NORTH PEORIA AREA DRAINAGE MASTER PLAN

Technical Data Notebook

Attachment 1
Field Survey Report

PREPARED FOR:

FLOOD CONTROL DISTRICT
of
Maricopa County
and
City of Peoria

PREPARED BY:

VALCO SURVEY CORPORATION
6426 East Virginia Avenue
Scottsdale, Arizona 85257
(602) 438-2200

September 2001

STANTEC CONSULTING Inc.
Project No. 82000146

Contract FCD 99-45

North Peoria Area Drainage Master Plan

Property of
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Please Return to
2801 W. Durango
Phoenix, AZ 85009

PREPARED FOR
Valco Surveying

PREPARED BY
ARCADIS Geraghty & Miller

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AVERY® READY INDEX™ INDEXING SYSTEM

Valco Surveying Corporation
Valentine M. Padilla, R.L.S.
AERIAL CONTROL • MAPPING • LAND SURVEYS • CONSTRUCTION STAKING • MBE/DBE CERTIFIED

June 12, 2001

Mr. Pat Ellison, PE
Stantec Consulting, Inc.
8211 South 48th Street
Phoenix, AZ 85044

Dear Mr. Ellison:

Enclosed herewith is our final survey report for the North Peoria Area Drainage Master Plan mapping control.

This report includes the GPS report prepared by Arcadis as well as the balance of the survey data obtained by Valco Surveying Corp.

Final coordinates of found land corners (section and quarter section corners) are in U.S. State Plane Grid Coordinates NAD 1983, Arizona Central Zone with elevations in NGVD 1929 Datum, as outlined in the FEMA contract documents.

Respectfully,
VALCO SURVEYING CORP.

Val M. Padilla
Valentine M. Padilla, R.L.S.
President

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
18552
Valentine M.
Padilla
Date Signed 6-14-01
ARIZONA, U.S.A.

enclosure

Home Office:
6426 East Virginia Avenue
Scottsdale, Arizona 85257
480-990-2412

FAX Number
480-990-2412

ARCADIS GERAGHTY & MILLER

ARCADIS Geraghty & Miller, Inc.
8222 South 48th Street
Suite 140
Phoenix
Arizona 85044
Tel 602 438 0883
Fax 602 438 0102

INFRASTRUCTURE

Valentine M. Padilla, R.L.S.
Valco Surveying Corporation
6426 East Virginia Avenue
Scottsdale, Arizona 85257

Phoenix,
28 March 2000

Contact:
Craig Jensen, R.L.S.

Extension:
2130

Dear Mr. Padilla:

Enclosed herewith is our final survey report for the North Peoria Area Drainage Master Plan mapping control which includes the following:

- Final coordinates of Aerial Premark and found Land Corners (section and quarter section corners) in U.S. State Plane Grid Coordinates NAD 1983, Arizona Central Zone with elevations in both NGVD 1929 and NAVD 1988 Datums. All coordinates in this report are "Grid" and in International Feet.

  1. File "VALCO 29" NAD 1983 Horizontal and NGVD 29 Vertical
  2. File "VALCO 88" NAD 1983 Horizontal and NAVD 1988 Vertical

- Also enclosed are these items listed below and include a short summary of each.

  1. GPS Static session for establishing RTK control
  2. GPS RTK survey points before vertical adjustment "VALCO"
  3. GPS RTK raw data file printout
  4. U.S.G.S. Quad Map with Premark points annotated

Sincerely,

ARCADIS Geraghty & Miller, Inc.

Craig A. Jensen

Craig Jensen, R.L.S.

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
17286
CRAIG A.
JENSEN
Date Signed 3-29-00
ARIZONA, U.S.A.

Enclosure

Our ref.:
AZ000822.0001/valco surveying.doc

```
DV0076'HIGHWAY 93 FROM THE POST OFFICE AT EL MIRAGE, THENCE 7.55 MILES
DV0076'NORTHEAST ALONG CANAL ROAD WHICH PARALLELS THE SOUTHEAST SIDE OF THE
DV0076'BEARDSLEY CANAL, OR ABOUT 6.25 MILES NORTH ALONG 107TH AVENUE FROM THE
DV0076'KINGS INN AT SUN CITY, THENCE 2.45 MILES NORTH ALONG A GRAVELED ROAD,
DV0076'THENCE 0.7 MILE NORTHWEST ALONG A GRAVELED ROAD, THENCE 0.5 MILE WEST
DV0076'ALONG A TRAIL ROAD, IN SECTION 31, T 5 N, R 1 E, 68 YARDS NORTH OF THE
DV0076'CENTER OF THE CROSSING OF THE TRAIL ROAD AND THE BEARDSLEY CANAL
DV0076'VIADUCT, BELOW AND NEAR THE EAST END OF THE BEARDSLEY CANAL VIADUCT
DV0076'WHICH CROSSES ABOVE A GRAVELED WASH AND A PRIVATE TRAIL ROAD, SET IN
DV0076'THE CENTER OF THE TOP OF THE CONCRETE FOUNDATION SUPPORTING THE 2ND
DV0076'SET OF 2 METAL LEGS WEST OF THE EAST END OF THE VIADUCT, 20 FEET WEST
DV0076'OF THE CENTER LINE OF THE TRAIL ROAD, ABOUT 2 FEET ABOVE THE LEVEL OF
DV0076'THE GROUND AND ABOUT LEVEL WITH THE TRAIL ROAD.
DV0076
DV0076                          STATION RECOVERY (1981)
DV0076
DV0076'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1981
DV0076'RECOVERED IN GOOD CONDITION.

*** retrieval complete.
Elapsed Time = 00:00:02
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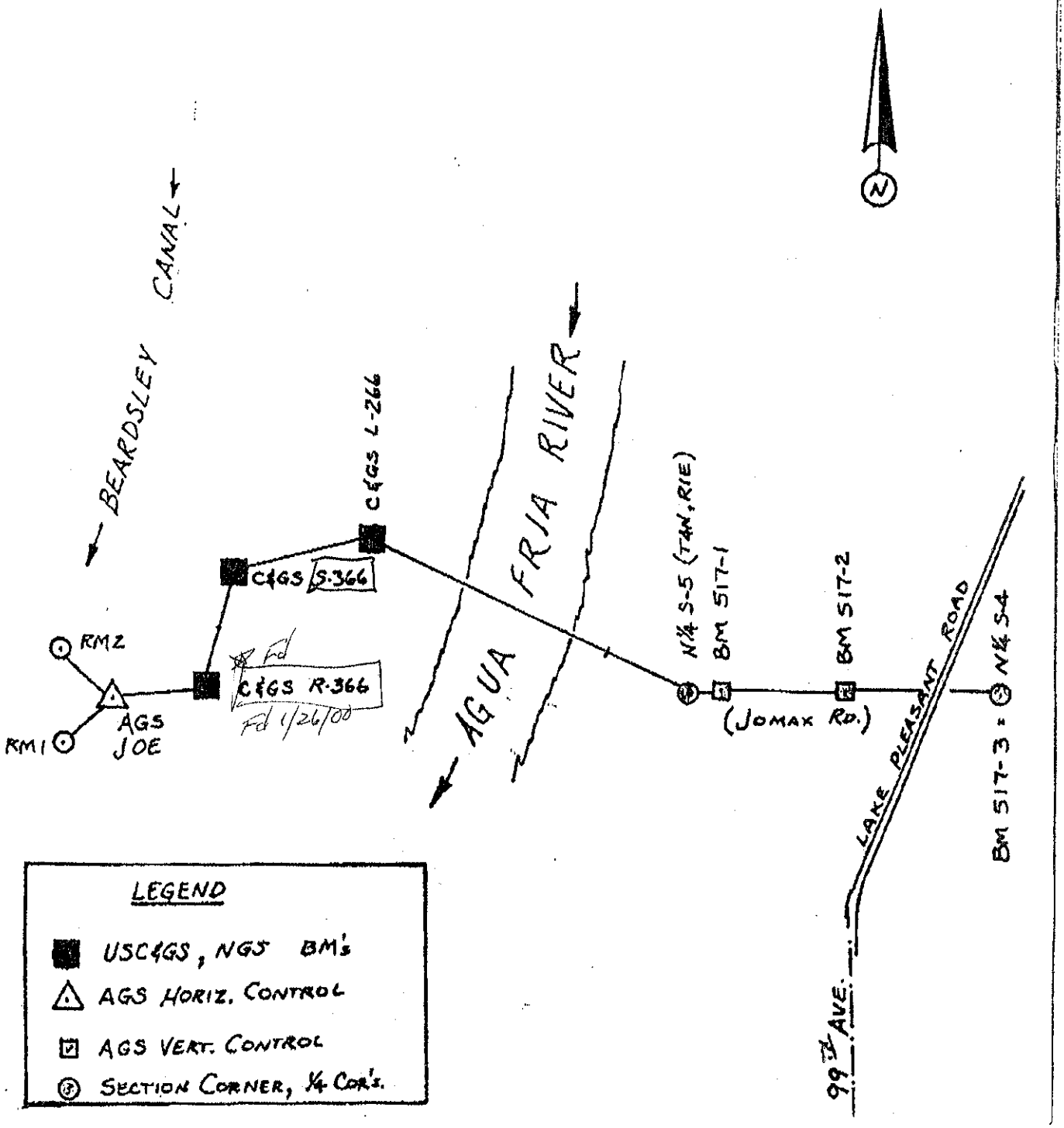
PHOENIX N.W. OUTERLOOP EXPRESSWAY (S.R. 517)

VERTICAL CONTROL

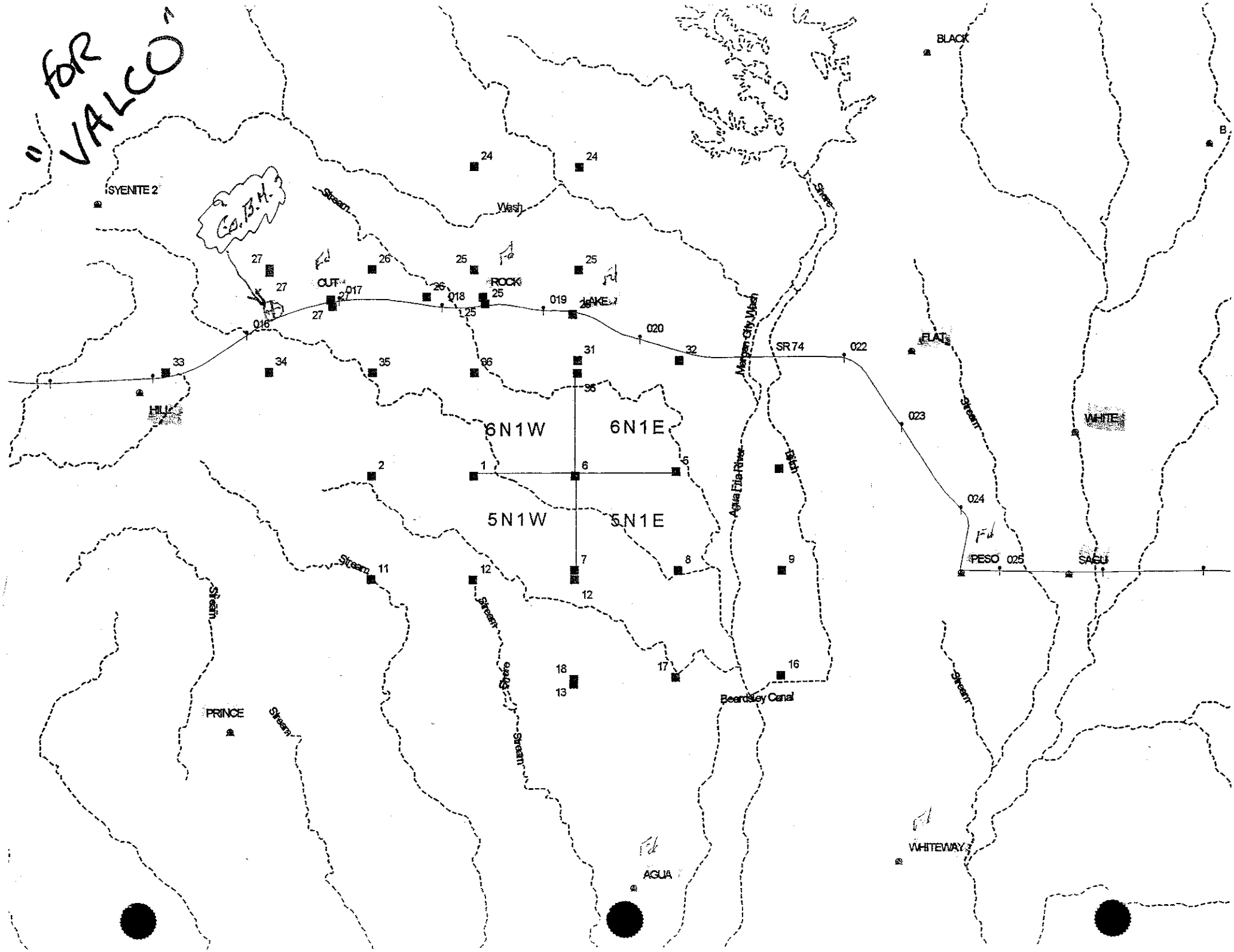
PRECISE LEVELS

2ND ORDER CLASS I

1987



"FOR VALCO"


SYENITE 2
Stream
Wash
CUT
ROCK
LAKE
016
017
018
019
020
SR 74
022
023
024
025
PESO
SAGU
FLAT
WHITE
BLACK
B
HILL
6N1W
6N1E
5N1W
5N1E
Agua Fria River
Morgan City Wash
Ditch
Beardsley Canal
PRINCE
AGUA
WHITEWAY

