APPENDIX A

SURVEY REPORT

NORTH ANNA COL

DATA REPORT REV. 0
JANUARY 23, 2007

MACTEC PROJECT NO. 6468-06-1472

MACTEC

DOCUMENTATION OF TECHNICAL REVIEW
SUBCONTRACTOR WORK PRODUCT

Project Name: Dominion North Anna COL

Project Number: 6468-06-1472

Project Manager: Steve Criscenzo

Project Principal: Al Tice

The report described below has been prepared by the named subcontractor retained in accordance with the MACTEC QAPD. The work and report have been reviewed by a MACTEC technically qualified person. Comments on the work or report, if any, have been satisfactorily addressed by the subcontractor. The attached report is approved in accordance with section QS-7 of MACTEC's QAPD

The information and date contained in the attached report are hereby released by MACTEC for project use.

REPORT : Surveyor's Report for Soil Borings and Observation Wells, As-Built Location Survey – North Anna Nuclear Power Plant Dated 1-18-07

SUBCONTRACTOR: McKim and Creed, Virginia Beach, VA

DATE OF ACCEPTANCE : 1-19-07

TECHNICAL REVIEWER: J Allan Tice

PROJECT PRINCIPAL J. Allan Tice

DCN NA COL- 187

McKIM&CREED

ENGINEERS

SURVEYORS

PLANNERS

January 18, 2007

Mr. J. Allan Tice, P.E.
Senior Principal/Assistant Vice President
MACTEC Engineering and Consulting, Inc.
3301 Atlantic Avenue
Raleigh, NC 27604

Ref: **Surveyor's Report for Soil Borings and Observation Wells, As-Built Location Survey – North Anna Nuclear Power Plant**

Dear Mr. Tice:

McKim & Creed, P.A. performed an as-built location survey of new soil borings, observation wells and other miscellaneous test sites during the period 28 November through 1 December 2006. The survey was performed in accordance with the specifications stipulated in the amended "Work Instruction No. 3" received from your firm dated 28 November 2006 and in accordance with the specifications detailed in Exhibit "D" of Bechtel Corporation's Technical Scope dated 26 July 2006.

The survey was performed by Jeffrey F. Gilley, Land Surveyor, Virginia License No. 2439 and Christopher Evans, Survey Technician, both of the Virginia Beach Office of McKim & Creed, P.A. A Topcon 304 electronic total station surveying instrument, 5 arc second horizontal and vertical accuracy, a Trimble 5700 L1/L2 Real Time Kinematic (RTK) GPS system with two rover units, and a Trimble DiNi 22 digital differential level were used for this survey. Trimble and Tripod Data Systems data collectors using Ranger platforms were used to store the data. Field notes of occupations and differential leveling were kept as a backup of the data collectors. All of the equipment was tested prior to conducting the survey to ensure the equipment was functioning within the required parameters.

The origin for the as-built survey was Control Monument No. 7, a brass disk embedded in concrete (Point No. 5010). The field survey was conducted using the same coordinate system and vertical datum as was used during the initial stakeout survey performed by McKim & Creed, P.A. in August 2006. Post, as-built survey coordinate translations and vertical adjustments were made to every point in the data set relative to Monument No. 7 (survey origin point). The new horizontal positions and vertical values for the data set coincide with the values determined from the submission of 10.5 total hours of static GPS observation data to the National Geodetic Survey's (NGS) Online Positioning User Service (OPUS). The static data was collected using the GPS RTK base receiver operating on Control Monument No. 7 from 29 through 30 November 2006. The OPUS solution is

