Appendix A

National Geodetic Survey Benchmark Datasheets

REGGIO 2 NGS Benchmark Data Sheet

The NGS Data Sheet

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DATABASE = Sybase ,PROGRAM = datasheet, VERSION = 7.58
1        National Geodetic Survey,   Retrieval Date = JANUARY 19, 2008
 AT0804
***********************************************************************
 AT0804  HT_MOD      -  This is a Louisiana Height Modernization Survey
Station.
 AT0804  FBN         -  This is a Federal Base Network Control Station.
 AT0804  DESIGNATION -  REGGIO 2
 AT0804  PID         -  AT0804
 AT0804  STATE/COUNTY-  LA/ST BERNARD
 AT0804  USGS QUAD   -  DELACROIX (1994)
 AT0804
 AT0804                        *CURRENT SURVEY CONTROL
 AT0804  ______________________________________________________________________
 AT0804* NAD 83(2007)-  29 50 40.71876(N)    089 45 32.43138(W)     ADJUSTED
 AT0804* NAVD 88     -         1.52 **(meters)       5.0  **(feet)  GPS
OBS(2004.65)
 AT0804  **This station is located in a subsidence area (see below).
 AT0804  ______________________________________________________________________
 AT0804  EPOCH DATE  -        2002.00
 AT0804  X           -      23,288.328 (meters)                     COMP
 AT0804  Y           -  -5,536,777.198 (meters)                     COMP
 AT0804  Z           -   3,155,435.924 (meters)                     COMP
 AT0804  LAPLACE CORR-          -0.03  (seconds)                    DEFLEC99
 AT0804  ELLIP HEIGHT-         -24.123 (meters)          (02/10/07) ADJUSTED
 AT0804  GEOID HEIGHT-         -25.68  (meters)                     GEOID03
 AT0804
 AT0804  ------- Accuracy Estimates (at 95% Confidence Level in cm) --------
 AT0804  Type    PID    Designation                       North   East  Ellip
 AT0804  ----------------------------------------------------------------------
 AT0804  NETWORK AT0804 REGGIO 2                           0.27   0.27   0.90
 AT0804  ----------------------------------------------------------------------
 AT0804  OBS GRAVITY -     979,309.8   (mgal)                      GRAV_OBS
 AT0804
 AT0804
 AT0804.The horizontal coordinates were established by GPS observations
 AT0804.and adjusted by the National Geodetic Survey in February 2007.
 AT0804
 AT0804.The datum tag of NAD 83(2007) is equivalent to NAD 83(NSRS2007).
 AT0804.See www.ngs.noaa.gov/NationalReadjustment for more information.
 AT0804.The horizontal coordinates are valid at the epoch date displayed
above.
 AT0804.The epoch date for horizontal control is a decimal equivalence
 AT0804.of Year/Month/Day.
 AT0804
 AT0804 ** Due to the variability of land subsidence, the orthometric,
ellipsoid,
 AT0804 ** and geoid heights are valid at the date of observation. These
heights
 AT0804 ** must always be validated when used as control.
 AT0804 ** The orthometric height was determined by GPS observations using
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 AT0804 ** precise GPS observation and processing techniques and a new
 AT0804 ** realization of GEOID03. It supersedes the leveled height
previously
 AT0804 ** determined for this station.
 AT0804 ** The geoid height was determined by a new realization of GEOID03
for the
 AT0804 ** epoch indicated which incorporates improved geoid heights for the
 AT0804 ** Southern Louisiana Subsidence area.
 AT0804 ** (see www.ngs.noaa.gov/PC_PROD/GEOID03/).
 AT0804.The orthometric height was determined by GPS observations and a
 AT0804.high-resolution geoid model using precise GPS observation and
 AT0804.processing techniques. It supersedes the leveled height previously
 AT0804.determined for this station.
 AT0804
 AT0804.The X, Y, and Z were computed from the position and the ellipsoidal
ht.
 AT0804
 AT0804.The Laplace correction was computed from DEFLEC99 derived
deflections.
 AT0804
 AT0804.The ellipsoidal height was determined by GPS observations
 AT0804.and is referenced to NAD 83.
 AT0804
 AT0804.The geoid height was determined by GEOID03.
 AT0804.The observed gravity was obtained from relative gravimeter ties
 AT0804.to the IGSN71 gravity network.
 AT0804
 AT0804;                    North         East     Units Scale Factor
Converg.