```
DV2048 ***********************************************************************
DV2048  DESIGNATION -  CUT
DV2048  PID         -  DV2048
DV2048  STATE/COUNTY-  AZ/MARICOPA
DV2048  USGS QUAD   -  BALDY MTN (1986)
DV2048
DV2048                        *CURRENT SURVEY CONTROL
DV2048
DV2048* NAD 83(1992)-  33 50 08.64725(N)    112 20 58.58911(W)     ADJUSTED
DV2048* NAVD 88     -       566.2    (meters)    1858.     (feet)  VERTCON
DV2048
DV2048  LAPLACE CORR-           0.62  (seconds)                    DEFLEC96
DV2048  GEOID HEIGHT-         -29.36  (meters)                     GEOID96
DV2048
DV2048  HORZ ORDER  -  SECOND
DV2048
DV2048;                     North         East     Units   Scale      Converg.
DV2048;SPC AZ C     -   314,519.585   173,289.836   MT  0.99991979 -0 14 27.9
DV2048;UTM  12      - 3,744,761.906   375,122.805   MT  0.99979224 -0 45 05.7
DV2048
DV2048:                Primary Azimuth Mark                     Grid Az
DV2048:SPC AZ C     -  HILL                                     244 28 59.8
DV2048:UTM  12      -  HILL                                     244 59 37.6
DV2048
DV2048|-----------------------------------------------------------------|
DV2048| PID    Reference Object                  Distance       Geod. Az |
DV2048|                                                         dddmmss.s |
DV2048|        CUT RM 1                           6.483 METERS 07632     |
DV2048| DV2052 HILL                             APPROX. 3.3 KM 2441431.9 |
DV2048|        CUT RM 2                           5.511 METERS 32330     |
DV2048|-----------------------------------------------------------------|
DV2048
DV2048                        SUPERSEDED SURVEY CONTROL
DV2048
DV2048  NAD 83(1986)-  33 50 08.64272(N)    112 20 58.59311(W) AD(       ) 2
DV2048  NAD 27      -  33 50 08.51451(N)    112 20 55.99721(W) AD(       ) 2
DV2048  NGVD 29     -       565.6    (m)         1856.     (f) VERT ANG
DV2048
DV2048.Superseded values are not recommended for survey control.
DV2048.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
DV2048.See file dsdata.txt to determine how the superseded data were derived.
DV2048
DV2048_MARKER: DD = SURVEY DISK
DV2048_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT (ROUND)
DV2048
DV2048  HISTORY     - Date     Condition        Recov. By
DV2048  HISTORY     - 1978     MONUMENTED       AZDT
DV2048  HISTORY     - 19960212 GOOD             USPSQD
DV2048
DV2048                        STATION DESCRIPTION
DV2048
DV2048'DESCRIBED BY ARIZONA DEPARTMENT OF TRANSPORTATION 1978 (TT)
DV2048'THE STATION IS ABOUT 20 MILES EAST OF MORRISTOWN AND 5 MILES
DV2048'WEST SOUTHWEST OF LAKE PLEASANT ALONG THE NORTH R/W OF STATE
DV2048'ROUTE 70 ON TOP A HWY. CUTBANK.
DV2048'
DV2048'THE STATION IS AN ADOT HWY. DIVISION DISK STAMPED CUT 1976
DV2048'AND IS SET IN A 10 INCH DIAMETER CONCRETE MONUMENT. THE MARK
DV2048'IS 3.5 FEET SOUTH OF THE NORTH R/W FENCE ON TOP OF A 15 FOOT
DV2048'CUTBANK MARKED WITH A WITNESS POST AND SIGN.
DV2048'
DV2048'REFERENCE MARK 2 IS AN ADOT HWY. DIVISION DISK STAMPED CUT RM
DV2048'2 1976 SET IN A 10 INCH DIAMETER CONCRETE MONUMENT 3 FEET SOUTH
DV2048'OF R/W FENCE.
DV2048'
DV2048'REFERENCE MARK 1 IS AN ADOT HWY. DIVISION DISK STAMPED CUT RM
DV2048'1 1976 AND IS SET IN A 10 INCH DIAMETER CONCRETE MONUMENT 3 FEET
DV2048'SOUTH OF R/W FENCE.
DV2048'
DV2048'TO REACH THE STATION FROM THE INTERSECTION OF U.S. 60-89-93
DV2048'AND STATE ROUTE 74, 0.8 MILES NORTHWEST OF MORRISTOWN.  TRAVEL
DV2048'EAST ON ROUTE 74 FOR 16.90 MILES AND THE STATION ON THE LEFT
DV2048'IN THE NORTH R/W.
DV2048'
DV2048'HEIGHT OF LIGHT ABOVE STATION MARK 1.5 METERS.
DV2048
DV2048                        STATION RECOVERY (1996)
DV2048
DV2048'RECOVERY NOTE BY US POWER SQUADRON 1996
DV2048'RECOVERED IN GOOD CONDITION.
```