380 Cleveland Place

Virginia Beach, VA 23462

757 431.1002

Fax 757 431.1032

www.mckimcreed.com

COMMONWEALTH OF VIRGINIA
JEFFREY F. GILLEY
No. 2439
18 Jan 2007

DCN NA COL 188

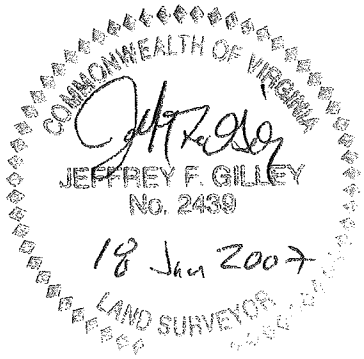
TOTAL PAGES IN DOCUMENT: 14

incorporated into this report as enclosure 1 and was generated on 4 January 2007 after precise orbital data was available. After the OPUS solutions were converted to US Feet (1 meter = 39.37 inches), the position and vertical values for both days were averaged to determine the horizontal position of Control Monument No. 7 within the Virginia State Plane Coordinate System (VSPCS), South Zone, NAD 83 (CORS 96) (EPOCH 2002) and its orthometric height (elevation) relative to NAVD 88 (GEOID 03). The coordinate system and vertical datum used during the August 2006 survey were earlier versions of the VSPCS, South Zone, NAD 83 and NAVD 88. A review of the RTK vectors generated during the as-built survey confirmed that the difference in the north meridian was negligible and therefore no correction was applied to the north orientation of the data. The delta (Δ) values for the OPUS solution applied to Control Monument No. 7 and the entire data set are as follows:

Mon 7 – Point 5010	Nov 06 Field Values	OPUS Δ Values	Jan 07 OPUS Position
Northing	3909877.58 usft	-2.60777	3,909,874.97 usft
Easting	11685941.43 usft	+2.0878	11,685,943.52 usft
Orthometric Height	303.89 usft	-0.12585	303.76 usft

The OPUS translated positions for the remainder of the data are as shown in enclosure 2.

The base station for the RTK system was positioned on Monument No. 7 during all RTK sessions. RTK checks were made on an existing 5/8" reinforcing rod and cap with values ascertained during the stakeout survey conducted in August 2006 (Point No. 10308, position values prior to the coordinate translation). The "check-in" parameters were 0.038 US FT or less for both horizontal and vertical measurements. Fixed height poles were used with all the GPS units to ensure vertical accuracy. Checks were performed in the morning and the afternoon each day. Control points established by RTK method were observed for 3 minutes and 180 epochs at 5Hz. As many conventional measurements as were practical were initiated from Monument No. 7. All control set conventionally was measured in both the direct and reversed scope positions to compensate for systematic eccentricities in the conventional instrument. All meaned angles were held to a tolerance of 10 arc seconds or less. All distance measurements were made in both the direct and reversed position and held to a tolerance of 0.01 US FT per hundred feet measured or less. The methods employed ensure that all horizontal positions meet or exceed the requirement of 1 part in 5000 and 0.1 US FT vertically relative to Monument No. 7. Every occupation of control points with the total station, established by either RTK or conventionally, was checked by using the backsight confirmation routine of the TDS data collector. This ensured accurate instrument and target/prism pole height and relative accuracy between points.



McKIM&CREED

Based upon the methods employed and the quality of the data collected, the undersigned certifies that the relative accuracy of the data set resulting from this survey meets the accuracy requirements stipulated by MACTEC, Inc. and Bechtel Corp.

Regards,

Jeffrey F. Gilley, LS
Geomatics Office Manager

Encl:

1 – OPUS Solution

2 – Tabular As-Built Position Data

FILE: 70413330.dat 000055424

NGS OPUS SOLUTION REPORT
==========

USER: jgilley@mckimcreed.com DATE: January 04, 2007
RINEX FILE: 7041333o.06o TIME: 21:39:14 UTC

SOFTWARE: page5 0612.06 master28.pl START: 2006/11/29 14:57:00
EPHEMERIS: igs14033.eph [precise] STOP: 2006/11/29 21:19:00
NAV FILE: brdc3330.06n OBS USED: 10355 / 11480 : 90%
ANT NAME: TRM41249.00 NONE # FIXED AMB: 75 / 75 : 100%
ARP HEIGHT: 1.8 OVERALL RMS: 0.016(m)

REF FRAME: NAD_83(CORS96)(EPOCH:2002.0000) ITRF00 (EPOCH:2006.9117)