 AT0804;SPC LA S     -   150,091.300 1,152,121.247   MT  0.99992944   +0 47
13.9
 AT0804;SPC LA S     -   492,424.54  3,779,917.79   sFT  0.99992944   +0 47
13.9
 AT0804;UTM  16      - 3,304,766.383   233,434.128   MT  1.00047681   -1 22
25.8
 AT0804
 AT0804!             -  Elev Factor  x  Scale Factor =   Combined Factor
 AT0804!SPC LA S     -   1.00000379  x   0.99992944  =   0.99993323
 AT0804!UTM  16      -   1.00000379  x   1.00047681  =   1.00048060
 AT0804
 AT0804                          SUPERSEDED SURVEY CONTROL
 AT0804
 AT0804  NAD 83(1992)-  29 50 40.71916(N)    089 45 32.43079(W) AD(2004.65) B
 AT0804  ELLIP H (06/22/05)  -24.151  (m)                      GP(2004.65) 4
1
 AT0804  NAD 83(1992)-  29 50 40.71916(N)    089 45 32.43101(W) AD(       ) B
 AT0804  ELLIP H (12/29/04)  -24.128  (m)                      GP(       ) 4
1
 AT0804  ELLIP H (06/20/00)  -24.118  (m)                      GP(       ) 3
1
 AT0804  ELLIP H (01/21/93)  -24.102  (m)                      GP(       ) 4
2
 AT0804  NAD 83(1992)-  29 50 40.71874(N)    089 45 32.43093(W) AD(       ) A
 AT0804  ELLIP H (09/04/92)  -24.102  (m)                      GP(       ) 3
1
 AT0804  NAD 83(1986)-  29 50 40.73696(N)    089 45 32.43028(W) AD(       ) 1
 AT0804  NAD 27      -  29 50 39.98989(N)    089 45 32.20535(W) AD(       ) 1
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 AT0804  NAVD 88 (02/14/94)    1.714  (m)           5.62   (f) READJUSTED  3
 AT0804  NGVD 29 (02/23/90)    1.82   (m)           6.0    (f) LEVELING    3
 AT0804
 AT0804.Superseded values are not recommended for survey control.
 AT0804.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
 AT0804.See file dsdata.txt to determine how the superseded data were
derived.
 AT0804
 AT0804_U.S. NATIONAL GRID SPATIAL ADDRESS: 16RBU3343404766(NAD 83)
 AT0804_MARKER: F = FLANGE-ENCASED ROD
 AT0804_SETTING: 59 = STAINLESS STEEL ROD IN SLEEVE (10 FT.+)
 AT0804_SP_SET: STAINLESS STEEL ROD
 AT0804_STAMPING: REGGIO 2 1987
 AT0804_MARK LOGO: NGS
 AT0804_PROJECTION: FLUSH
 AT0804_MAGNETIC: I = MARKER IS A STEEL ROD
 AT0804_STABILITY: A = MOST RELIABLE AND EXPECTED TO HOLD
 AT0804+STABILITY: POSITION/ELEVATION WELL
 AT0804_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
 AT0804+SATELLITE: SATELLITE OBSERVATIONS - January 24, 2006
 AT0804_ROD/PIPE-DEPTH: 20.7 meters
 AT0804_SLEEVE-DEPTH  : 1 meters
 AT0804
 AT0804  HISTORY     - Date     Condition        Report By
 AT0804  HISTORY     - 1987     MONUMENTED       LADTD
 AT0804  HISTORY     - 1988     GOOD             BUN-Y
 AT0804  HISTORY     - 19880920 GOOD             LADTD
 AT0804  HISTORY     - 19890119 GOOD
 AT0804  HISTORY     - 19910903 GOOD             LADTD
 AT0804  HISTORY     - 19920316 GOOD
 AT0804  HISTORY     - 19920330 GOOD
 AT0804  HISTORY     - 19940620 GOOD             LADTD
 AT0804  HISTORY     - 19960215 GOOD             NGS
 AT0804  HISTORY     - 19980217 GOOD             NGS
 AT0804  HISTORY     - 19980311 GOOD             NGS
 AT0804  HISTORY     - 20030402 GOOD             3001
 AT0804  HISTORY     - 20030820 GOOD             INDIV
 AT0804  HISTORY     - 20040419 GOOD             NGS
 AT0804  HISTORY     - 20060124 GOOD             3001
 AT0804
 AT0804                          STATION DESCRIPTION
 AT0804
 AT0804'DESCRIBED BY LA TRANSP AND DEV 1987 (TLH)
 AT0804'THE STATION IS LOCATED IN THE NORTHEAST END OF REGGIO ON STATE
 AT0804'HIGHWAY 46.
 AT0804'OWNERSHIP--LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT.
 AT0804'
 AT0804'TO REACH THE STATION FROM THE JUNCTION OF STATE HIGHWAYS 300 AND 46
 AT0804'IN REGGIO GO NORTHWEST FOR 0.46 KM (0.3 MI) ON HIGHWAY 46 TO THE
 AT0804'FAR END OF THE BRIDGE AND THE STATION ON THE RIGHT.
 AT0804'
 AT0804'THE STATION IS A STANDARD VERTICAL DATUM POINT ATTACHED TO A
 AT0804'STAINLESS STEEL ROD ACCESSED THROUGH A LOGO CAP
 AT0804'STAMPED---REGGIO 2 1987---,
 AT0804'7.6 METERS (24.9 FT) NORTHEAST FROM THE CENTER OF THE NORTH BOUND
 AT0804'LANES OF THE HIGHWAY,
 AT0804'1.1 METERS (5.6 FT) NORTH FROM THE NORTH END OF THE BANNISTER,
```

AT0804'0.7 METERS (2.3 FT) NORTHEAST FROM A BRIDGE CURB,
AT0804'0.5 METERS (1.6 FT) WEST FROM THE NORTH CORNER OF THE ABUTMENT WING
AT0804'AND
AT0804'1.2 METERS (4 FT) NORTH FROM A FIBERGLASS WITNESS POST.
