02
W-18	123104-03
BYA-14	123104-04
HD-42	123104-05
HD-41	123104-06
BYA-H10	123104-07
HD-25	123104-08
HD-23	123104-09
BYA-11	123116-01

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Alin E. Repede, MS
Director - Analytical Operations

If you have any further questions or concerns, please contact me at your convenience. This report consists of 12 pages excluding the cover letter and the Chain of Custody.

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 123104&123116
Analyst: AN

Date Sampled: 10/17/12&10/18/12
Date Received: 10/17/12&10/18/12
Date Analyzed: 10/17/12&10/18/12
Sample Matrix: Water

BIOCHEMICAL OXYGEN DEMAND
SM 5210 B

CAS Lab #	Sample ID	RESULTS (mg/L)	Dilution Factor	MDL (mg/l)	PQL (mg/L)
123104-01	W-17	ND	1	0.4	2.0
123104-02	W-16	ND	1	0.4	2.0
123104-03	W-18	ND	1	0.4	2.0
123104-04	BYA-14	ND	1	0.4	2.0
123104-05	HD-42	ND	1	0.4	2.0
123104-06	HD-41	1.8J*	1	0.4	2.0
123104-07	BYA-H10	1.8J*	1	0.4	2.0
123104-08	HD-25	1.7J*	1	0.4	2.0
123104-09	HD-23	1.9J*	1	0.4	2.0
123116-01	BYA-11	ND	1	0.4	2.0

Note: MDL<J*<PQL
mg/L: Milligrams/Liter(ppm)

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 123104&123116
Analyst: AN

Date Sampled: 10/17/12&10/18/12
Date Received: 10/17/12&10/18/12
Date Analyzed: 10/19/12
Sample Matrix: Water

TOTAL SULFIDE
SM 4500-S^{-2}D

CAS LAB #	Sample ID	RESULTS (mg/L)	Dilution Factor	MDL (mg/L)	PQL (mg/L)
123104-01	W-17	ND	1	0.004	0.02
123104-02	W-16	ND	1	0.004	0.02
123104-03	W-18	ND	1	0.004	0.02
123104-04	BYA-14	ND	1	0.004	0.02
123104-05	HD-42	ND	1	0.004	0.02
123104-06	HD-41	ND	1	0.004	0.02
123104-07	BYA-H10	ND	1	0.004	0.02
123104-08	HD-25	ND	1	0.004	0.02
123104-09	HD-23	ND	1	0.004	0.02
123116-01	BYA-11	ND	1	0.004	0.02

mg/L: Milligrams/Liter(ppm)

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 123104&123116
Analyst: AN

Date Sampled: 10/17/12&10/18/12
Date Received: 10/17/12&10/18/12
Date Analyzed: 10/22/12
Sample Matrix: Water

TOTAL PHENOL
EPA METHOD 420.1

CAS Lab #	Sample ID	RESULTS (mg/L)	Dilution Factor	PQL (mg/L)	MDL (mg/L)
123104-01	W-17	ND	1	0.1	0.02
123104-02	W-16	ND	1	0.1	0.02
123104-03	W-18	ND	1	0.1	0.02
123104-04	BYA-14	ND	1	0.1	0.02
123104-05	HD-42	ND	1	0.1	0.02
123104-06	HD-41	ND	1	0.1	0.02
123104-07	BYA-H10	ND	1	0.1	0.02
123104-08	HD-25	ND	1	0.1	0.02
123104-09	HD-23	ND	1	0.1	0.02
123116-01	BYA-11	ND	1	0.1	0.02

mg/L: Milligrams/Liter(ppm)
ND: Not Detected

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 123104&123116
Analyst: GM

Date Sampled: 10/17/12&10/18/12
Date Received: 10/17/12&10/18/12
Date Analyzed: 10/19/12
Sample Matrix: Water

MBAS
SM 5540 C

CAS Lab #	Sample ID	RESULTS (mg/L)	Dilution Factor	PQL (mg/L)	MDL (mg/L)
123104-01	W-17	ND	1	0.1	0.02
123104-02	W-16	ND	1	0.1	0.02
123104-03	W-18	ND	1	0.1	0.02
123104-04	BYA-14	ND	1	0.1	0.02
123104-05	HD-42	ND	1	0.1	0.02
123104-06	HD-41	ND	1	0.1	0.02
123104-07	BYA-H10	ND	1	0.1	0.02
123104-08	HD-25	ND	1	0.1	0.02
123104-09	HD-23	ND	1	0.1	0.02
123116-01	BYA-11	ND	1	0.1	0.02

mg/L: Milligrams/Liter(ppm)
ND: Not Detected

CERTIFICATE OF ANALYSIS

Client: Fugro West, Inc.
CAS LAB NO: 1231047123116
Analyst: AN

Date Sampled: 10/17/12&10/18/12
Date Received: 10/17/12&10/18/12
Date Analyzed: 10/17/12&10/18/12
Sample Matrix: Water

SETTLEABLE SOLIDS
SM 2540 F

CAS Lab #	Sample ID	RESULTS (ml/L)	Dilution Factor	PQL (ml/L)
123104-01	W-17	BQL	1	0.1
123104-02	W-16	BQL	1	0.1
123104-03	W-18	BQL	1	0.1
123104-04	BYA-14	BQL	1	0.1
123104-05	HD-42	BQL	1	0.1
123104-06	HD-41	BQL	1	0.1
123104-07	BYA-H10	BQL	1	0.1
123104-08	HD-25	BQL	1	0.1
123104-09	HD-23	BQL	1	0.1
123116-01	BYA-11	BQL	1	0.1

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 123104&123116
Analyst: AN

Date Sampled: 10/17/12&10/18/12
Date Received: 10/17/12&10/18/12
Date Analyzed: 10/18/12
Sample Matrix: Water

TURBIDITY
EPA Method 180.1

CAS Lab #	Sample ID	RESULTS (NTU)	Dilution Factor	PQL (NTU)
123104-01	W-17	0.30	1	0.1
123104-02	W-16	0.21	1	0.1
123104-03	W-18	4.6	1	0.1
123104-04	BYA-14	0.26	1	0.1
123104-05	HD-42	0.97	1	0.1
123104-06	HD-41	0.72	1	0.1
123104-07	BYA-H10	0.51	1	0.1
123104-08	HD-25	0.23	1	0.1
123104-09	HD-23	0.54	1	0.1
123116-01	BYA-11	0.86	1	0.1

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 123104&123116
Analyst: AN

Date Sampled: 10/17/12&10/18/12
Date Received: 10/17/12&10/18/12
Date Analyzed: 10/17/12&10/18/12
Sample Matrix: Water

TOTAL RESIDUAL CHLORINE
SM 4500CL G

CAS Lab #	Sample ID	RESULTS (mg/L)	Dilution Factor	PQL (mg/L)
123104-01	W-17	BQL	1	0.05
123104-02	W-16	BQL	1	0.05
123104-03	W-18	BQL	1	0.05
123104-04	BYA-14	BQL	1	0.05
123104-05	HD-42	BQL	1	0.05
123104-06	HD-41	BQL	1	0.05
123104-07	BYA-H10	BQL	1	0.05
123104-08	HD-25	BQL	1	0.05
123104-09	HD-23	BQL	1	0.05
123116-01	BYA-11	BQL	1	0.05

mg/L: Milligrams/Liter(ppm)

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 123104&123116
Analyst: AN

Date Sampled: 10/17/12&10/18/12
Date Received: 10/17/12&10/18/12
Date Analyzed: 10/18/12
Sample Matrix: Water

TOTAL SUSPENDED SOLIDS
SM 2540 D

CAS Lab #	Sample ID	RESULTS (mg/L)	Dilution Factor	MDL (mg/l)	PQL (mg/L)
123104-01	W-17	ND	1	1.0	5.0
123104-02	W-16	ND	1	1.0	5.0
123104-03	W-18	1.8J*	1	1.0	5.0
123104-04	BYA-14	ND	1	1.0	5.0
123104-05	HD-42	2.8J*	1	1.0	5.0
123104-06	HD-41	3.4J*	1	1.0	5.0
123104-07	BYA-H10	ND	1	1.0	5.0
123104-08	HD-25	ND	1	1.0	5.0
123104-09	HD-23	1.6J*	1	1.0	5.0
123116-01	BYA-11	1.0J*	1	1.0	5.0

Note: MDL<J*<PQL
mg/L: Milligrams/Liter(ppm)
ND: Not Detected

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 123104&123116
Analyst: GM

Date Sampled: 10/17/12&10/18/12
Date Received: 10/17/12&10/18/12
Date Analyzed: 10/18/12
Sample Matrix: Water

OIL & GREASE
EPA Method 1664

CAS Lab #	Sample ID	RESULTS (mg/L)	Dilution Factor	MDL (mg/l)	PQL (mg/L)
123104-01	W-17	ND	1	1.0	5.0
123104-02	W-16	ND	1	1.0	5.0
123104-03	W-18	ND	1	1.0	5.0
123104-04	BYA-14	ND	1	1.0	5.0
123104-05	HD-42	ND	1	1.0	5.0
123104-06	HD-41	ND	1	1.0	5.0
123104-07	BYA-H10	ND	1	1.0	5.0
123104-08	HD-25	ND	1	1.0	5.0
123104-09	HD-23	ND	1	1.0	5.0
123116-01	BYA-11	ND	1	1.0	5.0

mg/L: Milligrams/Liter(ppm)
ND: Not Detected

QUALITY CONTROL SECTION

QUALITY CONTROL SECTION

Client: Fugro Consultants
CAS LAB NO: 123104&123116
Analyst: AN/GM

Sample Matrix: Water

COMPOUND	RESULT	UNITS	DF	MDL	PQL	METHOD	ANALYZED
B.O.D.	ND	mg/L	1	0.4	2	5210 B	10/17/12 & 10/18/12
Oil and Grease	ND	mg/L	1	1	5	1664	10/18/12
MBAS	ND	mg/L	1	0.02	0.1	5540 C	10/19/12
Phenol (Total)	ND	mg/L	1	0.02	0.1	420.1	10/22/12
Residual Chlorine	BQL	mg/L	1	--	0.05	4500CLG	10/17/12 & 10/18/12
Settleable Solid	BQL	ml/L	1	--	0.1	2540 F	10/17/12 & 10/18/12
Sulfide (Total)	ND	mg/L	1	0.004	0.02	4500S^{2-}D	10/19/12
T.S.S.	ND	mg/L	1	1	5	2540 D	10/18/12

mg/L: Milligrams/Liter(ppm)

Certificate of Analysis

Notes:

The Chain of Custody document is part of the analytical report.
Any remaining sample(s) for testing will be disposed of one month from the final report date unless other arrangements are made in advance.
All results are expressed on wet weight basis unless otherwise specified.

Authorized Signature

(QA/QC Supervisor)

The results in this report apply to the samples analyzed in accordance with the chain of custody document. Capco Analytical certifies that the test results meet all requirements of ELAP unless noted in the Case Narrative. This analytical report must be reproduced in its entirety.

Legend for Abbreviations:

PQL	Practical Quantitation Limit
BQL	Below Practical Quantitation Limit
ND	NOT DETECTED at or above the Reporting Limit. If J-value reported, then NOT DETECTED at or above the Method Detection Limit (MDL).
MDL	Method Detection Limit
MRL	Method Reporting Limit
MDA	Minimum Detectable Activity
MCL	Maximum Contamination Level

CAPCO ANALYTICAL SERVICES

1536 Eastman Avenue
Ventura, CA 93003
(805) 644-1095 Fax 644-9947

CHAIN OF CUSTODY RECORD

REPORT
Fax 805-650-7010
Company Fugro Consultants
Address 4820 McGrath Street, Suite 100
Ventura,CA93003
Phone 650-7000 Contact Tim Nicely

BILL TO: P.O.#
Company same
Address
123104
Phone Contact

PROJ. NO
PROJECT NAME: Malibu-NPDES

SAMPLERS: (Signature)

CONTAINER TYPES
A = AMBER B = BRASS G = GLASS
P = PLASTIC V = VOA VIAL O = OTHER

SAMPLE NO.	DATE SAMPLED	TIME SAMPLED	COMP	GRAB	SAMPLE DESCRIPTION	MATRIX: WATER	SOIL	SLUDGE	OTHER	CONTAINER #	CONTAINER TYPE	ANALYSIS: TSS, Settleable Solids	BOD	Oil & Grease	MBAS	Sulfide	Phenols	Residual Chlorine	Turbidity	pH	REMARKS 10/24
1	10:30				W-17	x				5	P+G	↓	↓	↓	↓	↓	↓	↓	↓	7.12	22.6
2	10:00				W-16	x														6.79	23.4
3	[redacted]				[redacted]	x															
4	9:45				W-18	x														6.90	23.7
5	11:15				BYA-14	x														6.89	23.6
6	11:30				HD-42	x														6.94	22.2
7	12:00				HD-41	x														7.10	21.6
8	12:15				BYA-H10	x														6.87	22.1
9	12:30				HD-25	x														6.99	22.0
10	12:45				HD-23	x														7.07	21.8

CHECK ONE BOX:
DISPOSE SAMPLES [X]
RETURN SAMPLES [ ]

The undersigned hereby acknowledges having received a copy of the Fee Schedule/General Information and Conditions, the provisions of which are a part of this agreement.

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
	10/12/1330				
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time		

TURN AROUND TIME

24 Hr.		5 Day	
48 Hr.		Standard	X
72 Hr.		Other	

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CAPCO ANALYTICAL SERVICES

1536 Eastman Avenue, Suite B
Ventura, CA 93003
(805) 644-1095 Fax 644-9947
www.capcoenv.com

CHAIN OF CUSTODY RECORD

REPORT
Fax (805) 650-7010
Company FUGRO
Address 4820 McGRATH ST, SUITE 100
VENTURA CA Email
Phone 650-7000 Contact TIM NICELY

BILL TO: **P.O.#** 10125
Company
Address
Phone Contact

PROJ. NO | PROJECT NAME: MALIBU NPDES

SAMPLERS: (Signature)

CONTAINER TYPES
A = AMBER B = BRASS G = GLASS
P = PLASTIC V = VOA VIAL O = OTHER

SAMPLE NO.	DATE SAMPLED	TIME SAMPLED	COMP	GRAB	SAMPLE IDENTIFICATION	MATRIX: WATER	SOIL	SLUDGE	OTHER	CONTAINER #: #	TYPE	ANALYSIS: TSS	Settleable Solids	BOD	Oil & Grease	MBAS	Sulfides	Phenols	Residual Chlorine	Turbidity	REMARKS
1	10/18/12	12:00			BYA-11	X				5	P&V	/	/	/	/	/	/	/	/	/	6.69 23.4
																					Please report with 123116

123116

The undersigned hereby acknowledges having received a copy of the Fee Schedule/General Information and Conditions, the provisions of which are a part of this agreement.

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
	10/18/12 2:15 pm	
Relinquished by: (Signature)	Date/Time	Received by: (Signature)

TURN AROUND TIME
STANDARD ☒ OTHER
24 HOURS ☐
48 HOURS ☐
72 HOURS ☐

CHECK ONE BOX:
DISPOSE SAMPLES ☐
RETURN SAMPLES ☐

WHITE COPY CANARY COPY PINK COPY

CAPCO
Analytical Services, Inc.

Environmental and Analytical Services-Since 1994
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

Prepared for: Fugro West, Inc.
4820 McGrath St. Suite 100
Ventura, CA 93003
Attn: Tim Nicely

Report Date: November 27, 2012
Laboratory Number: 123438
Project Name: Malibu-NPDES
Sampled by: Client

On November 15, 2012, Capco Analytical Services, Inc.(CAS), received ten(10) samples to be analyzed. The samples were identified and assigned the laboratory ID numbers listed below:

SAMPLE DESCRIPTION	CAS LAB NUMBER ID
W-18	123438-01
W-16	123438-02
BYA-11	123438-03
W-17	123438-04
BYA-14	123438-05
HD-42	123438-06
HD-41	123438-07
HD-25	123438-08
HD-23	123438-09
BYA-H10	123438-10

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Alin E. Repede, MS
Director - Analytical Operations

If you have any further questions or concerns, please contact me at your convenience.
This report consists of 12 pages excluding the cover letter and the Chain of Custody.

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 123438
Analyst: GM

Date Sampled: 11/15/12
Date Received: 11/15/12
Date Analyzed: 11/19/12
Sample Matrix: Water

OIL & GREASE
EPA Method 1664

CAS Lab #	Sample ID	RESULTS (mg/L)	Dilution Factor	MDL (mg/l)	PQL (mg/L)
123438-01	W-18	ND	1	1.0	5.0
123438-02	W-16	ND	1	1.0	5.0
123438-03	BYA-11	ND	1	1.0	5.0
123438-04	W-17	ND	1	1.0	5.0
123438-05	BYA-14	ND	1	1.0	5.0
123438-06	HD-42	ND	1	1.0	5.0
123438-07	HD-41	ND	1	1.0	5.0
123438-08	HD-25	ND	1	1.0	5.0
123438-09	HD-23	ND	1	1.0	5.0
123438-10	BYA-H10	ND	1	1.0	5.0

mg/L: Milligrams/Liter(ppm)
ND: Not Detected

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 123438
Analyst: AN

Date Sampled: 11/15/12
Date Received: 11/15/12
Date Analyzed: 11/16/12
Sample Matrix: Water

TOTAL SUSPENDED SOLIDS
SM 2540 D

CAS Lab #	Sample ID	RESULTS (mg/L)	Dilution Factor	MDL (mg/l)	PQL (mg/L)
123438-01	W-18	ND	1	1.0	5.0
123438-02	W-16	ND	1	1.0	5.0
123438-03	BYA-11	ND	1	1.0	5.0
123438-04	W-17	ND	1	1.0	5.0
123438-05	BYA-14	ND	1	1.0	5.0
123438-06	HD-42	ND	1	1.0	5.0
123438-07	HD-41	ND	1	1.0	5.0
123438-08	HD-25	1.1	1	1.0	5.0
123438-09	HD-23	ND	1	1.0	5.0
123438-10	BYA-H10	2.0	1	1.0	5.0

mg/L: Milligrams/Liter(ppm)
ND: Not Detected

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 123438
Analyst: AN

Date Sampled: 11/15/12
Date Received: 11/15/12
Date Analyzed: 11/15/12
Sample Matrix: Water

BIOCHEMICAL OXYGEN DEMAND
SM 5210 B

CAS Lab #	Sample ID	RESULTS (mg/L)	Dilution Factor	MDL (mg/l)	PQL (mg/L)
123438-01	W-18	0.50	1	0.4	2.0
123438-02	W-16	0.57	1	0.4	2.0
123438-03	BYA-11	0.44	1	0.4	2.0
123438-04	W-17	ND	1	0.4	2.0
123438-05	BYA-14	0.51	1	0.4	2.0
123438-06	HD-42	ND	1	0.4	2.0
123438-07	HD-41	ND	1	0.4	2.0
123438-08	HD-25	ND	1	0.4	2.0
123438-09	HD-23	ND	1	0.4	2.0
123438-10	BYA-H10	0.54	1	0.4	2.0

mg/L: Milligrams/Liter(ppm)

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 123438
Analyst: AN

Date Sampled: 11/15/12
Date Received: 11/15/12
Date Analyzed: 11/19/12
Sample Matrix: Water

TOTAL SULFIDE
SM 4500-S^{-2}D

CAS LAB #	Sample ID	RESULTS (mg/L)	Dilution Factor	MDL (mg/L)	PQL (mg/L)
123438-01	W-18	ND	1	0.004	0.02
123438-02	W-16	ND	1	0.004	0.02
123438-03	BYA-11	ND	1	0.004	0.02
123438-04	W-17	ND	1	0.004	0.02
123438-05	BYA-14	ND	1	0.004	0.02
123438-06	HD-42	ND	1	0.004	0.02
123438-07	HD-41	ND	1	0.004	0.02
123438-08	HD-25	ND	1	0.004	0.02
123438-09	HD-23	ND	1	0.004	0.02
123438-10	BYA-H10	ND	1	0.004	0.02

mg/L: Milligrams/Liter(ppm)

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 123438
Analyst: AN

Date Sampled: 11/15/12
Date Received: 11/15/12
Date Analyzed: 11/15/12
Sample Matrix: Water

TOTAL RESIDUAL CHLORINE
SM 4500CL G

CAS Lab #	Sample ID	RESULTS (mg/L)	Dilution Factor	PQL (mg/L)
123438-01	W-18	BQL	1	0.05
123438-02	W-16	BQL	1	0.05
123438-03	BYA-11	BQL	1	0.05
123438-04	W-17	BQL	1	0.05
123438-05	BYA-14	BQL	1	0.05
123438-06	HD-42	BQL	1	0.05
123438-07	HD-41	BQL	1	0.05
123438-08	HD-25	BQL	1	0.05
123438-09	HD-23	BQL	1	0.05
123438-10	BYA-H10	BQL	1	0.05

mg/L: Milligrams/Liter(ppm)

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 123438
Analyst: GM

Date Sampled: 11/15/12
Date Received: 11/15/12
Date Analyzed: 11/16/12
Sample Matrix: Water

MBAS
SM 5540 C

CAS Lab #	Sample ID	RESULTS (mg/L)	Dilution Factor	PQL (mg/L)	MDL (mg/L)
123438-01	W-18	ND	1	0.1	0.02
123438-02	W-16	ND	1	0.1	0.02
123438-03	BYA-11	ND	1	0.1	0.02
123438-04	W-17	ND	1	0.1	0.02
123438-05	BYA-14	ND	1	0.1	0.02
123438-06	HD-42	ND	1	0.1	0.02
123438-07	HD-41	ND	1	0.1	0.02
123438-08	HD-25	ND	1	0.1	0.02
123438-09	HD-23	ND	1	0.1	0.02
123438-10	BYA-H10	ND	1	0.1	0.02

mg/L: Milligrams/Liter(ppm)
ND: Not Detected

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 123438
Analyst: AN

Date Sampled: 11/15/12
Date Received: 11/15/12
Date Analyzed: 11/21/12
Sample Matrix: Water

TOTAL PHENOL
EPA METHOD 420.1

CAS Lab #	Sample ID	RESULTS (mg/L)	Dilution Factor	PQL (mg/L)	MDL (mg/L)
123438-01	W-18	ND	1	0.1	0.02
123438-02	W-16	ND	1	0.1	0.02
123438-03	BYA-11	ND	1	0.1	0.02
123438-04	W-17	ND	1	0.1	0.02
123438-05	BYA-14	ND	1	0.1	0.02
123438-06	HD-42	ND	1	0.1	0.02
123438-07	HD-41	ND	1	0.1	0.02
123438-08	HD-25	ND	1	0.1	0.02
123438-09	HD-23	ND	1	0.1	0.02
123438-10	BYA-H10	ND	1	0.1	0.02

mg/L: Milligrams/Liter(ppm)
ND: Not Detected

CERTIFICATE OF ANALYSIS

Client: Fugro West, Inc.
CAS LAB NO: 123438
Analyst: AN

Date Sampled: 11/15/12
Date Received: 11/15/12
Date Analyzed: 11/15/12
Sample Matrix: Water

SETTLEABLE SOLIDS
SM 2540 F

CAS Lab #	Sample ID	RESULTS (ml/L)	Dilution Factor	PQL (ml/L)
123438-01	W-18	BQL	1	0.1
123438-02	W-16	BQL	1	0.1
123438-03	BYA-11	BQL	1	0.1
123438-04	W-17	BQL	1	0.1
123438-05	BYA-14	BQL	1	0.1
123438-06	HD-42	BQL	1	0.1
123438-07	HD-41	BQL	1	0.1
123438-08	HD-25	BQL	1	0.1
123438-09	HD-23	BQL	1	0.1
123438-10	BYA-H10	BQL	1	0.1

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 123438
Analyst: AN

Date Sampled: 11/15/12
Date Received: 11/15/12
Date Analyzed: 11/15/12
Sample Matrix: Water

TURBIDITY
EPA Method 180.1

CAS Lab #	Sample ID	RESULTS (NTU)	Dilution Factor	PQL (NTU)
123438-01	W-18	0.17	1	0.1
123438-02	W-16	0.14	1	0.1
123438-03	BYA-11	0.18	1	0.1
123438-04	W-17	0.2	1	0.1
123438-05	BYA-14	0.4	1	0.1
123438-06	HD-42	0.18	1	0.1
123438-07	HD-41	0.21	1	0.1
123438-08	HD-25	0.81	1	0.1
123438-09	HD-23	0.2	1	0.1
123438-10	BYA-H10	3.0	1	0.1

QUALITY CONTROL SECTION

QUALITY CONTROL SECTION

Client: Fugro Consultants — Sample Matrix: Water
CAS LAB NO: 123438
Analyst: AN/GM

COMPOUND	RESULT	UNITS	DF	MDL	PQL	METHOD	ANALYZED
B.O.D.	ND	mg/L	1	0.4	2	5210 B	11/15/12
Oil and Grease	ND	mg/L	1	1	5	1664	11/19/12
MBAS	ND	mg/L	1	0.02	0.1	5540 C	11/16/12
Phenol (Total)	ND	mg/L	1	0.02	0.1	420.1	11/21/12
Residual Chlorine	BQL	mg/L	1	--	0.05	4500CLG	11/15/12
Settleable Solid	BQL	ml/L	1	--	0.1	2540 F	11/15/12
Sulfide (Total)	ND	mg/L	1	0.004	0.02	4500S^{2-}D	11/19/12
T.S.S.	ND	mg/L	1	1	5	2540 D	11/16/12

mg/L: Milligrams/Liter(ppm)

Certificate of Analysis

Notes:

The Chain of Custody document is part of the analytical report.
Any remaining sample(s) for testing will be disposed of one month from the final report date unless other arrangements are made in advance.
All results are expressed on wet weight basis unless otherwise specified.

Authorized Signature

(QA/QC Supervisor)

The results in this report apply to the samples analyzed in accordance with the chain of custody document. Capco Analytical certifies that the test results meet all requirements of ELAP unless noted in the Case Narrative. This analytical report must be reproduced in its entirety.

Legend for Abbreviations:

PQL	Practical Quantitation Limit
BQL	Below Practical Quantitation Limit
ND	NOT DETECTED at or above the Reporting Limit. If J-value reported, then NOT DETECTED at or above the Method Detection Limit (MDL).
MDL	Method Detection Limit
MRL	Method Reporting Limit
MDA	Minimum Detectable Activity
MCL	Maximum Contamination Level

CAPCO ANALYTICAL SERVICES

1536 Eastman Avenue
Ventura, CA 93003
(805) 644-1095 Fax 644-9947

CHAIN OF CUSTODY RECORD

REPORT
Fax 805-650-7010
Company Fugro Consultants
Address 4820 McGrath Street, Suite 100
Ventura, CA93003
Phone 650-7000 Contact Tim Nicely

BILL TO: P.O.# 11/26
Company same 123438
Address
Phone Contact

PROJ. NO
PROJECT NAME: Malibu-NPDES

SAMPLERS: (Signature)

CONTAINER TYPES
A = AMBER B = BRASS G = GLASS
P = PLASTIC V = VOA VIAL O = OTHER

SAMPLE NO.	DATE SAMPLED	TIME SAMPLED	COMP	GRAB	SAMPLE DESCRIPTION	MATRIX: WATER	SOIL	SLUDGE	OTHER	CONTAINER #: #	TYPE	ANALYSIS: TSS	Settleable Solids	BOD	Oil & Grease	MBAS	Sulfide	Phenols	Residual Chlorine	Turbidity	pH	REMARKS
1	11/15/12	10:45			W-18	x				5	P+G										7.14	18.9
2		11:00			W-16	x															6.75	22.1
3		11:15			BYA-11	x															7.14	22.7
4		11:30			W-17	x															7.12	21.8
5		12:00			BYA-14	x															6.94	21.6
6		1:15			HD-42	x															7.29	21.2
7		1:30			HD-41	x															7.10	21.3
8		1:45			HD-25	x															6.99	22.5
9		2:00			HD-23	x															7.16	22.3
10	↓	11:45			BYA-HD	x				↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	6.94	21.3

CHECK ONE BOX:
DISPOSE SAMPLES X
RETURN SAMPLES

The undersigned hereby acknowledges having received a copy of the Fee Schedule/General Information and Conditions, the provisions of which are a part of this agreement.

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
	11/15/12 2:36				
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time		

TURN AROUND TIME

24 Hr.		5 Day		
48 Hr.		Standard	X	
72 Hr.		Other		

WHITE COPY CANARY COPY PINK COPY

Prepared for: Fugro Consultants
4820 McGrath Street, Suite 100
Ventura, CA 93003
Attn: Tim Nicely

Report Date: January 5, 2013
Laboratory Number: 123817
Project Name: N/A
Sampled by: Client

On December 18, 2012, Capco Analytical Services, Inc.(CAS), received ten(10) samples to be analyzed. The samples were identified and assigned the laboratory ID numbers listed below:

SAMPLE DESCRIPTION	CAS LAB NUMBER ID
W-18	123817-01
W-16	123817-02
HD-42	123817-03
HD-41	123817-04
BYA-H10	123817-05
HD-25	123817-06
HD-23	123817-07
BYA-11	123817-08
W-17	123817-09
BYA-14	123817-10

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Alin E. Repede, MS
Director - Analytical Operations

If you have any further questions or concerns, please contact me at your convenience.

This report consists of 11 pages excluding the cover letter and the Chain of Custody.