```
1        National Geodetic Survey,   Retrieval Date = APRIL 23, 1999
DV2043 ***********************************************************************
DV2043  DESIGNATION -  WHITEWAY
DV2043  PID         -  DV2043
DV2043  STATE/COUNTY-  AZ/MARICOPA
DV2043  USGS QUAD   -  BALDY MTN (1986)
DV2043
DV2043                          *CURRENT SURVEY CONTROL
DV2043
DV2043  ___________________________________________________________________
DV2043* NAD 83(1992)-  33 45 25.12821(N)    112 15 10.95709(W)     ADJUSTED
DV2043* NAVD 88     -       447.4    (meters)    1468.     (feet)  VERTCON
DV2043  ___________________________________________________________________
DV2043  LAPLACE CORR-           2.50  (seconds)                    DEFLEC96
DV2043  GEOID HEIGHT-         -29.51  (meters)                     GEOID96
DV2043
DV2043  HORZ ORDER  -  SECOND
DV2043
DV2043
DV2043;                     North         East     Units   Scale      Converg.
DV2043;SPC AZ C     -   305,751.555   182,198.717   MT  0.99991197 -0 11 12.9
DV2043;UTM  12      - 3,735,916.138   383,952.085   MT  0.99976602 -0 41 46.9
DV2043
DV2043:                 Primary Azimuth Mark                      Grid Az
DV2043:SPC AZ C     -   WHITEWAY AZ MK                            018 51 51.2
DV2043:UTM  12      -   WHITEWAY AZ MK                            019 22 25.2
DV2043
DV2043|-------------------------------------------------------------------|
DV2043| PID    Reference Object                      Distance      Geod. Az |
DV2043|                                                            dddmmss.s |
DV2043|        WHITEWAY AZ MK                                      0184038.3 |
DV2043| DV1857 AGUA                                                09254     |
DV2043|        WHITEWAY RM 3 AZIMUTH                               1895848.9 |
DV2043|        WHITEWAY RM 1                          20.454 METERS 20442    |
DV2043|        WHITEWAY RM 2                          14.422 METERS 28526    |
DV2043|-------------------------------------------------------------------|
DV2043
DV2043                          SUPERSEDED SURVEY CONTROL
DV2043
DV2043  NAD 83(1986)-  33 45 25.12365(N)    112 15 10.96340(W) AD(       ) 2
DV2043  NAD 27      -  33 45 24.99400(N)    112 15 08.39000(W) AD(       ) 2
DV2043  NGVD 29     -       446.8    (m)         1466.     (f) VERT ANG
DV2043
DV2043.Superseded values are not recommended for survey control.
DV2043.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
DV2043.See file dsdata.txt to determine how the superseded data were derived.
DV2043
DV2043_MARKER: DS = TRIANGULATION STATION DISK
DV2043_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT (ROUND)
DV2043_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
DV2043+STABILITY: SURFACE MOTION
DV2043
DV2043  HISTORY     - Date     Condition        Recov. By
DV2043  HISTORY     - 1947     MONUMENTED       CGS
DV2043  HISTORY     - 1971     GOOD             USE
DV2043  HISTORY     - 1973     GOOD             NGS
DV2043  HISTORY     - 1986     GOOD             AZDT
DV2043
DV2043                          STATION DESCRIPTION
DV2043
DV2043'DESCRIBED BY COAST AND GEODETIC SURVEY 1947 (DHK)
DV2043'THE STATION IS LOCATED ABOUT 24 MILES NORTHWEST OF PHOENIX,
DV2043'ABOUT 12 MILES NORTH OF MARINETTE, AND ABOUT 0.5 MILE EAST OF
DV2043'THE AGUA FRIA RIVER, ON THE MARINETTE-LAKE PLEASANT HIGHWAY, IN
DV2043'OPEN COUNTRY, 20 PACES WEST OF AND APPROXIMATELY THE SAME
DV2043'ELEVATIN AS THE CENTER LINE OF ROAD, 3 FEET NORTH OF A 4 X 4
DV2043'WITNESS POST, STAMPED--WHITEWAY 1947.
DV2043'
DV2043'REFERENCE MARK NO. 1 IS APPROXIMATELY THE SAME ELEVATION AS
DV2043'STATION, 22 PACES WEST OF CENTER LINE OF ROAD, PROJECTS 6
DV2043'INCHES AND IS STAMPED--WHITEWAY NO 1 1947.
DV2043'
DV2043'REFERENCE MARK NO. 2 IS APPROXIMATELY THE SAME ELEVATION AS
DV2043'STATION, FLUSH WITH THE GROUND AND IS STAMPED--WHITEWAY NO 2 1947.
DV2043'
DV2043'THE AZIMUTH MARK IS 14 PACES EAST OF CENTER LINE OF ROAD, PROJECTS
DV2043'4 INCHES AND IS STAMPED--WHITEWAY 1947.
DV2043'
DV2043'TO REACH FROM THE POST OFFICE AT MARINETTE.  GO WEST ON U.S.
DV2043'HIGHWAYS 60, 70 AND 89 FOR 0.4 MILE TO A SIDE ROAD RIGHT AND
DV2043'SIGN LAKE PLESANT 20 MILES.  TURN RIGHT, LEAVING HIGHWAY,
DV2043'CROSS RAILROAD AND GO NORTH ON GRADED ROAD FOR 4.85 MILES TO
```

DV2043'A Y FORK JUST AFTER CROSSING CATTLE GUARD. TAKE RIGHT FORK
DV2043'AND CONTINUE NORTH ON LAKE PLEASANT ROAD FOR 3.0 MILES TO A
DV2043'T ROAD RIGHT. CONTINUE STRAIGHT AHEAD, NORTHERLY, FOR 3.55
DV2043'MILES TO THE STATION SITE ON LEFT AS DESCRIBED ABOVE. A DRIVE
DV2043'STATION.
DV2043
DV2043 STATION RECOVERY (1971)
DV2043
DV2043'RECOVERY NOTE BY US ENGINEERS 1971 (EMB)
DV2043'WHITEWAY 1947-GOOD.
DV2043'
DV2043'WHITEWAY NO 1 1947-GOOD.
DV2043'
DV2043'WHITEWAY NO 2 1947-GOOD.
DV2043'
DV2043'AZIMUTH MARK SEARCHED FOR BUT NOT RECOVERED. PROBABLY COVERED
DV2043'BY ROAD GRADER OPERATIONS.
DV2043'
DV2043'DESCRIPTION IS ADEQUATE.
DV2043
DV2043 STATION RECOVERY (1973)
DV2043
DV2043'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1973 (LFS)
DV2043'THE STATION MARK, REFERENCE MARKS 1 AND 2 WERE RECOVERED AND
DV2043'FOUND IN GOOD CONDITION. THE AZIMUTH MARK COULD NOT BE
DV2043'RECOVERED AND A NEW AZIMUTH MARK WAS ESTABLISHED AT THIS TIME.
DV2043'THE OLD ROUTE TO THE STATION IS NO LONGER ADEQUATE AND A
DV2043'NEW ROUTE IS GIVEN AT THIS TIME.
DV2043'
DV2043'TO REACH THE STATION FROM INTERSTATE HIGHWAY 17 AND BELL ROAD
DV2043'IN THE NORTH PART OF PHOENIX, GO WEST ALONG BELL ROAD FOR
DV2043'10.4 MILES TO 107 AVENUE. TURN RIGHT AND GO NORTH ALONG 107
DV2043'AVENUE FOR 2.3 MILES TO A FORK. TAKE RIGHT FORK NORTHEAST
DV2043'(LAKE PLEASANT ROAD) FOR 3.1 MILES TO HAPPY VALLEY ROAD ON THE
DV2043'RIGHT, CONTINUE NORTH FOR 3.5 MILES TO THE STATION ON THE LEFT
DV2043'AS DESCRIBED IN 1947.
DV2043'
DV2043'THE 1973 AZIMUTH MARK IS A STANDARD DISK STAMPED, WHITEWAY
DV2043'1947 NO 3 1973. IT IS SET IN A DRILL HOLE ON TOP OF A LOW
DV2043'RIDGE WHICH LEADS WEST FROM A PROMINENT BUTTE.
DV2043'
DV2043'TO REACH THE AZIMUTH MARK FROM THE STATION GO SOUTH ALONG THE
DV2043'MAIN ROAD FOR 0.7 MILE TO A RIDGE ON THE LEFT. PACK EAST UP
DV2043'THE RIDGE FOR ABOUT 0.1 MILE TO THE MARK.
DV2043'
DV2043'HEIGHT OF LIGHT ABOVE STATION MARK 5 FEET.
DV2043'
DV2043'AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN--24 MILES
DV2043'NORTHWEST OF PHOENIX.
DV2043
DV2043 STATION RECOVERY (1986)
DV2043
DV2043'RECOVERY NOTE BY ARIZONA DEPARTMENT OF TRANSPORTATION 1986 (ART)
DV2043'THE STATION MARK, REFERENCE MARKS AND THE AZIMUTH MARK WERE RECOVERED
DV2043'AND FOUND IN GOOD CONDITION. A NEW ROUTE TO THE STATION FOLLOWS.
DV2043'
DV2043'TO REACH THE STATION FROM INTERSTATE HIGHWAY 17 AND CAREFREE HIGHWAY
DV2043'A FEW MILES NORTH OF PHOENIX. TRAVEL WEST ALONG CAREFREE HIGHWAY FOR
DV2043'6.6 MILES TO AN INTERSECTION. TURN LEFT AND TRAVEL SOUTH FOR 3.1
DV2043'MILES TO THE STATION ON RIGHT 65 FEET WEST OF THE CENTERLINE OF LAKE
DV2043'PLEASENT ROAD.

The NGS Data Sheet