AT0804
AT0804 STATION RECOVERY (1988)
AT0804
AT0804'RECOVERY NOTE BY BURK AND N-Y 1988
AT0804'0.5 KM (0.30 MI) NW FROM REGGIO.
AT0804'LOCATED 0.48 KM (0.30 MI) NORTHWEST ALONG STATE HIGHWAY 46 FROM THE
AT0804'CROSSROADS AT REGGIO, TO THE WEST END OF THE BRIDGE AND THE MARK ON
AT0804'THE RIGHT. IT IS 7.62 M (25.0 FT) NORTH OF THE CENTERLINE OF THE
AT0804'EAST-BOUND LANE, 1.07 M (3.5 FT) NORTHWEST OF THE NORTHWEST END OF
AT0804'THE BANNISTER, 0.67 M (2.2 FT) NORTHEAST OF THE BRIDGE CURB AND 0.46
AT0804'M (1.5 FT) FROM THE NORTH CORNER OF THE ABUTMENT WING. NOTE--ACCESS
AT0804'TO DATUM POINT IS HAD THROUGH A 5-INCH NGS LOGO CAP,
AT0804'(THIS IS A 3-D GPS STATION MARK).
AT0804
AT0804 STATION RECOVERY (1988)
AT0804
AT0804'RECOVERY NOTE BY LA TRANSP AND DEV 1988
AT0804'THE STATION IS LOCATED IN THE NORTHWEST EDGE OF REGGIO ON STATE
AT0804'HIGHWAY 46. OWNERSHIP--LOUISIANA DEPARTMENT OF TRANSPORTATION AND
AT0804'DEVELOPMENT.
AT0804'TO REACH THE STATION FROM THE JUNCTION OF STATE HIGHWAYS 300 AND 46
IN
AT0804'REGGIO GO NORTHWEST FOR 0.46 KM (0.30 MI) ON HIGHWAY 46 TO THE FAR
END
AT0804'OF THE BRIDGE AND THE STATION ON THE RIGHT.
AT0804'THE STATION IS A STAINLESS STEEL ROD ACCESSED THROUGH A LOGO CAP, 7.6
AT0804'M (24.9 FT) NORTHEAST FROM THE CENTER OF THE NORTH BOUND LANES OF THE
AT0804'HIGHWAY, 1.1 M (3.6 FT) NORTH FROM THE NORTH END OF THE BANISTER, 0.7
AT0804'M (2.3 FT) NORTHEAST FROM A BRIDGE CURB, 0.5 M (1.6 FT) WEST FROM THE
AT0804'NORTH CORNER OF THE ABUTMENT WING AND 1.2 M (3.9 FT) NORTH FROM A
AT0804'FIBERGLASS WITNESS POST.
AT0804
AT0804 STATION RECOVERY (1989)
AT0804
AT0804'RECOVERED 1989
AT0804'RECOVERED IN GOOD CONDITION.
AT0804
AT0804 STATION RECOVERY (1991)
AT0804
AT0804'RECOVERY NOTE BY LA TRANSP AND DEV 1991
AT0804'THE STATION IS LOCATED IN THE NORTHEAST END OF REGGIO ON STATE
HIGHWAY
AT0804'46. OWNERSHIP--LOUISIANA DEPARTMENT OF TRANSPORTATION AND
AT0804'DEVELOPMENT.
AT0804'TO REACH THE STATION FROM THE JUNCTION OF STATE HIGHWAYS 46 AND 300
IN
AT0804'REGGIO, GO NORTHWEST FOR 0.3 MI (0.5 KM) ON HIGHWAY 46 TO THE NORTH
AT0804'END OF A BRIDGE AND THE STATION SET ON THE RIGHT.
AT0804'THE STATION IS 25.0 FT (7.6 M) NORTHEAST FROM THE CENTER OF THE NORTH
AT0804'BOUND LANES OF THE HIGHWAY, 5.5 FT (1.7 M) NORTH FROM THE NORTH END
AT0804'OF THE BANNISTER, 2.0 FT (0.6 M) NORTHEAST FROM A BRIDGE CURB, 1.5 FT
AT0804'(0.5 M) WEST FROM THE NORTH CORNER OF THE NORTH BOUND BRIDGE
AT0804'ABUTMENT, 1.5 FT (0.5 M) NORTHWEST FROM A FIBERGLASS WITNESS POST,

AT0804'FLUSH WITH THE GROUND AND ABOUT LEVEL WITH THE HIGHWAY.
AT0804
AT0804 STATION RECOVERY (1992)
AT0804
AT0804'RECOVERED 1992
AT0804'RECOVERED IN GOOD CONDITION.
AT0804
AT0804 STATION RECOVERY (1992)
AT0804
AT0804'RECOVERED 1992
AT0804'RECOVERED IN GOOD CONDITION.
AT0804
AT0804 STATION RECOVERY (1994)
AT0804
AT0804'RECOVERY NOTE BY LA TRANSP AND DEV 1994 (SLC)
AT0804'RECOVERED AS DESCRIBED.
AT0804
AT0804 STATION RECOVERY (1996)
AT0804
AT0804'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1996 (ALG)
AT0804'RECOVERED AS DESCRIBED.