X:	1063074.756(m)	0.010(m)	1063074.055(m)	0.010(m)
Y:	-4914792.520(m)	0.012(m)	-4914791.064(m)	0.012(m)
Z:	3910629.169(m)	0.010(m)	3910629.047(m)	0.010(m)

LAT:	38 3 31.97108	0.003(m)	38 3 31.99938	0.003(m)
E LON:	282 12 18.40278	0.008(m)	282 12 18.38731	0.008(m)
W LON:	77 47 41.59722	0.008(m)	77 47 41.61269	0.008(m)
EL HGT:	60.256(m)	0.015(m)	58.943(m)	0.015(m)
ORTHO HGT:	92.583(m)	0.029(m) [Geoid03 NAVD88]		

	UTM COORDINATES UTM (Zone 18)	STATE PLANE COORDINATES SPC (4502 VA S)
Northing (Y) [meters]	4216036.582	1191732.277
Easting (X) [meters]	254789.063	3561882.708
Convergence [degrees]	-1.72382560	0.42794992
Point Scale	1.00034061	1.00001813
Combined Factor	1.00033116	1.00000868

US NATIONAL GRID DESIGNATOR: 18STH5478916037(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DH4144	LWX1 STERLING CORS ARP	N385821.634	W0772918.963	104894.9
AF9635	RIC1 RICHMOND 1 CORS ARP	N373216.429	W0772546.775	66170.1
DH5858	VARI ED SNIDER CORS ARP	N371723.886	W0772408.592	92098.2

NEAREST NGS PUBLISHED CONTROL POINT

DF6890	BOGGS AZ	N380441.007	W0774624.011	2850.4

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

FILE: 70413340.dat 000055425

NGS OPUS SOLUTION REPORT
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USER: jgilley@mckimcreed.com DATE: January 04, 2007
RINEX FILE: 7041334m.06o TIME: 21:31:00 UTC

SOFTWARE: page5 0612.06 master2.pl START: 2006/11/30 12:03:00
EPHEMERIS: igs14034.eph [precise] STOP: 2006/11/30 18:39:00
NAV FILE: brdc3340.06n OBS USED: 12627 / 13411 : 94%
ANT NAME: TRM41249.00 NONE # FIXED AMB: 84 / 85 : 99%
ARP HEIGHT: 1.8 OVERALL RMS: 0.016(m)

REF FRAME: NAD_83(CORS96)(EPOCH:2002.0000) ITRF00 (EPOCH:2006.9140)

X:	1063074.758(m)	0.007(m)	1063074.057(m)	0.007(m)
Y:	-4914792.529(m)	0.001(m)	-4914791.073(m)	0.001(m)
Z:	3910629.172(m)	0.001(m)	3910629.050(m)	0.001(m)

LAT:	38 3 31.97097	0.001(m)	38 3 31.99927	0.001(m)
E LON:	282 12 18.40279	0.007(m)	282 12 18.38731	0.007(m)
W LON:	77 47 41.59721	0.007(m)	77 47 41.61269	0.007(m)
EL HGT:	60.265(m)	0.003(m)	58.952(m)	0.003(m)
ORTHO HGT:	92.592(m)	0.025(m) [Geoid03 NAVD88]		

	UTM COORDINATES (Zone 18)	STATE PLANE COORDINATES (4502 VA S)
Northing (Y) [meters]	4216036.579	1191732.273
Easting (X) [meters]	254789.063	3561882.708
Convergence [degrees]	-1.72382560	0.42794992
Point Scale	1.00034061	1.00001813
Combined Factor	1.00033115	1.00000867

US NATIONAL GRID DESIGNATOR: 18STH5478916037(NAD 83)

BASE STATIONS USED

PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
DH4144	LWX1 STERLING CORS ARP	N385821.634	W0772918.963	104894.9
AF9635	RIC1 RICHMOND 1 CORS ARP	N373216.429	W0772546.775	66170.1
DH5858	VARI ED SNIDER CORS ARP	N371723.886	W0772408.592	92098.2

NEAREST NGS PUBLISHED CONTROL POINT

DF6890	BOGGS AZ	N380441.007	W0774624.011	2850.4

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.