```
DATABASE = Sybase ,PROGRAM = datasheet, VERSION = 6.06
Starting Datasheet Retrieval...
1        National Geodetic Survey,   Retrieval Date = JANUARY 17, 2000
 DV2046 ***********************************************************************
 DV2046  DESIGNATION -  LAKE
 DV2046  PID         -  DV2046
 DV2046  STATE/COUNTY-  AZ/MARICOPA
 DV2046  USGS QUAD   -  BALDY MTN (1986)
 DV2046
 DV2046                         *CURRENT SURVEY CONTROL
 DV2046
 DV2046* NAD 83(1992)-  33 50 01.48113(N)    112 18 30.15299(W)     ADJUSTED
 DV2046* NAVD 88     -       528.4    (meters)    1734.     (feet)  GPS OBS
 DV2046
 DV2046  X           -  -2,013,338.711 (meters)                     COMP
 DV2046  Y           -  -4,906,983.669 (meters)                     COMP
 DV2046  Z           -   3,531,421.028 (meters)                     COMP
 DV2046  LAPLACE CORR-           0.78  (seconds)                    DEFLEC99
 DV2046  ELLIP HEIGHT-         499.00  (meters)                     GPS OBS
 DV2046  GEOID HEIGHT-         -29.37  (meters)                     GEOID99
 DV2046
 DV2046  HORZ ORDER  -  A
 DV2046  ELLP ORDER  -  FIRST     CLASS I
 DV2046
 DV2046.The horizontal coordinates were established by GPS observations
 DV2046.and adjusted by the National Geodetic Survey in September 1999.
 DV2046
 DV2046.The orthometric height was determined by GPS observations.
 DV2046
 DV2046.The X, Y, and Z were computed from the position and the ellipsoidal ht.
 DV2046
 DV2046.The Laplace correction was computed from DEFLEC99 derived deflections.
 DV2046
 DV2046.The ellipsoidal height was determined by GPS observations
 DV2046.and is referenced to NAD 83.
 DV2046
 DV2046.The geoid height was determined by GEOID99.
 DV2046
 DV2046;                     North         East     Units   Scale      Converg.
 DV2046;SPC AZ C     -   314,283.518  177,105.202   MT  0.99991620 -0 13 05.2
 DV2046;UTM  12      - 3,744,491.890  378,935.415   MT  0.99978068 -0 43 42.9
 DV2046
 DV2046:                Primary Azimuth Mark                     Grid Az
 DV2046:SPC AZ C     -  ROCK                                     277 09 05.4
 DV2046:UTM  12      -  ROCK                                     277 39 43.1
 DV2046
 DV2046|-----------------------------------------------------------------------|
 DV2046| PID    Reference Object                    Distance       Geod. Az    |
 DV2046|                                                           dddmmss.s  |
 DV2046|        LAKE RM 1                           10.675 METERS 11818       |
 DV2046| DV2047 ROCK                               APPROX. 1.4 KM 2765600.2   |
 DV2046|        LAKE RM 2                            9.393 METERS 28418       |
 DV2046|-----------------------------------------------------------------------|
 DV2046
 DV2046                         SUPERSEDED SURVEY CONTROL
 DV2046
 DV2046  NAD 83(1992)-  33 50 01.48149(N)    112 18 30.15565(W) AD(       ) 2
 DV2046  NAD 83(1986)-  33 50 01.47671(N)    112 18 30.15966(W) AD(       ) 2
 DV2046  NAD 27      -  33 50 01.34809(N)    112 18 27.57345(W) AD(       ) 2
 DV2046  NGVD 29     -       527.6    (m)         1731.     (f) VERT ANG
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DV2046
DV2046.Superseded values are not recommended for survey control.
DV2046.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
DV2046.See file dsdata.txt to determine how the superseded data were derived.
DV2046
DV2046_MARKER: DD = SURVEY DISK
DV2046_SETTING: 66 = SET IN ROCK OUTCROP
DV2046_STAMPING: LAKE 1976
DV2046_MAGNETIC: N = NO MAGNETIC MATERIAL
DV2046_STABILITY: A = MOST RELIABLE AND EXPECTED TO HOLD
DV2046+STABILITY: POSITION/ELEVATION WELL
DV2046_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
DV2046+SATELLITE: SATELLITE OBSERVATIONS - January 25, 1999
DV2046
DV2046  HISTORY     - Date     Condition        Recov. By
DV2046  HISTORY     - 1978     MONUMENTED       AZDT
DV2046  HISTORY     - 19960212 GOOD             USPSQD
DV2046  HISTORY     - 19990109 GOOD             USPSQD
DV2046  HISTORY     - 19990125 GOOD             RBFAME
DV2046
DV2046                          STATION DESCRIPTION
DV2046
DV2046'DESCRIBED BY ARIZONA DEPARTMENT OF TRANSPORTATION 1978 (TT)
DV2046'THE STATION IS ABOUT 19.5 MILES EAST OF MORRISTOWN, 1 MILE
DV2046'SOUTHWEST OF LAKE PLEASANT AND IN THE SOUTH R/W OF ARIZONA HWY. 74.
DV2046'
DV2046'THE STATION IS AN ADOT HWY. DIVISION DISK STAMPED LAKE 1976 AND
DV2046'EPOXIED IN A DRILL HOLE A ROCK. THE STATION IS 3 FEET INSIDE
DV2046'THE SOUTH R/W FENCE AND MARKED BY A WITNESS POST AND SIGN 4 FEET
DV2046'NORTH OF STATION.
DV2046'
DV2046'REFERENCE MARK 2 IS AN ADOT HWY. DIVISION DISK STAMPED LAKE RM 2
DV2046'1976 EPOXIED TO A BOULDER AND IS 8 FEET NORTH OF R/W FENCE.
DV2046'
DV2046'REFERENCE MARK 1 IS AN ADOT HWY. DIVISION DISK STAMPED LAKE RM
DV2046'1 1976 EPOXIED TO A ROCK AND IS 10 FEET SOUTH OF THE R/W FENCE.
DV2046'
DV2046'TO REACH THE STATION FROM THE JUNCTION OF U.S. HWY. 60 AND
DV2046'ARIZONA HWY. 74, 0.8 MILES NORTHWEST OF MORRISTOWN, GO EAST ON
DV2046'HWY. 74 FOR 19.30 MILES TO STATION ON THE RIGHT, SOUTH, ON TOP
DV2046'OF A 20 FOOT CUTBANK AND INSIDE THE HWY. R/W.
DV2046'
DV2046'HEIGHT OF LIGHT ABOVE STATION MARK 1.5 METERS.
DV2046
DV2046                          STATION RECOVERY (1996)
DV2046
DV2046'RECOVERY NOTE BY US POWER SQUADRON 1996
DV2046'RECOVERED IN GOOD CONDITION.
DV2046
DV2046                          STATION RECOVERY (1999)
DV2046
DV2046'RECOVERY NOTE BY US POWER SQUADRON 1999
DV2046'RECOVERED IN GOOD CONDITION.
DV2046
DV2046                          STATION RECOVERY (1999)
DV2046
DV2046'RECOVERY NOTE BY RBF/AMERICAN ENGINEERING 1999 (JCE)
DV2046'RECOVERED AS DESCRIBED.