AT0804
AT0804 STATION RECOVERY (1998)
AT0804
AT0804'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1998 (CSM)
AT0804'RECOVERED AS DESCRIBED. NOTE--THE PREVIOUS DESCRIPTION INCORRECTLY
AT0804'STATES THE ROD HAS NO SLEEVE.
AT0804
AT0804 STATION RECOVERY (1998)
AT0804
AT0804'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1998 (CSM)
AT0804'RECOVERED AS DESCRIBED. NOTE--THE PREVIOUS DESCRIPTION INCORRECTLY
AT0804'STATES THE ROD HAS NO SLEEVE.
AT0804
AT0804 STATION RECOVERY (2003)
AT0804
AT0804'RECOVERY NOTE BY 3001, INC 2003 (MH)
AT0804'THE STATION IS LOCATED NORTHWEST OF REGGIO ON LA HWY 46, 14.09 MILES
AT0804'SOUTHEAST OF INTERSECTION OF LA HWY 47 AND HWY 39 IN CHALMETTE, LA.
AT0804'6.95 MILES EAST SOUTHEAST OF INTERSECTION OF HWY 39 AND HWY 46 IN
ST.
AT0804'BERNARD, 4.83 MILES WEST OF THE END OF HWY 46 IN SHELL BEACH.
AT0804'
AT0804'OWNERSHIP- LA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
AT0804'
AT0804'TO REACH THE STATION FROM THE INTERSECTION OF LA HWY 300 AND HWY 46
IN
AT0804'REGGIO HEAD NORTHWEST FOR 0.3 MILES ON HWY 46, TO THE NORTHEAST
AT0804'CORNER OF A BRIDGE AND THE MARK IS ON THE RIGHT.
AT0804'
AT0804'THE STATION IS 25.0 FT. NORTHEAST OF CENTERLINE OF NORTH BOUND LANES
AT0804'OF HWY, 3.6 FT. NORTH FROM NORTH END OF BRIDGE CONCRETE RAIL, 2.1
FT.
AT0804'NORTHEAST OF A CONCRETE CURB, 1.5 FT. NORTHWEST OF A CONCRETE
AT0804'ABUTMENT WING. STATION IS A STAINLESS STEEL ROD ACCESSED THROUGH A
AT0804'LOGO CAP STAMPED- REGGIO2 1987, FLUSH WITH TOP OF LOGO SLEEVE COVER
AT0804'MISSING OTHERWISE IN GOOD CONDITION.

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AT0804
AT0804                          STATION RECOVERY (2003)
AT0804
AT0804'RECOVERY NOTE BY INDIVIDUAL CONTRIBUTORS 2003 (JCJ)
AT0804'RECOVERED IN GOOD CONDITION.
AT0804
AT0804                          STATION RECOVERY (2004)
AT0804
AT0804'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 2004 (KLF)
AT0804'RECOVERED AS DESCRIBED
AT0804
AT0804                          STATION RECOVERY (2006)
AT0804
AT0804'RECOVERY NOTE BY 3001, INC 2006 (JCP)
AT0804'THE STATION IS LOCATED ST. BERNARD PARISH NEAR THE COMMUNITY OF
AT0804'REGGIO, 13.95 MILES SE OF CHALMETTE. OWNERSHIP - LOUISIANA DEPARTMENT
AT0804'OF HWYS.
AT0804'
AT0804'TO REACH THE STATION FROM THE INTERSECTION OF HIGHWAYS 47 AND 39 IN
AT0804'CHALMETTE, GO SE ON HIGHWAY 39 FOR 8.25 MILES TO HIGHWAY 46 ON THE
AT0804'LEFT.  TURN LEFT ON HIGHWAY 46 AND GO 7.6 MILES TO THE MARK ON THE
AT0804'LEFT.  THE STATION IS 25.0 FEET NE OF OF THE HIGHWAY 46 NORTHBOUND
AT0804'LANES, 3.6 FEET NORTH OF THE NORTH END OF THE NW CORNER OF A BRIDGE
AT0804'CONCRETE RAIL, 2.1 FEET NE OF A CONCRETE CURB, 1.5 FEET NW OF A
AT0804'CONCRETE ABUTMENT WINGWALL. THE MARK IS A STAINLESS STEEL ROD WITH
AT0804'ACCESS THROUGH A LOGO CAP STAMPED REGGIO 2 1987.  NOTE THE COVER IS
AT0804'MISSING.

*** retrieval complete.
Elapsed Time = 00:00:00



 ------------------------------------------------------------------------
-
 -   This listing contains control for which complete digital
-
 -   data sheets where not provided.  The complete data sheets were
-
 -   not provided for the reason listed below.  The reason below is
-
 -   associated with a horizontal control Nonpub code shown under
-
 -   the heading 'H' and/or a vertical control Nonpub code shown under
-
 -   the heading 'v'
-
 -
-
 -   The format of the records are as follows:
-
 -       Pid  = Station Permanent Identifier)
-
 -       Name = Station Designation
-
 -       Lat  = Approx. Latitude (Degrees, Minutes, truncated Seconds)
-
```

- Lon = Approx. Longitude (Degrees, Minutes, truncated Seconds)
-
- O   = Horizontal Order
-
- o   = Vertical Order
-
- H   = Horizontal Nonpub Code
-
- v   = Vertical Nonpub Code
-
-
-
- H Nonpub HORIZONTAL CONTROL NONPUB REASON
-
- -------- -------------------------------
-
- X   Surface Mark Reported Destroyed
-
- Y   Surface and underground mark reported destroyed
-
- A   A-Order Horizontal mark not tied to an adjusted HARN
-
- C   C-Nonoperational CORS Station
-
- W   Weakly determined position.