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 123817
Analyst: AN

Date Sampled: 12/18/12
Date Received: 12/18/12
Date Analyzed: 12/23/12
Sample Matrix: Water

TOTAL SULFIDE
SM 4500-S^{-2}D

CAS LAB #	Sample ID	RESULTS (mg/L)	Dilution Factor	MDL (mg/L)	PQL (mg/L)
123817-01	W-18	ND	1	0.004	0.02
123817-02	W-16	ND	1	0.004	0.02
123817-03	HD-42	ND	1	0.004	0.02
123817-04	HD-41	ND	1	0.004	0.02
123817-05	BYA-H10	ND	1	0.004	0.02
123817-06	HD-25	ND	1	0.004	0.02
123817-07	HD-23	ND	1	0.004	0.02
123817-08	BYA-11	ND	1	0.004	0.02
123817-09	W-17	ND	1	0.004	0.02
123817-10	BYA-14	ND	1	0.004	0.02

mg/L: Milligrams/Liter(ppm)

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 123817
Analyst: AN

Date Sampled: 12/18/12
Date Received: 12/18/12
Date Analyzed: 12/26/12
Sample Matrix: Water

BIOCHEMICAL OXYGEN DEMAND
SM 5210 B

CAS Lab #	Sample ID	RESULTS (mg/L)	Dilution Factor	MDL (mg/l)	PQL (mg/L)
123817-01	W-18	ND	1	0.4	2.0
123817-02	W-16	ND	1	0.4	2.0
123817-03	HD-42	ND	1	0.4	2.0
123817-04	HD-41	ND	1	0.4	2.0
123817-05	BYA-H10	ND	1	0.4	2.0
123817-06	HD-25	0.98	1	0.4	2.0
123817-07	HD-23	0.78	1	0.4	2.0
123817-08	BYA-11	ND	1	0.4	2.0
123817-09	W-17	ND	1	0.4	2.0
123817-10	BYA-14	ND	1	0.4	2.0

mg/L: Milligrams/Liter(ppm)

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 123817
Analyst: GM

Date Sampled: 12/18/12
Date Received: 12/18/12
Date Analyzed: 12/26/12
Sample Matrix: Water

OIL & GREASE
EPA Method 1664

CAS Lab #	Sample ID	RESULTS (mg/L)	Dilution Factor	MDL (mg/l)	PQL (mg/L)
123817-01	W-18	ND	1	1.0	5.0
123817-02	W-16	ND	1	1.0	5.0
123817-03	HD-42	ND	1	1.0	5.0
123817-04	HD-41	ND	1	1.0	5.0
123817-05	BYA-H10	ND	1	1.0	5.0
123817-06	HD-25	ND	1	1.0	5.0
123817-07	HD-23	ND	1	1.0	5.0
123817-08	BYA-11	ND	1	1.0	5.0
123817-09	W-17	ND	1	1.0	5.0
123817-10	BYA-14	ND	1	1.0	5.0

mg/L: Milligrams/Liter(ppm)
ND: Not Detected

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 123817
Analyst: AN

Date Sampled: 12/18/12
Date Received: 12/18/12
Date Analyzed: 12/20/12
Sample Matrix: Water

TOTAL SUSPENDED SOLIDS
SM 2540 D

CAS Lab #	Sample ID	RESULTS (mg/L)	Dilution Factor	MDL (mg/l)	PQL (mg/L)
123817-01	W-18	3.0	1	1.0	5.0
123817-02	W-16	ND	1	1.0	5.0
123817-03	HD-42	1.4	1	1.0	5.0
123817-04	HD-41	ND	1	1.0	5.0
123817-05	BYA-H10	1.2	1	1.0	5.0
123817-06	HD-25	ND	1	1.0	5.0
123817-07	HD-23	ND	1	1.0	5.0
123817-08	BYA-11	1.4	1	1.0	5.0
123817-09	W-17	1.6	1	1.0	5.0
123817-10	BYA-14	2.6	1	1.0	5.0

mg/L: Milligrams/Liter(ppm)
ND: Not Detected

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 123817
Analyst: AN

Date Sampled: 12/18/12
Date Received: 12/18/12
Date Analyzed: 12/18/12
Sample Matrix: Water

TURBIDITY
EPA Method 180.1

CAS Lab #	Sample ID	RESULTS (NTU)	Dilution Factor	PQL (NTU)
123817-01	W-18	3.30	1	0.1
123817-02	W-16	0.23	1	0.1
123817-03	HD-42	0.15	1	0.1
123817-04	HD-41	0.21	1	0.1
123817-05	BYA-H10	0.39	1	0.1
123817-06	HD-25	0.15	1	0.1
123817-07	HD-23	0.16	1	0.1
123817-08	BYA-11	0.31	1	0.1
123817-09	W-17	0.26	1	0.1
123817-10	BYA-14	0.27	1	0.1

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 123817
Analyst: AN

Date Sampled: 12/18/12
Date Received: 12/18/12
Date Analyzed: 12/18/12
Sample Matrix: Water

TOTAL RESIDUAL CHLORINE
SM 4500CL G

CAS Lab #	Sample ID	RESULTS (mg/L)	Dilution Factor	PQL (mg/L)
123817-01	W-18	BQL	1	0.05
123817-02	W-16	BQL	1	0.05
123817-03	HD-42	BQL	1	0.05
123817-04	HD-41	BQL	1	0.05
123817-05	BYA-H10	BQL	1	0.05
123817-06	HD-25	BQL	1	0.05
123817-07	HD-23	BQL	1	0.05
123817-08	BYA-11	BQL	1	0.05
123817-09	W-17	BQL	1	0.05
123817-10	BYA-14	BQL	1	0.05

mg/L: Milligrams/Liter(ppm)

CERTIFICATE OF ANALYSIS

Client: Fugro West, Inc.
CAS LAB NO: 123817
Analyst: AN

Date Sampled: 12/18/12
Date Received: 12/18/12
Date Analyzed: 12/18/12
Sample Matrix: Water

SETTLEABLE SOLIDS
SM 2540 F

CAS Lab #	Sample ID	RESULTS (ml/L)	Dilution Factor	PQL (ml/L)
123817-01	W-18	BQL	1	0.1
123817-02	W-16	BQL	1	0.1
123817-03	HD-42	BQL	1	0.1
123817-04	HD-41	BQL	1	0.1
123817-05	BYA-H10	BQL	1	0.1
123817-06	HD-25	BQL	1	0.1
123817-07	HD-23	BQL	1	0.1
123817-08	BYA-11	BQL	1	0.1
123817-09	W-17	BQL	1	0.1
123817-10	BYA-14	BQL	1	0.1

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 123817
Analyst: GM

Date Sampled: 12/18/12
Date Received: 12/18/12
Date Analyzed: 12/20/12
Sample Matrix: Water

MBAS
SM 5540 C

CAS Lab #	Sample ID	RESULTS (mg/L)	Dilution Factor	PQL (mg/L)	MDL (mg/L)
123817-01	W-18	ND	1	0.1	0.02
123817-02	W-16	ND	1	0.1	0.02
123817-03	HD-42	ND	1	0.1	0.02
123817-04	HD-41	ND	1	0.1	0.02
123817-05	BYA-H10	ND	1	0.1	0.02
123817-06	HD-25	ND	1	0.1	0.02
123817-07	HD-23	ND	1	0.1	0.02
123817-08	BYA-11	ND	1	0.1	0.02
123817-09	W-17	ND	1	0.1	0.02
123817-10	BYA-14	ND	1	0.1	0.02

mg/L: Milligrams/Liter(ppm)
ND: Not Detected

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 123817
Analyst: AN

Date Sampled: 12/18/12
Date Received: 12/18/12
Date Analyzed: 12/22/12
Sample Matrix: Water

TOTAL PHENOL
EPA METHOD 420.1

CAS Lab #	Sample ID	RESULTS (mg/L)	Dilution Factor	PQL (mg/L)	MDL (mg/L)
123817-01	W-18	ND	1	0.1	0.02
123817-02	W-16	ND	1	0.1	0.02
123817-03	HD-42	ND	1	0.1	0.02
123817-04	HD-41	ND	1	0.1	0.02
123817-05	BYA-H10	ND	1	0.1	0.02
123817-06	HD-25	ND	1	0.1	0.02
123817-07	HD-23	ND	1	0.1	0.02
123817-08	BYA-11	ND	1	0.1	0.02
123817-09	W-17	ND	1	0.1	0.02
123817-10	BYA-14	ND	1	0.1	0.02

mg/L: Milligrams/Liter(ppm)
ND: Not Detected

QUALITY CONTROL SECTION

Client: Fugro Consultants
CAS LAB NO: 123817
Analyst: AN/GM

Sample Matrix: Water

COMPOUND	RESULT	UNITS	DF	MDL	PQL	METHOD	ANALYZED
B.O.D.	ND	mg/L	1	0.4	2	5210 B	12/19/12
Oil and Grease	ND	mg/L	1	1	5	1664	12/26/12
MBAS	ND	mg/L	1	0.02	0.1	5540 C	12/20/12
Phenol (Total)	ND	mg/L	1	0.02	0.1	420.1	12/22/12
Residual Chlorine	BQL	mg/L	1	--	0.05	4500CLG	12/18/12
Settleable Solid	BQL	ml/L	1	--	0.1	2540 F	12/18/12
Sulfide (Total)	ND	mg/L	1	0.004	0.02	4500S^{2-}D	12/23/12
T.S.S.	ND	mg/L	1	1	5	2540 D	12/20/12

mg/L: Milligrams/Liter(ppm)

Certificate of Analysis

Notes:

The Chain of Custody document is part of the analytical report.
Any remaining sample(s) for testing will be disposed of one month from the final report date unless other arrangements are made in advance.
All results are expressed on wet weight basis unless otherwise specified.

Authorized Signature

(QA/QC Supervisor)

The results in this report apply to the samples analyzed in accordance with the chain of custody document. Capco Analytical certifies that the test results meet all requirements of ELAP unless noted in the Case Narrative. This analytical report must be reproduced in its entirety.

Legend for Abbreviations:

PQL	Practical Quantitation Limit
BQL	Below Practical Quantitation Limit
ND	NOT DETECTED at or above the Reporting Limit. If J-value reported, then NOT DETECTED at or above the Method Detection Limit (MDL).
MDL	Method Detection Limit
MRL	Method Reporting Limit
MDA	Minimum Detectable Activity
MCL	Maximum Contamination Level

CAPCO ANALYTICAL SERVICES

1536 Eastman Avenue
Ventura, CA 93003
(805) 644-1095 Fax 644-9947

CHAIN OF CUSTODY RECORD

REPORT
Fax 805-650-7010
Company Fugro Consultants
Address 4820 McGrath Street, Suite 100
Ventura,CA93003
Phone 650-7000 Contact Tim Nicely

BILL TO: P.O.# 12/26
Company same
Address 12/27
Phone Contact

PROJ. NO

PROJECT NAME: Big Rock Mesa-NPDES

SAMPLERS: (Signature)

CONTAINER TYPES
A = AMBER B = BRASS G = GLASS
P = PLASTIC V = VOA VIAL O = OTHER

ANALYSIS: TSS, Settleable Solids; BOD; Oil & Grease; MBAS; Sulfide; Phenols; Residual Chlorine; Turbidity

REMARKS: 123817

SAMPLE NO.	DATE SAMPLED	TIME SAMPLED	COMP	GRAB	SAMPLE DESCRIPTION	MATRIX: WATER	SOIL	SLUDGE	OTHER	CONTAINER #	CONTAINER TYPE	pH	Temp °C
1	12/18/12	10:15			W-18	X				5	P+G	6.98	21.8
2		10:30			W-16	X						6.79	22.4
3		11:00			HD-42	X						6.41	20.7
4		11:15			HD-41	X						6.86	20.0
5		11:28			B4A-H10	X						7.05	21.3
6		11:50			HD-25	X						7.08	21.7
7		12:15			HD-23	X						7.04	21.3
8		12:30			B4A-11	X						7.35	21.3
9		12:45			W-17	X						7.49	20.5
10	↓	1:00			B4A-14	X						7.05	17.6

CHECK ONE BOX:
DISPOSE SAMPLES
RETURN SAMPLES

The undersigned hereby acknowledges having received a copy of the Fee Schedule/General Information and Conditions, the provisions of which are a part of this agreement.

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
	12/18/12 1415				
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time		

TURN AROUND TIME

24 Hr.		5 Day			
48 Hr.		Standard			
72 Hr.		Other			

WHITE COPY CANARY COPY PINK COPY

CAPCO
Analytical Services, Inc.

Environmental and Analytical Services-Since 1994
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

Prepared for: Fugro Consultants
4820 McGrath Street, Suite 100
Ventura, CA 93003
Attn: Tim Nicely

Report Date: January 28, 2013
Laboratory Number: 130173
Project Name: Malibu-NPDES
Sampled by: Client

On January 14, 2013, Capco Analytical Services, Inc.(CAS), received ten(10) samples to be analyzed. The samples were identified and assigned the laboratory ID numbers listed below:

SAMPLE DESCRIPTION	CAS LAB NUMBER ID
BYA-9	130173-01
BYA-4	130173-02
BYA-5	130173-03
BYA-3	130173-04
BYA-1	130173-05
W-1	130173-06
HD-30	130173-07
HD-12	130173-08
HD-5	130173-09
W-8	130173-10

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Alin E. Repede, MS
Director - Analytical Operations

If you have any further questions or concerns, please contact me at your convenience.

This report consists of 11 pages excluding the cover letter and the Chain of Custody.

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 130173
Analyst: AN

Date Sampled: 01/14/13
Date Received: 01/14/13
Date Analyzed: 01/17/13
Sample Matrix: Water

TOTAL SULFIDE
EPA Method SM 4500S^{2-}D

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)	MDL (mg/L)
130173-01	BYA-9	ND	1	0.02	0.004
130173-02	BYA-4	ND	1	0.02	0.004
130173-03	BYA-5	ND	1	0.02	0.004
130173-04	BYA-3	ND	1	0.02	0.004
130173-05	BYA-1	ND	1	0.02	0.004
130173-06	W-1	ND	1	0.02	0.004
130173-07	HD-30	ND	1	0.02	0.004
130173-08	HD-12	ND	1	0.02	0.004
130173-09	HD-5	ND	1	0.02	0.004
130173-10	W-8	ND	1	0.02	0.004

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 130173
Analyst: AN

Date Sampled: 01/14/13
Date Received: 01/14/13
Date Analyzed: 01/17/13
Sample Matrix: Water

OIL & GREASE
EPA Method 1664

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)	MDL (mg/L)
130173-01	BYA-9	ND	1	5	1
130173-02	BYA-4	ND	1	5	1
130173-03	BYA-5	ND	1	5	1
130173-04	BYA-3	ND	1	5	1
130173-05	BYA-1	ND	1	5	1
130173-06	W-1	ND	1	5	1
130173-07	HD-30	ND	1	5	1
130173-08	HD-12	ND	1	5	1
130173-09	HD-5	ND	1	5	1
130173-10	W-8	ND	1	5	1

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 130173
Analyst: AN

Date Sampled: 01/14/13
Date Received: 01/14/13
Date Analyzed: 01/16/13
Sample Matrix: Water

TOTAL SUSPENDED SOLIDS
EPA Method SM 2540 D

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)	MDL (mg/L)
130173-01	BYA-9	ND	1	5	1
130173-02	BYA-4	1.3	1	5	1
130173-03	BYA-5	ND	1	5	1
130173-04	BYA-3	1.2	1	5	1
130173-05	BYA-1	ND	1	5	1
130173-06	W-1	ND	1	5	1
130173-07	HD-30	ND	1	5	1
130173-08	HD-12	3.0	1	5	1
130173-09	HD-5	ND	1	5	1
130173-10	W-8	ND	1	5	1

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 130173
Analyst: AN

Date Sampled: 01/14/13
Date Received: 01/14/13
Date Analyzed: 01/16/13
Sample Matrix: Water

BIOCHEMICAL OXYGEN DEMAND
EPA Method SM 5210 B

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)	MDL (mg/L)
130173-01	BYA-9	ND	1	2	0.4
130173-02	BYA-4	ND	1	2	0.4
130173-03	BYA-5	ND	1	2	0.4
130173-04	BYA-3	ND	1	2	0.4
130173-05	BYA-1	ND	1	2	0.4
130173-06	W-1	ND	1	2	0.4
130173-07	HD-30	ND	1	2	0.4
130173-08	HD-12	ND	1	2	0.4
130173-09	HD-5	ND	1	2	0.4
130173-10	W-8	ND	1	2	0.4

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 130173
Analyst: AN

Date Sampled: 01/14/13
Date Received: 01/14/13
Date Analyzed: 01/22/13
Sample Matrix: Water

TOTAL PHENOL
EPA Method 420.1

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)	MDL (mg/L)
130173-01	BYA-9	ND	1	0.1	0.02
130173-02	BYA-4	ND	1	0.1	0.02
130173-03	BYA-5	ND	1	0.1	0.02
130173-04	BYA-3	ND	1	0.1	0.02
130173-05	BYA-1	ND	1	0.1	0.02
130173-06	W-1	ND	1	0.1	0.02
130173-07	HD-30	ND	1	0.1	0.02
130173-08	HD-12	ND	1	0.1	0.02
130173-09	HD-5	ND	1	0.1	0.02
130173-10	W-8	ND	1	0.1	0.02

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 130173
Analyst: AN

Date Sampled: 01/14/13
Date Received: 01/14/13
Date Analyzed: 01/16/13
Sample Matrix: Water

MBAS
EPA Method SM 5540 C

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)	MDL (mg/L)
130173-01	BYA-9	ND	1	0.1	0.02
130173-02	BYA-4	ND	1	0.1	0.02
130173-03	BYA-5	ND	1	0.1	0.02
130173-04	BYA-3	ND	1	0.1	0.02
130173-05	BYA-1	ND	1	0.1	0.02
130173-06	W-1	ND	1	0.1	0.02
130173-07	HD-30	ND	1	0.1	0.02
130173-08	HD-12	ND	1	0.1	0.02
130173-09	HD-5	ND	1	0.1	0.02
130173-10	W-8	ND	1	0.1	0.02

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 130173
Analyst: AN

Date Sampled: 01/14/13
Date Received: 01/14/13
Date Analyzed: 01/14/13
Sample Matrix: Water

TOTAL RESIDUAL CHLORINE
EPA Method SM 4500CLG

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)
130173-01	BYA-9	BQL	1	0.05
130173-02	BYA-4	BQL	1	0.05
130173-03	BYA-5	BQL	1	0.05
130173-04	BYA-3	BQL	1	0.05
130173-05	BYA-1	BQL	1	0.05
130173-06	W-1	BQL	1	0.05
130173-07	HD-30	BQL	1	0.05
130173-08	HD-12	BQL	1	0.05
130173-09	HD-5	BQL	1	0.05
130173-10	W-8	BQL	1	0.05

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 130173
Analyst: AN

Date Sampled: 01/14/13
Date Received: 01/14/13
Date Analyzed: 01/15/13
Sample Matrix: Water

TURBIDITY
EPA Method 180.1

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)
130173-01	BYA-9	0.56	1	0.1
130173-02	BYA-4	1.12	1	0.1
130173-03	BYA-5	0.44	1	0.1
130173-04	BYA-3	0.79	1	0.1
130173-05	BYA-1	0.16	1	0.1
130173-06	W-1	0.58	1	0.1
130173-07	HD-30	0.17	1	0.1
130173-08	HD-12	0.88	1	0.1
130173-09	HD-5	0.25	1	0.1
130173-10	W-8	0.28	1	0.1

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 130173
Analyst: AN

Date Sampled: 01/14/13
Date Received: 01/14/13
Date Analyzed: 01/15/13
Sample Matrix: Water

SETTLEABLE SOLIDS
EPA Method SM 2540 F

CAS Lab #	Sample ID	RESULTS (ml/L)	DF	PQL (ml/L)
130173-01	BYA-9	BQL	1	0.1
130173-02	BYA-4	BQL	1	0.1
130173-03	BYA-5	BQL	1	0.1
130173-04	BYA-3	BQL	1	0.1
130173-05	BYA-1	BQL	1	0.1
130173-06	W-1	BQL	1	0.1
130173-07	HD-30	BQL	1	0.1
130173-08	HD-12	BQL	1	0.1
130173-09	HD-5	BQL	1	0.1
130173-10	W-8	BQL	1	0.1

DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
Sample ID: Method Blank
CAS LAB NO: 130127-MB

Date Sampled: 01/14/13
Analyst: GM/AN

QUALITY CONTROL SECTION

WET CHEMISTRY SUMMARY

COMPOUND	RESULT	UNITS	DF	PQL	MDL	METHOD	ANALYZED
B.O.D.	ND	mg/L	1	2	0.4	5210 B	01/17/13
Sulfide (Total)	ND	mg/L	1	0.02	0.004	4500S^{2-}D	01/10/13
T.S.S.	ND	mg/L	1	5	1.0	2540 D	01/16/13
Oil & Grease	ND	mg/L	1	5	1.0	1664	01/17/13
Phenol (Total)	ND	mg/L	1	0.1	0.02	420.1	01/22/13
MBAS	ND	mg/L	1	0.1	0.02	5540 C	01/16/13
Chlorine (Total)	BQL	mg/L	1	0.05	---	4500CLG	01/14/13

B.O.D.: Biochemical Oxygen Demand
T.S.S.: Total Suspended Solids
DF: Dilution Factor

Certificate of Analysis

Notes:

The Chain of Custody document is part of the analytical report.
Any remaining sample(s) for testing will be disposed of one month from the final report date unless other arrangements are made in advance.
All results are expressed on wet weight basis unless otherwise specified.

Authorized Signature

(QA/QC Supervisor)

The results in this report apply to the samples analyzed in accordance with the chain of custody document. Capco Analytical certifies that the test results meet all requirements of ELAP unless noted in the Case Narrative. This analytical report must be reproduced in its entirety.

Legend for Abbreviations:

PQL	Practical Quantitation Limit
BQL	Below Practical Quantitation Limit
ND	NOT DETECTED at or above the Reporting Limit. If J-value reported, then NOT DETECTED at or above the Method Detection Limit (MDL).
MDL	Method Detection Limit
MRL	Method Reporting Limit
MDA	Minimum Detectable Activity
MCL	Maximum Contamination Level

CAPCO ANALYTICAL SERVICES

1536 Eastman Avenue
Ventura, CA 93003
(805) 644-1095 Fax 644-9947

CHAIN OF CUSTODY RECORD

REPORT
Fax 805-650-7010
Company Fugro Consultants
Address 4820 McGrath Street, Suite 100
Ventura,CA93003
Phone 650-7000 Contact Tim Nicely

BILL TO:
Company same
Address
Phone Contact

P.O.# 1 of 2

PROJ. NO

PROJECT NAME: Malibu-NPDES

SAMPLERS: (Signature)

CONTAINER TYPES
A = AMBER B = BRASS G = GLASS
P = PLASTIC V = VOA VIAL O = OTHER

REMARKS
130173

SAMPLE NO.	DATE SAMPLED	TIME SAMPLED	COMP	GRAB	SAMPLE DESCRIPTION	MATRIX: WATER	SOIL	SLUDGE	OTHER	CONTAINER #: #	TYPE	ANALYSIS: TSS, Setteable Solids	BOD	Oil & Grease	MBAS	Sulfide	Phenols	Residual Chlorine	Turbidity	pH	
1	1-14-13	10:26			B4A-9	x				5	P+G									6.75	23.1
2		10:45			B4A-4	x														6.94	21.7
3		11:15			B4A-5	x														6.92	21.8
4		11:25			B4A-3	x														6.74	22.1
5		11:40			B4A-1	x														6.87	21.7
6		12:00			W-1	x														6.98	19.0
7		12:15			HD-30	x														6.99	21.5
8		12:30			HD-12	x														6.92	21.3
9		12:45			HD-5	x														6.87	20.9
10		10:15			W-8	x														6.73	21.1

CHECK ONE BOX:
DISPOSE SAMPLES
RETURN SAMPLES

The undersigned hereby acknowledges having received a copy of the Fee Schedule/General Information and Conditions, the provisions of which are a part of this agreement.

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
	1-14-13 1:16				
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time		

TURN AROUND TIME

24 Hr.		5 Day	
48 Hr.		Standard	
72 Hr.		Other	

WHITE COPY CANARY COPY PINK COPY

Prepared for: Fugro Consultants
4820 McGrath Street, Suite 100
Ventura, CA 93003
Attn: Tim Nicely

Report Date: March 13, 2013
Laboratory Number: 130582
Project Name: Malibu-NPDES
Sampled by: Client

On February 18, 2013, Capco Analytical Services, Inc.(CAS), received ten(10) samples to be analyzed. The samples were identified and assigned the laboratory ID numbers listed below:

SAMPLE DESCRIPTION	CAS LAB NUMBER ID
BYA-3	130582-01
W-1	130582-02
W-8	130582-03
BYA-1	130582-04
BYA-4	130582-05
BYA-9	130582-06
BYA-5	130582-07
HD-30	130582-08
HD-12	130582-09
HD-5	130582-10

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Alin E. Repede, MS
Director - Analytical Operations

If you have any further questions or concerns, please contact me at your convenience.

This report consists of 91 pages excluding the cover letter and the Chain of Custody.

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 130582
Analyst: AN

Date Sampled: 02/18/13
Date Received: 02/18/13
Date Analyzed: 02/19/13
Sample Matrix: Water

MBAS
EPA Method SM 5540 C

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)	MDL (mg/L)
130582-01	BYA-3	ND	1	0.1	0.02
130582-02	W-1	ND	1	0.1	0.02
130582-03	W-8	ND	1	0.1	0.02
130582-04	BYA-1	ND	1	0.1	0.02
130582-05	BYA-4	ND	1	0.1	0.02
130582-06	BYA-9	ND	1	0.1	0.02
130582-07	BYA-5	ND	1	0.1	0.02
130582-08	HD-30	ND	1	0.1	0.02
130582-09	HD-12	ND	1	0.1	0.02
130582-10	HD-5	ND	1	0.1	0.02

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 130582
Analyst: AN

Date Sampled: 02/18/13
Date Received: 02/18/13
Date Analyzed: 02/25/13
Sample Matrix: Water

TOTAL PHENOL
EPA Method 420.1

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)	MDL (mg/L)
130582-01	BYA-3	ND	1	0.1	0.02
130582-02	W-1	ND	1	0.1	0.02
130582-03	W-8	ND	1	0.1	0.02
130582-04	BYA-1	ND	1	0.1	0.02
130582-05	BYA-4	ND	1	0.1	0.02
130582-06	BYA-9	ND	1	0.1	0.02
130582-07	BYA-5	ND	1	0.1	0.02
130582-08	HD-30	ND	1	0.1	0.02
130582-09	HD-12	ND	1	0.1	0.02
130582-10	HD-5	ND	1	0.1	0.02

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 130582
Analyst: AN

Date Sampled: 02/18/13
Date Received: 02/18/13
Date Analyzed: 02/18/13
Sample Matrix: Water

SETTLEABLE SOLIDS
EPA Method SM 2540 F

CAS Lab #	Sample ID	RESULTS (ml/L)	DF	PQL (ml/L)
130582-01	BYA-3	BQL	1	0.1
130582-02	W-1	BQL	1	0.1
130582-03	W-8	BQL	1	0.1
130582-04	BYA-1	BQL	1	0.1
130582-05	BYA-4	BQL	1	0.1
130582-06	BYA-9	BQL	1	0.1
130582-07	BYA-5	BQL	1	0.1
130582-08	HD-30	BQL	1	0.1
130582-09	HD-12	BQL	1	0.1
130582-10	HD-5	BQL	1	0.1

DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 130582
Analyst: AN

Date Sampled: 02/18/13
Date Received: 02/18/13
Date Analyzed: 02/19/13
Sample Matrix: Water

TURBIDITY
EPA Method 180.1

CAS Lab #	Sample ID	RESULTS (NTU)	DF	PQL (NTU)
130582-01	BYA-3	0.61	1	0.1
130582-02	W-1	0.5	1	0.1
130582-03	W-8	0.2	1	0.1
130582-04	BYA-1	0.48	1	0.1
130582-05	BYA-4	1.0	1	0.1
130582-06	BYA-9	5.8	1	0.1
130582-07	BYA-5	1.4	1	0.1
130582-08	HD-30	0.14	1	0.1
130582-09	HD-12	0.16	1	0.1
130582-10	HD-5	0.11	1	0.1

DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 130582
Analyst: AN

Date Sampled: 02/18/13
Date Received: 02/18/13
Date Analyzed: 02/19/13
Sample Matrix: Water

TOTAL SUSPENDED SOLIDS
EPA Method SM 2540 D

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)	MDL (mg/L)
130582-01	BYA-3	1.6	1	5	1
130582-02	W-1	ND	1	5	1
130582-03	W-8	ND	1	5	1
130582-04	BYA-1	ND	1	5	1
130582-05	BYA-4	1.8	1	5	1
130582-06	BYA-9	2.6	1	5	1
130582-07	BYA-5	1.2	1	5	1
130582-08	HD-30	ND	1	5	1
130582-09	HD-12	ND	1	5	1
130582-10	HD-5	ND	1	5	1

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 130582
Analyst: AN

Date Sampled: 02/18/13
Date Received: 02/18/13
Date Analyzed: 02/22/13
Sample Matrix: Water

OIL & GREASE
EPA Method 1664

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)	MDL (mg/L)
130582-01	BYA-3	ND	1	5	1
130582-02	W-1	ND	1	5	1
130582-03	W-8	ND	1	5	1
130582-04	BYA-1	ND	1	5	1
130582-05	BYA-4	ND	1	5	1
130582-06	BYA-9	ND	1	5	1
130582-07	BYA-5	ND	1	5	1
130582-08	HD-30	ND	1	5	1
130582-09	HD-12	ND	1	5	1
130582-10	HD-5	ND	1	5	1

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 130582
Analyst: AN

Date Sampled: 02/18/13
Date Received: 02/18/13
Date Analyzed: 02/19/13
Sample Matrix: Water

BIOCHEMICAL OXYGEN DEMAND
EPA Method 5210 B

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)	MDL (mg/L)
130582-01	BYA-3	ND	1	2	0.4
130582-02	W-1	ND	1	2	0.4
130582-03	W-8	ND	1	2	0.4
130582-04	BYA-1	ND	1	2	0.4
130582-05	BYA-4	ND	1	2	0.4
130582-06	BYA-9	ND	1	2	0.4
130582-07	BYA-5	ND	1	2	0.4
130582-08	HD-30	ND	1	2	0.4
130582-09	HD-12	ND	1	2	0.4
130582-10	HD-5	ND	1	2	0.4

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 130582
Analyst: AN

Date Sampled: 02/18/13
Date Received: 02/18/13
Date Analyzed: 02/21/13
Sample Matrix: Water

TOTAL SULFIDE
EPA Method SM 4500S^{2-}D

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)	MDL (mg/L)
130582-01	BYA-3	ND	1	0.02	0.004
130582-02	W-1	ND	1	0.02	0.004
130582-03	W-8	ND	1	0.02	0.004
130582-04	BYA-1	ND	1	0.02	0.004
130582-05	BYA-4	ND	1	0.02	0.004
130582-06	BYA-9	ND	1	0.02	0.004
130582-07	BYA-5	ND	1	0.02	0.004
130582-08	HD-30	ND	1	0.02	0.004
130582-09	HD-12	ND	1	0.02	0.004
130582-10	HD-5	ND	1	0.02	0.004

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 130582
Analyst: AN

Date Sampled: 02/18/13
Date Received: 02/18/13
Date Analyzed: 02/18/13
Sample Matrix: Water

TOTAL RESIDUAL CHLORINE
EPA Method SM 4500CLG

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)
130582-01	BYA-3	BQL	1	0.05
130582-02	W-1	BQL	1	0.05
130582-03	W-8	BQL	1	0.05
130582-04	BYA-1	BQL	1	0.05
130582-05	BYA-4	BQL	1	0.05
130582-06	BYA-9	BQL	1	0.05
130582-07	BYA-5	BQL	1	0.05
130582-08	HD-30	BQL	1	0.05
130582-09	HD-12	BQL	1	0.05
130582-10	HD-5	BQL	1	0.05

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
Sample ID: Method Blank
CAS LAB NO: 130582-MB

Date Sampled: 02/18/13
Analyst: GM/AN

QUALITY CONTROL SECTION

WET CHEMISTRY SUMMARY

COMPOUND	RESULT	UNITS	DF	PQL	MDL	METHOD	ANALYZED
B.O.D.	ND	mg/L	1	2	0.4	5210 B	02/19/13
Sulfide (Total)	ND	mg/L	1	0.02	0.004	4500S^{2-}D	02/21/13
T.S.S.	ND	mg/L	1	5	1.0	2540 D	02/19/13
Oil & Grease	ND	mg/L	1	5	1.0	1664	02/22/13
Phenol (Total)	ND	mg/L	1	0.1	0.02	420.1	02/25/13
MBAS	ND	mg/L	1	0.1	0.02	5540 C	02/19/13
Chlorine (Total)	BQL	mg/L	1	0.05	---	4500CLG	02/18/13

B.O.D.: Biochemical Oxygen Demand
T.S.S.: Total Suspended Solids
DF: Dilution Factor

aquatic bioassay & consulting laboratories, inc

March 12, 2013

Ms. Rosa Hernandez
CAPCO Analytical
1536 Eastman Ave., Suite B
Ventura, CA 93003

Dear Ms. Hernandez:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms EPA-821-R-02-012.* "All acceptability criteria were met and the concentration-response was normal. This is a valid test." Results were as follows:

CLIENT:	CAPCO Analytical
SAMPLE I.D.:	130582-01
DATE RECEIVED:	19 Feb - 13
ABC LAB. NO.:	CAP0213.220

96 HOUR ACUTE FATHEAD MINNOW SURVIVAL BIOASSAY

LC50	=	100 % Survival in 100% Sample
TU(a)	=	0.00

Yours very truly,

Scott Johnson
Laboratory Director

CETIS Summary Report

Test Code: CAP0213.220 | 11-5879-8475

Fathead Minnow 96-h Acute Survival Test — Aquatic Bioassay & Consulting Labs, Inc.