*** retrieval complete.
Elapsed Time = 00:00:05
```

USE FOR NORTH PEORIA

The NGS Data Sheet

```
DATABASE = Sybase ,PROGRAM = datasheet, VERSION = 6.02
Starting Datasheet Retrieval...
1         National Geodetic Survey,   Retrieval Date = JANUARY 10, 2000
 DV0076 ***********************************************************************
 DV0076  DESIGNATION -  S 366        FD 1-26-00
 DV0076  PID         -  DV0076
 DV0076  STATE/COUNTY-  AZ/MARICOPA
 DV0076  USGS QUAD   -  CALDERWOOD BUTTE (1982)
 DV0076
 DV0076                          *CURRENT SURVEY CONTROL
 DV0076
 DV0076* NAD 83(1986)-  33 44 06.      (N)     112 18 01.      (W)      SCALED
 DV0076* NAVD 88     -      402.052   (meters)  1319.07      (feet)   ADJUSTED
 DV0076
 DV0076  GEOID HEIGHT-          -29.67  (meters)                       GEOID99
 DV0076  DYNAMIC HT  -          401.586 (meters)     1317.54   (feet)  COMP
 DV0076  MODELED GRAV-      979,466.6   (mgal)                         NAVD 88
 DV0076
 DV0076  VERT ORDER  -  FIRST     CLASS II
 DV0076
 DV0076.The horizontal coordinates were scaled from a topographic map and have
 DV0076.an estimated accuracy of +/- 6 seconds.
 DV0076
 DV0076.The orthometric height was determined by differential leveling
 DV0076.and adjusted by the National Geodetic Survey in June 1991.
 DV0076
 DV0076.The geoid height was determined by GEOID99.
 DV0076
 DV0076.The dynamic height is computed by dividing the NAVD 88
 DV0076.geopotential number by the normal gravity value computed on the
 DV0076.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
 DV0076.degrees latitude (G = 980.6199 gals.).
 DV0076
 DV0076.The modeled gravity was interpolated from observed gravity values.
 DV0076
 DV0076;                    North         East     Units  Estimated Accuracy
 DV0076;SPC AZ C     -    303,330.      177,810.     MT   (+/- 180 meters Scaled)
 DV0076
 DV0076                          SUPERSEDED SURVEY CONTROL
 DV0076
 DV0076  NGVD 29     -       401.423  (m)          1317.00   (f) ADJ UNCH    1 2
 DV0076
 DV0076.Superseded values are not recommended for survey control.
 DV0076.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
 DV0076.See file dsdata.txt to determine how the superseded data were derived.
 DV0076
 DV0076_MARKER: DB = BENCH MARK DISK
 DV0076_SETTING: 36 = FOUNDATION
 DV0076_STAMPING: S 366 1967
 DV0076_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL
 DV0076
 DV0076  HISTORY     - Date     Condition        Recov. By
 DV0076  HISTORY     - 1967     MONUMENTED       CGS
 DV0076  HISTORY     - 1981     GOOD             NGS
 DV0076
 DV0076                          STATION DESCRIPTION
 DV0076
 DV0076'DESCRIBED BY COAST AND GEODETIC SURVEY 1967
 DV0076'14.55 MI NW FROM EL MIRAGE.
 DV0076'ABOUT 7.0 MILES NORTHWEST ALONG U.S. HIGHWAYS 60, 70 AND 89 AND STATE
```

Valco Surveying Corporation
Valentine M. Padilla, R.L.S.
AERIAL CONTROL • MAPPING • LAND SURVEYS • CONSTRUCTION STAKING • MBE/DBE CERTIFIED

PROJECT CONTROL STATEMENT

Project control was established by GPS and supplemented with spirit levels. Once data compilation was completed the "Least Square" function was applied to all points for final submittal.

Home Office:
6426 East Virginia Avenue
Scottsdale, Arizona 85257
480-990-2412

FAX Number
480-990-2412

VALCO 29

File **"VALCO 29"** are adjusted coordinates in NAD 1983 horizontal and NGVD 1929 vertical. Coordinates are grid and in international feet.

NGVD 1929 elevations were derived by subtracting the published difference of 2.07' at "BM S-366" from the adjusted NAVD 1988 values.

Project name : C:\TSOffice\Projects\VALCO88
Description : International Foot Template
Coordinate System : US State Plane 1983
Zone : Arizona Central 0202
Datum : NAD 1983 (Conus)
Date printed : 3/27/00 12:54:50 PM

---------- GPS Calibration ----------
==========

Datum Transformation computation not requested

Horizontal adjustment not computed

Vertical adjustment parameters

Northing coordinate of origin point	1012280.199 ft		
Easting coordinate of origin point	594087.160 ft		
Vertical separation at origin	0.117 ft	±	0.00734265 ft
Slope north	0.00000139	±	0.00000090
Slope east	0.00000328	±	0.00000061

Geoid model AZGEOID99

Residual differences between GPS and known coordinates

Horizontal		
Root mean square error		
Vertical		
Maximum error	0.020 ft	(Point 3)
Root mean square error	0.005	
Three-dimensional		
Maximum error	0.020 ft	(Point 3)
Root mean square error	0.005	

Starting point	Calculated point		Grid point	
Point 3 : CHUTE			Point	
Lat 33°46'55.61499"N	North	1012280.199 ft	North	
Long 112°15'54.88444"W	East	594087.160 ft	East	
Height 1340.036 ft	Elev	1436.900 ft	Elev	1436.920 ft
	Horizontal error		Type	Vertical
	Vertical error	0.020 ft		
	3D error	0.020 ft		
Point 5 : 1/4 S11/S12 T5N R1W			Point	
Lat 33°47'21.40278"N	North	1014953.756 ft	North	
Long 112°19'31.04529"W	East	575853.309 ft	East	
Height 1517.086 ft	Elev	1614.001 ft	Elev	1613.990 ft
	Horizontal error		Type	Vertical
	Vertical error	0.011 ft		
	3D error	0.011 ft		
Point 6 : STA. CUT			Point	
Lat 33°50'08.64655"N	North	1031888.332 ft	North	
Long 112°20'58.58832"W	East	568536.274 ft	East	
Height 1762.011 ft	Elev	1858.472 ft	Elev	1858.480 ft
	Horizontal error		Type	Vertical
	Vertical error	0.008 ft		
	3D error	0.008 ft		
Point 102 : VALCO TBM 65			Point	
Lat 33°48'06.65955"N	North	1019462.853 ft	North	
Long 112°16'01.08757"W	East	593588.029 ft	East	
Height 1346.061 ft	Elev	1442.758 ft	Elev	1442.740 ft
	Horizontal error		Type	Vertical
	Vertical error	0.018 ft		
	3D error	0.018 ft		

STATIC GPS SURVEY

The **Static GPS Survey** for establishing the RTK control was carried out using (3) Trimble 4700 receivers with micro centered L1-L2 antennas and ground planes. Each point was occupied for 1 hour for each baseline shown on diagram.

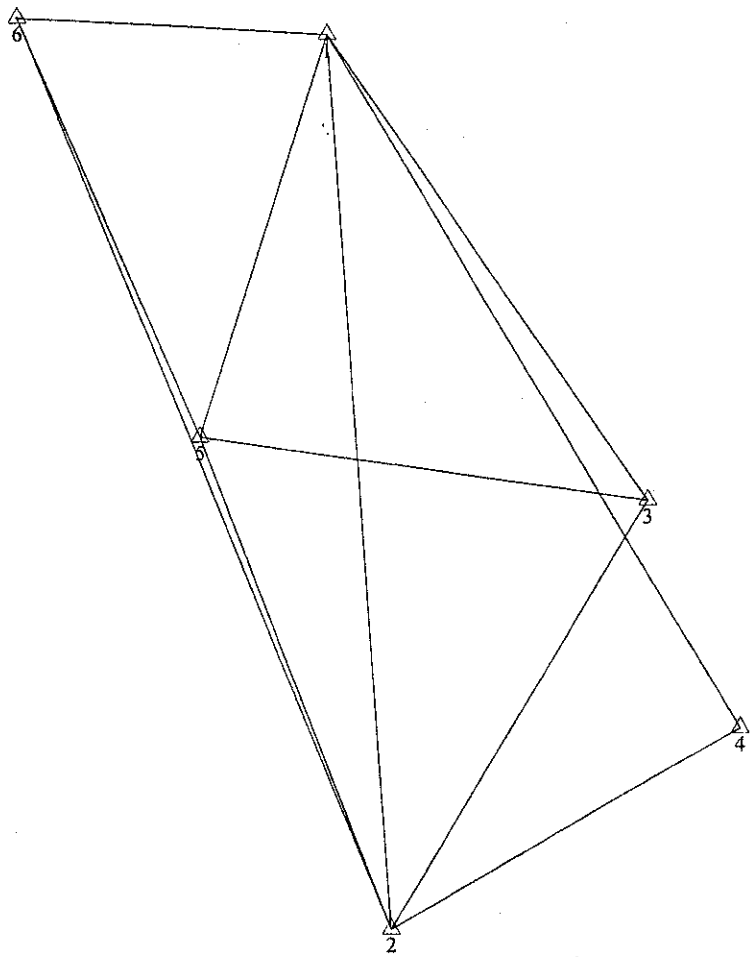
Point No. 1 is our primary control point which is NGS Station "LAKE", Horizontal Order "A" and used for all x and y coordinates. Two other NGS stations "WHITEWAY" #4 and "CUT" #6, both 2nd order controls were observed for relative accuracy to "LAKE". Precisions of 1:592,741' and 1:129,294' respectively, which exceeds 2nd order specifications.

Vertical control NAVD 88 was established using Point No. 2 "S-366-RP" which was established by differential leveling from BM "S366", a 1st order Class II B.M. that was selected for vertical control on this project. The Geoid 99 Model was used in conjunction with this B.M. to produce elevations until a vertical adjustment could be made after all level circuits were complete by Valco Surveying.

Point #3 "CHUTE" and Point #5 "1/4 Cor. S11/S12" were used as additional base stations for RTK work along with "LAKE" and "CUT" which bounded the project area and made daily checks easy to do.

Enclosed is the Network Map showing baselines observed, the latitudes, longitudes and elevation in international feet, NAVD 88 of the six points based on Geoid 99 Model. Raw loop closures expressed in meters.

Network Map: VALSTAT



2000m

PT#	LATITUDE	LONGITUDE	HEIGHT	ELEVATION	SCALE	COMB. FACTOR
6	33°50'08.64655"N	112°20'58.58832"W	1762.011 ft	1858.411 ft	0.99991979	0.99983560
5	33°47'21.40278"N	112°19'31.04529"W	1517.086 ft	1613.939 ft	0.99991765	0.99984516
4	33°45'25.12821"N	112°15'10.95642"W	1369.363 ft	1466.264 ft	0.99991197	0.99984654
3	33°46'55.61499"N	112°15'54.88444"W	1340.036 ft	1436.782 ft	0.99991284	0.99984881
2	33°44'05.88685"N	112°17'59.40738"W	1254.911 ft	1352.249 ft	0.99991554	0.99985557
1	°50'01.48112"N	112°18'30.15299"W	1637.191 ft	1733.547 ft	0.99991620	0.99983797

****

New Closure

From: 1

To:	3		Iono free fixed	1/28/00 15:30:00	00000085.SSF
		Slope (m):	6982.696	33°46'55.61616" N	84950280.DAT
		Total (m):	6982.696	112°15'54.88563" W	67950280.DAT
				437.8325 m	
To:	5		Iono free fixed	1/31/00 15:44:30	00000097.SSF
		Slope (m):	5618.210	33°47'21.40393" N	84950310.DAT
		Total (m):	12600.905	112°19'31.04500" W	67950310.DAT
				491.7949 m	
To:	6		Iono free fixed	1/31/00 14:40:30	00000101.SSF
		Slope (m):	5624.252	33°50' 8.64658" N	67950310.DAT
		Total (m):	18225.157	112°20'58.58743" W	83000310.DAT
				566.4499 m	
To:	1		L1 fixed	1/28/00 15:56:45	00000065.SSF
		Slope (m):	3823.440	33°50' 1.48105" N	67950283.DAT
		Total (m):	22048.597	112°18'30.15329" W	84950280.DAT
				528.4155 m	

Closed

Precision (ppm): 0.7937

Errors (m) N: -0.0026 E: -0.0078 U: 0.0155

****

New Closure

From: 1

To:	3		Iono free fixed	1/28/00 15:30:00	00000085.SSF
		Slope (m):	6982.696	33°46'55.61616" N	84950280.DAT
		Total (m):	6982.696	112°15'54.88563" W	67950280.DAT
				437.8325 m	
To:	2		Iono free fixed	1/28/00 15:30:00	00000069.SSF
		Slope (m):	6133.623	33°44' 5.88922" N	83000280.DAT
		Total (m):	13116.319	112°17'59.40793" W	67950280.DAT
				411.8811 m	
To:	1		Iono free fixed	1/28/00 15:56:45	00000081.SSF
		Slope (m):	10985.982	33°50' 1.48127" N	83000280.DAT
		Total (m):	24102.302	112°18'30.15288" W	84950280.DAT
				528.3919 m	

Closed

Precision (ppm): 0.3987
Errors (m) N: 0.0044 E: 0.0028 U: -0.0081

****

New Closure

From: 1

To: 4		Iono free fixed	1/28/00 17:09:15	00000089.SSF
	Slope (m):	9938.607	33°45'25.13003" N	84950280.DAT
	Total (m):	9938.607	112°15'10.95782" W	67950281.DAT
			446.7629 m	
To: 2		L1 fixed	1/28/00 17:09:15	00000073.SSF
	Slope (m):	4976.256	33°44' 5.88939" N	83000280.DAT
	Total (m):	14914.862	112°17'59.40759" W	67950281.DAT
			411.8683 m	
To: 1		Iono free fixed	1/28/00 15:56:45	00000081.SSF
	Slope (m):	10985.982	33°50' 1.48144" N	83000280.DAT
	Total (m):	25900.845	112°18'30.15254" W	84950280.DAT
			528.3791 m	

Closed

Precision (ppm): 0.9933
Errors (m) N: 0.0095 E: 0.0116 U: -0.0209

****

New Closure

From: 1

To: 2		Iono free fixed	1/28/00 15:56:45	00000081.SSF
	Slope (m):	10985.982	33°44' 5.88908" N	83000280.DAT
	Total (m):	10985.982	112°17'59.40804" W	84950280.DAT
			411.8892 m	
To: 6		Iono free fixed	1/28/00 15:09:00	00000061.SSF
	Slope (m):	12092.017	33°50' 8.64645" N	67950283.DAT
	Total (m):	23077.999	112°20'58.58763" W	83000280.DAT
			566.4637 m	
To: 1		L1 fixed	1/28/00 15:56:45	00000065.SSF
	Slope (m):	3823.440	33°50' 1.48092" N	67950283.DAT
	Total (m):	26901.439	112°18'30.15349" W	84950280.DAT
			528.4292 m	

Closed

Precision (ppm): 1.2083

Errors (m) N: -0.0065 E: -0.0128 U: 0.0292

****

New Closure

From: 1

To: 3		Iono free fixed	1/28/00 15:30:00	00000085.SSF
	Slope (m):	6982.696	33°46'55.61616" N	84950280.DAT
	Total (m):	6982.696	112°15'54.88563" W	67950280.DAT
			437.8325 m	
To: 5		Iono free fixed	1/31/00 15:44:30	00000097.SSF
	Slope (m):	5618.210	33°47'21.40393" N	84950310.DAT
	Total (m):	12600.905	112°19'31.04500" W	67950310.DAT
			491.7949 m	
To: 1		Iono free fixed	1/28/00 18:56:00	00000093.SSF
	Slope (m):	5175.328	33°50' 1.48125" N	84950280.DAT
	Total (m):	17776.233	112°18'30.15280" W	67950282.DAT
			528.4100 m	

Closed

Precision (ppm): 0.6566
Errors (m) N: 0.0037 E: 0.0048 U: 0.0100

****

New Closure

From: 1

To: 5		Iono free fixed	1/28/00 18:56:00	00000093.SSF
	Slope (m):	5175.328	33°47'21.40381" N	84950280.DAT
	Total (m):	5175.328	112°19'31.04519" W	67950282.DAT
			491.7849 m	
To: 6		Iono free fixed	1/31/00 14:40:30	00000101.SSF
	Slope (m):	5624.252	33°50' 8.64646" N	67950310.DAT
	Total (m):	10799.579	112°20'58.58762" W	83000310.DAT
			566.4399 m	
To: 1		L1 fixed	1/28/00 15:56:45	00000065.SSF
	Slope (m):	3823.440	33°50' 1.48093" N	67950283.DAT
	Total (m):	14623.020	112°18'30.15348" W	84950280.DAT
			528.4055 m	

Closed

Precision (ppm): 1.0293
Errors (m) N: -0.0063 E: -0.0125 U: 0.0055

****

New Closure

From: 2

To:	5		Iono free fixed	1/28/00 18:56:00	00000077.SSF
		Slope (m):	6470.000	33°47'21.26367" N	83000280.DAT
		Total (m):	6470.000	112°19'31.30415" W	67950282.DAT
				449.6739 m	
To:	3		Iono free fixed	1/31/00 15:44:30	00000097.SSF
		Slope (m):	5618.210	33°46'55.47586" N	84950310.DAT
		Total (m):	12088.210	112°15'55.14343" W	67950310.DAT
				395.7062 m	
To:	2		Iono free fixed	1/28/00 15:30:00	00000069.SSF
		Slope (m):	6133.623	33°44' 5.74772" N	83000280.DAT
		Total (m):	18221.833	112°17'59.66635" W	67950280.DAT
				369.7618 m	

Closed

Precision (ppm): 0.0955
Errors (m) N: -0.0008 E: -0.0009 U: -0.0013

****

New Closure

From: 1

To:	5		Iono free fixed	1/28/00 18:56:00	00000093.SSF
		Slope (m):	5175.328	33°47'21.40381" N	84950280.DAT
		Total (m):	5175.328	112°19'31.04519" W	67950282.DAT
				491.7849 m	
To:	6		Iono free fixed	1/31/00 14:40:30	00000101.SSF
		Slope (m):	5624.252	33°50' 8.64646" N	67950310.DAT
		Total (m):	10799.579	112°20'58.58762" W	83000310.DAT
				566.4399 m	
To:	1		L1 fixed	1/28/00 15:56:45	00000065.SSF
		Slope (m):	3823.440	33°50' 1.48093" N	67950283.DAT
		Total (m):	14623.020	112°18'30.15348" W	84950280.DAT
				528.4055 m	

Closed

Precision (ppm): 1.0293
Errors (m) N: -0.0063 E: -0.0125 U: 0.0055

VALCO

File **"VALCO"** is the raw RTK values including daily field check shots. Coordinate values are NAD 1983 horizontal and NAVD 1988 vertical derived from using Geoid 99 Model before vertical adjustment to level circuits. Values are grid and in international feet.

Included is the complete data collector file.

Project name : C:\TSOffice\Projects\VALCO
Description : International Foot Template
Coordinate System : US State Plane 1983
Zone : Arizona Central 0202
Datum : NAD 1983 (Conus)
Date printed : 3/27/00 12:51:47 PM

Coordinate units: International feet
Elevation units: International feet

Point listing

Name	Northing	Easting	Elevation	Feature code
1	1031113.905	581053.811	1733.547	STA. LAKE
2	995162.196	583513.553	1352.249	S-366 RP
3	1012280.199	594087.160	1436.782	CHUTE
4	1003121.901	597764.875	1466.264	STA. WHITEWAY
5	1014953.756	575853.309	1613.939	1/4 S11/S12 T5N R1W
6	1031888.332	568536.274	1858.411	STA. CUT
2A	995162.232	583513.513	1352.166	CK SHOT S-366RP 2/02/00
25	1013919.115	581417.715	1877.872	PANEL
26	1015935.564	577511.690	1592.726	PANEL
25A	1013919.108	581417.713	1877.857	CHECK PT#25
24	1012971.086	583296.502	1617.812	PANEL
23	1011986.998	585229.415	1553.844	PANEL
3A	1012280.237	594087.104	1436.705	CK SHOT CHUTE 2/02/00
77	1017591.572	575862.942	1626.249	LC 1/2/11/12 T5N R1W
79	1017617.764	570584.939	1648.784	LC 2/3/10/11 T5N R1W
21	1019817.841	569845.169	1735.067	PANEL
20	1023158.866	571586.648	1788.235	PANEL
100	1026569.194	569592.547	1749.444	CHECK POINT
39	1026287.830	569468.550	1773.711	PANEL
40	1025269.223	571455.038	1868.865	PANEL
41	1024515.628	573383.157	1843.107	PANEL
34	1022135.773	573510.323	1712.436	PANEL
33	1021225.892	575437.111	1661.656	PANEL
35	1022299.332	577001.058	1659.503	PANEL
23A	1011986.965	585229.448	1553.892	CK SHOT 2/04/00
29	1014430.018	588906.107	1378.430	PANEL
75	1018061.909	581123.399	1746.655	LC 1/6/7 T5N R1W: R1E
32A	1019313.524	579248.228	1992.174	CK SHOT
68	1033390.091	571144.659	1827.679	PANEL
37	1032232.776	565205.823	1958.086	PANEL
36	1029317.543	563644.356	1893.375	PANEL
85	1028211.900	565351.762	1870.587	LC 27/28/33/34 T6N R1W
85A	1028211.906	565351.759	1870.607	LC 27/28/33/34 T6N R1W
42	1030509.831	569295.973	1896.554	PANEL
43	1028615.611	573063.841	1892.849	PANEL
66	1030572.186	576583.010	1766.789	PANEL
65	1029646.374	578492.723	1676.169	PANEL
101A	1029304.799	579025.612	1672.854	CHECK POINT
101B	1029304.806	579025.605	1672.883	CHECK POINT
27	1016898.505	575519.822	1608.580	PANEL
28	1018926.912	571738.411	1806.130	PANEL
19	1009993.107	588970.677	1341.553	PANEL
18	1013484.576	590738.606	1374.405	PANEL
30	1016449.490	585043.950	1557.470	PANEL
31	1018280.738	581191.524	1744.966	PANEL
32	1019313.517	579248.236	1992.214	PANEL
53	1017898.395	590575.642	1381.939	PANEL
52	1018788.599	588766.901	1360.979	PANEL
55	1021168.672	590376.425	1397.866	PANEL
54	1019641.276	591192.578	1409.630	PANEL
67	1032732.351	572867.158	1775.122	PANEL
38	1028173.455	565620.254	1899.919	PANEL
100A	1026569.276	569592.499	1749.472	CK SHOT 2/05/00
44	1026652.402	576931.953	1732.785	PANEL
101	1029304.803	579025.599	1672.903	CHECK POINT
101C	1029304.811	579025.658	1672.857	CK SHOT 2/08/00
64	1028897.403	580483.240	1717.364	PANEL
63	1028570.586	582150.119	1671.122	PANEL
62	1027123.074	584260.007	1647.345	PANEL
57	1028578.336	586032.812	1611.959	PANEL
58	1029948.944	584948.217	1606.722	PANEL
61	1025091.862	584331.765	1667.416	PANEL
47	1024204.388	583027.755	1589.202	PANEL
46	1025064.050	581106.071	1658.491	PANEL

70	1022840.322	581157.608	1745.207	LC 31/36/1/6 T5&6N R1E&1W
50	1022817.252	581006.616	1762.169	PANEL
102	1019462.853	593588.029	1442.632	VALCO TBM 65
52A	1018788.582	588766.881	1361.052	CK SHOT 2/09/00
51	1020801.383	584862.817	1623.050	PANEL
60	1023143.485	585472.414	1521.717	PANEL
59	1021244.882	586582.752	1477.769	PANEL
72	1023210.001	588949.105	1501.779	LC 1/4 COR S5/S32
56	1024852.116	588185.649	1517.514	PANEL
35A	1022299.328	577001.046	1659.482	CK SHOT 2/11/00
48	1024750.325	577203.356	1631.443	PANEL
45	1025614.484	578922.327	1776.577	PANEL
49	1023759.822	579053.822	1814.270	PANEL
78	1022868.043	575881.369	1715.612	LC 35/36/1/2 T5&6N R1W