-
- P   Purpose of position is not for network control
-
- D   No Descriptive Text available
-
- R   Restricted position
-
- O   Outside NGS Publication Area
-
- N   No geodetic control at this mark
-
-
-
- v Nonpub VERTICAL CONTROL NONPUB REASON
-
- -------- -----------------------------
-
- X   Surface Mark Reported Destroyed
-
- Y   Surface and underground mark reported destroyed
-
- F   Bench Mark not yet adjusted.
-
- D   No Descriptive Text available
-
- Z   Presumed destroyed
-
- R   Restricted elevation
-
- O   Outside NGS Publication Area
-

```
 -       N        No geodetic control at this mark
-
 -       S        Mark is in a subsidence area
-
 -
-
 -
-
 -   NOTE - Stations found in this listing may still have a valid
-
 -          datasheet produced by use of other publishable values.
-
 -          For example, an ADJUSTED height may be non-publishable
-
 -          but a good GPS height might be found on the datasheet.
-
 -          This listing does not imply that values found on the datasheet
-
 -          are restricted.  If it's on the datasheet, use it.
-
 -
-
 ------------------------------------------------------------------------------
-
  Pid    Name                           Lat         Lon          Elev     O o
Hv
  ------ ------------------------------ ----------- ------------ -------- - - -
-
 >AT0804 REGGIO 2                       29 50 40.7/089 45 32.4   1.82   ? 3
S
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Waste Well 2 Reset NGS Benchmark Data Sheet

The NGS Data Sheet

```
DATABASE = Sybase ,PROGRAM = datasheet, VERSION = 7.58
1        National Geodetic Survey,   Retrieval Date = JANUARY 19, 2008
 BH1890
***********************************************************************
 BH1890  HT_MOD      -  This is a Louisiana Height Modernization Survey
Station.
 BH1890  DESIGNATION -  WASTE WELL 2 RESET
 BH1890  PID         -  BH1890
 BH1890  STATE/COUNTY-  LA/ORLEANS
 BH1890  USGS QUAD   -  LITTLE WOODS (1994)
 BH1890
 BH1890                        *CURRENT SURVEY CONTROL
 BH1890  ______________________________________________________________________
 BH1890* NAD 83(2007)-  30 01 22.71441(N)    089 54 46.79820(W)     ADJUSTED
 BH1890* NAVD 88     -         1.43 **(meters)       4.7  **(feet)  GPS
OBS(2004.65)
 BH1890  **This station is located in a subsidence area (see below).
 BH1890  ______________________________________________________________________
 BH1890  EPOCH DATE  -        2002.00
 BH1890  X           -       8,392.384 (meters)                     COMP
 BH1890  Y           -  -5,526,954.885 (meters)                     COMP
 BH1890  Z           -   3,172,566.828 (meters)                     COMP
 BH1890  LAPLACE CORR-           0.02  (seconds)                    DEFLEC99
 BH1890  ELLIP HEIGHT-         -24.777 (meters)          (02/10/07) ADJUSTED
 BH1890  GEOID HEIGHT-         -26.22  (meters)                     GEOID03
 BH1890  DYNAMIC HT  -           1.42  (meters)       4.7   (feet)  COMP
 BH1890
 BH1890  ------- Accuracy Estimates (at 95% Confidence Level in cm) --------
 BH1890  Type    PID    Designation                       North   East  Ellip
 BH1890  ----------------------------------------------------------------------
 BH1890  NETWORK BH1890 WASTE WELL 2 RESET                 1.00   0.88   2.06
 BH1890  ----------------------------------------------------------------------
 BH1890  MODELED GRAV-     979,317.0   (mgal)                       NAVD 88
 BH1890
 BH1890  VERT ORDER  -  FIRST     CLASS I (See Below)
 BH1890
 BH1890.The horizontal coordinates were established by GPS observations
 BH1890.and adjusted by the National Geodetic Survey in February 2007.
 BH1890
 BH1890.The datum tag of NAD 83(2007) is equivalent to NAD 83(NSRS2007).
 BH1890.See www.ngs.noaa.gov/NationalReadjustment for more information.
 BH1890.The horizontal coordinates are valid at the epoch date displayed
above.
 BH1890.The epoch date for horizontal control is a decimal equivalence
 BH1890.of Year/Month/Day.
 BH1890
 BH1890 ** Due to the variability of land subsidence, the orthometric,
ellipsoid,
 BH1890 ** and geoid heights are valid at the date of observation. These
heights
 BH1890 ** must always be validated when used as control.
```

```
 BH1890 ** The orthometric height was determined by GPS observations using
 BH1890 ** precise GPS observation and processing techniques and a new
 BH1890 ** realization of GEOID03. It supersedes the leveled height
previously
 BH1890 ** determined for this station.