Borings

Original Field Data				OPUS Position			
Pnt No	North	East	Elev	North	East	Elev	Desc
1239	3,909,780.32	11,685,926.50	309.53	3,909,777.72	11,685,928.59	309.40	B-901
			309.54			309.42	B-901 GS
1007	3,909,876.80	11,685,882.20	302.32	3,909,874.19	11,685,884.28	302.20	B-902
1270	3,909,814.70	11,686,026.71	301.78	3,909,812.10	11,686,028.80	301.65	B-903
			301.71			301.59	B-903 PAVE
1242	3,909,695.08	11,685,968.34	316.59	3,909,692.47	11,685,970.43	316.46	B-904
			316.87			316.75	B-904 GS
1233	3,909,735.47	11,685,819.88	306.20	3,909,732.86	11,685,821.97	306.08	B-905
			306.88			306.75	B-905 GS
1231	3,909,672.63	11,685,793.25	311.85	3,909,670.03	11,685,795.34	311.72	B-906
1273	3,909,610.51	11,685,936.26	322.91	3,909,607.90	11,685,938.35	322.78	B-907
			322.83			322.71	B-907 GS
1244	3,909,719.26	11,686,058.81	307.82	3,909,716.65	11,686,060.89	307.69	B-908
			307.84			307.71	B-908 GS
1247	3,909,698.06	11,686,105.31	305.04	3,909,695.46	11,686,107.40	304.91	B-909
			305.02			304.90	B-909 GS
1235	3,909,670.24	11,685,881.03	316.66	3,909,667.63	11,685,883.11	316.54	B-910
1005	3,909,922.52	11,685,990.59	299.92	3,909,919.91	11,685,992.68	299.79	B-911
1004	3,909,918.65	11,685,998.45	300.03	3,909,916.04	11,686,000.53	299.91	B-911A
1012	3,910,024.31	11,686,049.28	275.09	3,910,021.70	11,686,051.36	274.96	B-912
			275.22			275.10	B-912 GS
1014	3,910,151.11	11,686,112.62	273.49	3,910,148.50	11,686,114.71	273.37	B-913
1006	3,909,942.16	11,685,920.27	297.58	3,909,939.55	11,685,922.35	297.45	B-914
1104	3,909,880.09	11,686,086.47	301.91	3,909,877.48	11,686,088.55	301.79	B-915
1010	3,910,052.15	11,686,006.62	276.42	3,910,049.54	11,686,008.70	276.30	B-916
			276.36			276.24	B-916 GS
1107	3,910,163.29	11,686,027.36	274.98	3,910,160.68	11,686,029.45	274.85	B-917
1264	3,910,117.89	11,686,191.96	272.25	3,910,115.28	11,686,194.05	272.13	B-918
1229	3,909,577.99	11,685,762.58	317.75	3,909,575.39	11,685,764.67	317.63	B-919
			317.92			317.79	B-919 GS
1275	3,909,547.68	11,685,978.11	327.31	3,909,545.07	11,685,980.20	327.19	B-920
			327.29			327.17	B-920 PAVE
1251	3,909,682.80	11,686,160.62	308.09	3,909,680.19	11,686,162.71	307.96	B-921
1249	3,909,689.50	11,686,159.59	307.39	3,909,686.89	11,686,161.68	307.26	B-921A
			307.51			307.39	B-921A GS
NOTE: B-922 Hole Hit Electric Cables							B-922

MACTEC Note:

GS = Ground Surface shot adjacent to grouted borehole taken when borehole grout was not flush with ground at time of survey. GS shot used for borehole elevation.

PAVE = Elevation on pavement adjacent to grouted borehole taken when borehole grout was not flush with ground at time of survey. PAVE shot used for borehole elevation.