```
SC V07          Copyright Trimble Navigation Ltd, 1996.
                Serial no 40          17-Feb-00 06:30
                Angle Degrees         Dist Feet             Press inch Hg
                Temp Fahrenheit       Coord N-E-Elv         H.obs Right

JOB             Job ID VAL33
                Atmos crn No          C and R crn Yes       Refrac cnst 0.20
                Elev Yes              Sea level crn No

PROJ     TM     Transverse Mercator
                Orig Lat  31°00'00"N                        Orig Nrth 0.000
                Orig Lng  111°55'00"W                       Orig East 700000.000
                Orig Hgt  0.000                             Orig Elev 0.000
                Orient 1  0°00'00"                          Orient 2  0°00'00"
                Scale     0.9999

LOCELL   TM     Local Rad 20925646.325                      Flat.     298.2572215381

DATUM    TM     Molodensky
                Srce Rad  20925646.325                      Srce Flat 298.257223563
                Rotn X    0°00'00"                          Rotn Y    0°00'00"
                Rotn Z    0°00'00"                          Trans X   0.000
                Trans Y   0.000                             Trans Z   0.000
                Scale     0

GPSANT   KI     Antenna ht 0.000                            Measuremt True

ORIENTATIONNMAzmth      From North                          Dir       North and East

HGTADJ   TM     Geoid model
                Orig Nrth 0.000                             Slope N   0
                Orig East 0.000                             Slope E   0
                Hgt Const 0.000
                Geoid     AZGEOID99

NOTE     NM     Valpnl

GRDPOS   KI     Point ID 219          Nrth 1009991.857      East 588971.415
                Class Normal          Elv  1340.868         Code <no text>
                Mthd User Input

GRDPOS   KI     Point ID 220          Nrth 1023198.704      East 571519.307
                Class Normal          Elv  1815.640         Code <no text>
                Mthd User Input

GRDPOS   KI     Point ID 221          Nrth 1019839.982      East 569784.108
                Class Normal          Elv  1730.753         Code <no text>
                Mthd User Input
```

GRDPOS	KI	Point ID 223	Nrth 1012006.851	East 585180.431
		Class Normal	Elv 1540.853	Code <no text>
		Mthd User Input		
GRDPOS	KI	Point ID 224	Nrth 1012984.199	East 583285.008
		Class Normal	Elv 1618.844	Code <no text>
		Mthd User Input		
GRDPOS	KI	Point ID 225	Nrth 1013911.254	East 581355.752
		Class Normal	Elv 1860.835	Code <no text>
		Mthd User Input		
GRDPOS	KI	Point ID 226	Nrth 1015957.636	East 577532.087
		Class Normal	Elv 1592.809	Code <no text>
		Mthd User Input		
GRDPOS	KI	Point ID 227	Nrth 1016915.775	East 575502.036
		Class Normal	Elv 1608.797	Code <no text>
		Mthd User Input		
GRDPOS	KI	Point ID 228	Nrth 1018962.640	East 571738.184
		Class Normal	Elv 1800.765	Code <no text>
		Mthd User Input		
GRDPOS	KI	Point ID 229	Nrth 1014419.357	East 588877.400
		Class Normal	Elv 1380.755	Code <no text>
		Mthd User Input		
GRDPOS	KI	Point ID 230	Nrth 1016424.573	East 585002.535
		Class Normal	Elv 1540.735	Code <no text>
		Mthd User Input		
GRDPOS	KI	Point ID 231	Nrth 1018329.039	East 581169.972
		Class Normal	Elv 1760.712	Code <no text>
		Mthd User Input		
GRDPOS	KI	Point ID 232	Nrth 1019316.875	East 579241.343
		Class Normal	Elv 1990.698	Code <no text>
		Mthd User Input		
GRDPOS	KI	Point ID 233	Nrth 1021242.202	East 575426.435
		Class Normal	Elv 1658.670	Code <no text>
		Mthd User Input		
PPOS	KI	Point ID 234	Nrth 1022129.286	East 573506.192
		Class Normal	Elv 1718.658	Code <no text>
		Mthd User Input		