Batch ID:	01-4812-5772	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	19 Feb-13 15:30	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Laboratory Water
Ending Date:	23 Feb-13 13:30	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	20-1054-0410	**Code:**	CAP0213.220	**Client:**	Capco Analytical Services
Sample Date:	18 Feb-13 09:25	**Material:**	Sample Water	**Project:**	
Receive Date:	19 Feb-13 11:23	**Source:**	Bioassay Report		
Sample Age:	30h (9.7 °C)	**Station:**	130582-01		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
11-0557-1378	96h Survival Rate	100	>100	NA	5.2%	1	Wilcoxon Rank Sum Two-Sample Test

Point Estimate Summary

Analysis ID	Endpoint	Level	%	95% LCL	95% UCL	TU	Method
12-2969-0881	96h Survival Rate	EC5	>100	N/A	N/A	<1	Linear Interpolation (ICPIN)
		EC10	>100	N/A	N/A	<1	
		EC15	>100	N/A	N/A	<1	
		EC20	>100	N/A	N/A	<1	
		EC25	>100	N/A	N/A	<1	
		EC40	>100	N/A	N/A	<1	
		EC50	>100	N/A	N/A	<1	

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
11-0557-1378	96h Survival Rate	Control Resp	0.975	0.9 - NL	Yes	Passes Acceptability Criteria
12-2969-0881	96h Survival Rate	Control Resp	0.975	0.9 - NL	Yes	Passes Acceptability Criteria

96h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	4	0.975	0.8954	1	0.9	1	0.025	0.05	5.13%	0.0%
100		4	1	1	1	1	1	0	0	0.0%	-2.56%

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	1	1	1	0.9
100		1	1	1	1

96h Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	10/10	10/10	10/10	9/10
100		10/10	10/10	10/10	10/10

Analyst: ✓ QA: MAS

CETIS Analytical Report

Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	11-0557-1378	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.6
Analyzed:	06 Mar-13 12:21	**Analysis:**	Nonparametric-Two Sample	**Official Results:**	Yes
Batch ID:	01-4812-5772	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	19 Feb-13 15:30	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Laboratory Water
Ending Date:	23 Feb-13 13:30	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	20-1054-0410	**Code:**	CAP0213.220	**Client:**	Capco Analytical Services
Sample Date:	18 Feb-13 09:25	**Material:**	Sample Water	**Project:**	
Receive Date:	19 Feb-13 11:23	**Source:**	Bioassay Report		
Sample Age:	30h (9.7 °C)	**Station:**	130582-01		

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Angular (Corrected)	NA	C > T	NA	NA	5.2%	Passes 96h survival rate

Wilcoxon Rank Sum Two-Sample Test

Control	vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Negative Control		100	20	NA	1	6	1.0000	Exact	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.975	0.9 - NL	Yes	Passes Acceptability Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.003319917	0.003319917	1	1	0.3559	Non-Significant Effect
Error	0.0199195	0.003319917	6			
Total	0.02323942		7			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	1	13.75	0.3559	Equal Variances
Variances	Levene Equality of Variance	9	13.75	0.0240	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.7065	0.6451	0.0027	Non-normal Distribution
Distribution	Kolmogorov-Smirnov D	0.375	0.3313	0.0015	Non-normal Distribution
Distribution	Anderson-Darling A2 Normality	1.162	3.878	0.0049	Non-normal Distribution

96h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	4	0.975	0.8954	1	1	0.9	1	0.025	5.13%	0.0%
100		4	1	1	1	1	1	1	0	0.0%	-2.56%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Contr	4	1.371	1.242	1.501	1.412	1.249	1.412	0.04074	5.94%	0.0%
100		4	1.412	1.412	1.412	1.412	1.412	1.412	0	0.0%	-2.97%

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	1	1	1	0.9
100		1	1	1	1

Angular (Corrected) Transformed Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	1.412	1.412	1.412	1.249
100		1.412	1.412	1.412	1.412

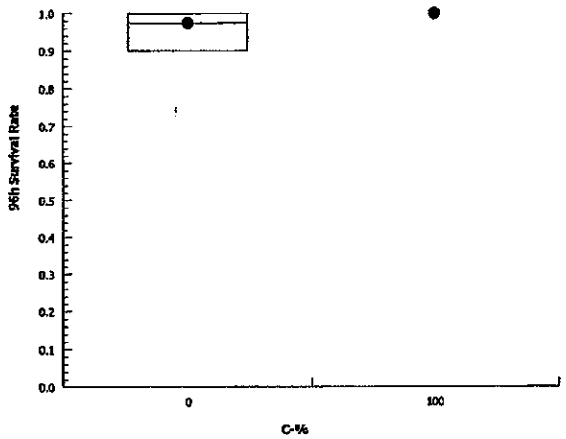
Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

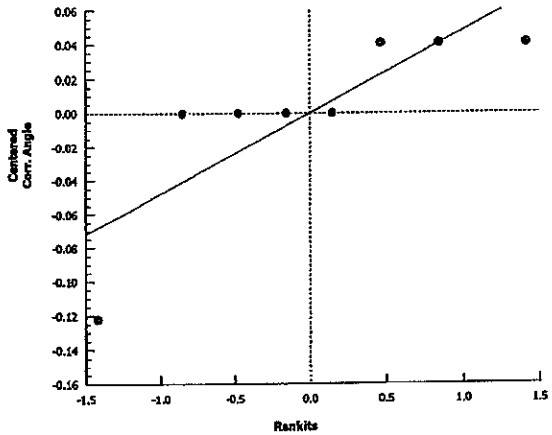
Analysis ID:	11-0557-1378	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.6
Analyzed:	06 Mar-13 12:21	**Analysis:**	Nonparametric-Two Sample	**Official Results:**	Yes

96h Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	10/10	10/10	10/10	9/10
100		10/10	10/10	10/10	10/10

Graphics





CETIS Analytical Report

Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	12-2969-0881	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.6
Analyzed:	06 Mar-13 12:21	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes
Batch ID:	01-4812-5772	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	19 Feb-13 15:30	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Laboratory Water
Ending Date:	23 Feb-13 13:30	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	20-1054-0410	**Code:**	CAP0213.220	**Client:**	Capco Analytical Services
Sample Date:	18 Feb-13 09:25	**Material:**	Sample Water	**Project:**	
Receive Date:	19 Feb-13 11:23	**Source:**	Bioassay Report		
Sample Age:	30h (9.7 °C)	**Station:**	130582-01		

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	0	280	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.975	0.9 - NL	Yes	Passes Acceptability Criteria

Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
EC5	>100	N/A	N/A	<1	NA	NA
EC10	>100	N/A	N/A	<1	NA	NA
EC15	>100	N/A	N/A	<1	NA	NA
EC20	>100	N/A	N/A	<1	NA	NA
EC25	>100	N/A	N/A	<1	NA	NA
EC40	>100	N/A	N/A	<1	NA	NA
EC50	>100	N/A	N/A	<1	NA	NA

96h Survival Rate Summary

			Calculated Variate(A/B)								
C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Negative Control	4	0.975	0.9	1	0.025	0.05	5.13%	0.0%	39	40
100		4	1	1	1	0	0	0.0%	-2.56%	40	40

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	1	1	1	0.9
100		1	1	1	1

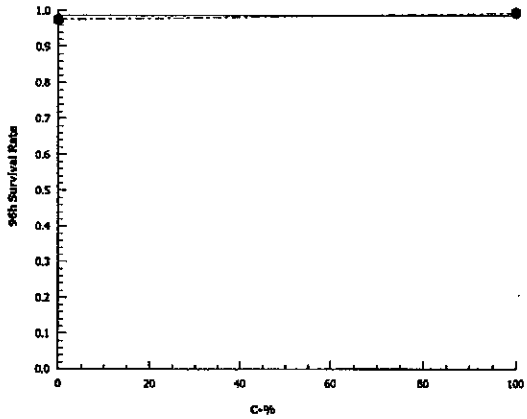
96h Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	10/10	10/10	10/10	9/10
100		10/10	10/10	10/10	10/10

Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	12-2969-0881	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.6
Analyzed:	06 Mar-13 12:21	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes

Graphics



CETIS Measurement Report

Fathead Minnow 96-h Acute Survival Test — Aquatic Bioassay & Consulting Labs, Inc.

Batch ID:	01-4812-5772	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	19 Feb-13 15:30	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Laboratory Water
Ending Date:	23 Feb-13 13:30	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	20-1054-0410	**Code:**	CAP0213.220	**Client:**	Capco Analytical Services
Sample Date:	18 Feb-13 09:25	**Material:**	Sample Water	**Project:**	
Receive Date:	19 Feb-13 11:23	**Source:**	Bioassay Report		
Sample Age:	30h (9.7 °C)	**Station:**	130582-01		

Alkalinity (CaCO3)-mg/L

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	62	62	62	62	62	0	0	0.0%	0
100		3	228	228	228	228	228	0	0	0.0%	0
Overall		6	145			62	228				0 (0%)

Conductivity-µmhos

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	341.3	322.7	360	334	349	4.333	7.506	2.2%	0
100		3	2570	2536	2604	2556	2583	7.81	13.53	0.53%	0
Overall		6	1456			334	2583				0 (0%)

Dissolved Oxygen-mg/L

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	8.433	6.35	10.52	7.9	9.4	0.4842	0.8386	9.94%	0
100		3	6.8	4.279	9.321	5.7	7.7	0.5859	1.015	14.92%	0
Overall		6	7.617			5.7	9.4				0 (0%)

Hardness (CaCO3)-mg/L

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	93	93	93	93	93	0	0	0.0%	0
100		3	710	710	710	710	710	0	0	0.0%	0
Overall		6	401.5			93	710				0 (0%)

pH-Units

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	7.967	7.208	8.726	7.7	8.3	0.1764	0.3055	3.84%	0
100		3	7.8	6.417	9.183	7.3	8.4	0.3215	0.5568	7.14%	0
Overall		6	7.883			7.3	8.4				0 (0%)

Temperature-°C

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	24	24	24	24	24	0	0	0.0%	0
100		3	24.03	23.89	24.18	24	24.1	0.03328	0.05764	0.24%	0
Overall		6	24.02			24	24.1				0 (0%)

Alkalinity (CaCO3)-mg/L

C-%	Control Type	1	2	3
0	Negative Contr	62	62	62
100		228	228	228

Conductivity-µmhos

C-%	Control Type	1	2	3
0	Negative Contr	341	349	334
100		2571	2583	2556

Dissolved Oxygen-mg/L

C-%	Control Type	1	2	3
0	Negative Contr	9.4	8	7.9
100		5.7	7	7.7

Hardness (CaCO3)-mg/L

C-%	Control Type	1	2	3
0	Negative Contr	93	93	93
100		710	710	710

pH-Units

C-%	Control Type	1	2	3
0	Negative Contr	7.9	8.3	7.7
100		7.3	7.7	8.4

Temperature-°C

C-%	Control Type	1	2	3
0	Negative Contr	24	24	24
100		24	24.1	24

aquatic bioassay & consulting laboratories, inc

March 12, 2013

Ms. Rosa Hernandez
CAPCO Analytical
1536 Eastman Ave., Suite B
Ventura, CA 93003

Dear Ms. Hernandez:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms EPA-821-R-02-012.* "All acceptability criteria were met and the concentration-response was normal. This is a valid test." Results were as follows:

CLIENT:	CAPCO Analytical
SAMPLE I.D.:	130582-02
DATE RECEIVED:	19 Feb - 13
ABC LAB. NO.:	CAP0213.221

96 HOUR ACUTE FATHEAD MINNOW SURVIVAL BIOASSAY

LC50	=	95 % Survival in 100% Sample
TU(a)	=	0.41

Yours very truly,

Scott Johnson
Laboratory Director

CETIS Summary Report

Test Code: CAP0213.221 | 06-3043-0544

Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	02-9079-1076	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	19 Feb-13 15:31	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Laboratory Water
Ending Date:	23 Feb-13 13:31	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	12-6524-8297	**Code:**	CAP0213.221	**Client:**	Capco Analytical Services
Sample Date:	18 Feb-13 09:45	**Material:**	Sample Water	**Project:**	
Receive Date:	19 Feb-13 11:23	**Source:**	Bioassay Report		
Sample Age:	30h (9.7 °C)	**Station:**	130582-02		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
10-8589-9475	96h Survival Rate	100	>100	NA	7.61%	1	Equal Variance t Two-Sample Test

Point Estimate Summary

Analysis ID	Endpoint	Level	%	95% LCL	95% UCL	TU	Method
06-5323-8522	96h Survival Rate	EC5	>100	N/A	N/A	<1	Linear Interpolation (ICPIN)
		EC10	>100	N/A	N/A	<1	
		EC15	>100	N/A	N/A	<1	
		EC20	>100	N/A	N/A	<1	
		EC25	>100	N/A	N/A	<1	
		EC40	>100	N/A	N/A	<1	
		EC50	>100	N/A	N/A	<1	

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
06-5323-8522	96h Survival Rate	Control Resp	0.975	0.9 - NL	Yes	Passes Acceptability Criteria
10-8589-9475	96h Survival Rate	Control Resp	0.975	0.9 - NL	Yes	Passes Acceptability Criteria

96h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	4	0.975	0.8954	1	0.9	1	0.025	0.05	5.13%	0.0%
100		4	0.95	0.8581	1	0.9	1	0.02887	0.05774	6.08%	2.56%

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	1	1	1	0.9
100		1	0.9	1	0.9

96h Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	10/10	10/10	10/10	9/10
100		10/10	9/10	10/10	9/10

CETIS Analytical Report

Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	10-8589-9475	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.6
Analyzed:	06 Mar-13 12:26	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes
Batch ID:	02-9079-1076	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	19 Feb-13 15:31	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Laboratory Water
Ending Date:	23 Feb-13 13:31	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	12-6524-8297	**Code:**	CAP0213.221	**Client:**	Capco Analytical Services
Sample Date:	18 Feb-13 09:45	**Material:**	Sample Water	**Project:**	
Receive Date:	19 Feb-13 11:23	**Source:**	Bioassay Report		
Sample Age:	30h (9.7 °C)	**Station:**	130582-02		

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Angular (Corrected)	NA	C > T	NA	NA	7.61%	Passes 96h survival rate

Equal Variance t Two-Sample Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Negative Control		100	0.6547	1.943	0.121	6	0.2685	CDF	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.975	0.9 - NL	Yes	Passes Acceptability Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.003319917	0.003319917	1	0.4286	0.5370	Non-Significant Effect
Error	0.04647883	0.007746472	6			
Total	0.04979875		7			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	1.333	47.47	0.8187	Equal Variances
Variances	Mod Levene Equality of Variance	1	13.75	0.3559	Equal Variances
Variances	Levene Equality of Variance	1	13.75	0.3559	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.8283	0.6451	0.0570	Normal Distribution
Distribution	Kolmogorov-Smirnov D	0.3165	0.3313	0.0179	Normal Distribution
Distribution	Anderson-Darling A2 Normality	0.7591	3.878	0.0480	Normal Distribution

96h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	4	0.975	0.8954	1	1	0.9	1	0.025	5.13%	0.0%
100		4	0.95	0.8581	1	0.95	0.9	1	0.02887	6.08%	2.56%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Contr	4	1.371	1.242	1.501	1.412	1.249	1.412	0.04074	5.94%	0.0%
100		4	1.331	1.181	1.48	1.331	1.249	1.412	0.04705	7.07%	2.97%

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	1	1	1	0.9
100		1	0.9	1	0.9

Angular (Corrected) Transformed Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	1.412	1.412	1.412	1.249
100		1.412	1.249	1.412	1.249

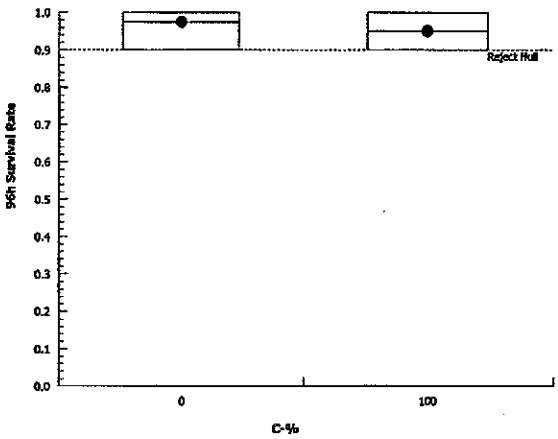
Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

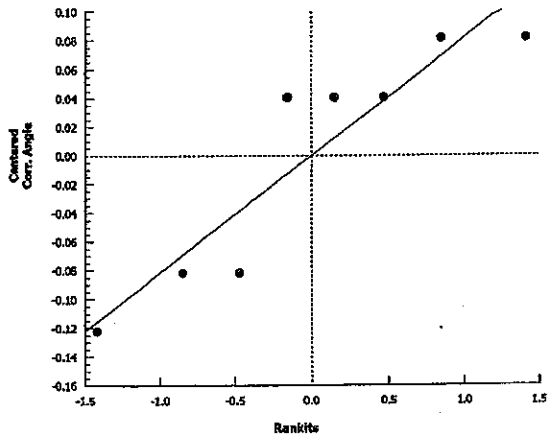
Analysis ID:	10-8589-9475	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.6
Analyzed:	06 Mar-13 12:26	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

96h Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	10/10	10/10	10/10	9/10
100		10/10	9/10	10/10	9/10

Graphics





CETIS Analytical Report

Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	06-5323-8522	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.6
Analyzed:	06 Mar-13 12:26	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes
Batch ID:	02-9079-1076	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	19 Feb-13 15:31	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Laboratory Water
Ending Date:	23 Feb-13 13:31	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	12-6524-8297	**Code:**	CAP0213.221	**Client:**	Capco Analytical Services
Sample Date:	18 Feb-13 09:45	**Material:**	Sample Water	**Project:**	
Receive Date:	19 Feb-13 11:23	**Source:**	Bioassay Report		
Sample Age:	30h (9.7 °C)	**Station:**	130582-02		

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	0	280	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.975	0.9 - NL	Yes	Passes Acceptability Criteria

Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
EC5	>100	N/A	N/A	<1	NA	NA
EC10	>100	N/A	N/A	<1	NA	NA
EC15	>100	N/A	N/A	<1	NA	NA
EC20	>100	N/A	N/A	<1	NA	NA
EC25	>100	N/A	N/A	<1	NA	NA
EC40	>100	N/A	N/A	<1	NA	NA
EC50	>100	N/A	N/A	<1	NA	NA

96h Survival Rate Summary

			Calculated Variate(A/B)								
C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Negative Control	4	0.975	0.9	1	0.025	0.05	5.13%	0.0%	39	40
100		4	0.95	0.9	1	0.02887	0.05773	6.08%	2.56%	38	40

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	1	1	1	0.9
100		1	0.9	1	0.9

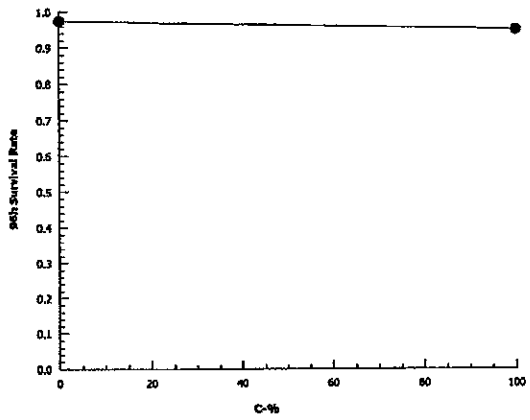
96h Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	10/10	10/10	10/10	9/10
100		10/10	9/10	10/10	9/10

Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	06-5323-8522	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.6
Analyzed:	06 Mar-13 12:26	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes

Graphics



CETIS Measurement Report

Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	02-9079-1076	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	19 Feb-13 15:31	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Laboratory Water
Ending Date:	23 Feb-13 13:31	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	12-6524-8297	**Code:**	CAP0213.221	**Client:**	Capco Analytical Services
Sample Date:	18 Feb-13 09:45	**Material:**	Sample Water	**Project:**	
Receive Date:	19 Feb-13 11:23	**Source:**	Bioassay Report		
Sample Age:	30h (9.7 °C)	**Station:**	130582-02		

Alkalinity (CaCO3)-mg/L

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	62	62	62	62	62	0	0	0.0%	0
100		3	380	380	380	380	380	0	0	0.0%	0
Overall		6	221			62	380				0 (0%)

Conductivity-µmhos

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	341.3	322.7	360	334	349	4.333	7.506	2.2%	0
100		3	2241	2069	2413	2161	2282	40	69.29	3.09%	0
Overall		6	1291			334	2282				0 (0%)

Dissolved Oxygen-mg/L

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	8.433	6.35	10.52	7.9	9.4	0.4842	0.8386	9.94%	0
100		3	8.233	7.008	9.459	7.9	8.8	0.2848	0.4933	5.99%	0
Overall		6	8.333			7.9	9.4				0 (0%)

Hardness (CaCO3)-mg/L

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	93	93	93	93	93	0	0	0.0%	0
100		3	698	698	698	698	698	0	0	0.0%	0
Overall		6	395.5			93	698				0 (0%)

pH-Units

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	7.967	7.208	8.726	7.7	8.3	0.1764	0.3055	3.84%	0
100		3	7.7	6.21	9.19	7.1	8.3	0.3464	0.6	7.79%	0
Overall		6	7.833			7.1	8.3				0 (0%)

Temperature-°C

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	24	24	24	24	24	0	0	0.0%	0
100		3	24	24	24	24	24	0	0	0.0%	0
Overall		6	24			24	24				0 (0%)

Alkalinity (CaCO3)-mg/L

C-%	Control Type	1	2	3
0	Negative Contr	62	62	62
100		380	380	380

Conductivity-µmhos

C-%	Control Type	1	2	3
0	Negative Contr	341	349	334
100		2282	2280	2161

Dissolved Oxygen-mg/L

C-%	Control Type	1	2	3
0	Negative Contr	9.4	8	7.9
100		8.8	8	7.9

Hardness (CaCO3)-mg/L

C-%	Control Type	1	2	3
0	Negative Contr	93	93	93
100		698	698	698

pH-Units

C-%	Control Type	1	2	3
0	Negative Contr	7.9	8.3	7.7
100		7.1	7.7	8.3

Temperature-°C

C-%	Control Type	1	2	3
0	Negative Contr	24	24	24
100		24	24	24

aquatic bioassay & consulting laboratories, inc

March 12, 2013

Ms. Rosa Hernandez
CAPCO Analytical
1536 Eastman Ave., Suite B
Ventura, CA 93003

Dear Ms. Hernandez:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms EPA-821-R-02-012.* "All acceptability criteria were met and the concentration-response was normal. This is a valid test." Results were as follows:

CLIENT:	CAPCO Analytical
SAMPLE I.D.:	130582-03
DATE RECEIVED:	19 Feb - 13
ABC LAB. NO.:	CAP0213.222

96 HOUR ACUTE FATHEAD MINNOW SURVIVAL BIOASSAY

LC50	=	90 % Survival in 100% Sample
TU(a)	=	0.59

Yours very truly,

Scott Johnson
Laboratory Director

CETIS Summary Report

Test Code: CAP0213.222 | 00-8392-5903

Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	11-8269-2035	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	19 Feb-13 15:32	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Laboratory Water
Ending Date:	23 Feb-13 13:32	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	06-4432-9024	**Code:**	CAP0213.222	**Client:**	Capco Analytical Services
Sample Date:	18 Feb-13 10:00	**Material:**	Sample Water	**Project:**	
Receive Date:	19 Feb-13 11:23	**Source:**	Bioassay Report		
Sample Age:	30h (9.7 °C)	**Station:**	130582-03		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
19-1152-3707	96h Survival Rate	100	>100	NA	5.2%	1	Wilcoxon Rank Sum Two-Sample Test

Point Estimate Summary

Analysis ID	Endpoint	Level	%	95% LCL	95% UCL	TU	Method
18-2365-2164	96h Survival Rate	EC5	65	41	N/A	1.538	Linear Interpolation (ICPIN)
		EC10	>100	N/A	N/A	<1	
		EC15	>100	N/A	N/A	<1	
		EC20	>100	N/A	N/A	<1	
		EC25	>100	N/A	N/A	<1	
		EC40	>100	N/A	N/A	<1	
		EC50	>100	N/A	N/A	<1	

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
18-2365-2164	96h Survival Rate	Control Resp	0.975	0.9 - NL	Yes	Passes Acceptability Criteria
19-1152-3707	96h Survival Rate	Control Resp	0.975	0.9 - NL	Yes	Passes Acceptability Criteria

96h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	4	0.975	0.8954	1	0.9	1	0.025	0.05	5.13%	0.0%
100		4	0.9	0.9	0.9	0.9	0.9	0	0	0.0%	7.69%

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	1	1	1	0.9
100		0.9	0.9	0.9	0.9

96h Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	10/10	10/10	10/10	9/10
100		9/10	9/10	9/10	9/10

CETIS Analytical Report

Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	19-1152-3707	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.6
Analyzed:	06 Mar-13 12:30	**Analysis:**	Nonparametric-Two Sample	**Official Results:**	Yes
Batch ID:	11-8269-2035	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	19 Feb-13 15:32	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Laboratory Water
Ending Date:	23 Feb-13 13:32	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	06-4432-9024	**Code:**	CAP0213.222	**Client:**	Capco Analytical Services
Sample Date:	18 Feb-13 10:00	**Material:**	Sample Water	**Project:**	
Receive Date:	19 Feb-13 11:23	**Source:**	Bioassay Report		
Sample Age:	30h (9.7 °C)	**Station:**	130582-03		

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Angular (Corrected)	NA	C > T	NA	NA	5.2%	Passes 96h survival rate

Wilcoxon Rank Sum Two-Sample Test

Control	vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Negative Control		100	12	NA	1	6	0.0714	Exact	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.975	0.9 - NL	Yes	Passes Acceptability Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.02987925	0.02987925	1	9	0.0240	Significant Effect
Error	0.0199195	0.003319917	6			
Total	0.04979875		7			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	1	13.75	0.3559	Equal Variances
Variances	Levene Equality of Variance	9	13.75	0.0240	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.7065	0.6451	0.0027	Non-normal Distribution
Distribution	Kolmogorov-Smirnov D	0.375	0.3313	0.0015	Non-normal Distribution
Distribution	Anderson-Darling A2 Normality	1.162	3.878	0.0049	Non-normal Distribution

96h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	4	0.975	0.8954	1	1	0.9	1	0.025	5.13%	0.0%
100		4	0.9	0.8998	0.9002	0.9	0.9	0.9	0	0.0%	7.69%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Contr	4	1.371	1.242	1.501	1.412	1.249	1.412	0.04074	5.94%	0.0%
100		4	1.249	1.249	1.249	1.249	1.249	1.249	0	0.0%	8.91%

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	1	1	1	0.9
100		0.9	0.9	0.9	0.9

Angular (Corrected) Transformed Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	1.412	1.412	1.412	1.249
100		1.249	1.249	1.249	1.249

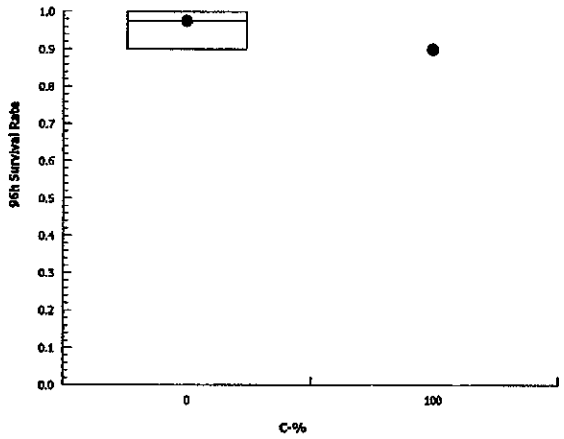
Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

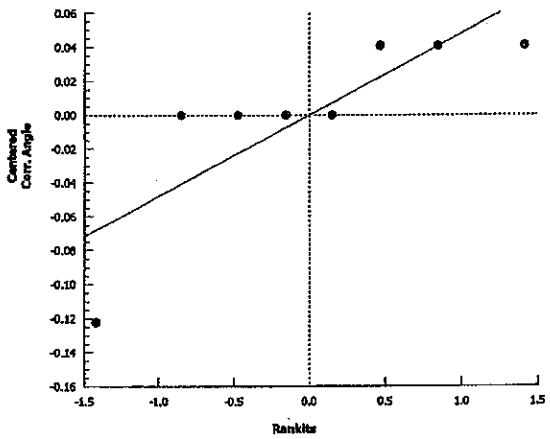
Analysis ID:	19-1152-3707	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.6
Analyzed:	06 Mar-13 12:30	**Analysis:**	Nonparametric-Two Sample	**Official Results:**	Yes

96h Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	10/10	10/10	10/10	9/10
100		9/10	9/10	9/10	9/10

Graphics





CETIS Analytical Report

Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	18-2365-2164	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.6
Analyzed:	06 Mar-13 12:30	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes
Batch ID:	11-8269-2035	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	19 Feb-13 15:32	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Laboratory Water
Ending Date:	23 Feb-13 13:32	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	06-4432-9024	**Code:**	CAP0213.222	**Client:**	Capco Analytical Services
Sample Date:	18 Feb-13 10:00	**Material:**	Sample Water	**Project:**	
Receive Date:	19 Feb-13 11:23	**Source:**	Bioassay Report		
Sample Age:	30h (9.7 °C)	**Station:**	130582-03		

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	0	280	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.975	0.9 - NL	Yes	Passes Acceptability Criteria

Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
EC5	65	41	N/A	1.538	NA	2.439
EC10	>100	N/A	N/A	<1	NA	NA
EC15	>100	N/A	N/A	<1	NA	NA
EC20	>100	N/A	N/A	<1	NA	NA
EC25	>100	N/A	N/A	<1	NA	NA
EC40	>100	N/A	N/A	<1	NA	NA
EC50	>100	N/A	N/A	<1	NA	NA

96h Survival Rate Summary

			Calculated Variate(A/B)								
C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Negative Control	4	0.975	0.9	1	0.025	0.05	5.13%	0.0%	39	40
100		4	0.9	0.9	0.9	0	0	0.0%	7.69%	36	40

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	1	1	1	0.9
100		0.9	0.9	0.9	0.9

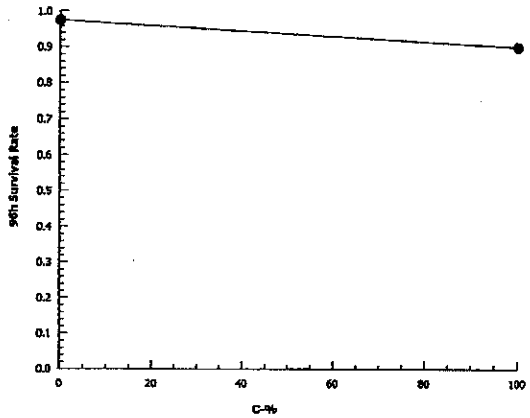
96h Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	10/10	10/10	10/10	9/10
100		9/10	9/10	9/10	9/10

Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	18-2365-2164	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.6
Analyzed:	06 Mar-13 12:30	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes

Graphics



CETIS Measurement Report

Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	11-8269-2035	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	19 Feb-13 15:32	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Laboratory Water
Ending Date:	23 Feb-13 13:32	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	06-4432-9024	**Code:**	CAP0213.222	**Client:**	Capco Analytical Services
Sample Date:	18 Feb-13 10:00	**Material:**	Sample Water	**Project:**	
Receive Date:	19 Feb-13 11:23	**Source:**	Bioassay Report		
Sample Age:	30h (9.7 °C)	**Station:**	130582-03		

Alkalinity (CaCO3)-mg/L

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	62	62	62	62	62	0	0	0.0%	0
100		3	493	493	493	493	493	0	0	0.0%	0
Overall		6	277.5			62	493				0 (0%)

Conductivity-µmhos

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	342	325.7	358.3	336	349	3.786	6.557	1.92%	0
100		3	2177	1966	2389	2079	2229	49.19	85.2	3.91%	0
Overall		6	1260			336	2229				0 (0%)

Dissolved Oxygen-mg/L

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	8.433	6.35	10.52	7.9	9.4	0.4842	0.8386	9.94%	0
100		3	6.933	5.565	8.301	6.3	7.3	0.318	0.5508	7.94%	0
Overall		6	7.683			6.3	9.4				0 (0%)

Hardness (CaCO3)-mg/L

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	93	93	93	93	93	0	0	0.0%	0
100		3	805	805	805	805	805	0	0	0.0%	0
Overall		6	449			93	805				0 (0%)

pH-Units

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	7.967	7.208	8.726	7.7	8.3	0.1764	0.3055	3.84%	0
100		3	7.333	5.816	8.851	6.8	8	0.3528	0.611	8.33%	0
Overall		6	7.65			6.8	8.3				0 (0%)

Temperature-°C

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	24	24	24	24	24	0	0	0.0%	0
100		3	24	24	24	24	24	0	0	0.0%	0
Overall		6	24			24	24				0 (0%)

Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Alkalinity (CaCO3)-mg/L

C-%	Control Type	1	2	3
0	Negative Contr	62	62	62
100		493	493	493

Conductivity-µmhos

C-%	Control Type	1	2	3
0	Negative Contr	341	349	336
100		2229	2224	2079

Dissolved Oxygen-mg/L

C-%	Control Type	1	2	3
0	Negative Contr	9.4	8	7.9
100		6.3	7.3	7.2

Hardness (CaCO3)-mg/L

C-%	Control Type	1	2	3
0	Negative Contr	93	93	93
100		805	805	805

pH-Units

C-%	Control Type	1	2	3
0	Negative Contr	7.9	8.3	7.7
100		6.8	7.2	8

Temperature-°C

C-%	Control Type	1	2	3
0	Negative Contr	24	24	24
100		24	24	24

aquatic bioassay & consulting laboratories, inc

March 12, 2013

Ms. Rosa Hernandez
CAPCO Analytical
1536 Eastman Ave., Suite B
Ventura, CA 93003

Dear Ms. Hernandez:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms EPA-821-R-02-012.* "All acceptability criteria were met and the concentration-response was normal. This is a valid test." Results were as follows:

CLIENT:	CAPCO Analytical
SAMPLE I.D.:	130582-04
DATE RECEIVED:	19 Feb - 13
ABC LAB. NO.:	CAP0213.223

96 HOUR ACUTE FATHEAD MINNOW SURVIVAL BIOASSAY

LC50	=	90 % Survival in 100% Sample
TU(a)	=	0.59

Yours very truly,

Scott Johnson
Laboratory Director

CETIS Summary Report

Test Code: CAP0213.223 | 04-7519-6959

Fathead Minnow 96-h Acute Survival Test — Aquatic Bioassay & Consulting Labs, Inc.