 BH1890 ** The geoid height was determined by a new realization of GEOID03
for the
 BH1890 ** epoch indicated which incorporates improved geoid heights for the
 BH1890 ** Southern Louisiana Subsidence area.
 BH1890 ** (see www.ngs.noaa.gov/PC_PROD/GEOID03/).
 BH1890.The orthometric height was determined by GPS observations and a
 BH1890.high-resolution geoid model using precise GPS observation and
 BH1890.processing techniques. It supersedes the leveled height previously
 BH1890.determined for this station.
 BH1890.WARNING-GPS observations at this control monument resulted in a GPS
 BH1890.derived orthometric height which differed from the leveled height by
 BH1890.more than one decimeter (0.1 meter).
 BH1890.The vertical order pertains to the first NAVD 88 superseded value.
 BH1890
 BH1890.The X, Y, and Z were computed from the position and the ellipsoidal
ht.
 BH1890
 BH1890.The Laplace correction was computed from DEFLEC99 derived
deflections.
 BH1890
 BH1890.The ellipsoidal height was determined by GPS observations
 BH1890.and is referenced to NAD 83.
 BH1890
 BH1890.The geoid height was determined by GEOID03.
 BH1890
 BH1890.The dynamic height is computed by dividing the NAVD 88
 BH1890.geopotential number by the normal gravity value computed on the
 BH1890.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
 BH1890.degrees latitude (g = 980.6199 gals.).
 BH1890
 BH1890.The modeled gravity was interpolated from observed gravity values.
 BH1890
 BH1890;                    North         East     Units Scale Factor
Converg.
 BH1890;SPC LA S     -   169,662.256 1,136,997.477   MT  0.99992582   +0 42
36.7
 BH1890;SPC LA S     -   556,633.58  3,730,299.22   sFT  0.99992582   +0 42
36.7
 BH1890;UTM  16      - 3,324,906.686   219,051.812   MT  1.00057395   -1 27
30.5
 BH1890
 BH1890!             -  Elev Factor  x  Scale Factor =   Combined Factor
 BH1890!SPC LA S     -   1.00000389  x   0.99992582  =   0.99992971
 BH1890!UTM  16      -   1.00000389  x   1.00057395  =   1.00057784
 BH1890
 BH1890                          SUPERSEDED SURVEY CONTROL
 BH1890
 BH1890  NAD 83(1992)-  30 01 22.71456(N)    089 54 46.79801(W) AD(2004.65) B
 BH1890  ELLIP H (06/22/05)  -24.796  (m)                       GP(       ) 4
1
 BH1890  NAVD 88 (12/05/96)    1.622  (m)           5.32   (f) ADJUSTED    1
1
```

```
 BH1890  NAVD 88 (02/14/94)    1.634  (m)            5.36   (f) UNKNOWN     1
1
 BH1890  NGVD 29 (05/21/91)    1.694  (m)            5.56   (f) ADJUSTED    1
1
 BH1890
 BH1890.Superseded values are not recommended for survey control.
 BH1890.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
 BH1890.See file dsdata.txt to determine how the superseded data were
derived.
 BH1890
 BH1890_U.S. NATIONAL GRID SPATIAL ADDRESS: 16RBU1905224907(NAD 83)
 BH1890_MARKER: DB = BENCH MARK DISK
 BH1890_SETTING: 0 = UNSPECIFIED SETTING
 BH1890_SP_SET: 6600 FT WELL CASING
 BH1890_STAMPING: WASTE WELL 2 RESET 1988
 BH1890_MARK LOGO: NGS
 BH1890_PROJECTION: PROJECTING 40 CENTIMETERS
 BH1890_MAGNETIC: N = NO MAGNETIC MATERIAL
 BH1890_STABILITY: A = MOST RELIABLE AND EXPECTED TO HOLD
 BH1890+STABILITY: POSITION/ELEVATION WELL
 BH1890_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
 BH1890+SATELLITE: SATELLITE OBSERVATIONS - April 01, 2006
 BH1890_ROD/PIPE-DEPTH: 2011 meters
 BH1890
 BH1890  HISTORY     - Date     Condition        Report By
 BH1890  HISTORY     - 1988     MONUMENTED       NGS
 BH1890  HISTORY     - 19880920 GOOD             LADTD
 BH1890  HISTORY     - 19901016 GOOD             NGS
 BH1890  HISTORY     - 19941024 GOOD             NGS
 BH1890  HISTORY     - 20040413 GOOD             NGS
 BH1890  HISTORY     - 20060401 GOOD             NGS
 BH1890
 BH1890                          STATION DESCRIPTION
 BH1890
 BH1890'DESCRIBED BY NATIONAL GEODETIC SURVEY 1988
 BH1890'10.4 KM (6.45 MI) EAST FROM NEW ORLEANS.
 BH1890'THE MARK IS 0.46 M ABOVE THE GROUND.