1-23-07

Borings

Original Field Data				OPUS Position			
Pnt No	North	East	Elev	North	East	Elev	Desc
1019	3,909,946.26	11,686,230.90	271.43	3,909,943.65	11,686,232.99	271.30	B-922 GS
1018	3,909,951.90	11,686,241.93	271.46	3,909,949.30	11,686,244.02	271.33	B-922A
1267	3,910,079.57	11,686,307.39	272.13	3,910,076.97	11,686,309.48	272.00	B-923
1021	3,909,972.14	11,686,473.31	271.64	3,909,969.53	11,686,475.40	271.52	B-924
1022	3,910,039.28	11,686,574.19	270.35	3,910,036.67	11,686,576.27	270.22	B-925
			270.14			270.01	B-925 GS
1225	3,910,045.80	11,685,707.17	288.10	3,910,043.20	11,685,709.26	287.98	B-926
			289.16			289.03	B-926 GS
1008	3,909,968.68	11,685,876.51	292.38	3,909,966.07	11,685,878.59	292.25	B-927
			292.64			292.51	B-927 GS
1015	3,910,225.36	11,686,156.98	272.29	3,910,222.75	11,686,159.07	272.17	B-928
1016	3,910,223.00	11,686,163.27	271.17	3,910,220.39	11,686,165.35	271.05	B-928A
			271.94			271.82	B-928A GS
1114	3,909,217.05	11,685,652.73	329.02	3,909,214.44	11,685,654.82	328.89	B-929
			329.15			329.02	B-929 GS
1038	3,909,216.76	11,685,663.42	328.80	3,909,214.15	11,685,665.51	328.68	B-929A
			329.16			329.03	B-929A GS
1036	3,909,278.56	11,685,840.78	326.16	3,909,275.95	11,685,842.87	326.04	B-930
			326.24			326.12	B-930 GS
1105	3,910,155.55	11,685,919.45	278.61	3,910,152.94	11,685,921.54	278.49	B-931
			278.64			278.52	B-931 GS
1024	3,910,446.92	11,686,413.61	249.73	3,910,444.31	11,686,415.70	249.60	B-932
			250.00			249.88	B-932 GS
1258	3,909,830.01	11,685,788.89	296.24	3,909,827.41	11,685,790.97	296.11	B-933
			296.61			296.48	B-933 GS
1260	3,909,828.88	11,685,799.92	296.34	3,909,826.28	11,685,802.01	296.21	B-933A
			296.71			296.58	B-933A GS
1256	3,909,862.98	11,685,684.00	294.51	3,909,860.37	11,685,686.09	294.39	B-934
			294.93			294.80	B-934 GS

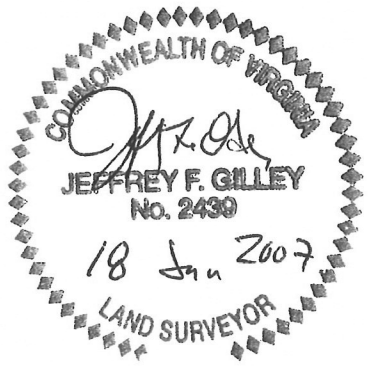
NOTE: B-935 Deleted From Table by MACTEC

MACTEC Note:
GS = Ground Surface shot adjacent to grouted borehole taken when borehole grout was not flush with ground at time of survey. GS shot used for borehole elevation.