Batch ID:	08-7006-4404	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	19 Feb-13 15:33	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Laboratory Water
Ending Date:	23 Feb-13 13:33	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	03-9955-6038	**Code:**	CAP0213.223	**Client:**	Capco Analytical Services
Sample Date:	18 Feb-13 10:30	**Material:**	Sample Water	**Project:**	
Receive Date:	19 Feb-13 11:23	**Source:**	Bioassay Report		
Sample Age:	29h (9.7 °C)	**Station:**	130582-04		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
20-1748-2646	96h Survival Rate	100	>100	NA	12.1%	1	Equal Variance t Two-Sample Test

Point Estimate Summary

Analysis ID	Endpoint	Level	%	95% LCL	95% UCL	TU	Method
04-7831-4530	96h Survival Rate	EC5	65	1	N/A	1.538	Linear Interpolation (ICPIN)
		EC10	>100	N/A	N/A	<1	
		EC15	>100	N/A	N/A	<1	
		EC20	>100	N/A	N/A	<1	
		EC25	>100	N/A	N/A	<1	
		EC40	>100	N/A	N/A	<1	
		EC50	>100	N/A	N/A	<1	

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
04-7831-4530	96h Survival Rate	Control Resp	0.975	0.9 - NL	Yes	Passes Acceptability Criteria
20-1748-2646	96h Survival Rate	Control Resp	0.975	0.9 - NL	Yes	Passes Acceptability Criteria

96h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	4	0.975	0.8954	1	0.9	1	0.025	0.05	5.13%	0.0%
100		4	0.9	0.7163	1	0.8	1	0.05774	0.1155	12.83%	7.69%

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	1	0.9	1	1
100		1	0.8	1	0.8

96h Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	10/10	9/10	10/10	10/10
100		10/10	8/10	10/10	8/10

CETIS Analytical Report

Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	20-1748-2646	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.6
Analyzed:	06 Mar-13 12:33	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes
Batch ID:	08-7006-4404	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	19 Feb-13 15:33	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Laboratory Water
Ending Date:	23 Feb-13 13:33	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	03-9955-6038	**Code:**	CAP0213.223	**Client:**	Capco Analytical Services
Sample Date:	18 Feb-13 10:30	**Material:**	Sample Water	**Project:**	
Receive Date:	19 Feb-13 11:23	**Source:**	Bioassay Report		
Sample Age:	29h (9.7 °C)	**Station:**	130582-04		

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Angular (Corrected)	NA	C > T	NA	NA	12.1%	Passes 96h survival rate

Equal Variance t Two-Sample Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Negative Control		100	1.152	1.943	0.189	6	0.1466	CDF	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.975	0.9 - NL	Yes	Passes Acceptability Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.02494981	0.02494981	1	1.326	0.2933	Non-Significant Effect
Error	0.1128636	0.0188106	6			
Total	0.1378134		7			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	4.666	47.47	0.2380	Equal Variances
Variances	Mod Levene Equality of Variance	7.515	13.75	0.0337	Equal Variances
Variances	Levene Equality of Variance	20.1	13.75	0.0042	Unequal Variances
Distribution	Shapiro-Wilk W Normality	0.8483	0.6451	0.0917	Normal Distribution
Distribution	Kolmogorov-Smirnov D	0.2508	0.3313	0.1562	Normal Distribution
Distribution	Anderson-Darling A2 Normality	0.6083	3.878	0.1148	Normal Distribution

96h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	4	0.975	0.8954	1	1	0.9	1	0.025	5.13%	0.0%
100		4	0.9	0.7163	1	0.9	0.8	1	0.05774	12.83%	7.69%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Contr	4	1.371	1.242	1.501	1.412	1.249	1.412	0.04074	5.94%	0.0%
100		4	1.26	0.9795	1.54	1.26	1.107	1.412	0.08801	13.97%	8.15%

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	1	0.9	1	1
100		1	0.8	1	0.8

Angular (Corrected) Transformed Detail

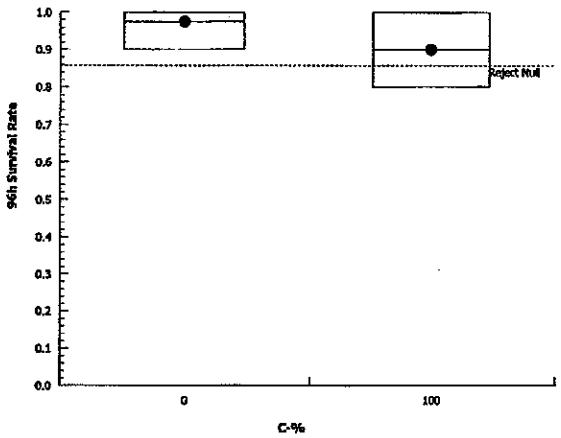
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	1.412	1.249	1.412	1.412
100		1.412	1.107	1.412	1.107

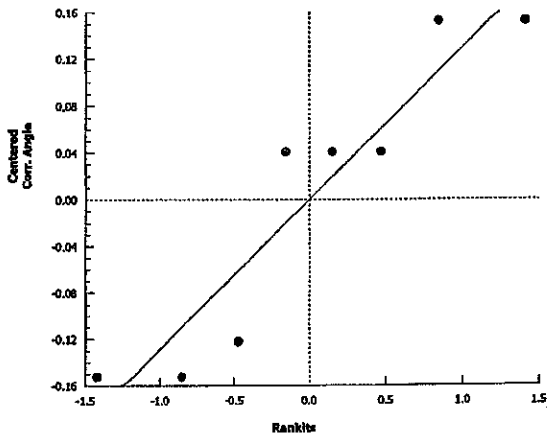
Analysis ID:	20-1748-2646	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.6
Analyzed:	06 Mar-13 12:33	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

96h Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	10/10	9/10	10/10	10/10
100		10/10	8/10	10/10	8/10

Graphics





CETIS Analytical Report

Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	04-7831-4530	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.6
Analyzed:	06 Mar-13 12:33	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes
Batch ID:	08-7006-4404	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	19 Feb-13 15:33	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Laboratory Water
Ending Date:	23 Feb-13 13:33	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	03-9955-6038	**Code:**	CAP0213.223	**Client:**	Capco Analytical Services
Sample Date:	18 Feb-13 10:30	**Material:**	Sample Water	**Project:**	
Receive Date:	19 Feb-13 11:23	**Source:**	Bioassay Report		
Sample Age:	29h (9.7 °C)	**Station:**	130582-04		

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	0	280	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.975	0.9 - NL	Yes	Passes Acceptability Criteria

Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
EC5	65	1	N/A	1.538	NA	100
EC10	>100	N/A	N/A	<1	NA	NA
EC15	>100	N/A	N/A	<1	NA	NA
EC20	>100	N/A	N/A	<1	NA	NA
EC25	>100	N/A	N/A	<1	NA	NA
EC40	>100	N/A	N/A	<1	NA	NA
EC50	>100	N/A	N/A	<1	NA	NA

96h Survival Rate Summary

			Calculated Variate(A/B)								
C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Negative Control	4	0.975	0.9	1	0.025	0.05	5.13%	0.0%	39	40
100		4	0.9	0.8	1	0.05774	0.1155	12.83%	7.69%	36	40

96h Survival Rate Detail

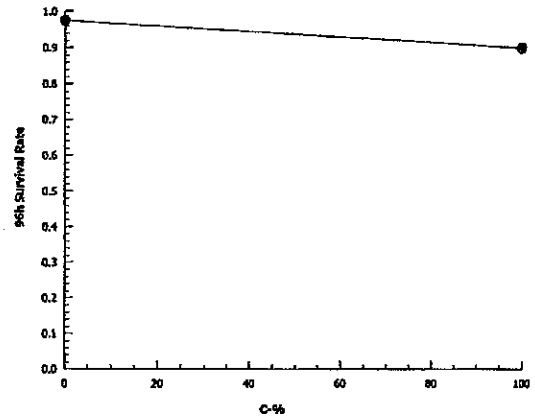
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	1	0.9	1	1
100		1	0.8	1	0.8

96h Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	10/10	9/10	10/10	10/10
100		10/10	8/10	10/10	8/10

Analysis ID:	04-7831-4530	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.6
Analyzed:	06 Mar-13 12:33	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes

Graphics



CETIS Measurement Report

Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	08-7006-4404	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	19 Feb-13 15:33	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Laboratory Water
Ending Date:	23 Feb-13 13:33	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	03-9955-6038	**Code:**	CAP0213.223	**Client:**	Capco Analytical Services
Sample Date:	18 Feb-13 10:30	**Material:**	Sample Water	**Project:**	
Receive Date:	19 Feb-13 11:23	**Source:**	Bioassay Report		
Sample Age:	29h (9.7 °C)	**Station:**	130582-04		

Alkalinity (CaCO3)-mg/L

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	62	62	62	62	62	0	0	0.0%	0
100		3	459	459	459	459	459	0	0	0.0%	0
Overall		6	260.5			62	459				0 (0%)

Conductivity-µmhos

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	341.3	322.7	360	334	349	4.333	7.506	2.2%	0
100		3	2589	2472	2706	2535	2617	27.17	47.06	1.82%	0
Overall		6	1465			334	2617				0 (0%)

Dissolved Oxygen-mg/L

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	8.433	6.35	10.52	7.9	9.4	0.4842	0.8386	9.94%	0
100		3	6.167	4.37	7.964	5.7	7	0.4177	0.7234	11.73%	0
Overall		6	7.3			5.7	9.4				0 (0%)

Hardness (CaCO3)-mg/L

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	93	93	93	93	93	0	0	0.0%	0
100		3	1140	1140	1140	1140	1140	0	0	0.0%	0
Overall		6	616.5			93	1140				0 (0%)

pH-Units

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	7.967	7.208	8.726	7.7	8.3	0.1764	0.3055	3.84%	0
100		3	7.233	5.778	8.689	6.8	7.9	0.3383	0.5859	8.1%	0
Overall		6	7.6			6.8	8.3				0 (0%)

Temperature-°C

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	24	24	24	24	24	0	0	0.0%	0
100		3	24	24	24	24	24	0	0	0.0%	0
Overall		6	24			24	24				0 (0%)

Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Alkalinity (CaCO3)-mg/L

C-%	Control Type	1	2	3
0	Negative Contr	62	62	62
100		459	459	459

Conductivity-µmhos

C-%	Control Type	1	2	3
0	Negative Contr	341	349	334
100		2616	2617	2535

Dissolved Oxygen-mg/L

C-%	Control Type	1	2	3
0	Negative Contr	9.4	8	7.9
100		5.7	5.8	7

Hardness (CaCO3)-mg/L

C-%	Control Type	1	2	3
0	Negative Contr	93	93	93
100		1140	1140	1140

pH-Units

C-%	Control Type	1	2	3
0	Negative Contr	7.9	8.3	7.7
100		6.8	7	7.9

Temperature-°C

C-%	Control Type	1	2	3
0	Negative Contr	24	24	24
100		24	24	24

aquatic bioassay & consulting laboratories, inc

March 12, 2013

Ms. Rosa Hernandez
CAPCO Analytical
1536 Eastman Ave., Suite B
Ventura, CA 93003

Dear Ms. Hernandez:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms EPA-821-R-02-012.* "All acceptability criteria were met and the concentration-response was normal. This is a valid test." Results were as follows:

CLIENT:	CAPCO Analytical
SAMPLE I.D.:	130582-05
DATE RECEIVED:	19 Feb - 13
ABC LAB. NO.:	CAP0213.224

96 HOUR ACUTE FATHEAD MINNOW SURVIVAL BIOASSAY

LC50	=	100 % Survival in 100% Sample
TU(a)	=	0.00

Yours very truly,

Scott Johnson
Laboratory Director

CETIS Summary Report

Report Date: 06 Mar-13 12:36 (p 1 of 1)
Test Code: CAP0213.224 | 18-1398-0780

Fathead Minnow 96-h Acute Survival Test — Aquatic Bioassay & Consulting Labs, Inc.

Batch ID:	14-1504-9267	Test Type:	Survival (96h)	Analyst:	
Start Date:	19 Feb-13 15:34	Protocol:	EPA/821/R-02-012 (2002)	Diluent:	Laboratory Water
Ending Date:	23 Feb-13 13:34	Species:	Pimephales promelas	Brine:	Not Applicable
Duration:	94h	Source:	Aquatic Biosystems, CO	Age:	
Sample ID:	01-2162-6767	Code:	CAP0213.224	Client:	Capco Analytical Services
Sample Date:	18 Feb-13 11:00	Material:	Sample Water	Project:	
Receive Date:	19 Feb-13 11:23	Source:	Bioassay Report		
Sample Age:	29h (9.7 °C)	Station:	130582-05		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
18-9160-4555	96h Survival Rate	100	>100	NA	5.2%	1	Wilcoxon Rank Sum Two-Sample Test

Point Estimate Summary

Analysis ID	Endpoint	Level	%	95% LCL	95% UCL	TU	Method
10-0909-7829	96h Survival Rate	EC5	>100	N/A	N/A	<1	Linear Interpolation (ICPIN)
		EC10	>100	N/A	N/A	<1	
		EC15	>100	N/A	N/A	<1	
		EC20	>100	N/A	N/A	<1	
		EC25	>100	N/A	N/A	<1	
		EC40	>100	N/A	N/A	<1	
		EC50	>100	N/A	N/A	<1	

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
10-0909-7829	96h Survival Rate	Control Resp	0.975	0.9 - NL	Yes	Passes Acceptability Criteria
18-9160-4555	96h Survival Rate	Control Resp	0.975	0.9 - NL	Yes	Passes Acceptability Criteria

96h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	4	0.975	0.8954	1	0.9	1	0.025	0.05	5.13%	0.0%
100		4	1	1	1	1	1	0	0	0.0%	-2.56%

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	1	0.9	1	1
100		1	1	1	1

96h Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	10/10	9/10	10/10	10/10
100		10/10	10/10	10/10	10/10

CETIS Analytical Report

Test Code: CAP0213.224 | 18-1398-0780

Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	18-9160-4555	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.6
Analyzed:	06 Mar-13 12:36	**Analysis:**	Nonparametric-Two Sample	**Official Results:**	Yes
Batch ID:	14-1504-9267	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	19 Feb-13 15:34	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Laboratory Water
Ending Date:	23 Feb-13 13:34	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	01-2162-6767	**Code:**	CAP0213.224	**Client:**	Capco Analytical Services
Sample Date:	18 Feb-13 11:00	**Material:**	Sample Water	**Project:**	
Receive Date:	19 Feb-13 11:23	**Source:**	Bioassay Report		
Sample Age:	29h (9.7 °C)	**Station:**	130582-05		

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Angular (Corrected)	NA	C > T	NA	NA	5.2%	Passes 96h survival rate

Wilcoxon Rank Sum Two-Sample Test

Control	vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Negative Control		100	20	NA	1	6	1.0000	Exact	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.975	0.9 - NL	Yes	Passes Acceptability Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.003319917	0.003319917	1	1	0.3559	Non-Significant Effect
Error	0.0199195	0.003319917	6			
Total	0.02323942		7			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	1	13.75	0.3559	Equal Variances
Variances	Levene Equality of Variance	9	13.75	0.0240	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.7065	0.6451	0.0027	Non-normal Distribution
Distribution	Kolmogorov-Smirnov D	0.375	0.3313	0.0015	Non-normal Distribution
Distribution	Anderson-Darling A2 Normality	1.162	3.878	0.0049	Non-normal Distribution

96h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	4	0.975	0.8954	1	1	0.9	1	0.025	5.13%	0.0%
100		4	1	1	1	1	1	1	0	0.0%	-2.56%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Contr	4	1.371	1.242	1.501	1.412	1.249	1.412	0.04074	5.94%	0.0%
100		4	1.412	1.412	1.412	1.412	1.412	1.412	0	0.0%	-2.97%

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	1	0.9	1	1
100		1	1	1	1

Angular (Corrected) Transformed Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	1.412	1.249	1.412	1.412
100		1.412	1.412	1.412	1.412

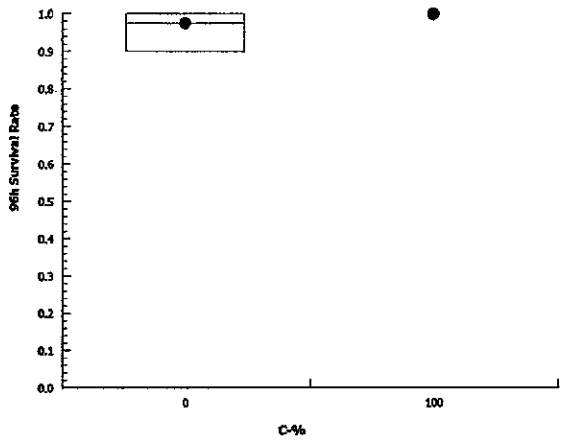
Analyst: _____ QA _____

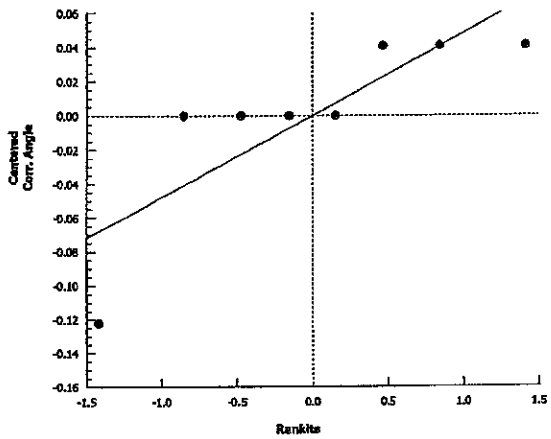
Analysis ID:	18-9160-4555	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.6
Analyzed:	06 Mar-13 12:36	**Analysis:**	Nonparametric-Two Sample	**Official Results:**	Yes

96h Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	10/10	9/10	10/10	10/10
100		10/10	10/10	10/10	10/10

Graphics





CETIS Analytical Report

Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	10-0909-7829	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.6
Analyzed:	06 Mar-13 12:36	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes
Batch ID:	14-1504-9267	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	19 Feb-13 15:34	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Laboratory Water
Ending Date:	23 Feb-13 13:34	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	01-2162-6767	**Code:**	CAP0213.224	**Client:**	Capco Analytical Services
Sample Date:	18 Feb-13 11:00	**Material:**	Sample Water	**Project:**	
Receive Date:	19 Feb-13 11:23	**Source:**	Bioassay Report		
Sample Age:	29h (9.7 °C)	**Station:**	130582-05		

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	0	280	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.975	0.9 - NL	Yes	Passes Acceptability Criteria

Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
EC5	>100	N/A	N/A	<1	NA	NA
EC10	>100	N/A	N/A	<1	NA	NA
EC15	>100	N/A	N/A	<1	NA	NA
EC20	>100	N/A	N/A	<1	NA	NA
EC25	>100	N/A	N/A	<1	NA	NA
EC40	>100	N/A	N/A	<1	NA	NA
EC50	>100	N/A	N/A	<1	NA	NA

96h Survival Rate Summary

			Calculated Variate(A/B)								
C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Negative Control	4	0.975	0.9	1	0.025	0.05	5.13%	0.0%	39	40
100		4	1	1	1	0	0	0.0%	-2.56%	40	40

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	1	0.9	1	1
100		1	1	1	1

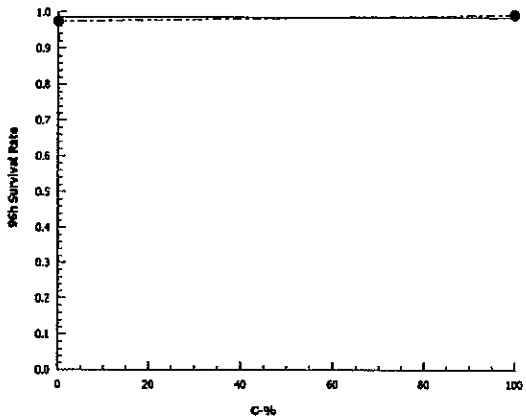
96h Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	10/10	9/10	10/10	10/10
100		10/10	10/10	10/10	10/10

Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	10-0909-7829	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.6
Analyzed:	06 Mar-13 12:36	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes

Graphics



CETIS Measurement Report

Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	14-1504-9267	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	19 Feb-13 15:34	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Laboratory Water
Ending Date:	23 Feb-13 13:34	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	01-2162-6767	**Code:**	CAP0213.224	**Client:**	Capco Analytical Services
Sample Date:	18 Feb-13 11:00	**Material:**	Sample Water	**Project:**	
Receive Date:	19 Feb-13 11:23	**Source:**	Bioassay Report		
Sample Age:	29h (9.7 °C)	**Station:**	130582-05		

Alkalinity (CaCO3)-mg/L

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	62	62	62	62	62	0	0	0.0%	0
100		3	251	251	251	251	251	0	0	0.0%	0
Overall		6	156.5			62	251				0 (0%)

Conductivity-µmhos

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	341.3	322.7	360	334	349	4.333	7.506	2.2%	0
100		3	2314	2273	2355	2296	2328	9.528	16.5	0.71%	0
Overall		6	1328			334	2328				0 (0%)

Dissolved Oxygen-mg/L

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	8.433	6.35	10.52	7.9	9.4	0.4842	0.8386	9.94%	0
100		3	7.033	4.921	9.146	6.2	7.9	0.491	0.8505	12.09%	0
Overall		6	7.733			6.2	9.4				0 (0%)

Hardness (CaCO3)-mg/L

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	93	93	93	93	93	0	0	0.0%	0
100		3	708	708	708	708	708	0	0	0.0%	0
Overall		6	400.5			93	708				0 (0%)

pH-Units

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	7.967	7.208	8.726	7.7	8.3	0.1764	0.3055	3.84%	0
100		3	7.7	5.961	9.439	7	8.4	0.4041	0.7	9.09%	0
Overall		6	7.833			7	8.4				0 (0%)

Temperature-°C

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	24	24	24	24	24	0	0	0.0%	0
100		3	24	24	24	24	24	0	0	0.0%	0
Overall		6	24			24	24				0 (0%)

Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Alkalinity (CaCO3)-mg/L

C-%	Control Type	1	2	3
0	Negative Contr	62	62	62
100		251	251	251

Conductivity-µmhos

C-%	Control Type	1	2	3
0	Negative Contr	341	349	334
100		2319	2328	2296

Dissolved Oxygen-mg/L

C-%	Control Type	1	2	3
0	Negative Contr	9.4	8	7.9
100		6.2	7	7.9

Hardness (CaCO3)-mg/L

C-%	Control Type	1	2	3
0	Negative Contr	93	93	93
100		708	708	708

pH-Units

C-%	Control Type	1	2	3
0	Negative Contr	7.9	8.3	7.7
100		7	7.7	8.4

Temperature-°C

C-%	Control Type	1	2	3
0	Negative Contr	24	24	24
100		24	24	24

aquatic bioassay & consulting laboratories, inc

March 12, 2013

Ms. Rosa Hernandez
CAPCO Analytical
1536 Eastman Ave., Suite B
Ventura, CA 93003

Dear Ms. Hernandez:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms EPA-821-R-02-012.* "All acceptability criteria were met and the concentration-response was normal. This is a valid test." Results were as follows:

CLIENT:	CAPCO Analytical
SAMPLE I.D.:	130582-06
DATE RECEIVED:	19 Feb - 13
ABC LAB. NO.:	CAP0213.225

96 HOUR ACUTE FATHEAD MINNOW SURVIVAL BIOASSAY

LC50	=	85 % Survival in 100% Sample
TU(a)	=	0.69

Yours very truly,

Scott Johnson
Laboratory Director

aquatic bioassay & consulting laboratories, inc

March 12, 2013

Ms. Rosa Hernandez
CAPCO Analytical
1536 Eastman Ave., Suite B
Ventura, CA 93003

Dear Ms. Hernandez:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms EPA-821-R-02-012.* "All acceptability criteria were met and the concentration-response was normal. This is a valid test." Results were as follows:

CLIENT:	CAPCO Analytical
SAMPLE I.D.:	130582-06
DATE RECEIVED:	19 Feb - 13
ABC LAB. NO.:	CAP0213.225

48 HOUR ACUTE FATHEAD MINNOW SURVIVAL BIOASSAY

LC50	=	90 % Survival in 100% Sample
TU(a)	=	0.59

Yours very truly,

Scott Johnson
Laboratory Director

CETIS Summary Report

Fathead Minnow 96-h Acute Survival Test — Aquatic Bioassay & Consulting Labs, Inc.