 BH1890'3 KM (1.85 MI) EAST ON U S HIGHWAY 90 FROM THE INTERSTATE
 BH1890'HIGHWAY 10 OVERPASS, THENCE 2.3 KM (1.45 MI) SOUTHEAST ON GENTILLY
 BH1890'ROAD, AT THE NASA MICHOUD PLANT, 150 YARDS SOUTHEAST OF THE SOUTHEAST
 BH1890'WALL OF BUILDING NUMBER 103, AT THE SOUTH CORNER OF A WASTE HOLDING
 BH1890'POND NUMBER 170.  TAHE DISK IS FASTENED TO THE TOP CENTER OF A STEEL
 BH1890'PLATE WELDED TO THE TOP OF THE WELL CASING PROJECTING ABOUT 18-INCHES
 BH1890'ABOVE THE GROUND SURFACE, ABOUT 16-INCHES IN DIAMETER.  THE WELL
 BH1890'CASING IS 6600 FEET DEEP AND FILLED WITH CEMENT.
 BH1890
 BH1890                          STATION RECOVERY (1988)
 BH1890
 BH1890'RECOVERY NOTE BY LA TRANSP AND DEV 1988
 BH1890'ABOUT 3 KM (1.85 MI) EAST ON U S HIGHWAY 90 FROM THE INTERSTATE
 BH1890'HIGHWAY 10 OVERPASS, THENCE 2.3 KM (1.45 MI) SOUTHEAST ON GENTILLY
 BH1890'ROAD, AT THE NASA MICHOUD PLANT, 150 YARDS SOUTHEAST OF THE SOUTHEAST
 BH1890'WALL OF BUILDING NUMBER 103, AT THE SOUTH CORNER OF A WASTE HOLDING
 BH1890'POND NUMBER 170.  THE DISK IS FASTENED TO THE TOP CENTER OF A STEEL
 BH1890'PLATE WELDED TO THE TOP OF THE WELL CASING PROJECTING ABOUT 18-INCHES
 BH1890'ABOVE THE GROUND SURFACE, ABOUT 16-INCHES IN DIAMETER.  THE WELL
 BH1890'CASING IS 6600 FEET DEEP AND FILLED WITH CEMENT.
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BH1890
BH1890 STATION RECOVERY (1990)
BH1890
BH1890'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1990
BH1890'1.2 KM (0.7 MI) SOUTHERLY ALONG SATURN BOULEVARD (NASA GATE 12
BH1890'ENTRANCE ROAD) FROM THE JUNCTION OF GENTILLY ROAD IN NEW ORLEANS, AT
BH1890'WASTE HOLDING POND NUMBER 170, 100.0 M (328.1 FT) NORTH-NORTHWEST OF
BH1890'THE BOULEVARD CENTERLINE, AND 0.4 M (1.3 FT) ABOVE THE GROUND
BH1890'SURFACE. NOTE--THE WELL CASING IS REPORTED TO BE 6600 FEET DEEP AND
BH1890'IS FILLED WITH CONCRETE. THE DISK IS AFFIXED TO A METAL PLATE THAT
BH1890'WAS USED TO CAP THE WELL. THE MARK IS ON PROPERTY OWNED BY NASA
BH1890'MICHOUD PLANT. FOR PERMISSION TO VISIT THE MARK SITE, CONTACT--TONY
BH1890'NAPOLITANO, MARTIN MARIETTA MANNED SPACE SYSTEMS, P.O. BOX 29304, MS
BH1890'3131, NEW ORLEANS, LA 70189-9304, TELEPHONE NUMBER (504) 257-1893.
BH1890
BH1890 STATION RECOVERY (1994)
BH1890
BH1890'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1994 (GAS)
BH1890'3.0 KM (1.85 MI) EASTERLY ALONG U.S. HIGHWAY 90 (CHEF MENTEUR
HIGHWAY)
BH1890'FROM THE JUNCTION OF INTERSTATE HIGHWAY 10 IN NEW ORLEANS, THENCE 8.0
BH1890'KM (4.95 MI) EASTERLY ALONG GENTILLY ROAD, THENCE 1.2 KM (0.75 MI)
BH1890'SOUTHERLY ALONG SATURN BOULEVARD, 100.0 M (328.1 FT) NORTH-NORTHWEST
BH1890'OF THE BOULEVARD CENTERLINE, 3.9 M (12.8 FT) NORTHEAST OF THE
EXTENDED
BH1890'CENTER OF A ROAD, 3.2 M (10.5 FT) SOUTHEAST OF TRIANGULATION STATION
BH1890'MICHOUD, AND 0.4 M (1.3 FT) ABOVE THE GROUND SURFACE. NOTE--THE DISK
BH1890'IS AFFIXED TO A METAL PLATE THAT WAS USED TO CAP WASTE WELL 2. THE
BH1890'MARK IS ON PROPERTY OWNED BY NASA MICHOUD PLANT. TO GAIN ACCESS TO
BH1890'THE MONUMENT, CONTACT--DAVE WELLS--MARTIN MARIETTA MANNED SPACE
BH1890'SYSTEMS, P.O. BOX 29304-MS 3131, NEW ORLEANS, LA 70189-9304,
BH1890'TELEPHONE NUMBER (504) 257-5441.