1-23-07

Borings

Original Field Data				OPUS Position			
Pnt No	North	East	Elev	North	East	Elev	Desc
1207	3,910,748.48	11,685,927.06	286.69	3,910,745.87	11,685,929.15	286.56	B-936
1110	3,910,691.13	11,686,670.03	270.38	3,910,688.52	11,686,672.12	270.25	B-937
1001	3,911,320.21	11,686,603.82	254.16	3,911,317.60	11,686,605.91	254.03	B-939
1208	3,910,269.38	11,688,898.94	268.32	3,910,266.77	11,688,901.02	268.19	B-940
			268.45			268.32	B-940 GS
1211	3,910,406.24	11,688,910.79	267.31	3,910,403.63	11,688,912.87	267.19	B-941
1221	3,909,617.30	11,684,324.36	291.21	3,909,614.69	11,684,326.45	291.08	B-942
			291.98			291.85	B-942 GS
1223	3,909,358.00	11,683,890.38	300.52	3,909,355.39	11,683,892.47	300.40	B-943
1213	3,908,774.98	11,684,125.53	333.62	3,908,772.38	11,684,127.62	333.50	B-944
			334.81			334.69	B-944 GS
1043	3,910,138.15	11,683,777.70	281.64	3,910,135.55	11,683,779.79	281.51	B-945
1215	3,908,789.85	11,683,808.50	333.06	3,908,787.24	11,683,810.59	332.93	B-946
			333.49			333.36	B-946 GS
1254	3,909,577.14	11,686,365.13	312.60	3,909,574.53	11,686,367.21	312.48	B-947
1227	3,909,621.87	11,685,563.60	309.95	3,909,619.26	11,685,565.69	309.83	B-948
			310.54			310.41	B-948 GS
1280	3,909,020.70	11,685,155.18	334.95	3,909,018.09	11,685,157.27	334.82	B-949
1203	3,910,838.43	11,686,280.03	282.63	3,910,835.82	11,686,282.11	282.50	B-950
1029	3,910,550.87	11,686,819.71	250.06	3,910,548.26	11,686,821.80	249.93	B-951

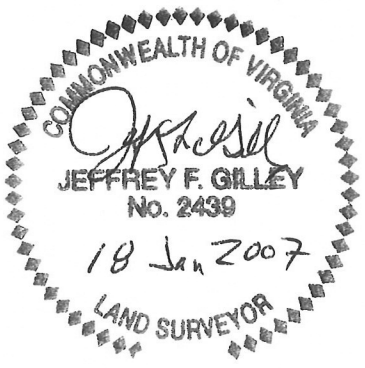


MACTEC Note:
GS = Ground Surface shot adjacent to grouted borehole taken when borehole grout was not flush with ground at time of survey. GS shot used for borehole elevation.

JA Jice 1-23-07

CPT

Original Field Data				OPUS Position			
Pnt No	North	East	Elev	North	East	Elev	Desc
1285	3,909,630.38	11,686,010.58	318.69	3,909,627.77	11,686,012.67	318.56	C-901
1286	3,909,555.19	11,685,840.12	323.79	3,909,552.59	11,685,842.21	323.66	C-902
1232	3,909,721.63	11,685,773.57	306.96	3,909,719.02	11,685,775.66	306.84	C-903
1031	3,910,028.90	11,685,791.43	284.05	3,910,026.29	11,685,793.52	283.92	C-904
1030	3,910,140.22	11,685,855.12	279.42	3,910,137.61	11,685,857.21	279.29	C-905
1268	3,910,016.37	11,686,267.85	270.87	3,910,013.77	11,686,269.94	270.75	C-906
1269	3,910,177.28	11,686,275.05	271.79	3,910,174.67	11,686,277.14	271.66	C-907
1109	3,910,329.37	11,686,185.30	272.04	3,910,326.76	11,686,187.39	271.91	C-908
1277	3,909,349.34	11,685,715.69	330.39	3,909,346.74	11,685,717.77	330.26	C-909
1035	3,909,157.04	11,685,780.33	327.11	3,909,154.43	11,685,782.42	326.99	C-910
1206	3,910,719.40	11,685,939.68	286.82	3,910,716.79	11,685,941.76	286.69	C-911
1020	3,909,962.03	11,686,347.69	271.28	3,909,959.42	11,686,349.77	271.16	C-912
1003	3,911,002.55	11,686,810.45	268.78	3,910,999.95	11,686,812.54	268.65	C-913
1210	3,910,362.80	11,688,915.53	267.99	3,910,360.20	11,688,917.62	267.86	C-914
1041	3,909,787.21	11,686,792.31	321.05	3,909,784.60	11,686,794.40	320.92	C-915
1255	3,909,587.28	11,686,370.61	313.04	3,909,584.68	11,686,372.70	312.91	C-916
1034	3,909,339.90	11,686,291.71	320.49	3,909,337.29	11,686,293.79	320.37	C-917
1116	3,909,154.10	11,685,507.02	329.68	3,909,151.49	11,685,509.11	329.55	C-918
1283	3,909,156.90	11,685,253.33	338.18	3,909,154.30	11,685,255.41	338.06	C-919
1113	3,909,074.31	11,685,868.31	324.85	3,909,071.70	11,685,870.40	324.73	C-920
1224	3,910,114.81	11,685,715.09	281.22	3,910,112.20	11,685,717.17	281.10	C-921
1045	3,909,891.89	11,684,053.86	311.86	3,909,889.28	11,684,055.95	311.73	C-922
1044	3,910,110.09	11,683,826.34	283.15	3,910,107.49	11,683,828.42	283.03	C-923