Batch ID:	17-1369-4574	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	19 Feb-13 15:35	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Laboratory Water
Ending Date:	23 Feb-13 13:35	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	05-7126-1153	**Code:**	CAP0213.225	**Client:**	Capco Analytical Services
Sample Date:	18 Feb-13 11:45	**Material:**	Sample Water	**Project:**	
Receive Date:	19 Feb-13 11:23	**Source:**	Bioassay Report		
Sample Age:	28h (9.7 °C)	**Station:**	130582-06		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
04-9636-5937	96h Survival Rate	100	>100	NA	16.7%	1	Equal Variance t Two-Sample Test

Point Estimate Summary

Analysis ID	Endpoint	Level	%	95% LCL	95% UCL	TU	Method
12-7062-4283	96h Survival Rate	EC5	39	7	N/A	2.564	Linear Interpolation (ICPIN)
		EC10	78	14	N/A	1.282	
		EC15	>100	N/A	N/A	<1	
		EC20	>100	N/A	N/A	<1	
		EC25	>100	N/A	N/A	<1	
		EC40	>100	N/A	N/A	<1	
		EC50	>100	N/A	N/A	<1	

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
04-9636-5937	96h Survival Rate	Control Resp	0.975	0.9 - NL	Yes	Passes Acceptability Criteria
12-7062-4283	96h Survival Rate	Control Resp	0.975	0.9 - NL	Yes	Passes Acceptability Criteria

96h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	4	0.975	0.8954	1	0.9	1	0.025	0.05	5.13%	0.0%
100		4	0.85	0.5744	1	0.7	1	0.0866	0.1732	20.38%	12.82%

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	1	0.9	1	1
100		0.7	1	0.7	1

96h Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	10/10	9/10	10/10	10/10
100		7/10	10/10	7/10	10/10

CETIS Analytical Report

Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	04-9636-5937	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.6
Analyzed:	06 Mar-13 13:59	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes
Batch ID:	17-1369-4574	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	19 Feb-13 15:35	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Laboratory Water
Ending Date:	23 Feb-13 13:35	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	05-7126-1153	**Code:**	CAP0213.225	**Client:**	Capco Analytical Services
Sample Date:	18 Feb-13 11:45	**Material:**	Sample Water	**Project:**	
Receive Date:	19 Feb-13 11:23	**Source:**	Bioassay Report		
Sample Age:	28h (9.7 °C)	**Station:**	130582-06		

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Angular (Corrected)	NA	C > T	NA	NA	16.7%	Passes 96h survival rate

Equal Variance t Two-Sample Test

Control	vs	C-%	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision(α:5%)
Negative Control		100	1.324	1.943	0.249	6	0.1168	CDF	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.975	0.9 - NL	Yes	Passes Acceptability Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.05758748	0.05758748	1	1.754	0.2336	Non-Significant Effect
Error	0.1970422	0.03284037	6			
Total	0.2546297		7			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	8.892	47.47	0.1058	Equal Variances
Variances	Mod Levene Equality of Variance	17.35	13.75	0.0059	Unequal Variances
Variances	Levene Equality of Variance	53.72	13.75	0.0003	Unequal Variances
Distribution	Shapiro-Wilk W Normality	0.8795	0.6451	0.1865	Normal Distribution
Distribution	Kolmogorov-Smirnov D	0.2209	0.3313	0.3381	Normal Distribution
Distribution	Anderson-Darling A2 Normality	0.4785	3.878	0.2397	Normal Distribution

96h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	4	0.975	0.8954	1	1	0.9	1	0.025	5.13%	0.0%
100		4	0.85	0.5744	1	0.85	0.7	1	0.0866	20.38%	12.82%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Contr	4	1.371	1.242	1.501	1.412	1.249	1.412	0.04074	5.94%	0.0%
100		4	1.202	0.8149	1.588	1.202	0.9912	1.412	0.1215	20.22%	12.37%

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	1	0.9	1	1
100		0.7	1	0.7	1

Angular (Corrected) Transformed Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	1.412	1.249	1.412	1.412
100		0.9912	1.412	0.9912	1.412

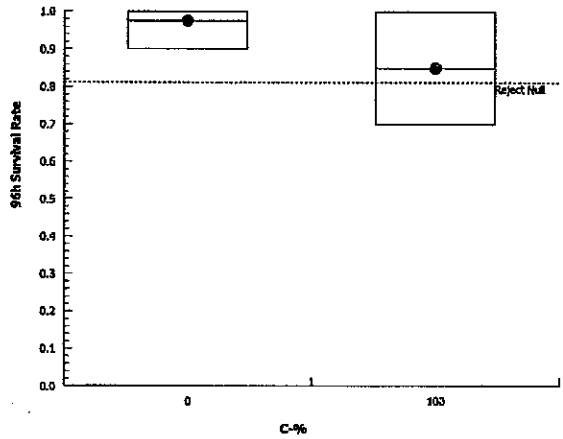
Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

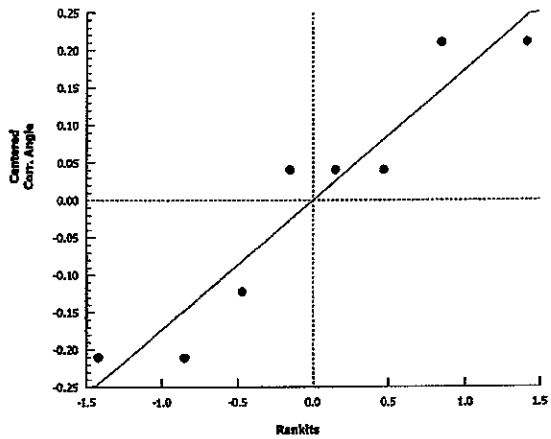
Analysis ID:	04-9636-5937	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.6
Analyzed:	06 Mar-13 13:59	**Analysis:**	Parametric-Two Sample	**Official Results:**	Yes

96h Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	10/10	9/10	10/10	10/10
100		7/10	10/10	7/10	10/10

Graphics





CETIS Analytical Report

Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	12-7062-4283	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.6
Analyzed:	06 Mar-13 14:00	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes
Batch ID:	17-1369-4574	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	19 Feb-13 15:35	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Laboratory Water
Ending Date:	23 Feb-13 13:35	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	05-7126-1153	**Code:**	CAP0213.225	**Client:**	Capco Analytical Services
Sample Date:	18 Feb-13 11:45	**Material:**	Sample Water	**Project:**	
Receive Date:	19 Feb-13 11:23	**Source:**	Bioassay Report		
Sample Age:	28h (9.7 °C)	**Station:**	130582-06		

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	0	280	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.975	0.9 - NL	Yes	Passes Acceptability Criteria

Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
EC5	39	7	N/A	2.564	NA	14.29
EC10	78	14	N/A	1.282	NA	7.143
EC15	>100	N/A	N/A	<1	NA	NA
EC20	>100	N/A	N/A	<1	NA	NA
EC25	>100	N/A	N/A	<1	NA	NA
EC40	>100	N/A	N/A	<1	NA	NA
EC50	>100	N/A	N/A	<1	NA	NA

96h Survival Rate Summary

			Calculated Variate(A/B)								
C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Negative Control	4	0.975	0.9	1	0.025	0.05	5.13%	0.0%	39	40
100		4	0.85	0.7	1	0.0866	0.1732	20.38%	12.82%	34	40

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	1	0.9	1	1
100		0.7	1	0.7	1

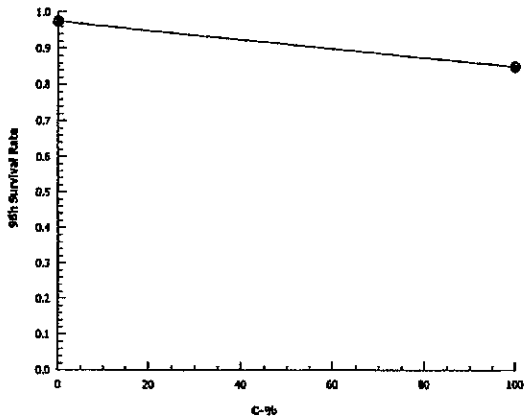
96h Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	10/10	9/10	10/10	10/10
100		7/10	10/10	7/10	10/10

Fathead Minnow 96-h Acute Survival Test Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID:	12-7062-4283	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.6
Analyzed:	06 Mar-13 14:00	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes

Graphics



CETIS Measurement Report

Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	17-1369-4574	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	19 Feb-13 15:35	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Laboratory Water
Ending Date:	23 Feb-13 13:35	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	05-7126-1153	**Code:**	CAP0213.225	**Client:**	Capco Analytical Services
Sample Date:	18 Feb-13 11:45	**Material:**	Sample Water	**Project:**	
Receive Date:	19 Feb-13 11:23	**Source:**	Bioassay Report		
Sample Age:	28h (9.7 °C)	**Station:**	130582-06		

Alkalinity (CaCO3)-mg/L

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	62	62	62	62	62	0	0	0.0%	0
100		3	453	453	453	453	453	0	0	0.0%	0
Overall		6	257.5			62	453				0 (0%)

Conductivity-µmhos

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	341.3	322.7	360	334	349	4.333	7.506	2.2%	0
100		3	2520	2502	2538	2514	2528	4.163	7.211	0.29%	0
Overall		6	1431			334	2528				0 (0%)

Dissolved Oxygen-mg/L

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	8.433	6.35	10.52	7.9	9.4	0.4842	0.8386	9.94%	0
100		3	6.5	5.01	7.99	5.9	7.1	0.3464	0.6	9.23%	0
Overall		6	7.467			5.9	9.4				0 (0%)

Hardness (CaCO3)-mg/L

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	93	93	93	93	93	0	0	0.0%	0
100		3	1137	1137	1137	1137	1137	0	0	0.0%	0
Overall		6	615			93	1137				0 (0%)

pH-Units

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	7.967	7.208	8.726	7.7	8.3	0.1764	0.3055	3.84%	0
100		3	7.433	5.936	8.931	6.8	8	0.348	0.6028	8.11%	0
Overall		6	7.7			6.8	8.3				0 (0%)

Temperature-°C

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	24	24	24	24	24	0	0	0.0%	0
100		3	24	24	24	24	24	0	0	0.0%	0
Overall		6	24			24	24				0 (0%)

Alkalinity (CaCO3)-mg/L

C-%	Control Type	1	2	3
0	Negative Contr	62	62	62
100		453	453	453

Conductivity-µmhos

C-%	Control Type	1	2	3
0	Negative Contr	341	349	334
100		2518	2528	2514

Dissolved Oxygen-mg/L

C-%	Control Type	1	2	3
0	Negative Contr	9.4	8	7.9
100		5.9	6.5	7.1

Hardness (CaCO3)-mg/L

C-%	Control Type	1	2	3
0	Negative Contr	93	93	93
100		1137	1137	1137

pH-Units

C-%	Control Type	1	2	3
0	Negative Contr	7.9	8.3	7.7
100		6.8	7.5	8

Temperature-°C

C-%	Control Type	1	2	3
0	Negative Contr	24	24	24
100		24	24	24

aquatic bioassay & consulting laboratories, inc

March 12, 2013

Ms. Rosa Hernandez
CAPCO Analytical
1536 Eastman Ave., Suite B
Ventura, CA 93003

Dear Ms. Hernandez:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms EPA-821-R-02-012.* "All acceptability criteria were met and the concentration-response was normal. This is a valid test." Results were as follows:

CLIENT:	CAPCO Analytical
SAMPLE I.D.:	130582-07
DATE RECEIVED:	19 Feb - 13
ABC LAB. NO.:	CAP0213.226

96 HOUR ACUTE FATHEAD MINNOW SURVIVAL BIOASSAY

LC50	=	100 % Survival in 100% Sample
TU(a)	=	0.00

Yours very truly,

Scott Johnson
Laboratory Director

CETIS Summary Report

Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	09-4068-9713	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	19 Feb-13 15:36	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Laboratory Water
Ending Date:	23 Feb-13 13:36	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	14-4659-2919	**Code:**	CAP0213.226	**Client:**	Capco Analytical Services
Sample Date:	18 Feb-13 12:30	**Material:**	Sample Water	**Project:**	
Receive Date:	19 Feb-13 11:23	**Source:**	Bioassay Report		
Sample Age:	27h (9.7 °C)	**Station:**	130582-07		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
13-4163-5371	96h Survival Rate	100	>100	NA	5.2%	1	Wilcoxon Rank Sum Two-Sample Test

Point Estimate Summary

Analysis ID	Endpoint	Level	%	95% LCL	95% UCL	TU	Method
12-8973-3353	96h Survival Rate	EC5	>100	N/A	N/A	<1	Linear Interpolation (ICPIN)
		EC10	>100	N/A	N/A	<1	
		EC15	>100	N/A	N/A	<1	
		EC20	>100	N/A	N/A	<1	
		EC25	>100	N/A	N/A	<1	
		EC40	>100	N/A	N/A	<1	
		EC50	>100	N/A	N/A	<1	

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
12-8973-3353	96h Survival Rate	Control Resp	0.975	0.9 - NL	Yes	Passes Acceptability Criteria
13-4163-5371	96h Survival Rate	Control Resp	0.975	0.9 - NL	Yes	Passes Acceptability Criteria

96h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	4	0.975	0.8954	1	0.9	1	0.025	0.05	5.13%	0.0%
100		4	1	1	1	1	1	0	0	0.0%	-2.56%

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	0.9	1	1	1
100		1	1	1	1

96h Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	9/10	10/10	10/10	10/10
100		10/10	10/10	10/10	10/10

CETIS Analytical Report

Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	13-4163-5371	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.6
Analyzed:	06 Mar-13 14:03	**Analysis:**	Nonparametric-Two Sample	**Official Results:**	Yes
Batch ID:	09-4068-9713	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	19 Feb-13 15:36	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Laboratory Water
Ending Date:	23 Feb-13 13:36	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	14-4659-2919	**Code:**	CAP0213.226	**Client:**	Capco Analytical Services
Sample Date:	18 Feb-13 12:30	**Material:**	Sample Water	**Project:**	
Receive Date:	19 Feb-13 11:23	**Source:**	Bioassay Report		
Sample Age:	27h (9.7 °C)	**Station:**	130582-07		

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Angular (Corrected)	NA	C > T	NA	NA	5.2%	Passes 96h survival rate

Wilcoxon Rank Sum Two-Sample Test

Control	vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Negative Control		100	20	NA	1	6	1.0000	Exact	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.975	0.9 - NL	Yes	Passes Acceptability Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.003319917	0.003319917	1	1	0.3559	Non-Significant Effect
Error	0.0199195	0.003319917	6			
Total	0.02323942		7			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	1	13.75	0.3559	Equal Variances
Variances	Levene Equality of Variance	9	13.75	0.0240	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.7065	0.6451	0.0027	Non-normal Distribution
Distribution	Kolmogorov-Smirnov D	0.375	0.3313	0.0015	Non-normal Distribution
Distribution	Anderson-Darling A2 Normality	1.162	3.878	0.0049	Non-normal Distribution

96h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	4	0.975	0.8954	1	1	0.9	1	0.025	5.13%	0.0%
100		4	1	1	1	1	1	1	0	0.0%	-2.56%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Contr	4	1.371	1.242	1.501	1.412	1.249	1.412	0.04074	5.94%	0.0%
100		4	1.412	1.412	1.412	1.412	1.412	1.412	0	0.0%	-2.97%

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	0.9	1	1	1
100		1	1	1	1

Angular (Corrected) Transformed Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	1.249	1.412	1.412	1.412
100		1.412	1.412	1.412	1.412

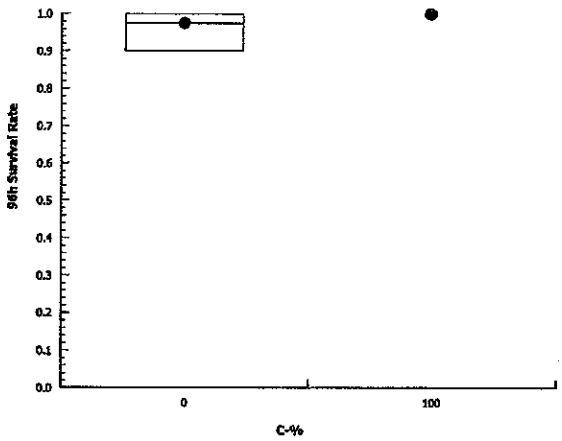
Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

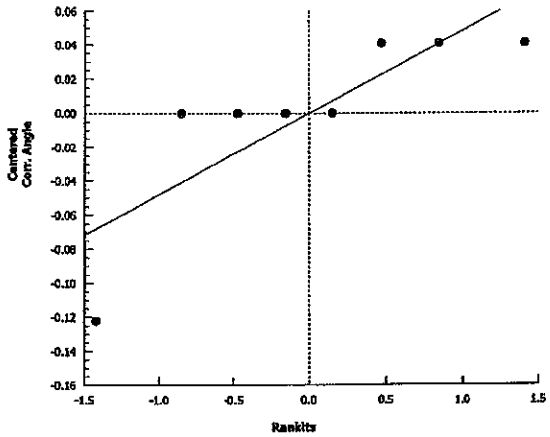
Analysis ID:	13-4163-5371	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.6
Analyzed:	06 Mar-13 14:03	**Analysis:**	Nonparametric-Two Sample	**Official Results:**	Yes

96h Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	9/10	10/10	10/10	10/10
100		10/10	10/10	10/10	10/10

Graphics





CETIS Analytical Report

Test Code: CAP0213.226 | 19-0528-9486

Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	12-8973-3353	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.6
Analyzed:	06 Mar-13 14:04	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes
Batch ID:	09-4068-9713	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	19 Feb-13 15:36	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Laboratory Water
Ending Date:	23 Feb-13 13:36	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	14-4659-2919	**Code:**	CAP0213.226	**Client:**	Capco Analytical Services
Sample Date:	18 Feb-13 12:30	**Material:**	Sample Water	**Project:**	
Receive Date:	19 Feb-13 11:23	**Source:**	Bioassay Report		
Sample Age:	27h (9.7 °C)	**Station:**	130582-07		

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	0	280	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.975	0.9 - NL	Yes	Passes Acceptability Criteria

Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
EC5	>100	N/A	N/A	<1	NA	NA
EC10	>100	N/A	N/A	<1	NA	NA
EC15	>100	N/A	N/A	<1	NA	NA
EC20	>100	N/A	N/A	<1	NA	NA
EC25	>100	N/A	N/A	<1	NA	NA
EC40	>100	N/A	N/A	<1	NA	NA
EC50	>100	N/A	N/A	<1	NA	NA

96h Survival Rate Summary

			Calculated Variate(A/B)								
C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Negative Control	4	0.975	0.9	1	0.025	0.05	5.13%	0.0%	39	40
100		4	1	1	1	0	0	0.0%	-2.56%	40	40

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	0.9	1	1	1
100		1	1	1	1

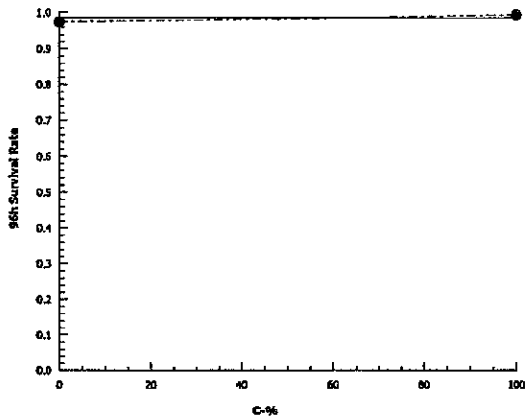
96h Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	9/10	10/10	10/10	10/10
100		10/10	10/10	10/10	10/10

Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	12-8973-3353	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.6
Analyzed:	06 Mar-13 14:04	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes

Graphics



CETIS Measurement Report

Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	09-4068-9713	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	19 Feb-13 15:36	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Laboratory Water
Ending Date:	23 Feb-13 13:36	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	14-4659-2919	**Code:**	CAP0213.226	**Client:**	Capco Analytical Services
Sample Date:	18 Feb-13 12:30	**Material:**	Sample Water	**Project:**	
Receive Date:	19 Feb-13 11:23	**Source:**	Bioassay Report		
Sample Age:	27h (9.7 °C)	**Station:**	130582-07		

Alkalinity (CaCO3)-mg/L

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	62	62	62	62	62	0	0	0.0%	0
100		3	418	418	418	418	418	0	0	0.0%	0
Overall		6	240			62	418				0 (0%)

Conductivity-µmhos

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	341.3	322.7	360	334	349	4.333	7.506	2.2%	0
100		3	2234	2051	2417	2149	2283	42.53	73.66	3.3%	0
Overall		6	1288			334	2283				0 (0%)

Dissolved Oxygen-mg/L

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	8.433	6.35	10.52	7.9	9.4	0.4842	0.8386	9.94%	0
100		3	7.733	7.59	7.877	7.7	7.8	0.03334	0.05774	0.75%	0
Overall		6	8.083			7.7	9.4				0 (0%)

Hardness (CaCO3)-mg/L

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	93	93	93	93	93	0	0	0.0%	0
100		3	682	682	682	682	682	0	0	0.0%	0
Overall		6	387.5			93	682				0 (0%)

pH-Units

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	7.967	7.208	8.726	7.7	8.3	0.1764	0.3055	3.84%	0
100		3	7.6	5.971	9.229	7	8.3	0.3786	0.6557	8.63%	0
Overall		6	7.783			7	8.3				0 (0%)

Temperature-°C

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	24	24	24	24	24	0	0	0.0%	0
100		3	24	24	24	24	24	0	0	0.0%	0
Overall		6	24			24	24				0 (0%)

Alkalinity (CaCO3)-mg/L

C-%	Control Type	1	2	3
0	Negative Contr	62	62	62
100		418	418	418

Conductivity-µmhos

C-%	Control Type	1	2	3
0	Negative Contr	341	349	334
100		2269	2283	2149

Dissolved Oxygen-mg/L

C-%	Control Type	1	2	3
0	Negative Contr	9.4	8	7.9
100		7.8	7.7	7.7

Hardness (CaCO3)-mg/L

C-%	Control Type	1	2	3
0	Negative Contr	93	93	93
100		682	682	682

pH-Units

C-%	Control Type	1	2	3
0	Negative Contr	7.9	8.3	7.7
100		7	7.5	8.3

Temperature-°C

C-%	Control Type	1	2	3
0	Negative Contr	24	24	24
100		24	24	24

aquatic bioassay & consulting laboratories, inc

March 12, 2013

Ms. Rosa Hernandez
CAPCO Analytical
1536 Eastman Ave., Suite B
Ventura, CA 93003

Dear Ms. Hernandez:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms EPA-821-R-02-012.* "All acceptability criteria were met and the concentration-response was normal. This is a valid test." Results were as follows:

CLIENT:	CAPCO Analytical
SAMPLE I.D.:	130582-08
DATE RECEIVED:	19 Feb - 13
ABC LAB. NO.:	CAP0213.227

96 HOUR ACUTE FATHEAD MINNOW SURVIVAL BIOASSAY

LC50	=	100 % Survival in 100% Sample
TU(a)	=	0.00

Yours very truly,

Scott Johnson
Laboratory Director

CETIS Summary Report

Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	05-2352-0026	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	19 Feb-13 15:37	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Laboratory Water
Ending Date:	23 Feb-13 13:37	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	10-3416-9594	**Code:**	CAP0213.227	**Client:**	Capco Analytical Services
Sample Date:	18 Feb-13 13:00	**Material:**	Sample Water	**Project:**	
Receive Date:	19 Feb-13 11:23	**Source:**	Bioassay Report		
Sample Age:	27h (9.7 °C)	**Station:**	130582-08		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
02-9545-2125	96h Survival Rate	100	>100	NA	5.2%	1	Wilcoxon Rank Sum Two-Sample Test

Point Estimate Summary

Analysis ID	Endpoint	Level	%	95% LCL	95% UCL	TU	Method
10-5062-3714	96h Survival Rate	EC5	>100	N/A	N/A	<1	Linear Interpolation (ICPIN)
		EC10	>100	N/A	N/A	<1	
		EC15	>100	N/A	N/A	<1	
		EC20	>100	N/A	N/A	<1	
		EC25	>100	N/A	N/A	<1	
		EC40	>100	N/A	N/A	<1	
		EC50	>100	N/A	N/A	<1	

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
02-9545-2125	96h Survival Rate	Control Resp	0.975	0.9 - NL	Yes	Passes Acceptability Criteria
10-5062-3714	96h Survival Rate	Control Resp	0.975	0.9 - NL	Yes	Passes Acceptability Criteria

96h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	4	0.975	0.8954	1	0.9	1	0.025	0.05	5.13%	0.0%
100		4	1	1	1	1	1	0	0	0.0%	-2.56%

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	0.9	1	1	1
100		1	1	1	1

96h Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	9/10	10/10	10/10	10/10
100		10/10	10/10	10/10	10/10

CETIS Analytical Report

Test Code: CAP0213.227 | 00-3119-6376

Fathead Minnow 96-h Acute Survival Test — Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID:	02-9545-2125	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.6
Analyzed:	06 Mar-13 14:06	**Analysis:**	Nonparametric-Two Sample	**Official Results:**	Yes
Batch ID:	05-2352-0026	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	19 Feb-13 15:37	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Laboratory Water
Ending Date:	23 Feb-13 13:37	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	10-3416-9594	**Code:**	CAP0213.227	**Client:**	Capco Analytical Services
Sample Date:	18 Feb-13 13:00	**Material:**	Sample Water	**Project:**	
Receive Date:	19 Feb-13 11:23	**Source:**	Bioassay Report		
Sample Age:	27h (9.7 °C)	**Station:**	130582-08		

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Angular (Corrected)	NA	C > T	NA	NA	5.2%	Passes 96h survival rate

Wilcoxon Rank Sum Two-Sample Test

Control	vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Negative Control		100	20	NA	1	6	1.0000	Exact	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.975	0.9 - NL	Yes	Passes Acceptability Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.003319917	0.003319917	1	1	0.3559	Non-Significant Effect
Error	0.0199195	0.003319917	6			
Total	0.02323942		7			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	1	13.75	0.3559	Equal Variances
Variances	Levene Equality of Variance	9	13.75	0.0240	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.7065	0.6451	0.0027	Non-normal Distribution
Distribution	Kolmogorov-Smirnov D	0.375	0.3313	0.0015	Non-normal Distribution
Distribution	Anderson-Darling A2 Normality	1.162	3.878	0.0049	Non-normal Distribution

96h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	4	0.975	0.8954	1	1	0.9	1	0.025	5.13%	0.0%
100		4	1	1	1	1	1	1	0	0.0%	-2.56%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Contr	4	1.371	1.242	1.501	1.412	1.249	1.412	0.04074	5.94%	0.0%
100		4	1.412	1.412	1.412	1.412	1.412	1.412	0	0.0%	-2.97%

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	0.9	1	1	1
100		1	1	1	1

Angular (Corrected) Transformed Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	1.249	1.412	1.412	1.412
100		1.412	1.412	1.412	1.412

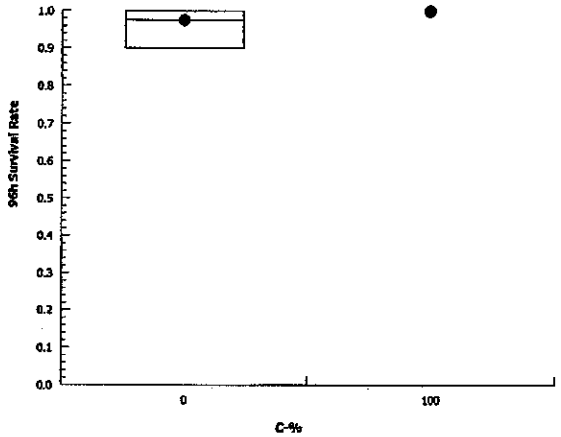
Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

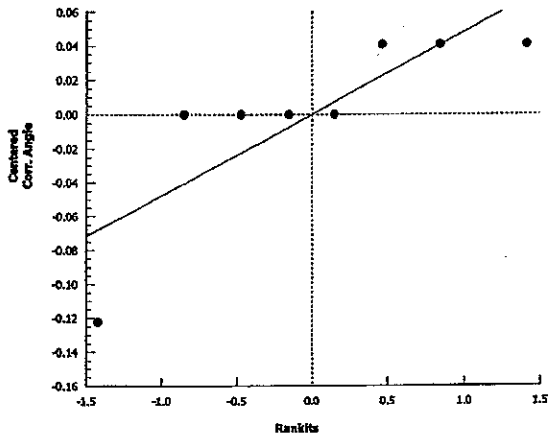
Analysis ID:	02-9545-2125	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.6
Analyzed:	06 Mar-13 14:06	**Analysis:**	Nonparametric-Two Sample	**Official Results:**	Yes

96h Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	9/10	10/10	10/10	10/10
100		10/10	10/10	10/10	10/10

Graphics





CETIS Analytical Report

Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	10-5062-3714	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.6
Analyzed:	06 Mar-13 14:07	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes
Batch ID:	05-2352-0026	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	19 Feb-13 15:37	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Laboratory Water
Ending Date:	23 Feb-13 13:37	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	10-3416-9594	**Code:**	CAP0213.227	**Client:**	Capco Analytical Services
Sample Date:	18 Feb-13 13:00	**Material:**	Sample Water	**Project:**	
Receive Date:	19 Feb-13 11:23	**Source:**	Bioassay Report		
Sample Age:	27h (9.7 °C)	**Station:**	130582-08		

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	0	280	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.975	0.9 - NL	Yes	Passes Acceptability Criteria

Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
EC5	>100	N/A	N/A	<1	NA	NA
EC10	>100	N/A	N/A	<1	NA	NA
EC15	>100	N/A	N/A	<1	NA	NA
EC20	>100	N/A	N/A	<1	NA	NA
EC25	>100	N/A	N/A	<1	NA	NA
EC40	>100	N/A	N/A	<1	NA	NA
EC50	>100	N/A	N/A	<1	NA	NA

96h Survival Rate Summary

			Calculated Variate(A/B)								
C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Negative Control	4	0.975	0.9	1	0.025	0.05	5.13%	0.0%	39	40
100		4	1	1	1	0	0	0.0%	-2.56%	40	40

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	0.9	1	1	1
100		1	1	1	1

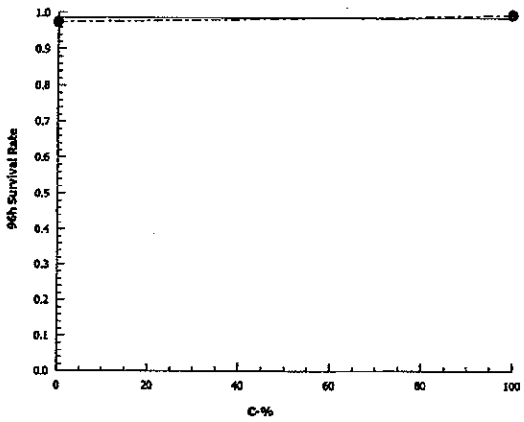
96h Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	9/10	10/10	10/10	10/10
100		10/10	10/10	10/10	10/10

Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	10-5062-3714	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.6
Analyzed:	06 Mar-13 14:07	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes

Graphics



CETIS Measurement Report

Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	05-2352-0026	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	19 Feb-13 15:37	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Laboratory Water
Ending Date:	23 Feb-13 13:37	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	10-3416-9594	**Code:**	CAP0213.227	**Client:**	Capco Analytical Services
Sample Date:	18 Feb-13 13:00	**Material:**	Sample Water	**Project:**	
Receive Date:	19 Feb-13 11:23	**Source:**	Bioassay Report		
Sample Age:	27h (9.7 °C)	**Station:**	130582-08		

Alkalinity (CaCO3)-mg/L

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	62	62	62	62	62	0	0	0.0%	0
100		3	435	435	435	435	435	0	0	0.0%	0
Overall		6	248.5			62	435				0 (0%)

Conductivity-µmhos

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	341.3	322.7	360	334	349	4.333	7.506	2.2%	0
100		3	2338	2125	2552	2239	2389	49.67	86.03	3.68%	0
Overall		6	1340			334	2389				0 (0%)

Dissolved Oxygen-mg/L

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	8.433	6.35	10.52	7.9	9.4	0.4842	0.8386	9.94%	0
100		3	8.7	4.596	12.8	7.6	10.6	0.9539	1.652	18.99%	0
Overall		6	8.567			7.6	10.6				0 (0%)

Hardness (CaCO3)-mg/L

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	93	93	93	93	93	0	0	0.0%	0
100		3	858	858	858	858	858	0	0	0.0%	0
Overall		6	475.5			93	858				0 (0%)

pH-Units

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	7.967	7.208	8.726	7.7	8.3	0.1764	0.3055	3.84%	0
100		3	7.7	6.706	8.694	7.3	8.1	0.2309	0.4	5.2%	0
Overall		6	7.833			7.3	8.3				0 (0%)

Temperature-°C

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	24	24	24	24	24	0	0	0.0%	0
100		3	24	24	24	24	24	0	0	0.0%	0
Overall		6	24			24	24				0 (0%)

Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Alkalinity (CaCO3)-mg/L

C-%	Control Type	1	2	3
0	Negative Contr	62	62	62
100		435	435	435

Conductivity-µmhos

C-%	Control Type	1	2	3
0	Negative Contr	341	349	334
100		2389	2387	2239

Dissolved Oxygen-mg/L

C-%	Control Type	1	2	3
0	Negative Contr	9.4	8	7.9
100		10.6	7.9	7.6

Hardness (CaCO3)-mg/L

C-%	Control Type	1	2	3
0	Negative Contr	93	93	93
100		856	858	858

pH-Units

C-%	Control Type	1	2	3
0	Negative Contr	7.9	8.3	7.7
100		7.3	7.7	8.1

Temperature-°C

C-%	Control Type	1	2	3
0	Negative Contr	24	24	24
100		24	24	24

aquatic bioassay & consulting laboratories, inc

March 12, 2013

Ms. Rosa Hernandez
CAPCO Analytical
1536 Eastman Ave., Suite B
Ventura, CA 93003

Dear Ms. Hernandez:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms EPA-821-R-02-012.* "All acceptability criteria were met and the concentration-response was normal. This is a valid test." Results were as follows:

CLIENT:	CAPCO Analytical
SAMPLE I.D.:	130582-09
DATE RECEIVED:	19 Feb - 13
ABC LAB. NO.:	CAP0213.228

96 HOUR ACUTE FATHEAD MINNOW SURVIVAL BIOASSAY

LC50 = 100 % Survival in 100% Sample
TU(a) = 0.00

Yours very truly,

Scott Johnson
Laboratory Director

CETIS Summary Report

Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	11-7995-3062	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	19 Feb-13 15:38	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Laboratory Water
Ending Date:	23 Feb-13 13:38	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	14-2307-1280	**Code:**	CAP0213.228	**Client:**	Capco Analytical Services
Sample Date:	18 Feb-13 13:15	**Material:**	Sample Water	**Project:**	
Receive Date:	19 Feb-13 13:15	**Source:**	Bioassay Report		
Sample Age:	26h (9.7 °C)	**Station:**	130582-09		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
12-8646-9727	96h Survival Rate	100	>100	NA	5.2%	1	Wilcoxon Rank Sum Two-Sample Test

Point Estimate Summary

Analysis ID	Endpoint	Level	%	95% LCL	95% UCL	TU	Method
07-3364-3450	96h Survival Rate	EC5	>100	N/A	N/A	<1	Linear Interpolation (ICPIN)
		EC10	>100	N/A	N/A	<1	
		EC15	>100	N/A	N/A	<1	
		EC20	>100	N/A	N/A	<1	
		EC25	>100	N/A	N/A	<1	
		EC40	>100	N/A	N/A	<1	
		EC50	>100	N/A	N/A	<1	

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
07-3364-3450	96h Survival Rate	Control Resp	0.975	0.9 - NL	Yes	Passes Acceptability Criteria
12-8646-9727	96h Survival Rate	Control Resp	0.975	0.9 - NL	Yes	Passes Acceptability Criteria

96h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	4	0.975	0.8954	1	0.9	1	0.025	0.05	5.13%	0.0%
100		4	1	1	1	1	1	0	0	0.0%	-2.56%