BH1890
BH1890 STATION RECOVERY (2004)
BH1890
BH1890'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 2004 (KLF)
BH1890'FROM THE JUNCTION OF I 10 AND I 510 EAST OF NEW ORLEANS GO SOUTH ON I
BH1890'510 (EXIT 246) FOR 2.7 MILES, USE EXIT 2C, ALMONSTER AVE. PROCEED TO
BH1890'STOP LIGHT AND TURN LEFT, EASTERLY AND GO 1.35 MILES TO THE VISITOR
BH1890'PARKING LOT FOR THE NASA MICHOUD PLANT. PROCEED INTO THE PARKING
LOT
BH1890'AND PARK AND GO TO BLDG 350 TO GET A VISITOR PASS,VEHICLE PASS, AND
BH1890'CAMERA PASS. PRIOR TO COMING TO THE FACILITY A CALL SHOULD BE MADE 2
BH1890'DAYS IN ADVANCE TO 504-257-1900 TO GET PERMISSION FOR ENTRY. AT
THIS
BH1890'TIME THE POC IS CAROLYN S. MONTEITH WITH THE FACILITIES AND
BH1890'ENVIRONMENTAL OPERATIONS GROUP. UPON LEAVING THE VISITOR CENTER TURN
BH1890'RIGHT EASTERLY ON ALMONSTER AVE FOR 0.1 MILE TO THE ENTRANCE GATE TO
BH1890'THE FACILITY.CONTINUE ON VENUS DR FOR 0.4 MILES TO THE INTERSECTION
BH1890'WITH SATURN BLVD, TURN LEFT EASTERLY FOR 0.3 MILES TO A GATE ON THE
BH1890'LEFT, TURN LEFT NORTHERLY FO 0.075 MILES TO THE MARK ON THE RIGHT
BH1890'BEHIND STORAGE CONTAINER. TH MARK IS 19 FT S OF THE NE CORNER OF A
BH1890'COMCRETE SLAB, 6.5 FT NW OF THE NW CORNER OF THE STORAGE CONTAINER
AND
BH1890'IN THE CENTER OF A GRASSY AREA 6 FT ON A SIDE WITHIN THE CONCRETE
BH1890'PAD.THE MARK IS IN TOP OF A WELL CASING PROJECTING 18INCHES AND IS 2
BH1890'FT IN DIAMTER.IT IS IN THE CENTER ON TOP OF A STEEL PLATE. THE WELL

BH1890'IS 6600 FT DEEP FILLED WITH CONCRETE.
BH1890
BH1890 STATION RECOVERY (2006)
BH1890
BH1890'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 2006 (DB)
BH1890'RECOVERED IN GOOD CONDITION. NOTE--GET PASS AT BUILDING 350 TO
BH1890'ENTER,THERE ARE TWO BUILDINGS WITH FLAG POLES. CAN GET PASS AT EITHER
BH1890'ONE.

*** retrieval complete.
Elapsed Time = 00:00:00

- This listing contains control for which complete digital
- data sheets where not provided. The complete data sheets were
- not provided for the reason listed below. The reason below is
- associated with a horizontal control Nonpub code shown under
- the heading 'H' and/or a vertical control Nonpub code shown under
- the heading 'v'
-
-
- The format of the records are as follows:
-
- Pid = Station Permanent Identifier)
-
- Name = Station Designation
-
- Lat = Approx. Latitude (Degrees, Minutes, truncated Seconds)
-
- Lon = Approx. Longitude (Degrees, Minutes, truncated Seconds)
-
- O = Horizontal Order
-
- o = Vertical Order
-
- H = Horizontal Nonpub Code
-
- v = Vertical Nonpub Code
-
-
-
- H Nonpub HORIZONTAL CONTROL NONPUB REASON
-
- -------- --------------------------------
-
- X Surface Mark Reported Destroyed
-

-       Y   Surface and underground mark reported destroyed
-
-       A   A-Order Horizontal mark not tied to an adjusted HARN
-
-       C   C-Nonoperational CORS Station
-
-       W   Weakly determined position.
-
-       P   Purpose of position is not for network control
-
-       D   No Descriptive Text available
-
-       R   Restricted position
-
-       O   Outside NGS Publication Area
-
-       N   No geodetic control at this mark
-
-
-
-       v Nonpub VERTICAL CONTROL NONPUB REASON
-
-       -------- ------------------------------
-
-       X   Surface Mark Reported Destroyed
-
-       Y   Surface and underground mark reported destroyed
-
-       F   Bench Mark not yet adjusted.
-
-       D   No Descriptive Text available
-
-       Z   Presumed destroyed
-
-       R   Restricted elevation
-
-       O   Outside NGS Publication Area
-
-       N   No geodetic control at this mark
-
-       S   Mark is in a subsidence area
-
-
-
-
-
-   NOTE - Stations found in this listing may still have a valid
-
-          datasheet produced by use of other publishable values.
-
-          For example, an ADJUSTED height may be non-publishable
-
-          but a good GPS height might be found on the datasheet.
-
-          This listing does not imply that values found on the datasheet
-

```
 -          are restricted.  If it's on the datasheet, use it.
-
 -
-
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-
  Pid    Name                           Lat         Lon          Elev     O o
Hv
  ------ ------------------------------ ---------- ----------- -------- - - -
-
 >BH1890 WASTE WELL 2 RESET             30 01 22.7/089 54 46.7          ?
S
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