WELLS

Original Field Data				OPUS Position			
Pnt No	North	East	Elev	North	East	Elev	Desc
1237	3,909,774.93	11,685,915.40	311.45	3,909,772.32	11,685,917.49	311.32	OW-901
							OW-901
			309.75			309.62	ELEV
1046	3,910,139.10	11,683,791.22	283.21	3,910,136.49	11,683,793.31	283.08	OW-945
							OW-945
			281.68			281.56	ELEV
1217	3,908,790.58	11,683,820.64	335.70	3,908,787.97	11,683,822.73	335.58	OW-946
							OW-946
			334.17			334.04	ELEV
1252	3,909,582.19	11,686,369.75	315.21	3,909,579.58	11,686,371.84	315.08	OW-947
							OW-947
			313.42			313.30	ELEV
1281	3,909,027.81	11,685,151.27	337.04	3,909,025.20	11,685,153.35	336.91	OW-949
							OW-949
			335.80			335.67	ELEV
1202	3,910,844.79	11,686,283.07	284.62	3,910,842.18	11,686,285.15	284.49	OW-950
							OW-950
			283.11			282.98	ELEV
1028	3,910,524.05	11,686,783.92	250.81	3,910,521.44	11,686,786.01	250.68	OW-951
							OW-951
			249.82			249.69	ELEV
1027	3,910,526.29	11,686,812.05	249.37	3,910,523.68	11,686,814.13	249.24	OW-951A GS
Note: OW 951A Shot at Wood Stake							
1026	3,910,492.17	11,686,816.37	249.10	3,910,489.56	11,686,818.46	248.98	OW-951B GS
Note: OW 951B Shot at Wood Stake							

MACTEC Note:
GS = Ground Surface shot adjacent to grouted borehole taken when borehole grout was not flush with ground at time of survey. GS shot used for borehole elevation.

JA Price 1-23-07

ELECTRICAL RESISTIVITY

Original Field Data				OPUS Position			
Pnt No	North	East	Elev	North	East	Elev	Desc
1040	3,909,186.47	11,685,745.13	328.27	3,909,183.87	11,685,747.21	328.15	R1\R2

TEST PITS

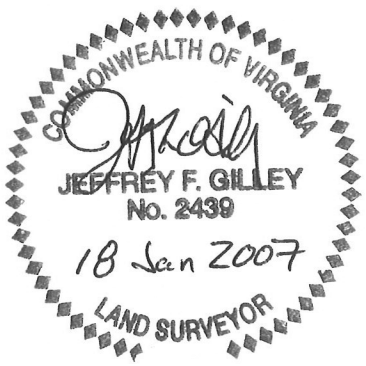
Original Field Data				OPUS Position			
Pnt No	North	East	Elev	North	East	Elev	Desc
1241	3,909,779.70	11,685,933.64	309.65	3,909,777.09	11,685,935.73	309.52	TP-1
1272	3,909,612.61	11,685,930.25	322.30	3,909,610.00	11,685,932.34	322.18	TP-2
1246	3,909,705.39	11,686,074.15	306.63	3,909,702.79	11,686,076.24	306.50	TP-3
1262	3,909,890.48	11,686,107.59	299.88	3,909,887.87	11,686,109.68	299.76	TP-4
1108	3,910,166.26	11,686,031.57	274.88	3,910,163.65	11,686,033.65	274.75	TP-5
1263	3,909,974.51	11,685,881.98	292.11	3,909,971.90	11,685,884.07	291.98	TP-6