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	0.9	1	1	1
100		1	1	1	1

96h Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	9/10	10/10	10/10	10/10
100		10/10	10/10	10/10	10/10

CETIS Analytical Report

Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	12-8646-9727	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.6
Analyzed:	06 Mar-13 14:10	**Analysis:**	Nonparametric-Two Sample	**Official Results:**	Yes
Batch ID:	11-7995-3062	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	19 Feb-13 15:38	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Laboratory Water
Ending Date:	23 Feb-13 13:38	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	14-2307-1280	**Code:**	CAP0213.228	**Client:**	Capco Analytical Services
Sample Date:	18 Feb-13 13:15	**Material:**	Sample Water	**Project:**	
Receive Date:	19 Feb-13 13:15	**Source:**	Bioassay Report		
Sample Age:	26h (9.7 °C)	**Station:**	130582-09		

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Angular (Corrected)	NA	C > T	NA	NA	5.2%	Passes 96h survival rate

Wilcoxon Rank Sum Two-Sample Test

Control	vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Negative Control		100	20	NA	1	6	1.0000	Exact	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.975	0.9 - NL	Yes	Passes Acceptability Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.003319917	0.003319917	1	1	0.3559	Non-Significant Effect
Error	0.0199195	0.003319917	6			
Total	0.02323942		7			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	1	13.75	0.3559	Equal Variances
Variances	Levene Equality of Variance	9	13.75	0.0240	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.7065	0.6451	0.0027	Non-normal Distribution
Distribution	Kolmogorov-Smirnov D	0.375	0.3313	0.0015	Non-normal Distribution
Distribution	Anderson-Darling A2 Normality	1.162	3.878	0.0049	Non-normal Distribution

96h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	4	0.975	0.8954	1	1	0.9	1	0.025	5.13%	0.0%
100		4	1	1	1	1	1	1	0	0.0%	-2.56%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Contr	4	1.371	1.242	1.501	1.412	1.249	1.412	0.04074	5.94%	0.0%
100		4	1.412	1.412	1.412	1.412	1.412	1.412	0	0.0%	-2.97%

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	0.9	1	1	1
100		1	1	1	1

Angular (Corrected) Transformed Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	1.249	1.412	1.412	1.412
100		1.412	1.412	1.412	1.412

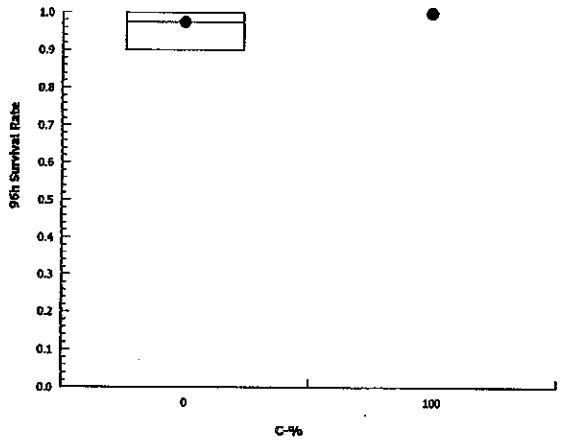
Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

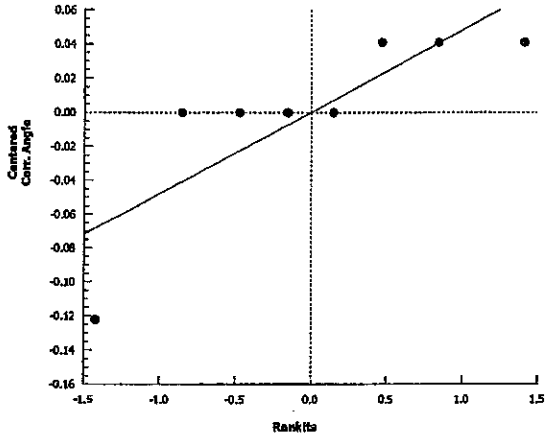
Analysis ID:	12-8646-9727	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.6
Analyzed:	06 Mar-13 14:10	**Analysis:**	Nonparametric-Two Sample	**Official Results:**	Yes

96h Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	9/10	10/10	10/10	10/10
100		10/10	10/10	10/10	10/10

Graphics





CETIS Analytical Report

Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	07-3364-3450	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.6
Analyzed:	06 Mar-13 14:10	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes
Batch ID:	11-7995-3062	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	19 Feb-13 15:38	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Laboratory Water
Ending Date:	23 Feb-13 13:38	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	14-2307-1280	**Code:**	CAP0213.228	**Client:**	Capco Analytical Services
Sample Date:	18 Feb-13 13:15	**Material:**	Sample Water	**Project:**	
Receive Date:	19 Feb-13 13:15	**Source:**	Bioassay Report		
Sample Age:	26h (9.7 °C)	**Station:**	130582-09		

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	0	280	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.975	0.9 - NL	Yes	Passes Acceptability Criteria

Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
EC5	>100	N/A	N/A	<1	NA	NA
EC10	>100	N/A	N/A	<1	NA	NA
EC15	>100	N/A	N/A	<1	NA	NA
EC20	>100	N/A	N/A	<1	NA	NA
EC25	>100	N/A	N/A	<1	NA	NA
EC40	>100	N/A	N/A	<1	NA	NA
EC50	>100	N/A	N/A	<1	NA	NA

96h Survival Rate Summary

			Calculated Variate(A/B)								
C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Negative Control	4	0.975	0.9	1	0.025	0.05	5.13%	0.0%	39	40
100		4	1	1	1	0	0	0.0%	-2.56%	40	40

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	0.9	1	1	1
100		1	1	1	1

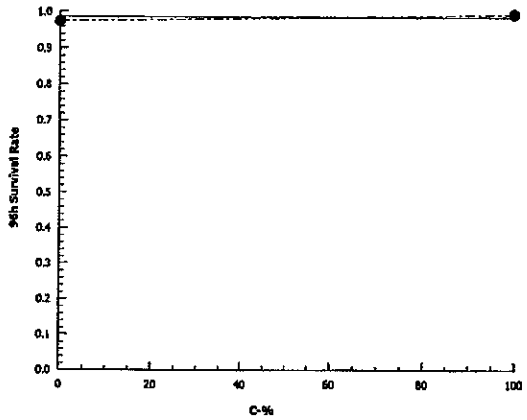
96h Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	9/10	10/10	10/10	10/10
100		10/10	10/10	10/10	10/10

Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	07-3364-3450	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.6
Analyzed:	06 Mar-13 14:10	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes

Graphics



CETIS Measurement Report

Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	11-7995-3062	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	19 Feb-13 15:38	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Laboratory Water
Ending Date:	23 Feb-13 13:38	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	14-2307-1280	**Code:**	CAP0213.228	**Client:**	Capco Analytical Services
Sample Date:	18 Feb-13 13:15	**Material:**	Sample Water	**Project:**	
Receive Date:	19 Feb-13 13:15	**Source:**	Bioassay Report		
Sample Age:	26h (9.7 °C)	**Station:**	130582-09		

Alkalinity (CaCO3)-mg/L

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	62	62	62	62	62	0	0	0.0%	0
100		3	455	455	455	455	455	0	0	0.0%	0
Overall		6	258.5			62	455				0 (0%)

Conductivity-µmhos

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	341.3	322.7	360	334	349	4.333	7.506	2.2%	0
100		3	2339	2135	2542	2244	2389	47.37	82.04	3.51%	0
Overall		6	1340			334	2389				0 (0%)

Dissolved Oxygen-mg/L

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	8.433	6.35	10.52	7.9	9.4	0.4842	0.8386	9.94%	0
100		3	8.533	5.708	11.36	7.6	9.8	0.6566	1.137	13.33%	0
Overall		6	8.483			7.6	9.8				0 (0%)

Hardness (CaCO3)-mg/L

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	93	93	93	93	93	0	0	0.0%	0
100		3	796	796	796	796	796	0	0	0.0%	0
Overall		6	444.5			93	796				0 (0%)

pH-Units

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	7.967	7.208	8.726	7.7	8.3	0.1764	0.3055	3.84%	0
100		3	7.667	6.663	8.671	7.3	8.1	0.2333	0.4041	5.27%	0
Overall		6	7.817			7.3	8.3				0 (0%)

Temperature-°C

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	24	24	24	24	24	0	0	0.0%	0
100		3	24	24	24	24	24	0	0	0.0%	0
Overall		6	24			24	24				0 (0%)

Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Alkalinity (CaCO3)-mg/L

C-%	Control Type	1	2	3
0	Negative Contr	62	62	62
100		455	455	455

Conductivity-µmhos

C-%	Control Type	1	2	3
0	Negative Contr	341	349	334
100		2389	2383	2244

Dissolved Oxygen-mg/L

C-%	Control Type	1	2	3
0	Negative Contr	9.4	8	7.9
100		9.8	8.2	7.6

Hardness (CaCO3)-mg/L

C-%	Control Type	1	2	3
0	Negative Contr	93	93	93
100		796	796	796

pH-Units

C-%	Control Type	1	2	3
0	Negative Contr	7.9	8.3	7.7
100		7.3	7.6	8.1

Temperature-°C

C-%	Control Type	1	2	3
0	Negative Contr	24	24	24
100		24	24	24

aquatic bioassay & consulting laboratories, inc

March 12, 2013

Ms. Rosa Hernandez
CAPCO Analytical
1536 Eastman Ave., Suite B
Ventura, CA 93003

Dear Ms. Hernandez:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms EPA-821-R-02-012.* "All acceptability criteria were met and the concentration-response was normal. This is a valid test." Results were as follows:

CLIENT:	CAPCO Analytical
SAMPLE I.D.:	130582-10
DATE RECEIVED:	19 Feb - 13
ABC LAB. NO.:	CAP0213.229

96 HOUR ACUTE FATHEAD MINNOW SURVIVAL BIOASSAY

LC50	=	100 % Survival in 100% Sample
TU(a)	=	0.00

Yours very truly,

Scott Johnson
Laboratory Director

CETIS Summary Report

Report Date: 06 Mar-13 14:14 (p 1 of 1)
Test Code: CAP0213.229 | 09-1447-5879

Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	08-3322-2097	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	19 Feb-13 15:39	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Laboratory Water
Ending Date:	23 Feb-13 13:39	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	09-0287-7602	**Code:**	CAP0213.229	**Client:**	Capco Analytical Services
Sample Date:	18 Feb-13 13:45	**Material:**	Sample Water	**Project:**	
Receive Date:	19 Feb-13 11:23	**Source:**	Bioassay Report		
Sample Age:	26h (9.7 °C)	**Station:**	130582-10		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
18-7518-4549	96h Survival Rate	100	>100	NA	5.2%	1	Wilcoxon Rank Sum Two-Sample Test

Point Estimate Summary

Analysis ID	Endpoint	Level	%	95% LCL	95% UCL	TU	Method
08-6079-1982	96h Survival Rate	EC5	>100	N/A	N/A	<1	Linear Interpolation (ICPIN)
		EC10	>100	N/A	N/A	<1	
		EC15	>100	N/A	N/A	<1	
		EC20	>100	N/A	N/A	<1	
		EC25	>100	N/A	N/A	<1	
		EC40	>100	N/A	N/A	<1	
		EC50	>100	N/A	N/A	<1	

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
08-6079-1982	96h Survival Rate	Control Resp	0.975	0.9 - NL	Yes	Passes Acceptability Criteria
18-7518-4549	96h Survival Rate	Control Resp	0.975	0.9 - NL	Yes	Passes Acceptability Criteria

96h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	4	0.975	0.8954	1	0.9	1	0.025	0.05	5.13%	0.0%
100		4	1	1	1	1	1	0	0	0.0%	-2.56%

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	0.9	1	1	1
100		1	1	1	1

96h Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	9/10	10/10	10/10	10/10
100		10/10	10/10	10/10	10/10

CETIS Analytical Report

Fathead Minnow 96-h Acute Survival Test — Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID:	18-7518-4549	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.6
Analyzed:	06 Mar-13 14:14	**Analysis:**	Nonparametric-Two Sample	**Official Results:**	Yes
Batch ID:	08-3322-2097	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	19 Feb-13 15:39	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Laboratory Water
Ending Date:	23 Feb-13 13:39	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	09-0287-7602	**Code:**	CAP0213.229	**Client:**	Capco Analytical Services
Sample Date:	18 Feb-13 13:45	**Material:**	Sample Water	**Project:**	
Receive Date:	19 Feb-13 11:23	**Source:**	Bioassay Report		
Sample Age:	26h (9.7 °C)	**Station:**	130582-10		

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Angular (Corrected)	NA	C > T	NA	NA	5.2%	Passes 96h survival rate

Wilcoxon Rank Sum Two-Sample Test

Control	vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Negative Control		100	20	NA	1	6	1.0000	Exact	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.975	0.9 - NL	Yes	Passes Acceptability Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.003319917	0.003319917	1	1	0.3559	Non-Significant Effect
Error	0.0199195	0.003319917	6			
Total	0.02323942		7			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	1	13.75	0.3559	Equal Variances
Variances	Levene Equality of Variance	9	13.75	0.0240	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.7065	0.6451	0.0027	Non-normal Distribution
Distribution	Kolmogorov-Smirnov D	0.375	0.3313	0.0015	Non-normal Distribution
Distribution	Anderson-Darling A2 Normality	1.162	3.878	0.0049	Non-normal Distribution

96h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	4	0.975	0.8954	1	1	0.9	1	0.025	5.13%	0.0%
100		4	1	1	1	1	1	1	0	0.0%	-2.56%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Contr	4	1.371	1.242	1.501	1.412	1.249	1.412	0.04074	5.94%	0.0%
100		4	1.412	1.412	1.412	1.412	1.412	1.412	0	0.0%	-2.97%

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	0.9	1	1	1
100		1	1	1	1

Angular (Corrected) Transformed Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	1.249	1.412	1.412	1.412
100		1.412	1.412	1.412	1.412

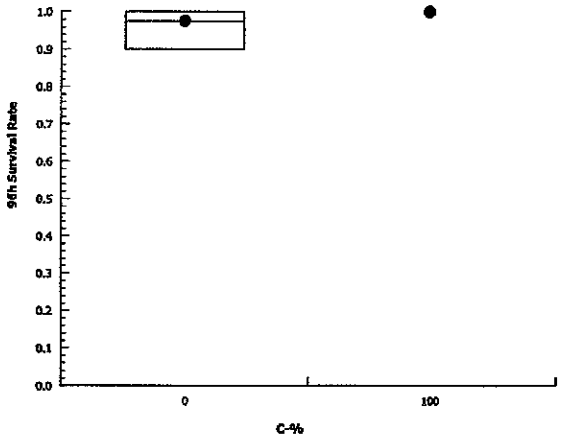
Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

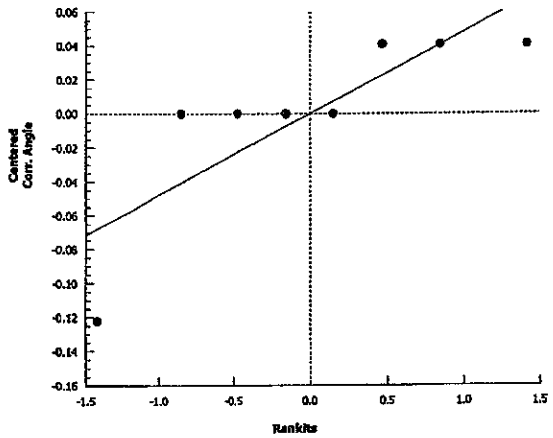
Analysis ID:	18-7518-4549	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.6
Analyzed:	06 Mar-13 14:14	**Analysis:**	Nonparametric-Two Sample	**Official Results:**	Yes

96h Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	9/10	10/10	10/10	10/10
100		10/10	10/10	10/10	10/10

Graphics





CETIS Analytical Report

Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	08-6079-1982	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.6
Analyzed:	06 Mar-13 14:14	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes
Batch ID:	08-3322-2097	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	19 Feb-13 15:39	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Laboratory Water
Ending Date:	23 Feb-13 13:39	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	09-0287-7602	**Code:**	CAP0213.229	**Client:**	Capco Analytical Services
Sample Date:	18 Feb-13 13:45	**Material:**	Sample Water	**Project:**	
Receive Date:	19 Feb-13 11:23	**Source:**	Bioassay Report		
Sample Age:	26h (9.7 °C)	**Station:**	130582-10		

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	0	280	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	0.975	0.9 - NL	Yes	Passes Acceptability Criteria

Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
EC5	>100	N/A	N/A	<1	NA	NA
EC10	>100	N/A	N/A	<1	NA	NA
EC15	>100	N/A	N/A	<1	NA	NA
EC20	>100	N/A	N/A	<1	NA	NA
EC25	>100	N/A	N/A	<1	NA	NA
EC40	>100	N/A	N/A	<1	NA	NA
EC50	>100	N/A	N/A	<1	NA	NA

96h Survival Rate Summary

			Calculated Variate(A/B)								
C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Negative Control	4	0.975	0.9	1	0.025	0.05	5.13%	0.0%	39	40
100		4	1	1	1	0	0	0.0%	-2.56%	40	40

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	0.9	1	1	1
100		1	1	1	1

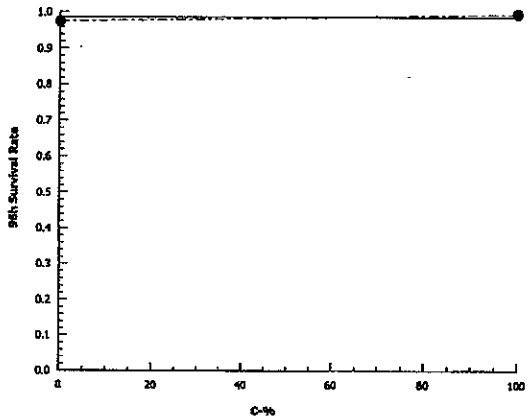
96h Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Negative Control	9/10	10/10	10/10	10/10
100		10/10	10/10	10/10	10/10

Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Analysis ID:	08-6079-1982	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.6
Analyzed:	06 Mar-13 14:14	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes

Graphics



CETIS Measurement Report

Fathead Minnow 96-h Acute Survival Test — **Aquatic Bioassay & Consulting Labs, Inc.**

Batch ID:	08-3322-2097	**Test Type:**	Survival (96h)	**Analyst:**	
Start Date:	19 Feb-13 15:39	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Laboratory Water
Ending Date:	23 Feb-13 13:39	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	94h	**Source:**	Aquatic Biosystems, CO	**Age:**	
Sample ID:	09-0287-7602	**Code:**	CAP0213.229	**Client:**	Capco Analytical Services
Sample Date:	18 Feb-13 13:45	**Material:**	Sample Water	**Project:**	
Receive Date:	19 Feb-13 11:23	**Source:**	Bioassay Report		
Sample Age:	26h (9.7 °C)	**Station:**	130582-10		

Alkalinity (CaCO3)-mg/L

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	62	62	62	62	62	0	0	0.0%	0
100		3	444	444	444	444	444	0	0	0.0%	0
Overall		6	253			62	444				0 (0%)

Conductivity-µmhos

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	341.3	322.7	360	334	349	4.333	7.506	2.2%	0
100		3	2339	2113	2564	2234	2397	52.45	90.84	3.88%	0
Overall		6	1340			334	2397				0 (0%)

Dissolved Oxygen-mg/L

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	8.433	6.35	10.52	7.9	9.4	0.4842	0.8386	9.94%	0
100		3	8.433	5.239	11.63	7.5	9.9	0.7424	1.286	15.25%	0
Overall		6	8.433			7.5	9.9				0 (0%)

Hardness (CaCO3)-mg/L

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	93	93	93	93	93	0	0	0.0%	0
100		3	864	864	864	864	864	0	0	0.0%	0
Overall		6	478.5			93	864				0 (0%)

pH-Units

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	7.967	7.208	8.726	7.7	8.3	0.1764	0.3055	3.84%	0
100		3	7.7	6.706	8.694	7.3	8.1	0.2309	0.4	5.2%	0
Overall		6	7.833			7.3	8.3				0 (0%)

Temperature-°C

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	Negative Contr	3	24	24	24	24	24	0	0	0.0%	0
100		3	24	24	24	24	24	0	0	0.0%	0
Overall		6	24			24	24				0 (0%)

Fathead Minnow 96-h Acute Survival Test
Aquatic Bioassay & Consulting Labs, Inc.

Alkalinity (CaCO3)-mg/L

C-%	Control Type	1	2	3
0	Negative Contr	62	62	62
100		444	444	444

Conductivity-µmhos

C-%	Control Type	1	2	3
0	Negative Contr	341	349	334
100		2397	2385	2234

Dissolved Oxygen-mg/L

C-%	Control Type	1	2	3
0	Negative Contr	9.4	8	7.9
100		9.9	7.9	7.5

Hardness (CaCO3)-mg/L

C-%	Control Type	1	2	3
0	Negative Contr	93	93	93
100		864	864	864

pH-Units

C-%	Control Type	1	2	3
0	Negative Contr	7.9	8.3	7.7
100		7.3	7.7	8.1

Temperature-°C

C-%	Control Type	1	2	3
0	Negative Contr	24	24	24
100		24	24	24

Certificate of Analysis

Notes:

The Chain of Custody document is part of the analytical report.
Any remaining sample(s) for testing will be disposed of one month from the final report date unless other arrangements are made in advance.
All results are expressed on wet weight basis unless otherwise specified.

Authorized Signature

(QA/QC Supervisor)

The results in this report apply to the samples analyzed in accordance with the chain of custody document. Capco Analytical certifies that the test results meet all requirements of ELAP unless noted in the Case Narrative. This analytical report must be reproduced in its entirety.

Legend for Abbreviations:

PQL	Practical Quantitation Limit
BQL	Below Practical Quantitation Limit
ND	NOT DETECTED at or above the Reporting Limit. If J-value reported, then NOT DETECTED at or above the Method Detection Limit (MDL).
MDL	Method Detection Limit
MRL	Method Reporting Limit
MDA	Minimum Detectable Activity
MCL	Maximum Contamination Level

CAPCO ANALYTICAL SERVICES

1536 Eastman Avenue
Ventura, CA 93003
(805) 644-1095 Fax 644-9947

CHAIN OF CUSTODY RECORD

REPORT Fax 805-650-7010
Company Fugro Consultants
Address 4820 McGrath Street, Suite 100
Ventura,CA93003
Phone 650-7000 Contact Tim Nicely

BILL TO: P.O.#
Company same
Address 2/25
Phone Contact

PROJ. NO | PROJECT NAME: Malibu-NPDES

SAMPLERS: (Signature)

CONTAINER TYPES
A = AMBER B = BRASS G = GLASS
P = PLASTIC V = VOA VIAL O = OTHER

SAMPLE NO.	DATE SAMPLED	TIME SAMPLED	COMP	GRAB	SAMPLE DESCRIPTION	MATRIX: WATER	SOIL	SLUDGE	OTHER	CONTAINER #: TYPE	ANALYSIS: TSS, Settleable Solids	BOD	Oil & Grease	MBAS	Sulfide	Phenols	Residual Chlorine	Turbidity	TOC	REMARKS: 130582 pH	TEMP.
1	2/18/13	9:25			B4A-3	x				5 P+G										7.17	24.8
2		9:45			W-1	x														6.89	19.4
3		10:00			W-8	x														6.68	22.0
4		10:30			B4A-1	x														6.72	21.2
5		11:00			B4A-4	x														6.82	22.2
6		11:45			B4A-9	x														6.62	23.0
7		12:30			B4A-5	x														6.92	20.4
8		100			HD-30	x														7.16	21.6
9		1:15			HD-12	x														7.07	21.2
10		1:45			HD-5	x														7.12	20.8

CHECK ONE BOX:
DISPOSE SAMPLES
RETURN SAMPLES

The undersigned hereby acknowledges having received a copy of the Fee Schedule/General Information and Conditions, the provisions of which are a part of this agreement.

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
	2/18/13 3:03				
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time		

TURN AROUND TIME

24 Hr.		5 Day	
48 Hr.		Standard	X
72 Hr.		Other	

WHITE COPY CANARY COPY PINK COPY

Prepared for: Fugro Consultants
4820 McGrath Street, Suite 100
Ventura, CA 93003
Attn: Tim Nicely

Report Date: March 26, 2013
Laboratory Number: 130885
Project Name: Malibu-NPDES
Sampled by: Client

On March 14, 2013, Capco Analytical Services, Inc.(CAS), received ten(10) samples to be analyzed. The samples were identified and assigned the laboratory ID numbers listed below:

SAMPLE DESCRIPTION	CAS LAB NUMBER ID
BYA-4	130885-01
W-8	130885-02
BYA-9	130885-03
BYA-1	130885-04
BYA-3	130885-05
W-1	130885-06
BYA-5	130885-07
HD-30	130885-08
HD-12	130885-09
HD-5	130885-10

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Keith C.Y. Chang, Ph.D.
Director - Analytical Operations

If you have any further questions or concerns, please contact me at your convenience.

This report consists of 11 pages excluding the cover letter and the Chain of Custody.

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 130885
Analyst: AN

Date Sampled: 03/14/13
Date Received: 03/14/13
Date Analyzed: 03/15/13
Sample Matrix: Water

TOTAL SUSPENDED SOLIDS
EPA Method SM 2540 D

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)	MDL (mg/L)
130885-01	BYA-4	1.8	1	5	1
130885-02	W-8	ND	1	5	1
130885-03	BYA-9	1.7	1	5	1
130885-04	BYA-1	ND	1	5	1
130885-05	BYA-3	ND	1	5	1
130885-06	W-1	ND	1	5	1
130885-07	BYA-5	ND	1	5	1
130885-08	HD-30	12	1	5	1
130885-09	HD-12	ND	1	5	1
130885-10	HD-5	ND	1	5	1

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 130885
Analyst: AN

Date Sampled: 03/14/13
Date Received: 03/14/13
Date Analyzed: 03/18/13
Sample Matrix: Water

OIL & GREASE
EPA Method 1664

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)	MDL (mg/L)
130885-01	BYA-4	ND	1	5	1
130885-02	W-8	ND	1	5	1
130885-03	BYA-9	ND	1	5	1
130885-04	BYA-1	ND	1	5	1
130885-05	BYA-3	ND	1	5	1
130885-06	W-1	ND	1	5	1
130885-07	BYA-5	ND	1	5	1
130885-08	HD-30	ND	1	5	1
130885-09	HD-12	ND	1	5	1
130885-10	HD-5	ND	1	5	1

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 130885
Analyst: AN

Date Sampled: 03/14/13
Date Received: 03/14/13
Date Analyzed: 03/15/13
Sample Matrix: Water

BIOCHEMICAL OXYGEN DEMAND
EPA Method 5210 B

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)	MDL (mg/L)
130885-01	BYA-4	0.55	1	2	0.4
130885-02	W-8	ND	1	2	0.4
130885-03	BYA-9	ND	1	2	0.4
130885-04	BYA-1	ND	1	2	0.4
130885-05	BYA-3	ND	1	2	0.4
130885-06	W-1	ND	1	2	0.4
130885-07	BYA-5	ND	1	2	0.4
130885-08	HD-30	2.2	1	2	0.4
130885-09	HD-12	2.3	1	2	0.4
130885-10	HD-5	2.3	1	2	0.4

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 130885
Analyst: AN

Date Sampled: 03/14/13
Date Received: 03/14/13
Date Analyzed: 03/15/13
Sample Matrix: Water

TURBIDITY
EPA Method 180.1

CAS Lab #	Sample ID	RESULTS (NTU)	DF	PQL (NTU)
130885-01	BYA-4	1.2	1	0.1
130885-02	W-8	0.16	1	0.1
130885-03	BYA-9	5.3	1	0.1
130885-04	BYA-1	0.51	1	0.1
130885-05	BYA-3	0.29	1	0.1
130885-06	W-1	0.38	1	0.1
130885-07	BYA-5	0.39	1	0.1
130885-08	HD-30	4.05	1	0.1
130885-09	HD-12	0.24	1	0.1
130885-10	HD-5	0.32	1	0.1

DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 130885
Analyst: AN

Date Sampled: 03/14/13
Date Received: 03/14/13
Date Analyzed: 03/14/13
Sample Matrix: Water

SETTLEABLE SOLIDS
EPA Method SM 2540 F

CAS Lab #	Sample ID	RESULTS (ml/L)	DF	PQL (ml/L)
130885-01	BYA-4	BQL	1	0.1
130885-02	W-8	BQL	1	0.1
130885-03	BYA-9	BQL	1	0.1
130885-04	BYA-1	BQL	1	0.1
130885-05	BYA-3	BQL	1	0.1
130885-06	W-1	BQL	1	0.1
130885-07	BYA-5	BQL	1	0.1
130885-08	HD-30	BQL	1	0.1
130885-09	HD-12	BQL	1	0.1
130885-10	HD-5	BQL	1	0.1

DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 130885
Analyst: AN

Date Sampled: 03/14/13
Date Received: 03/14/13
Date Analyzed: 03/15/13
Sample Matrix: Water

MBAS
EPA Method SM 5540 C

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)	MDL (mg/L)
130885-01	BYA-4	ND	1	0.1	0.02
130885-02	W-8	ND	1	0.1	0.02
130885-03	BYA-9	ND	1	0.1	0.02
130885-04	BYA-1	ND	1	0.1	0.02
130885-05	BYA-3	ND	1	0.1	0.02
130885-06	W-1	ND	1	0.1	0.02
130885-07	BYA-5	ND	1	0.1	0.02
130885-08	HD-30	ND	1	0.1	0.02
130885-09	HD-12	ND	1	0.1	0.02
130885-10	HD-5	ND	1	0.1	0.02

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 130885
Analyst: AN

Date Sampled: 03/14/13
Date Received: 03/14/13
Date Analyzed: 03/21/13
Sample Matrix: Water

TOTAL PHENOL
EPA Method 420.1

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)	MDL (mg/L)
130885-01	BYA-4	ND	1	0.1	0.02
130885-02	W-8	ND	1	0.1	0.02
130885-03	BYA-9	ND	1	0.1	0.02
130885-04	BYA-1	ND	1	0.1	0.02
130885-05	BYA-3	ND	1	0.1	0.02
130885-06	W-1	ND	1	0.1	0.02
130885-07	BYA-5	ND	1	0.1	0.02
130885-08	HD-30	ND	1	0.1	0.02
130885-09	HD-12	ND	1	0.1	0.02
130885-10	HD-5	ND	1	0.1	0.02

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 130885
Analyst: AN

Date Sampled: 03/14/13
Date Received: 03/14/13
Date Analyzed: 03/14/13
Sample Matrix: Water

TOTAL RESIDUAL CHLORINE
EPA Method SM 4500CLG

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)
130885-01	BYA-4	BQL	1	0.05
130885-02	W-8	BQL	1	0.05
130885-03	BYA-9	BQL	1	0.05
130885-04	BYA-1	BQL	1	0.05
130885-05	BYA-3	BQL	1	0.05
130885-06	W-1	BQL	1	0.05
130885-07	BYA-5	BQL	1	0.05
130885-08	HD-30	BQL	1	0.05
130885-09	HD-12	BQL	1	0.05
130885-10	HD-5	BQL	1	0.05

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 130885
Analyst: AN

Date Sampled: 03/14/13
Date Received: 03/14/13
Date Analyzed: 03/20/13
Sample Matrix: Water

TOTAL SULFIDE
EPA Method SM 4500S^{2-}D

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)	MDL (mg/L)
130885-01	BYA-4	ND	1	0.02	0.004
130885-02	W-8	ND	1	0.02	0.004
130885-03	BYA-9	ND	1	0.02	0.004
130885-04	BYA-1	ND	1	0.02	0.004
130885-05	BYA-3	ND	1	0.02	0.004
130885-06	W-1	ND	1	0.02	0.004
130885-07	BYA-5	ND	1	0.02	0.004
130885-08	HD-30	ND	1	0.02	0.004
130885-09	HD-12	ND	1	0.02	0.004
130885-10	HD-5	ND	1	0.02	0.004

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
Sample ID: Method Blank
CAS LAB NO: 130885-MB

Date Sampled: 03/14/13
Analyst: GM/AN

QUALITY CONTROL SECTION

WET CHEMISTRY SUMMARY

COMPOUND	RESULT	UNITS	DF	PQL	MDL	METHOD	ANALYZED
B.O.D.	ND	mg/L	1	2	0.4	5210 B	03/15/13
Sulfide (Total)	ND	mg/L	1	0.02	0.004	4500S^{2-}D	03/20/13
T.S.S.	ND	mg/L	1	5	1.0	2540 D	03/15/13
Oil & Grease	ND	mg/L	1	5	1.0	1664	03/18/13
Phenol (Total)	ND	mg/L	1	0.1	0.02	420.1	03/21/13
MBAS	ND	mg/L	1	0.1	0.02	5540 C	03/15/13
Chlorine (Total)	BQL	mg/L	1	0.05	---	4500CLG	03/14/13

B.O.D.: Biochemical Oxygen Demand
T.S.S.: Total Suspended Solids
DF: Dilution Factor

Certificate of Analysis

Notes:

The Chain of Custody document is part of the analytical report.
Any remaining sample(s) for testing will be disposed of one month from the final report date unless other arrangements are made in advance.
All results are expressed on wet weight basis unless otherwise specified.