```
GRDPOS  KI  Point ID 235        Nrth 1022297.225        East 577016.897
            Class Normal        Elv  1660.630           Code <no text>
            Mthd User Input

GRDPOS  KI  Point ID 236        Nrth 1029316.848        East 563673.936
            Class Normal        Elv  1900.504           Code <no text>
            Mthd User Input

GRDPOS  KI  Point ID 237        Nrth 1032231.309        East 565221.808
            Class Normal        Elv  1960.407           Code <no text>
            Mthd User Input

GRDPOS  KI  Point ID 238        Nrth 1028176.495        East 565583.940
            Class Normal        Elv  1890.527           Code <no text>
            Mthd User Input

GRDPOS  KI  Point ID 239        Nrth 1026259.598        East 569507.120
            Class Normal        Elv  1770.561           Code <no text>
            Mthd User Input

GRDPOS  KI  Point ID 240        Nrth 1025260.940        East 571460.286
            Class Normal        Elv  1860.579           Code <no text>
            Mthd User Input

GRDPOS  KI  Point ID 241        Nrth 1024494.848        East 573422.954
            Class Normal        Elv  1840.589           Code <no text>
            Mthd User Input

GRDPOS  KI  Point ID 242        Nrth 1030566.555        East 569263.604
            Class Normal        Elv  1880.436           Code <no text>
            Mthd User Input

GRDPOS  KI  Point ID 243        Nrth 1028590.053        East 573043.047
            Class Normal        Elv  1900.474           Code <no text>
            Mthd User Input

GRDPOS  KI  Point ID 244        Nrth 1026653.980        East 576941.231
            Class Normal        Elv  1740.506           Code <no text>
            Mthd User Input

GRDPOS  KI  Point ID 245        Nrth 1025615.358        East 578894.447
            Class Normal        Elv  1782.524           Code <no text>
            Mthd User Input

POS     KI  Point ID 246        Nrth 1025061.094        East 581094.304
            Class Normal        Elv  1655.526           Code <no text>
            Mthd User Input
```

GRDPOS	KI	Point ID 247	Nrth 1024204.734	East 583031.561
		Class Normal	Elv 1580.536	Code <no text>
		Mthd User Input		
GRDPOS	KI	Point ID 248	Nrth 1024722.227	East 577237.356
		Class Normal	Elv 1620.559	Code <no text>
		Mthd User Input		
GRDPOS	KI	Point ID 249	Nrth 1023754.933	East 579047.547
		Class Normal	Elv 1815.575	Code <no text>
		Mthd User Input		
GRDPOS	KI	Point ID 218	Nrth 1013472.759	East 590747.693
		Class Normal	Elv 1368.759	Code <no text>
		Mthd User Input		
GRDPOS	KI	Point ID 280	Nrth 1022858.872	East 570589.794
		Class Normal	Elv 1805.656	Code <no text>
		Mthd User Input		
GRDPOS	KI	Point ID 250	Nrth 1022797.275	East 581009.759
		Class Normal	Elv 1758.589	Code <no text>
		Mthd User Input		
GRDPOS	KI	Point ID 251	Nrth 1020811.828	East 584866.777
		Class Normal	Elv 1610.616	Code <no text>
		Mthd User Input		
GRDPOS	KI	Point ID 252	Nrth 1018826.922	East 588707.404
		Class Normal	Elv 1400.641	Code <no text>
		Mthd User Input		
GRDPOS	KI	Point ID 253	Nrth 1017900.554	East 590569.058
		Class Normal	Elv 1385.647	Code <no text>
		Mthd User Input		
GRDPOS	KI	Point ID 254	Nrth 1019647.018	East 591191.156
		Class Normal	Elv 1415.594	Code <no text>
		Mthd User Input		
GRDPOS	KI	Point ID 255	Nrth 1021145.888	East 590352.589
		Class Normal	Elv 1400.562	Code <no text>
		Mthd User Input		
GRDPOS	KI	Point ID 256	Nrth 1024863.087	East 588188.924
		Class Normal	Elv 1520.480	Code <no text>
		Mthd User Input		

GRDPOS	KI	Point ID 257 Class Normal Mthd User Input	Nrth 1028580.292 Elv 1600.391	East 586067.957 Code <no text>
GRDPOS	KI	Point ID 258 Class Normal Mthd User Input	Nrth 1029928.750 Elv 1600.362	East 584942.521 Code <no text>
GRDPOS	KI	Point ID 259 Class Normal Mthd User Input	Nrth 1021260.320 Elv 1480.593	East 586606.614 Code <no text>
GRDPOS	KI	Point ID 260 Class Normal Mthd User Input	Nrth 1023144.393 Elv 1530.548	East 585499.722 Code <no text>
GRDPOS	KI	Point ID 261 Class Normal Mthd User Input	Nrth 1025109.556 Elv 1660.502	East 584342.645 Code <no text>
GRDPOS	KI	Point ID 262 Class Normal Mthd User Input	Nrth 1027131.457 Elv 1650.446	East 584248.890 Code <no text>
GRDPOS	KI	Point ID 263 Class Normal Mthd User Input	Nrth 1028523.988 Elv 1670.421	East 582170.392 Code <no text>
GRDPOS	KI	Point ID 264 Class Normal Mthd User Input	Nrth 1028904.248 Elv 1740.421	East 580518.418 Code <no text>
GRDPOS	KI	Point ID 265 Class Normal Mthd User Input	Nrth 1029609.448 Elv 1680.414	East 578505.013 Code <no text>
GRDPOS	KI	Point ID 266 Class Normal Mthd User Input	Nrth 1030567.137 Elv 1765.398	East 576577.048 Code <no text>
GRDPOS	KI	Point ID 267 Class Normal Mthd User Input	Nrth 1032745.093 Elv 1780.355	East 572865.928 Code <no text>
POS	KI	Point ID 268 Class Normal Mthd User Input	Nrth 1033348.426 Elv 1830.346	East 571164.595 Code <no text>

```
GRDPOS   KI   Point ID 270          Nrth 1022827.052        East 581153.308
              Class Normal          Elv  1742.587           Code <no text>
              Mthd User Input

GRDPOS   KI   Point ID 271          Nrth 1022948.904        East 583693.415
              Class Normal          Elv  1560.566           Code <no text>
              Mthd User Input

GRDPOS   KI   Point ID 272          Nrth 1023142.027        East 588958.999
              Class Normal          Elv  1490.521           Code <no text>
              Mthd User Input

GRDPOS   KI   Point ID 273          Nrth 1018017.206        East 589016.754
              Class Normal          Elv  1440.659           Code <no text>
              Mthd User Input

GRDPOS   KI   Point ID 274          Nrth 1018006.225        East 586442.922
              Class Normal          Elv  1445.683           Code <no text>
              Mthd User Input

GRDPOS   KI   Point ID 275          Nrth 1018026.099        East 581092.873
              Class Normal          Elv  1745.721           Code <no text>
              Mthd User Input

GRDPOS   KI   Point ID 276          Nrth 1017540.934        East 581091.030
              Class Normal          Elv  1780.735           Code <no text>
              Mthd User Input

GRDPOS   KI   Point ID 277          Nrth 1017561.321        East 575842.158
              Class Normal          Elv  1625.775           Code <no text>
              Mthd User Input

GRDPOS   KI   Point ID 278          Nrth 1022857.610        East 575888.489
              Class Normal          Elv  1718.621           Code <no text>
              Mthd User Input

GRDPOS   KI   Point ID 279          Nrth 1017592.869        East 570551.130
              Class Normal          Elv  1655.816           Code <no text>
              Mthd User Input

ORIENTATIONNMAzmth      From North                Dir       North and East

F FILE   FC   File                                Used      No
              ID        00000                     Name

PLANE    KI   Orig Nrth <null>                    Orig East <null>
              Trans N   <null>                    Trans E   <null>
              Rotation  <null>                    Scale     <null>
```

```
HGTADJ  KI  Geoid model
            Orig Nrth <null>                    Slope N   <null>
            Orig East <null>                    Slope E   <null>
            Hgt Const <null>
            Geoid     az geo 99 10_25_99

LOCELL  KI  Local Rad 20925646.325              Flat.     298.257222

PROJ    TM  Transverse Mercator
            Orig Lat  31°00'00"N                Orig Nrth 0.000
            Orig Lng  111°55'00"W               Orig East 700000.000
            Orig Hgt  0.000                     Orig Elev 0.000
            Orient 1  0°00'00"                  Orient 2  0°00'00"
            Scale     0.9999

DATUM   TM  Molodensky
            Srce Rad  20925646.325              Srce Flat 298.257223563
            Rotn X    0°00'00"                  Rotn Y    0°00'00"
            Rotn Z    0°00'00"                  Trans X   0.000
            Trans Y   0.000                     Trans Z   0.000
            Scale     0

HGTADJ  KI  Geoid model
            Orig Nrth <null>                    Slope N   <null>
            Orig East <null>                    Slope E   <null>
            Hgt Const <null>
            Geoid     az geo 99 10_25_99

ORIENTATIONNMAzmth      From North              Dir       North and East

GRDPOS  KI  Point ID 6          Nrth 1031888.332        East 568536.274
            Class Control       Elv  1858.411           Code STA. CUT
            Mthd User Input

GRDPOS  KI  Point ID 5          Nrth 1014953.757        East 575853.309
            Class Control       Elv  1613.939           Code 1/4 S11/S12
            Mthd User Input

F-CODE  KI  Code 1/4 S11/S12 T5N R1W

GRDPOS  KI  Point ID 4          Nrth 1003121.901        East 597764.875
            Class Control       Elv  1466.264           Code STA. WHITEWA
            Mthd User Input

GRDPOS  KI  Point ID 3          Nrth 1012280.200        East 594087.160
            Class Control       Elv  1436.782           Code CHUTE
            Mthd User Input
```

```
GRDPOS  KI  Point ID 2          Nrth 995162.196       East 583513.553
            Class Control       Elv  1352.249         Code S-366 RP
            Mthd User Input

GRDPOS  KI  Point ID 1          Nrth 1031113.905      East 581053.811
            Class Control       Elv  1733.547         Code STA. LAKE
            Mthd User Input