Control Checks

Original Field Data				OPUS Position			
Pnt No	North	East	Elev	North	East	Elev	Desc
				RTK Check/Tie			
1000	3,911,297.16	11,686,675.94	254.86	3,911,294.55	11686678.03	254.74	Check 10308
1042	3,911,297.14	11,686,675.93	254.84	3,911,294.53	11686678.02	254.72	Check10308
1100	3,911,297.16	11,686,675.92	254.92	3,911,294.55	11686678.01	254.80	CHK 10308
1117	3,911,297.19	11,686,675.95	254.94	3,911,294.58	11686678.04	254.81	CHK 10308
1201	3,911,297.16	11,686,675.97	255.02	3,911,294.55	11686678.06	254.90	CHECK10308
				Conventional Check/Tie from New RTK Control			
1284	3,909,412.59	11,686,274.85	319.29	3,909,409.98	11686276.94	319.17	Chk TBM #1 IRF /w CAP

New Control From McKim & Creed As-Built Survey

Original Field Data				OPUS Position			
Pnt No	North	East	Elev	North	East	Elev	Desc
1205	3,910,641.30	11,685,970.12	287.50	3,910,638.69	11,685,972.21	287.38	NS
1212	3,908,797.65	11,683,970.59	336.22	3,908,795.05	11,683,972.68	336.10	PKS
1219	3,910,130.58	11,685,718.60	281.85	3,910,127.98	11,685,720.69	281.72	PKS
1220	3,909,590.82	11,684,289.79	294.10	3,909,588.21	11,684,291.88	293.97	PKS
1236	3,909,661.75	11,685,903.34	317.98	3,909,659.15	11,685,905.43	317.85	NS
1265	3,910,092.41	11,686,304.78	272.20	3,910,089.81	11,686,306.87	272.08	NS
1266	3,910,251.93	11,686,261.48	271.62	3,910,249.32	11,686,263.57	271.49	NS
1278	3,909,322.35	11,685,791.56	330.56	3,909,319.75	11,685,793.65	330.44	RR SPIKE CL RD
5011	3,909,266.84	11,685,805.15	327.03	3,909,264.23	11,685,807.23	326.91	NS
5012	3,908,990.27	11,685,294.81	332.74	3,908,987.66	11,685,296.90	332.62	NS
5013	3,910,144.89	11,688,932.19	271.98	3,910,142.28	11,688,934.27	271.86	PKS
5014	3,910,149.87	11,688,558.08	275.59	3,910,147.26	11,688,560.17	275.46	NS
5015	3,910,531.68	11,685,778.25	282.81	3,910,529.08	11,685,780.34	282.68	NS
5016	3,908,705.67	11,683,991.70	346.69	3,908,703.07	11,683,993.78	346.56	NS
5017	3,908,418.99	11,683,936.39	354.22	3,908,416.38	11,683,938.48	354.09	NS

Control From McKim & Creed August 2006 Stakeout Survey

Original Field Data				OPUS Position			
Pnt No	North	East	Elev	North	East	Elev	Desc
5009	3,910,076.30	11,686,447.51	271.94	3,910,073.69	11,686,449.60	271.81	MON 8
5010	3,909,877.58	11,685,941.43	303.89	3,909,874.97	11,685,943.52	303.76	MON 7
10308	3,911,297.15	11,686,675.97	254.94	3,911,294.54	11,686,678.06	254.81	IRF
20006	3,909,412.62	11,686,274.80	319.21	3,909,410.01	11,686,276.89	319.08	TBM #1 IRF /w CAP