Authorized Signature

(QA/QC Supervisor)

The results in this report apply to the samples analyzed in accordance with the chain of custody document. Capco Analytical certifies that the test results meet all requirements of ELAP unless noted in the Case Narrative. This analytical report must be reproduced in its entirety.

Legend for Abbreviations:

PQL	Practical Quantitation Limit
BQL	Below Practical Quantitation Limit
ND	NOT DETECTED at or above the Reporting Limit. If J-value reported, then NOT DETECTED at or above the Method Detection Limit (MDL).
MDL	Method Detection Limit
MRL	Method Reporting Limit
MDA	Minimum Detectable Activity
MCL	Maximum Contamination Level

CAPCO ANALYTICAL SERVICES

1536 Eastman Avenue
Ventura, CA 93003
(805) 644-1095 Fax 644-9947

CHAIN OF CUSTODY RECORD

REPORT
Fax 805-650-7010
Company Fugro Consultants
Address 4820 McGrath Street, Suite 100
Ventura,CA93003
Phone 650-7000 Contact Tim Nicely

BILL TO: P.O.# 3/21
Company same
Address 3/22
Phone Contact

PROJ. NO
PROJECT NAME: Malibu-NPDES

SAMPLERS: (Signature)

CONTAINER TYPES
A = AMBER B = BRASS G = GLASS
P = PLASTIC V = VOA VIAL O = OTHER

REMARKS: 130885

SAMPLE NO.	DATE SAMPLED	TIME SAMPLED	COMP	GRAB	SAMPLE DESCRIPTION	MATRIX: WATER	SOIL	SLUDGE	OTHER	CONTAINER #: #	CONTAINER TYPE	ANALYSIS: TSS	Settleable Solids	BOD	Oil & Grease	MBAS	Sulfide	Phenols	Residual Chlorine	Turbidity	pH	
1	3/14/13	10:30			B4A-4	x				5	P+G										6.91	22.4
2		10:45			W-8	x															6.70	21.7
3		11:00			B4A-9	x															6.69	22.8
4		11:15			B4A-1	x															6.92	21.3
5		11:45			B4A-3	x															6.93	21.5
6		12:15			W-1	x															6.87	20.0
7		12:30			B4A-5	x															6.78	20.8
8		12:50			HD-30	x															7.13	20.9
9		1:09			HD-12	x															7.05	21.2
10		1:30			HD-5	x															7.10	21.6

CHECK ONE BOX:
DISPOSE SAMPLES
RETURN SAMPLES

The undersigned hereby acknowledges having received a copy of the Fee Schedule/General Information and Conditions, the provisions of which are a part of this agreement.

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
	3/14/13 15:15				
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time		

TURN AROUND TIME

24 Hr.		5 Day		
48 Hr.		Standard	X	
72 Hr.		Other		

WHITE COPY CANARY COPY PINK COPY

CAPCO
Analytical Services, Inc.

Environmental and Analytical Services-Since 1994
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

Prepared for: Fugro Consultants
4820 McGrath Street, Suite 100
Ventura, CA 93003
Attn: Tim Nicely

Report Date: April 24, 2013
Laboratory Number: 131260
Project Name: Malibu-NPDES
Sampled by: Client

On April 17, 2013, Capco Analytical Services, Inc.(CAS), received ten(10) samples to be analyzed. The samples were identified and assigned the laboratory ID numbers listed below:

SAMPLE DESCRIPTION	CAS LAB NUMBER ID
W-18	131260-01
W-16	131260-02
FW-2	131260-03
FW-1	131260-04
W-2	131260-05
BYA-13	131260-06
HD-4	131260-07
HD-15	131260-08
HD-11	131260-09
HD-23	131260-10

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Keith Chin-Yuan Chang, Ph.D.
Director - Analytical Operations

If you have any further questions or concerns, please contact me at your convenience.

This report consists of 11 pages excluding the cover letter and the Chain of Custody.

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 131260
Analyst: AN

Date Sampled: 04/17/13
Date Received: 04/17/13
Date Analyzed: 04/18/13
Sample Matrix: Water

TOTAL SUSPENDED SOLIDS
EPA Method SM 2540 D

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)	MDL (mg/L)
131260-01	W-18	3.2	1	5	1
131260-02	W-16	ND	1	5	1
131260-03	FW-2	1.4	1	5	1
131260-04	FW-1	ND	1	5	1
131260-05	W-2	ND	1	5	1
131260-06	BYA-13	ND	1	5	1
131260-07	HD-4	ND	1	5	1
131260-08	HD-15	ND	1	5	1
131260-09	HD-11	1.6	1	5	1
131260-10	HD-23	1.2	1	5	1

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 131260
Analyst: AN

Date Sampled: 04/17/13
Date Received: 04/17/13
Date Analyzed: 04/19,22,23/13
Sample Matrix: Water

OIL & GREASE
EPA Method 1664

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)	MDL (mg/L)
131260-01	W-18	ND	1	5	1
131260-02	W-16	ND	1	5	1
131260-03	FW-2	ND	1	5	1
131260-04	FW-1	ND	1	5	1
131260-05	W-2	ND	1	5	1
131260-06	BYA-13	ND	1	5	1
131260-07	HD-4	ND	1	5	1
131260-08	HD-15	ND	1	5	1
131260-09	HD-11	ND	1	5	1
131260-10	HD-23	ND	1	5	1

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 131260
Analyst: AN

Date Sampled: 04/17/13
Date Received: 04/17/13
Date Analyzed: 04/18/13
Sample Matrix: Water

MBAS
EPA Method SM 5540 C

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)	MDL (mg/L)
131260-01	W-18	ND	1	0.1	0.02
131260-02	W-16	ND	1	0.1	0.02
131260-03	FW-2	ND	1	0.1	0.02
131260-04	FW-1	ND	1	0.1	0.02
131260-05	W-2	ND	1	0.1	0.02
131260-06	BYA-13	ND	1	0.1	0.02
131260-07	HD-4	ND	1	0.1	0.02
131260-08	HD-15	ND	1	0.1	0.02
131260-09	HD-11	ND	1	0.1	0.02
131260-10	HD-23	ND	1	0.1	0.02

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 131260
Analyst: AN

Date Sampled: 04/17/13
Date Received: 04/17/13
Date Analyzed: 04/22/13
Sample Matrix: Water

TOTAL PHENOL
EPA Method 420.1

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)	MDL (mg/L)
131260-01	W-18	ND	1	0.1	0.02
131260-02	W-16	ND	1	0.1	0.02
131260-03	FW-2	ND	1	0.1	0.02
131260-04	FW-1	ND	1	0.1	0.02
131260-05	W-2	ND	1	0.1	0.02
131260-06	BYA-13	ND	1	0.1	0.02
131260-07	HD-4	ND	1	0.1	0.02
131260-08	HD-15	ND	1	0.1	0.02
131260-09	HD-11	ND	1	0.1	0.02
131260-10	HD-23	ND	1	0.1	0.02

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 131260
Analyst: AN

Date Sampled: 04/17/13
Date Received: 04/17/13
Date Analyzed: 04/18/13
Sample Matrix: Water

BIOCHEMICAL OXYGEN DEMAND
EPA Method 5210 B

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)	MDL (mg/L)
131260-01	W-18	ND	1	2.0	0.4
131260-02	W-16	ND	1	2.0	0.4
131260-03	FW-2	ND	1	2.0	0.4
131260-04	FW-1	ND	1	2.0	0.4
131260-05	W-2	ND	1	2.0	0.4
131260-06	BYA-13	ND	1	2.0	0.4
131260-07	HD-4	0.60	1	2.0	0.4
131260-08	HD-15	0.42	1	2.0	0.4
131260-09	HD-11	0.52	1	2.0	0.4
131260-10	HD-23	0.52	1	2.0	0.4

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 131260
Analyst: AN

Date Sampled: 04/17/13
Date Received: 04/17/13
Date Analyzed: 04/17/13
Sample Matrix: Water

SETTLEABLE SOLIDS
EPA Method SM 2540 F

CAS Lab #	Sample ID	RESULTS (ml/L)	DF	PQL (ml/L)
131260-01	W-18	BQL	1	0.1
131260-02	W-16	BQL	1	0.1
131260-03	FW-2	BQL	1	0.1
131260-04	FW-1	BQL	1	0.1
131260-05	W-2	BQL	1	0.1
131260-06	BYA-13	BQL	1	0.1
131260-07	HD-4	BQL	1	0.1
131260-08	HD-15	BQL	1	0.1
131260-09	HD-11	BQL	1	0.1
131260-10	HD-23	BQL	1	0.1

DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 131260
Analyst: AN

Date Sampled: 04/17/13
Date Received: 04/17/13
Date Analyzed: 04/18/13
Sample Matrix: Water

TURBIDITY
EPA Method 180.1

CAS Lab #	Sample ID	RESULTS (NTU)	DF	PQL (NTU)
131260-01	W-18	3.90	1	0.1
131260-02	W-16	BQL	1	0.1
131260-03	FW-2	0.6	1	0.1
131260-04	FW-1	0.30	1	0.1
131260-05	W-2	0.39	1	0.1
131260-06	BYA-13	0.22	1	0.1
131260-07	HD-4	0.16	1	0.1
131260-08	HD-15	0.25	1	0.1
131260-09	HD-11	0.39	1	0.1
131260-10	HD-23	0.36	1	0.1

DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 131260
Analyst: AN

Date Sampled: 04/17/13
Date Received: 04/17/13
Date Analyzed: 04/17/13
Sample Matrix: Water

TOTAL RESIDUAL CHLORINE
EPA Method SM 4500CLG

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)
131260-01	W-18	BQL	1	0.05
131260-02	W-16	BQL	1	0.05
131260-03	FW-2	BQL	1	0.05
131260-04	FW-1	BQL	1	0.05
131260-05	W-2	BQL	1	0.05
131260-06	BYA-13	BQL	1	0.05
131260-07	HD-4	BQL	1	0.05
131260-08	HD-15	BQL	1	0.05
131260-09	HD-11	BQL	1	0.05
131260-10	HD-23	BQL	1	0.05

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 131260
Analyst: AN

Date Sampled: 04/17/13
Date Received: 04/17/13
Date Analyzed: 04/23/13
Sample Matrix: Water

TOTAL SULFIDE
EPA Method SM 4500S^{2-}D

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)	MDL (mg/L)
131260-01	W-18	ND	1	0.02	0.004
131260-02	W-16	ND	1	0.02	0.004
131260-03	FW-2	ND	1	0.02	0.004
131260-04	FW-1	ND	1	0.02	0.004
131260-05	W-2	ND	1	0.02	0.004
131260-06	BYA-13	ND	1	0.02	0.004
131260-07	HD-4	ND	1	0.02	0.004
131260-08	HD-15	ND	1	0.02	0.004
131260-09	HD-11	ND	1	0.02	0.004
131260-10	HD-23	ND	1	0.02	0.004

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
Sample ID: Method Blank
CAS LAB NO: 131260-MB

Date Sampled: 04/17/13
Analyst: GM/AN

QUALITY CONTROL SECTION

WET CHEMISTRY SUMMARY

COMPOUND	RESULT	UNITS	DF	PQL	MDL	METHOD	ANALYZED
B.O.D.	ND	mg/L	1	2	0.4	5210 B	04/18/13
Sulfide (Total)	ND	mg/L	1	0.02	0.004	4500S^{2-}D	04/23/13
T.S.S.	ND	mg/L	1	5	1.0	2540 D	04/18/13
Oil & Grease	ND	mg/L	1	5	1.0	1664	04/19/13 04/22/13 04/23/13
Phenol (Total)	ND	mg/L	1	0.1	0.02	420.1	04/22/13
MBAS	ND	mg/L	1	0.1	0.02	5540 C	04/18/13
Chlorine (Total)	BQL	mg/L	1	0.05	---	4500CLG	04/17/13

B.O.D.: Biochemical Oxygen Demand
T.S.S.: Total Suspended Solids
DF: Dilution Factor

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Environmental and Analytical Services-Since 1994

Certificate of Analysis

Notes:

The Chain of Custody document is part of the report. Any remaining sample(s) for testing will be disposed of one month from the final report date unless other arrangements are made in advance.
All results are expressed on wet weight basis unless otherwise specified.

Authorized Signature
(QA/QC Supervisor)

The results in this report apply to the samples analyzed in accordance with the Chain of Custody document. Capco Analytical certifies that the results meet all requirements of ELAP unless noted in the Case Narrative. This analytical report must be reproduced in its entirety.

Legend of Abbreviations:

PQL	Practical Quantitation Limit
BQL	Below Practical Quantitation Limit
ND	NOT DETECTED at or above the Method Detection Limit (MDL)
MDL	Method Detection Limit
MRL	Method Reporting Limit
MDA	Minimum Detectable Activity
MCL	Maximum Contamination Level

CAPCO ANALYTICAL SERVICES

1536 Eastman Avenue
Ventura, CA 93003
(805) 644-1095 Fax 644-9947

CHAIN OF CUSTODY RECORD

REPORT
Fax 805-650-7010
Company Fugro Consultants
Address 4820 McGrath Street, Suite 100
Ventura,CA93003
Phone 650-7000 Contact Tim Nicely

BILL TO: 4/24
Company same
Address
Phone Contact

P.O.#

PROJ. NO

PROJECT NAME: Malibu-NPDES

SAMPLERS: (Signature)

CONTAINER TYPES
A = AMBER B = BRASS G = GLASS
P = PLASTIC V = VOA VIAL O = OTHER

SAMPLE NO.	DATE SAMPLED	TIME SAMPLED	COMP	GRAB	SAMPLE DESCRIPTION	MATRIX: WATER	SOIL	SLUDGE	OTHER	CONTAINER #: #	TYPE	ANALYSIS: TSS, Setteable Solids	BOD	Oil & Grease	MBAS	Sulfide	Phenols	Residual Chlorine	Turbidity	pH	REMARKS: 131250
1	4-17-13	9:10			W-18	X				5	P+G									7.02	22.4
2		9:25			W-16	X														6.75	23.3
3		9:45			FW-2	X														7.33	22.7
4		10:15			FW-1	X														7.15	22.6
5		10:45			W-2	X														6.89	21.9
6		11:15			B4A-13	X														7.01	22.3
7		12:00			HD-4	X														6.92	22.1
8		12:15			HD-15	X														7.07	21.6
9		12:45			HD-11	X														7.05	21.8
10		100			HD-23	X															

CHECK ONE BOX:
DISPOSE SAMPLES
RETURN SAMPLES

The undersigned hereby acknowledges having received a copy of the Fee Schedule/General Information and Conditions, the provisions of which are a part of this agreement.

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
	4/17/13 1430				
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time		

TURN AROUND TIME

24 Hr.		5 Day	
48 Hr.		Standard	X
72 Hr.		Other	

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Environmental and Analytical Services-Since 1994
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

Prepared for: Fugro Consultants
4820 McGrath Street, Suite 100
Ventura, CA 93003
Attn: Tim Nicely

Report Date: May 28, 2013
Laboratory Number: 131606
Project Name: Malibu-NPDES
Sampled by: Client

On May 20, 2013, Capco Analytical Services, Inc.(CAS), received ten(10) samples to be analyzed. The samples were identified and assigned the laboratory ID numbers listed below:

SAMPLE DESCRIPTION	CAS LAB NUMBER ID
HD-4	131606-01
HD-15	131606-02
HD-11	131606-03
W-18	131606-04
W-16	131606-05
BYA-13	131606-06
FW-2	131606-07
W-2	131606-08
FW-1	131606-09
HD-23	131606-10

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Keith Chin-Yuan Chang, Ph.D.
Director - Analytical Operations

If you have any further questions or concerns, please contact me at your convenience.

This report consists of 11 pages excluding the cover letter and the Chain of Custody.

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 131606
Analyst: AN

Date Sampled: 05/20/13
Date Received: 05/20/13
Date Analyzed: 05/21/13
Sample Matrix: Water

BIOCHEMICAL OXYGEN DEMAND
EPA Method 5210 B

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)	MDL (mg/L)
131606-01	HD-4	ND	1	2.0	0.4
131606-02	HD-15	ND	1	2.0	0.4
131606-03	HD-11	ND	1	2.0	0.4
131606-04	W-18	ND	1	2.0	0.4
131606-05	W-16	ND	1	2.0	0.4
131606-06	BYA-13	ND	1	2.0	0.4
131606-07	FW-2	ND	1	2.0	0.4
131606-08	W-2	ND	1	2.0	0.4
131606-09	FW-1	4.0	1	2.0	0.4
131606-10	HD-23	1.2	1	2.0	0.4

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 131606
Analyst: AN

Date Sampled: 05/20/13
Date Received: 05/20/13
Date Analyzed: 05/24/13
Sample Matrix: Water

TOTAL PHENOL
EPA Method 420.1

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)	MDL (mg/L)
131606-01	HD-4	ND	1	0.1	0.02
131606-02	HD-15	ND	1	0.1	0.02
131606-03	HD-11	ND	1	0.1	0.02
131606-04	W-18	ND	1	0.1	0.02
131606-05	W-16	ND	1	0.1	0.02
131606-06	BYA-13	ND	1	0.1	0.02
131606-07	FW-2	ND	1	0.1	0.02
131606-08	W-2	ND	1	0.1	0.02
131606-09	FW-1	ND	1	0.1	0.02
131606-10	HD-23	ND	1	0.1	0.02

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 131606
Analyst: AN

Date Sampled: 05/20/13
Date Received: 05/20/13
Date Analyzed: 05/22/13
Sample Matrix: Water

MBAS
EPA Method SM 5540 C

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)	MDL (mg/L)
131606-01	HD-4	ND	1	0.1	0.02
131606-02	HD-15	ND	1	0.1	0.02
131606-03	HD-11	ND	1	0.1	0.02
131606-04	W-18	ND	1	0.1	0.02
131606-05	W-16	ND	1	0.1	0.02
131606-06	BYA-13	ND	1	0.1	0.02
131606-07	FW-2	ND	1	0.1	0.02
131606-08	W-2	ND	1	0.1	0.02
131606-09	FW-1	ND	1	0.1	0.02
131606-10	HD-23	ND	1	0.1	0.02

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 131606
Analyst: AN

Date Sampled: 05/20/13
Date Received: 05/20/13
Date Analyzed: 05/21/13& 05/23/13
Sample Matrix: Water

OIL & GREASE
EPA Method 1664

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)	MDL (mg/L)
131606-01	HD-4	ND	1	5	1
131606-02	HD-15	1.2	1	5	1
131606-03	HD-11	1.2	1	5	1
131606-04	W-18	1.1	1	5	1
131606-05	W-16	ND	1	5	1
131606-06	BYA-13	ND	1	5	1
131606-07	FW-2	ND	1	5	1
131606-08	W-2	ND	1	5	1
131606-09	FW-1	2.0	1	5	1
131606-10	HD-23	1.0	1	5	1

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 131606
Analyst: AN

Date Sampled: 05/20/13
Date Received: 05/20/13
Date Analyzed: 05/21/13
Sample Matrix: Water

TOTAL SUSPENDED SOLIDS
EPA Method SM 2540 D

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)	MDL (mg/L)
131606-01	HD-4	2.0	1	5	1
131606-02	HD-15	1.2	1	5	1
131606-03	HD-11	ND	1	5	1
131606-04	W-18	4.6	1	5	1
131606-05	W-16	ND	1	5	1
131606-06	BYA-13	6.6	1	5	1
131606-07	FW-2	2.4	1	5	1
131606-08	W-2	ND	1	5	1
131606-09	FW-1	9.4	1	5	1
131606-10	HD-23	2.0	1	5	1

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 131606
Analyst: AN

Date Sampled: 05/20/13
Date Received: 05/20/13
Date Analyzed: 05/22/13
Sample Matrix: Water

TOTAL SULFIDE
EPA Method SM 4500S^{2-}D

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)	MDL (mg/L)
131606-01	HD-4	ND	1	0.02	0.004
131606-02	HD-15	ND	1	0.02	0.004
131606-03	HD-11	ND	1	0.02	0.004
131606-04	W-18	ND	1	0.02	0.004
131606-05	W-16	ND	1	0.02	0.004
131606-06	BYA-13	ND	1	0.02	0.004
131606-07	FW-2	ND	1	0.02	0.004
131606-08	W-2	ND	1	0.02	0.004
131606-09	FW-1	ND	1	0.02	0.004
131606-10	HD-23	ND	1	0.02	0.004

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 131606
Analyst: AN

Date Sampled: 05/20/13
Date Received: 05/20/13
Date Analyzed: 05/20/13
Sample Matrix: Water

TOTAL RESIDUAL CHLORINE
EPA Method SM 4500CLG

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)
131606-01	HD-4	BQL	1	0.05
131606-02	HD-15	BQL	1	0.05
131606-03	HD-11	BQL	1	0.05
131606-04	W-18	BQL	1	0.05
131606-05	W-16	BQL	1	0.05
131606-06	BYA-13	BQL	1	0.05
131606-07	FW-2	BQL	1	0.05
131606-08	W-2	BQL	1	0.05
131606-09	FW-1	BQL	1	0.05
131606-10	HD-23	BQL	1	0.05

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 131606
Analyst: AN

Date Sampled: 05/20/13
Date Received: 05/20/13
Date Analyzed: 05/20/13
Sample Matrix: Water

SETTLEABLE SOLIDS
EPA Method SM 2540 F

CAS Lab #	Sample ID	RESULTS (ml/L)	DF	PQL (ml/L)
131606-01	HD-4	BQL	1	0.1
131606-02	HD-15	BQL	1	0.1
131606-03	HD-11	BQL	1	0.1
131606-04	W-18	BQL	1	0.1
131606-05	W-16	BQL	1	0.1
131606-06	BYA-13	BQL	1	0.1
131606-07	FW-2	BQL	1	0.1
131606-08	W-2	BQL	1	0.1
131606-09	FW-1	BQL	1	0.1
131606-10	HD-23	BQL	1	0.1

DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 131606
Analyst: AN

Date Sampled: 05/20/13
Date Received: 05/20/13
Date Analyzed: 05/20/13
Sample Matrix: Water

TURBIDITY
EPA Method 180.1

CAS Lab #	Sample ID	RESULTS (NTU)	DF	PQL (NTU)
131606-01	HD-4	1.40	1	0.1
131606-02	HD-15	1.2	1	0.1
131606-03	HD-11	0.50	1	0.1
131606-04	W-18	5.7	1	0.1
131606-05	W-16	0.11	1	0.1
131606-06	BYA-13	11	1	0.1
131606-07	FW-2	1.3	1	0.1
131606-08	W-2	0.23	1	0.1
131606-09	FW-1	50	1	0.1
131606-10	HD-23	0.82	1	0.1

DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
Sample ID: Method Blank
CAS LAB NO: 131606-MB

Date Sampled: 05/20/13
Analyst: GM/AN

QUALITY CONTROL SECTION

WET CHEMISTRY SUMMARY

COMPOUND	RESULT	UNITS	DF	PQL	MDL	METHOD	ANALYZED
B.O.D.	ND	mg/L	1	2	0.4	5210 B	05/21/13
Sulfide (Total)	ND	mg/L	1	0.02	0.004	4500S^{2-}D	05/22/13
T.S.S.	ND	mg/L	1	5	1.0	2540 D	05/21/13
Oil & Grease	ND	mg/L	1	5	1.0	1664	05/21/13 05/23/13
Phenol (Total)	ND	mg/L	1	0.1	0.02	420.1	05/24/13
MBAS	ND	mg/L	1	0.1	0.02	5540 C	05/22/13
Chlorine (Total)	BQL	mg/L	1	0.05	---	4500CLG	05/20/13

B.O.D.: Biochemical Oxygen Demand
T.S.S.: Total Suspended Solids
DF: Dilution Factor

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Certificate of Analysis

Notes:

The Chain of Custody document is part of the report. Any remaining sample(s) for testing will be disposed of one month from the final report date unless other arrangements are made in advance.
All results are expressed on wet weight basis unless otherwise specified.

Authorized Signature
(QA/QC Supervisor)

The results in this report apply to the samples analyzed in accordance with the Chain of Custody document. Capco Analytical certifies that the results meet all requirements of ELAP unless noted in the Case Narrative. This analytical report must be reproduced in its entirety.

Legend of Abbreviations:

PQL	Practical Quantitation Limit
BQL	Below Practical Quantitation Limit
ND	NOT DETECTED at or above the Method Detection Limit (MDL)
MDL	Method Detection Limit
MRL	Method Reporting Limit
MDA	Minimum Detectable Activity
MCL	Maximum Contamination Level

1536 Eastman Avenue, Suite B, Ventura, CA 93003, Phone: (805) 644-1095, Fax: (805) 644-9947
www.capcoenv.com

CAPCO ANALYTICAL SERVICES

1536 Eastman Avenue
Ventura, CA 93003
(805) 644-1095 Fax 644-9947

CHAIN OF CUSTODY RECORD

REPORT
Fax 805-650-7010
Company Fugro Consultants
Address 4820 McGrath Street, Suite 100
Ventura,CA93003
Phone 650-7000 Contact Tim Nicely

BILL TO: P.O.# 5/28
Company same
Address
Phone Contact

PROJ. NO
PROJECT NAME: Malibu-NPDES

SAMPLERS: (Signature)

CONTAINER TYPES
A = AMBER B = BRASS G = GLASS
P = PLASTIC V = VOA VIAL O = OTHER

REMARKS: 131606

SAMPLE NO.	DATE SAMPLED	TIME SAMPLED	COMP	GRAB	SAMPLE DESCRIPTION	MATRIX: WATER	SOIL	SLUDGE	OTHER	CONTAINER #/TYPE	TSS, Settleable Solids	BOD	Oil & Grease	MBAS	Sulfide	Phenols	Residual Chlorine	Turbidity	pH	Temp°C
1	5/20/13	8:45			HD-4	X				5 P+G									6.94	22.9
2		9:00			HD-15	X													7.02	22.7
3		9:15			HD-11	X													7.07	23.0
4		9:45			W-18	X													7.02	23.3
5		10:00			W-16	X													6.80	23.8
6		10:30			BYA-13	X													7.10	23.1
7		10:50			FW-2	X													7.40	23.5
8		11:20			W-2	X													6.91	22.9
9		12:45			FW1	X													7.15	21.9
10	↓	1:45			HD-23 kc	X													7.62	23.2

CHECK ONE BOX:
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The undersigned hereby acknowledges having received a copy of the Fee Schedule/General Information and Conditions, the provisions of which are a part of this agreement.

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
	5/20/13 12:20				
	5/20/13 1320			5/20/13 1500	

TURN AROUND TIME

24 Hr.		5 Day	
48 Hr.		Standard	X
72 Hr.		Other	

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Environmental and Analytical Services-Since 1994
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

Prepared for: Fugro Consultants
4820 McGrath Street, Suite 100
Ventura, CA 93003
Attn: Tim Nicely

Report Date: August 6, 2013
Laboratory Number: 131863
Project Name: Malibu-NPDES
Sampled by: Client

On June 12, 2013, Capco Analytical Services, Inc.(CAS), received ten(10) samples to be analyzed. The samples were identified and assigned the laboratory ID numbers listed below:

SAMPLE DESCRIPTION	CAS LAB NUMBER ID
W-16	131863-01
W-18	131863-02
W-2	131863-03
BYA-13	131863-04
FW-2	131863-05
FW-1	131863-06
HD-4	131863-07
HD-15	131863-08
HD-23	131863-09
HD-11	131863-10

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Keith Chin-Yuan Chang, Ph.D.
Director - Analytical Operations

Note: Cover letter amended 8/6/13 (Receiving date).

If you have any further questions or concerns, please contact me at your convenience. This report consists of 11 pages excluding the cover letter and the Chain of Custody.

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 131863
Analyst: AN

Date Sampled: 06/12/13
Date Received: 06/12/13
Date Analyzed: 06/12/13
Sample Matrix: Water

SETTLEABLE SOLIDS
EPA Method SM 2540 F

CAS Lab #	Sample ID	RESULTS (ml/L)	DF	PQL (ml/L)
131863-01	W-16	BQL	1	0.1
131863-02	W-18	BQL	1	0.1
131863-03	W-2	BQL	1	0.1
131863-04	BYA-13	BQL	1	0.1
131863-05	FW-2	BQL	1	0.1
131863-06	FW-1	BQL	1	0.1
131863-07	HD-4	BQL	1	0.1
131863-08	HD-15	BQL	1	0.1
131863-09	HD-23	BQL	1	0.1
131863-10	HD-11	BQL	1	0.1

DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 131863
Analyst: AN

Date Sampled: 06/12/13
Date Received: 06/12/13
Date Analyzed: 06/13/13
Sample Matrix: Water

TURBIDITY
EPA Method 180.1

CAS Lab #	Sample ID	RESULTS (NTU)	DF	PQL (NTU)
131863-01	W-16	0.15	1	0.1
131863-02	W-18	7.8	1	0.1
131863-03	W-2	0.71	1	0.1
131863-04	BYA-13	1.6	1	0.1
131863-05	FW-2	0.66	1	0.1
131863-06	FW-1	29	1	0.1
131863-07	HD-4	0.44	1	0.1
131863-08	HD-15	0.50	1	0.1
131863-09	HD-23	0.14	1	0.1
131863-10	HD-11	0.20	1	0.1

DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 131863
Analyst: AN

Date Sampled: 06/12/13
Date Received: 06/12/13
Date Analyzed: 06/12/13
Sample Matrix: Water

TOTAL RESIDUAL CHLORINE
EPA Method SM 4500CLG

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)
131863-01	W-16	BQL	1	0.05
131863-02	W-18	BQL	1	0.05
131863-03	W-2	BQL	1	0.05
131863-04	BYA-13	BQL	1	0.05
131863-05	FW-2	BQL	1	0.05
131863-06	FW-1	BQL	1	0.05
131863-07	HD-4	BQL	1	0.05
131863-08	HD-15	BQL	1	0.05
131863-09	HD-23	BQL	1	0.05
131863-10	HD-11	BQL	1	0.05

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 131863
Analyst: AN

Date Sampled: 06/12/13
Date Received: 06/12/13
Date Analyzed: 06/17/13
Sample Matrix: Water

TOTAL SULFIDE
EPA Method SM 4500S^{2-}D

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)	MDL (mg/L)
131863-01	W-16	ND	1	0.02	0.004
131863-02	W-18	ND	1	0.02	0.004
131863-03	W-2	ND	1	0.02	0.004
131863-04	BYA-13	ND	1	0.02	0.004
131863-05	FW-2	ND	1	0.02	0.004
131863-06	FW-1	12	20	0.40	0.080
131863-07	HD-4	ND	1	0.02	0.004
131863-08	HD-15	ND	1	0.02	0.004
131863-09	HD-23	ND	1	0.02	0.004
131863-10	HD-11	ND	1	0.02	0.004

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 131863
Analyst: AN

Date Sampled: 06/12/13
Date Received: 06/12/13
Date Analyzed: 06/13/13
Sample Matrix: Water

MBAS
EPA Method SM 5540 C

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)	MDL (mg/L)
131863-01	W-16	ND	1	0.1	0.02
131863-02	W-18	ND	1	0.1	0.02
131863-03	W-2	ND	1	0.1	0.02
131863-04	BYA-13	ND	1	0.1	0.02
131863-05	FW-2	ND	1	0.1	0.02
131863-06	FW-1	ND	1	0.1	0.02
131863-07	HD-4	ND	1	0.1	0.02
131863-08	HD-15	ND	1	0.1	0.02
131863-09	HD-23	ND	1	0.1	0.02
131863-10	HD-11	ND	1	0.1	0.02

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 131863
Analyst: AN

Date Sampled: 06/12/13
Date Received: 06/12/13
Date Analyzed: 06/14/13
Sample Matrix: Water

TOTAL PHENOL
EPA Method 420.1

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)	MDL (mg/L)
131863-01	W-16	ND	1	0.1	0.02
131863-02	W-18	ND	1	0.1	0.02
131863-03	W-2	ND	1	0.1	0.02
131863-04	BYA-13	ND	1	0.1	0.02
131863-05	FW-2	ND	1	0.1	0.02
131863-06	FW-1	ND	1	0.1	0.02
131863-07	HD-4	ND	1	0.1	0.02
131863-08	HD-15	ND	1	0.1	0.02
131863-09	HD-23	ND	1	0.1	0.02
131863-10	HD-11	ND	1	0.1	0.02

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 131863
Analyst: AN

Date Sampled: 06/12/13
Date Received: 06/12/13
Date Analyzed: 06/13/13
Sample Matrix: Water

BIOCHEMICAL OXYGEN DEMAND
EPA Method 5210 B

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)	MDL (mg/L)
131863-01	W-16	ND	1	2.0	0.4
131863-02	W-18	0.84	1	2.0	0.4
131863-03	W-2	ND	1	2.0	0.4
131863-04	BYA-13	0.48	1	2.0	0.4
131863-05	FW-2	ND	1	2.0	0.4
131863-06	FW-1	13	6	12	2.4
131863-07	HD-4	ND	1	2.0	0.4
131863-08	HD-15	ND	1	2.0	0.4
131863-09	HD-23	ND	1	2.0	0.4
131863-10	HD-11	ND	1	2.0	0.4

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 131863
Analyst: AN

Date Sampled: 06/12/13
Date Received: 06/12/13
Date Analyzed: 06/13/13
Sample Matrix: Water

TOTAL SUSPENDED SOLIDS
EPA Method SM 2540 D

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)	MDL (mg/L)
131863-01	W-16	ND	1	5	1
131863-02	W-18	4.4	1	5	1
131863-03	W-2	ND	1	5	1
131863-04	BYA-13	ND	1	5	1
131863-05	FW-2	ND	1	5	1
131863-06	FW-1	ND	1	5	1
131863-07	HD-4	ND	1	5	1
131863-08	HD-15	ND	1	5	1
131863-09	HD-23	ND	1	5	1
131863-10	HD-11	ND	1	5	1

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 131863
Analyst: AN

Date Sampled: 06/12/13
Date Received: 06/12/13
Date Analyzed: 06/17/13
Sample Matrix: Water

OIL & GREASE
EPA Method 1664

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)	MDL (mg/L)
131863-01	W-16	ND	1	5	1
131863-02	W-18	ND	1	5	1
131863-03	W-2	ND	1	5	1
131863-04	BYA-13	1.0	1	5	1
131863-05	FW-2	1.0	1	5	1
131863-06	FW-1	ND	1	5	1
131863-07	HD-4	ND	1	5	1
131863-08	HD-15	ND	1	5	1
131863-09	HD-23	ND	1	5	1
131863-10	HD-11	ND	1	5	1

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
Sample ID: Method Blank
CAS LAB NO: 131863-MB

Analyst: GM/AN

QUALITY CONTROL SECTION

WET CHEMISTRY SUMMARY

COMPOUND	RESULT	UNITS	DF	PQL	MDL	METHOD	ANALYZED
B.O.D.	ND	mg/L	1	2	0.4	5210 B	06/13/13
Sulfide (Total)	ND	mg/L	1	0.02	0.004	4500S^{2-}D	06/17/13
T.S.S.	ND	mg/L	1	5	1.0	2540 D	06/13/13
Oil & Grease	ND	mg/L	1	5	1.0	1664	06/17/13
Phenol (Total)	ND	mg/L	1	0.1	0.02	420.1	06/14/13
MBAS	ND	mg/L	1	0.1	0.02	5540 C	06/13/13
Chlorine (Total)	BQL	mg/L	1	0.05	---	4500CLG	06/12/13

B.O.D.: Biochemical Oxygen Demand
T.S.S.: Total Suspended Solids
DF: Dilution Factor

CAPCO
Analytical Services, Inc.

Environmental and Analytical Services-Since 1994

Certificate of Analysis

Notes:

The Chain of Custody document is part of the report. Any remaining sample(s) for testing will be disposed of one month from the final report date unless other arrangements are made in advance.
All results are expressed on wet weight basis unless otherwise specified.

Authorized Signature
(QA/QC Supervisor)

The results in this report apply to the samples analyzed in accordance with the Chain of Custody document. Capco Analytical certifies that the results meet all requirements of ELAP unless noted in the Case Narrative. This analytical report must be reproduced in its entirety.

Legend of Abbreviations:

PQL	Practical Quantitation Limit
BQL	Below Practical Quantitation Limit
ND	NOT DETECTED at or above the Method Detection Limit (MDL)
MDL	Method Detection Limit
MRL	Method Reporting Limit
MDA	Minimum Detectable Activity
MCL	Maximum Contamination Level

CAPCO ANALYTICAL SERVICES

1536 Eastman Avenue
Ventura, CA 93003
(805) 644-1095 Fax 644-9947

CHAIN OF CUSTODY RECORD

REPORT Fax 805-650-7010
Company Fugro Consultants
Address 4820 McGrath Street, Suite 100
Ventura,CA93003
Phone 650-7000 Contact Tim Nicely

BILL TO: P.O.# 6/19
Company same
Address
Phone Contact

PROJ. NO | PROJECT NAME: Malibu-NPDES

SAMPLERS: (Signature)

CONTAINER TYPES
A = AMBER B = BRASS G = GLASS
P = PLASTIC V = VOA VIAL O = OTHER

REMARKS: 131863

SAMPLE NO.	DATE SAMPLED	TIME SAMPLED	COMP	GRAB	SAMPLE DESCRIPTION	MATRIX: WATER	SOIL	SLUDGE	OTHER	CONTAINER #: #	TYPE	ANALYSIS: TSS, Settleable Solids	BOD	Oil & Grease	MBAS	Sulfide	Phenols	Residual Chlorine	Turbidity	pH	
1	6/12/13	10:00			W-16	X				5	P+G									6.76	23.0C
2		10:20			W-18	X														7.08	23.1
3		11:15			W-2	X														6.89	21.1
4		11:35			B4A-13	X														6.92	21.3
5		10:45			FW-2	X														7.36	21.4
6		11:50			FW-1	X														7.67	23.1
7		12:30			HD-4	X														6.87	21.7
8		12:45			HD-15	X														6.85	21.5
9		1:15			HD-23	X														7.10	21.5
10	↓	1:35			HD-11	X														7.08	21.6

CHECK ONE BOX:
DISPOSE SAMPLES
RETURN SAMPLES

The undersigned hereby acknowledges having received a copy of the Fee Schedule/General Information and Conditions, the provisions of which are a part of this agreement.

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
	6/12/13 1505				
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time		

TURN AROUND TIME

24 Hr.		5 Day	
48 Hr.		Standard	✓
72 Hr.		Other	

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Prepared for: Fugro Consultants, Inc.
4820 McGrath St., Suite 100
Ventura, CA 93003
Attn: Tim Nicely

Report Date: July 8, 2013
Laboratory Number: 132018
Project Name: Malibu NPDES
Sampled by: Client

On June 26, 2013, Capco Analytical Services, Inc.(CAS), received one(1) sample to be analyzed. The sample was identified and assigned the laboratory ID number listed below:

SAMPLE DESCRIPTION	CAS LAB NUMBER ID
FW-1	132018-01

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Keith Chin-Yuan Chang, Ph.D.
Director - Analytical Operations

If you have any further questions or concerns, please contact me at your convenience.

This report consists of 2 pages excluding the cover letter and the Chain of Custody.

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 132018
Analyst: AN

Date Sampled: 06/28/13
Date Received: 06/28/13
Date Analyzed: 06/28/13
Sample Matrix: Water

TOTAL SULFIDE
EPA Method SM 4500S^{2-}D

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)	MDL (mg/L)
132018-01	FW-1	19	25	0.5	0.1

QUALITY CONTROL REPORT

132018-MB	Method Blank	ND	1	0.02	0.004

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CAPCO
Analytical Services, Inc.

Environmental and Analytical Services-Since 1994

Certificate of Analysis

Notes:

The Chain of Custody document is part of the report. Any remaining sample(s) for testing will be disposed of one month from the final report date unless other arrangements are made in advance.
All results are expressed on wet weight basis unless otherwise specified.

Authorized Signature
(QA/QC Supervisor)

The results in this report apply to the samples analyzed in accordance with the Chain of Custody document. Capco Analytical certifies that the results meet all requirements of ELAP unless noted in the Case Narrative. This analytical report must be reproduced in its entirety.

Legend of Abbreviations:

PQL	Practical Quantitation Limit
BQL	Below Practical Quantitation Limit
ND	NOT DETECTED at or above the Method Detection Limit (MDL)
MDL	Method Detection Limit
MRL	Method Reporting Limit
MDA	Minimum Detectable Activity
MCL	Maximum Contamination Level

CAPCO ANALYTICAL SERVICES

1536 Eastman Avenue, Suite B
Ventura, CA 93003
(805) 644-1095 Fax 644-9947
www.capcoenv.com

CHAIN OF CUSTODY RECORD

REPORT
Company FUGRO
Address 4820 McGRATH ST. SUITE 100
VENTURA, CA 93003
Phone 660-7000 Fax (805) 650-7010
Email
Contact TIM MCELYA

BILL TO:
Company SAME
Address
Phone Contact

P.O.# 7/8

PROJ. NO
PROJECT NAME: MALIBU NPDES

SAMPLERS: (Signature)

CONTAINER TYPES
(A) = AMBER B = BRASS G = GLASS
P = PLASTIC V = VOA VIAL O = OTHER

132018

SAMPLE NO.	DATE SAMPLED	TIME SAMPLED	COMP	GRAB	SAMPLE IDENTIFICATION	MATRIX: WATER	SOIL	SLUDGE	OTHER	CONTAINER #: #	TYPE	ANALYSIS: SULFIDE	REMARKS
1	6/25/13	11:05			FW-1		X			1	A	/	7.15 pH 22.9 c

The undersigned hereby acknowledges having received a copy of the Fee Schedule/General Information and Conditions, the provisions of which are a part of this agreement.

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
	06/25/13 1234	
Relinquished by: (Signature)	Date/Time	Received by: (Signature)

TURN AROUND TIME
STANDARD ☒ OTHER
24 HOURS ☐
48 HOURS ☐
72 HOURS ☐

CHECK ONE BOX:
DISPOSE SAMPLES ☐
RETURN SAMPLES ☐

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Analytical Services, Inc.

Environmental and Analytical Services-Since 1994
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

Prepared for: Fugro Consultants, Inc.
4820 McGrath St., Suite 100
Ventura, CA 93003
Attn: Tim Nicely

Report Date: July 15, 2013
Laboratory Number: 132100
Project Name: Malibu NPDES
Sampled by: Client

On July 9, 2013, Capco Analytical Services, Inc.(CAS), received one(1) sample to be analyzed. The sample was identified and assigned the laboratory ID number listed below:

SAMPLE DESCRIPTION	CAS LAB NUMBER ID
FW-1	132100-01

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Keith Chin-Yuan Chang, Ph.D.
Director - Analytical Operations

If you have any further questions or concerns, please contact me at your convenience.

This report consists of 2 pages excluding the cover letter and the Chain of Custody.

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 132100
Analyst: AN

Date Sampled: 07/09/13
Date Received: 07/09/13
Date Analyzed: 07/09/13
Sample Matrix: Water

TOTAL SULFIDE
EPA Method SM 4500S^{2-}D

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)	MDL (mg/L)
132100-01	FW-1	20.7	50	10	2

QUALITY CONTROL REPORT

132100-MB	Method Blank	ND	1	0.02	0.004

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CAPCO
Analytical Services, Inc.

Environmental and Analytical Services-Since 1994

Certificate of Analysis

Notes:

The Chain of Custody document is part of the report. Any remaining sample(s) for testing will be disposed of one month from the final report date unless other arrangements are made in advance.
All results are expressed on wet weight basis unless otherwise specified.

Authorized Signature
(QA/QC Supervisor)

The results in this report apply to the samples analyzed in accordance with the Chain of Custody document. Capco Analytical certifies that the results meet all requirements of ELAP unless noted in the Case Narrative. This analytical report must be reproduced in its entirety.

Legend of Abbreviations:

PQL	Practical Quantitation Limit
BQL	Below Practical Quantitation Limit
ND	NOT DETECTED at or above the Method Detection Limit (MDL)
MDL	Method Detection Limit
MRL	Method Reporting Limit
MDA	Minimum Detectable Activity
MCL	Maximum Contamination Level

CAPCO ANALYTICAL SERVICES

1536 Eastman Avenue, Suite B
Ventura, CA 93003
(805) 644-1095 Fax 644-9947
www.capcoenv.com

CHAIN OF CUSTODY RECORD

REPORT
Fax (805) 650-7010
Company FUGRO
Address 4820 McGRATH ST SUITE 100
VENTURA Email
Phone 805 650-7000 Contact TIM NILSEN

BILL TO: P.O.# 7/16
Company
Address SAMS
Phone Contact

PROJ. NO
PROJECT NAME: MALIBU MPDES

SAMPLERS: (Signature)

CONTAINER TYPES
A = AMBER B = BRASS G = GLASS
P = PLASTIC V = VOA VIAL O = OTHER

132100

SAMPLE NO.	DATE SAMPLED	TIME SAMPLED	COMP	GRAB	SAMPLE IDENTIFICATION	MATRIX: WATER	SOIL	SLUDGE	OTHER	CONTAINER #/TYPE	ANALYSIS: SULFIDE	REMARKS
1	9/9/13	9:50			FW-1	X				1 P	X	7.17 224

The undersigned hereby acknowledges having received a copy of the Fee Schedule/General Information and Conditions, the provisions of which are a part of this agreement.

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
	9-9-13 10:58	
Relinquished by: (Signature)	Date/Time	Received by: (Signature)

TURN AROUND TIME
STANDARD ☒ OTHER
24 HOURS ☐
48 HOURS ☐
72 HOURS ☐

CHECK ONE BOX:
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CAPCO
Analytical Services, Inc.

Environmental and Analytical Services-Since 1994
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

Prepared for: Fugro Consultants
4820 McGrath Street, Suite 100
Ventura, CA 93003
Attn: Tim Nicely

Report Date: July 24, 2013
Laboratory Number: 132181
Project Name: Malibu-NPDES
Sampled by: Client

On July 16, 2013, Capco Analytical Services, Inc.(CAS), received eleven(11) samples to be analyzed. The samples were identified and assigned the laboratory ID numbers listed below:

SAMPLE DESCRIPTION	CAS LAB NUMBER ID
BYA-4	132181-01
W-13	132181-02
W-8	132181-03
W-17	132181-04
BYA-7	132181-05
BYA-6	132181-06
HD-42	132181-07
HD-9	132181-08
HD-30	132181-09
HD-12	132181-10
FW-1	132181-11

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Keith Chin-Yuan Chang, Ph.D.
Director - Analytical Operations

If you have any further questions or concerns, please contact me at your convenience.
This report consists of 11 pages excluding the cover letter and the Chain of Custody.

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 132181
Analyst: AN

Date Sampled: 07/16/13
Date Received: 07/16/13
Date Analyzed: 07/16/13
Sample Matrix: Water

TOTAL RESIDUAL CHLORINE
EPA Method SM 4500CLG

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)
132181-01	BYA-4	BQL	1	0.05
132181-02	W-13	BQL	1	0.05
132181-03	W-8	BQL	1	0.05
132181-04	W-17	BQL	1	0.05
132181-05	BYA-7	BQL	1	0.05
132181-06	BYA-6	BQL	1	0.05
132181-07	HD-42	BQL	1	0.05
132181-08	HD-9	BQL	1	0.05
132181-09	HD-30	BQL	1	0.05
132181-10	HD-12	BQL	1	0.05

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 132181
Analyst: AN

Date Sampled: 07/16/13
Date Received: 07/16/13
Date Analyzed: 07/17/13
Sample Matrix: Water

MBAS
EPA Method SM 5540 C

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)	MDL (mg/L)
132181-01	BYA-4	ND	1	0.1	0.02
132181-02	W-13	ND	1	0.1	0.02
132181-03	W-8	ND	1	0.1	0.02
132181-04	W-17	ND	1	0.1	0.02
132181-05	BYA-7	ND	1	0.1	0.02
132181-06	BYA-6	ND	1	0.1	0.02
132181-07	HD-42	ND	1	0.1	0.02
132181-08	HD-9	ND	1	0.1	0.02
132181-09	HD-30	ND	1	0.1	0.02
132181-10	HD-12	ND	1	0.1	0.02

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 132181
Analyst: AN

Date Sampled: 07/16/13
Date Received: 07/16/13
Date Analyzed: 07/22/13
Sample Matrix: Water

TOTAL PHENOL
EPA Method 420.1

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)	MDL (mg/L)
132181-01	BYA-4	ND	1	0.1	0.02
132181-02	W-13	ND	1	0.1	0.02
132181-03	W-8	ND	1	0.1	0.02
132181-04	W-17	ND	1	0.1	0.02
132181-05	BYA-7	ND	1	0.1	0.02
132181-06	BYA-6	ND	1	0.1	0.02
132181-07	HD-42	ND	1	0.1	0.02
132181-08	HD-9	ND	1	0.1	0.02
132181-09	HD-30	ND	1	0.1	0.02
132181-10	HD-12	ND	1	0.1	0.02

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 132181
Analyst: AN

Date Sampled: 07/16/13
Date Received: 07/16/13
Date Analyzed: 07/22/13
Sample Matrix: Water

OIL & GREASE
EPA Method 1664

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)	MDL (mg/L)
132181-01	BYA-4	1.1	1	5	1
132181-02	W-13	ND	1	5	1
132181-03	W-8	ND	1	5	1
132181-04	W-17	1.2	1	5	1
132181-05	BYA-7	1.1	1	5	1
132181-06	BYA-6	ND	1	5	1
132181-07	HD-42	ND	1	5	1
132181-08	HD-9	ND	1	5	1
132181-09	HD-30	ND	1	5	1
132181-10	HD-12	ND	1	5	1

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 132181
Analyst: AN

Date Sampled: 07/16/13
Date Received: 07/16/13
Date Analyzed: 07/18/13
Sample Matrix: Water

TOTAL SUSPENDED SOLIDS
EPA Method SM 2540 D

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)	MDL (mg/L)
132181-01	BYA-4	15.6	1	5	1
132181-02	W-13	ND	1	5	1
132181-03	W-8	ND	1	5	1
132181-04	W-17	1.3	1	5	1
132181-05	BYA-7	1.7	1	5	1
132181-06	BYA-6	4.4	1	5	1
132181-07	HD-42	ND	1	5	1
132181-08	HD-9	ND	1	5	1
132181-09	HD-30	ND	1	5	1
132181-10	HD-12	2.7	1	5	1

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 132181
Analyst: AN

Date Sampled: 07/16/13
Date Received: 07/16/13
Date Analyzed: 07/22/13
Sample Matrix: Water

TOTAL SULFIDE
EPA Method SM 4500S^{2-}D

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)	MDL (mg/L)
132181-01	BYA-4	ND	1	0.02	0.004
132181-02	W-13	ND	1	0.02	0.004
132181-03	W-8	ND	1	0.02	0.004
132181-04	W-17	ND	1	0.02	0.004
132181-05	BYA-7	ND	1	0.02	0.004
132181-06	BYA-6	ND	1	0.02	0.004
132181-07	HD-42	ND	1	0.02	0.004
132181-08	HD-9	ND	1	0.02	0.004
132181-09	HD-30	ND	1	0.02	0.004
132181-10	HD-12	ND	1	0.02	0.004
132181-11	FW-1	36.6	50	1.0	0.2

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 132181
Analyst: AN

Date Sampled: 07/16/13
Date Received: 07/16/13
Date Analyzed: 07/16/13
Sample Matrix: Water

BIOCHEMICAL OXYGEN DEMAND
EPA Method 5210 B

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)	MDL (mg/L)
132181-01	BYA-4	ND	1	2	0.4
132181-02	W-13	ND	1	2	0.4
132181-03	W-8	ND	1	2	0.4
132181-04	W-17	ND	1	2	0.4
132181-05	BYA-7	ND	1	2	0.4
132181-06	BYA-6	ND	1	2	0.4
132181-07	HD-42	ND	1	2	0.4
132181-08	HD-9	ND	1	2	0.4
132181-09	HD-30	ND	1	2	0.4
132181-10	HD-12	ND	1	2	0.4

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 132181
Analyst: AN

Date Sampled: 07/16/13
Date Received: 07/16/13
Date Analyzed: 07/16/13
Sample Matrix: Water

SETTLEABLE SOLIDS
EPA Method SM 2540 F

CAS Lab #	Sample ID	RESULTS (ml/L)	DF	PQL (ml/L)
132181-01	BYA-4	BQL	1	0.1
132181-02	W-13	BQL	1	0.1
132181-03	W-8	BQL	1	0.1
132181-04	W-17	BQL	1	0.1
132181-05	BYA-7	BQL	1	0.1
132181-06	BYA-6	BQL	1	0.1
132181-07	HD-42	BQL	1	0.1
132181-08	HD-9	BQL	1	0.1
132181-09	HD-30	BQL	1	0.1
132181-10	HD-12	BQL	1	0.1

DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 132181
Analyst: AN

Date Sampled: 07/16/13
Date Received: 07/16/13
Date Analyzed: 07/17/13
Sample Matrix: Water

TURBIDITY
EPA Method 180.1

CAS Lab #	Sample ID	RESULTS (NTU)	DF	PQL (NTU)
132181-01	BYA-4	4.7	1	0.1
132181-02	W-13	0.15	1	0.1
132181-03	W-8	0.1	1	0.1
132181-04	W-17	0.6	1	0.1
132181-05	BYA-7	0.5	1	0.1
132181-06	BYA-6	3.9	1	0.1
132181-07	HD-42	0.10	1	0.1
132181-08	HD-9	0.18	1	0.1
132181-09	HD-30	0.14	1	0.1
132181-10	HD-12	3.6	1	0.1

DF: Dilution Factor

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
Sample ID: Method Blank
CAS LAB NO: 132181-MB

Analyst: GM/AN

QUALITY CONTROL SECTION

WET CHEMISTRY SUMMARY

COMPOUND	RESULT	UNITS	DF	PQL	MDL	METHOD	ANALYZED
B.O.D.	ND	mg/L	1	2	0.4	5210 B	07/16/13
Sulfide (Total)	ND	mg/L	1	0.02	0.004	4500S^{2-}D	07/22/13
T.S.S.	ND	mg/L	1	5	1.0	2540 D	07/18/13
Oil & Grease	ND	mg/L	1	5	1.0	1664	07/22/13
Phenol (Total)	ND	mg/L	1	0.1	0.02	420.1	07/22/13
MBAS	ND	mg/L	1	0.1	0.02	5540 C	07/17/13
Chlorine (Total)	BQL	mg/L	1	0.05	---	4500CLG	07/16/13

B.O.D.: Biochemical Oxygen Demand
T.S.S.: Total Suspended Solids
DF: Dilution Factor

CAPCO
Analytical Services, Inc.

Environmental and Analytical Services-Since 1994

Certificate of Analysis

Notes:

The Chain of Custody document is part of the report. Any remaining sample(s) for testing will be disposed of one month from the final report date unless other arrangements are made in advance.
All results are expressed on wet weight basis unless otherwise specified.

07/24/13

Authorized Signature (QA/QC Supervisor) **Date**

The results in this report apply to the samples analyzed in accordance with the Chain of Custody document. Capco Analytical certifies that the results meet all requirements of ELAP unless noted in the Case Narrative. This analytical report must be reproduced in its entirety.

Legend of Abbreviations:

PQL	Practical Quantitation Limit
BQL	Below Practical Quantitation Limit
ND	NOT DETECTED at or above the Method Detection Limit (MDL)
MDL	Method Detection Limit
MRL	Method Reporting Limit
MDA	Minimum Detectable Activity
MCL	Maximum Contamination Level

CAPCO ANALYTICAL SERVICES

1536 Eastman Avenue
Ventura, CA 93003
(805) 644-1095 Fax 644-9947

CHAIN OF CUSTODY RECORD

REPORT Fax 805-650-7010
Company Fugro Consultants
Address 4820 McGrath Street, Suite 100
Ventura,CA93003
Phone 650-7000 Contact Tim Nicely

BILL TO: P.O.# 7/23
Company same
Address
Phone Contact

PROJ. NO | PROJECT NAME: Malibu-NPDES

SAMPLERS: (Signature)

CONTAINER TYPES
A = AMBER B = BRASS G = GLASS
P = PLASTIC V = VOA VIAL O = OTHER

SAMPLE NO.	DATE SAMPLED	TIME SAMPLED	COMP	GRAB	SAMPLE DESCRIPTION	MATRIX: WATER	SOIL	SLUDGE	OTHER	CONTAINER #: #	TYPE	ANALYSIS: TSS, Setteable Solids	BOD	Oil & Grease	MBAS	Sulfide	Phenols	Residual Chlorine	Turbidity	REMARKS: pH 132181	
1	7-16-13	9:40			BHA-4	X				5	P+G									6.95	22.6
2		9:55			W-13	X														6.87	22.4
3		10:15			W-8	X														6.78	22.5
4		~~10:35~~	10:50		W-17	X														~~7.38~~ 7.38	22.5
5		~~10:50~~	10:35		BHA-7	X														7.23	22.4
6		11:15			BHA-6	X														6.85	22.4
7		12:30			HD-42	X														7.02	23.1
8		12:45			HD-9	X														6.98	23.2
9		12:55			HD-30	X														7.13	23.0
10		1:10			H-10-12	X														7.04	23.6
11	↓	11:45			FW-1										/					7.11	22.5

CHECK ONE BOX:
DISPOSE SAMPLES
RETURN SAMPLES

The undersigned hereby acknowledges having received a copy of the Fee Schedule/General Information and Conditions, the provisions of which are a part of this agreement.

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
	07/16/13 14:55				
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time		

TURN AROUND TIME

24 Hr.		5 Day		
48 Hr.		Standard		
72 Hr.		Other		

WHITE COPY CANARY COPY PINK COPY

CAPCO
Analytical Services, Inc.

Environmental and Analytical Services-Since 1994
California State Accredited Laboratory in Accordance with ELAP Certificate # 2332

Prepared for: Fugro Consultants, Inc.
4820 McGrath St., Suite 100
Ventura, CA 93003
Attn: Tim Nicely

Report Date: July 30, 2013
Laboratory Number: 132238
Project Name: Malibu NPDES
Sampled by: Client

On July 23, 2013, Capco Analytical Services, Inc.(CAS), received one(1) sample to be analyzed. The sample was identified and assigned the laboratory ID number listed below:

SAMPLE DESCRIPTION	CAS LAB NUMBER ID
FW-1	132238-01

By my signature below, I certify that the results contained in this laboratory report comply with applicable standards for certification by the California Department of Public Health's Environmental Laboratories Accreditation Program (ELAP), both technically and for completeness, and that, based on my inquiry of the person or persons directly responsible for performing the analyses, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Keith Chin-Yuan Chang, Ph.D.
Director - Analytical Operations

If you have any further questions or concerns, please contact me at your convenience.

This report consists of 2 pages excluding the cover letter and the Chain of Custody.

CERTIFICATE OF ANALYSIS

Client: Fugro Consultants
CAS LAB NO: 132238
Analyst: AN

Date Sampled: 07/23/13
Date Received: 07/23/13
Date Analyzed: 07/26/13
Sample Matrix: Water

TOTAL SULFIDE
EPA Method SM 4500S^{2-}D

CAS Lab #	Sample ID	RESULTS (mg/L)	DF	PQL (mg/L)	MDL (mg/L)
132238-01	FW-1	18.3	25	0.5	0.1

QUALITY CONTROL REPORT

132238-MB	Method Blank	ND	1	0.02	0.004

mg/L: Milligrams/Liter(ppm)
DF: Dilution Factor

CAPCO
Analytical Services, Inc.

Environmental and Analytical Services-Since 1994

Certificate of Analysis

Notes:

The Chain of Custody document is part of the report. Any remaining sample(s) for testing will be disposed of one month from the final report date unless other arrangements are made in advance.
All results are expressed on wet weight basis unless otherwise specified.

07/30/13

Authorized Signature **Date**
(QA/QC Supervisor)

The results in this report apply to the samples analyzed in accordance with the Chain of Custody document. Capco Analytical certifies that the results meet all requirements of ELAP unless noted in the Case Narrative. This analytical report must be reproduced in its entirety.

Legend of Abbreviations:

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ND	NOT DETECTED at or above the Method Detection Limit (MDL)
MDL	Method Detection Limit
MRL	Method Reporting Limit
MDA	Minimum Detectable Activity
MCL	Maximum Contamination Level

CAPCO ANALYTICAL SERVICES

1536 Eastman Avenue, Suite B
Ventura, CA 93003
(805) 644-1095 Fax 644-9947
www.capcoenv.com

CHAIN OF CUSTODY RECORD

REPORT
Fax (805) 650-7016
Company FUGRO
Address 4820 MCGRATH ST SUITE 100
VENTURA Email
Phone 650-7000 Contact TIM NICELY

BILL TO: P.O.# 7/30
Company
Address
Phone Contact

PROJ. NO | PROJECT NAME: MALIBU - NPDES

SAMPLERS: (Signature)

CONTAINER TYPES
A = AMBER B = BRASS G = GLASS
P = PLASTIC V = VOA VIAL O = OTHER

ANALYSIS: SULFIDE

132238

SAMPLE NO.	DATE SAMPLED	TIME SAMPLED	COMP	GRAB	SAMPLE IDENTIFICATION	MATRIX: WATER	SOIL	SLUDGE	OTHER	CONTAINER #/TYPE	REMARKS
1	7/23/13	11:09			FW-1	✓				1 P	PH. 7.14 22.6

The undersigned hereby acknowledges having received a copy of the Fee Schedule/General Information and Conditions, the provisions of which are a part of this agreement.

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
	7/23/13 1345	
Relinquished by: (Signature)	Date/Time	Received by: (Signature)

TURN AROUND TIME
STANDARD ☐ OTHER
24 HOURS ☐
48 HOURS ☐
72 HOURS ☐

CHECK ONE BOX:
DISPOSE SAMPLES ☐
RETURN SAMPLES ☐

WHITE COPY CANARY COPY PINK COPY