SURVEY  KI  Elev mask 13                              PDOP mask 6.0

EQUIP   BA  Receiver  4700                            Serial no 20176795
            Antenna   Micro-centered L1/L2 w/Ground
            Method    Measured to bottom of antenna mount
            Tape adj  0.000                           Serial no <no text>
            Radius    0.000                           V.Const   0.205

SURVEY EVENTKISurvey event Base survey started

NOTE    TS  Time Date 02/02/2000 Time 22:53:58

EQUIP   BA  Receiver  4700                            Serial no 20176795
            Antenna   Micro-centered L1/L2 w/Ground
            Method    Measured to bottom of antenna mount
            Tape adj  0.000                           Serial no <no text>
            Radius    0.000                           V.Const   0.205

GPSANT  KI  Antenna ht 4.051                          Measuremt Uncorrected

EQUIP   BA  Receiver  4700                            Serial no 20176795
            Antenna   Micro-centered L1/L2 w/Ground
            Method    Measured to bottom of notch on ground plane
            Tape adj  0.000                           Serial no <no text>
            Radius    0.766                           V.Const   0.023

GPSANT  KI  Antenna ht 4.051                          Measuremt Uncorrected

EQUIP   BA  Receiver  4700                            Serial no 20176795
            Antenna   Micro-centered L1/L2 w/Ground
            Method    Measured to bottom of notch on ground plane
            Tape adj  0.000                           Serial no <no text>
            Radius    0.766                           V.Const   0.023

GPSANT  KI  Antenna ht 4.051                          Measuremt Uncorrected

REF     KI  Reference 5
```

```
EQUIP    NM  Receiver   4700                        Serial no 20178300
             Antenna    Micro-centered L1/L2
             Method     Measured to bottom of antenna mount
             Tape adj   0.000                       Serial no <no text>
             Radius     0.000                       V.Const   0.205

SURVEY EVENTKISurvey event Rover survey started

NOTE     TS  Time Date 02/02/2000 Time 22:55:44

SURVEY   KI  Elev mask 18                          PDOP mask 6.0

EQUIP    NM  Receiver   4700                        Serial no 20178300
             Antenna    Micro-centered L1/L2
             Method     Measured to bottom of antenna mount
             Tape adj   0.000                       Serial no <no text>
             Radius     0.000                       V.Const   0.205

SURVEY EVENTKISurvey event Rover survey started

NOTE     TS  Time Date 02/02/2000 Time 22:57:37

GPSANT   KI  Antenna ht 0.000                       Measuremt True

GPSPOS   SI  Point ID 5            Lat  33°47'21.40278"N  Lng  112°19'31.04
             Class Check           Hgt  1517.086          Code 1/4 S11/S12
             Mthd User Input       H.pr <null>            V.pr <null>

GPSANT   KI  Antenna ht 3.999                       Measuremt True

GPSREF   KI  Reference 5

INIT     KI  Init event    Gained                   Week           1047
             Init type     On the fly               seconds        316673.0
             Init counter  1                        Point ID       <no text>
             Survey type   Real Time                Plate H. Dist  <null>
             Plate V. Dist <null>                   Plate azimuth  <null>

INIT     KI  Init event    High RMS                 Week           1047
             Init type     On the fly               seconds        317407.0
             Init counter  1                        Point ID       <no text>
             Survey type   Real Time                Plate H. Dist  <null>
             Plate V. Dist <null>                   Plate azimuth  <null>
```

```
INIT     KI  Init event     Good RMS            Week          1047
             Init type     On the fly          seconds       317408.0
             Init counter  1                   Point ID      <no text>
             Survey type   Real Time           Plate H. Dist <null>
             Plate V. Dist <null>              Plate azimuth <null>

INIT     KI  Init event     Lost                Week          1047
             Init type     On the fly          seconds       317817.0
             Init counter  1                   Point ID      <no text>
             Survey type   Real Time           Plate H. Dist <null>
             Plate V. Dist <null>              Plate azimuth <null>

INIT     KI  Init event     Gained              Week          1047
             Init type     On the fly          seconds       317860.0
             Init counter  2                   Point ID      <no text>
             Survey type   Real Time           Plate H. Dist <null>
             Plate V. Dist <null>              Plate azimuth <null>

EQUIP    NM  Receiver  4700                     Serial no 20178300
             Antenna   Micro-centered L1/L2
             Method    Measured to bottom of antenna mount
             Tape adj  0.000                   Serial no <no text>
             Radius    0.000                   V.Const   0.205

GPSANT   KI  Antenna ht 6.562                   Measuremt Uncorrected

EQUIP    NM  Receiver  4700                     Serial no 20178300
             Antenna   Micro-centered L1/L2
             Method    Measured to bottom of antenna mount
             Tape adj  0.000                   Serial no <no text>
             Radius    0.000                   V.Const   0.205

GPSANT   KI  Antenna ht 6.562                   Measuremt Uncorrected

NOTE     TS  Time Date 02/02/2000 Time 23:24:10

GPSVEC   TP  Point ID 2A          DX   3069.609          DY   -12899.815
             Class Normal         DZ   -16575.825        Code CK SHOT S-36
             Mthd Phase Diff.     H.pr 0.016             V.pr 0.030

F-CODE   TP  Code CK SHOT S-366RP 2/02/00

GPSQC1   NM  Min SVs        8                   PDOP max  0.2
             Total GPS pos  150                 HDOP max  0.1
             Monitor status Yes                 VDOP max  0.2
             Horizontal SD  0.000               Vert SD   0.000
             Start wk 1047 sec 318084.0         End wk 1047   sec 318262.0
```

```
GPSQC2  NM  Ttl satellites 8                    Err Scale 0.0199921187
            VCV xx     0.0000034512             VCV xy     0.0000011082
            VCV xz     0.0000005896             VCV yy     0.0000037446
            VCV yz    -0.0000008324             VCV zz     0.0000046978

INIT    KI  Init event    User cancelled init   Week           1047
            Init type     On the fly            seconds        318434.0
            Init counter  2                     Point ID       <no text>
            Survey type   Real Time             Plate H. Dist  <null>
            Plate V. Dist <null>                Plate azimuth  <null>

INIT    KI  Init event    Gained                Week           1047
            Init type     Known Point           seconds        318451.0
            Init counter  3                     Point ID       2A
            Survey type   Real Time             Plate H. Dist  <null>
            Plate V. Dist <null>                Plate azimuth  <null>

INIT    KI  Init event    Lost                  Week           1047
            Init type     Known Point           seconds        318580.0
            Init counter  3                     Point ID       <no text>
            Survey type   Real Time             Plate H. Dist  <null>
            Plate V. Dist <null>                Plate azimuth  <null>

INIT    KI  Init event    Gained                Week           1047
            Init type     On the fly            seconds        318661.0
            Init counter  4                     Point ID       <no text>
            Survey type   Real Time             Plate H. Dist  <null>
            Plate V. Dist <null>                Plate azimuth  <null>

NOTE    TS  Time Date 02/03/2000 Time 00:25:12

INIT    KI  Init event    Lost                  Week           1047
            Init type     On the fly            seconds        321923.0
            Init counter  4                     Point ID       <no text>
            Survey type   Real Time             Plate H. Dist  <null>
            Plate V. Dist <null>                Plate azimuth  <null>

INIT    KI  Init event    Gained                Week           1047
            Init type     On the fly            seconds        321985.0
            Init counter  5                     Point ID       <no text>
            Survey type   Real Time             Plate H. Dist  <null>
            Plate V. Dist <null>                Plate azimuth  <null>

NOTE    TS  Time Date 02/03/2000 Time 02:12:45
```

```
INIT     KI  Init event     Lost                  Week           1047
             Init type     On the fly            seconds        328376.0
             Init counter  5                     Point ID       <no text>
             Survey type   Real Time             Plate H. Dist  <null>
             Plate V. Dist <null>                Plate azimuth  <null>

INIT     KI  Init event     Gained                Week           1047
             Init type     On the fly            seconds        328471.0
             Init counter  6                     Point ID       <no text>
             Survey type   Real Time             Plate H. Dist  <null>
             Plate V. Dist <null>                Plate azimuth  <null>

GPSVEC   SO  Point ID 25          DX   4854.023          DY   -2841.087
             Class Stake out      DZ   -693.764          Code PANEL
             Mthd Phase Diff.     H.pr 0.017             V.pr 0.028

GPSQC1   NM  Min SVs         8                   PDOP max  0.2
             Total GPS pos   158                 HDOP max  0.1
             Monitor status  Yes                 VDOP max  0.1
             Horizontal SD   0.000               Vert SD   0.000
             Start wk 1047 sec 329889.0          End wk 1047   sec 330067.0

GPSQC2   NM  Ttl satellites 8                    Err Scale 0.0206656512
             VCV xx    0.0000022591              VCV xy    0.0000013506
             VCV xz    0.0000000591              VCV yy    0.0000067222
             VCV yz    -0.0000020611             VCV zz    0.0000022494

POINT DGN SO
             Name      225                       To the Point

PT POLAR D SO
             Azmth     262°46'10.432"            H.dist    62.471
             V.dist    -17.038

INIT     KI  Init event     User cancelled init   Week           1047
             Init type     On the fly            seconds        330118.0
             Init counter  6                     Point ID       <no text>
             Survey type   Real Time             Plate H. Dist  <null>
             Plate V. Dist <null>                Plate azimuth  <null>

INIT     KI  Init event     Gained                Week           1047
             Init type     Known Point           seconds        330132.0
             Init counter  7                     Point ID       25
             Survey type   Real Time             Plate H. Dist  <null>
             Plate V. Dist <null>                Plate azimuth  <null>

NOTE     TS  Time Date 02/03/2000 Time 02:45:34
```

```
GPSVEC  TP  Point ID 25A          DX   4854.024          DY   -2841.078
            Class Normal          DZ   -693.778          Code CHECK PT#25
            Mthd Phase Diff.      H.pr 0.017             V.pr 0.029

GPSQC1  NM  Min SVs         8                   PDOP max  0.2
            Total GPS pos   166                 HDOP max  0.1
            Monitor status  Yes                 VDOP max  0.1
            Horizontal SD   0.000               Vert SD   0.000
            Start wk 1047 sec 330167.0          End wk 1047   sec 330346.0

GPSQC2  NM  Ttl satellites 8                    Err Scale 0.0211441517
            VCV xx    0.0000023609              VCV xy    0.0000013365
            VCV xz    0.0000001068              VCV yy    0.0000069055
            VCV yz    -0.0000018569             VCV zz    0.0000022031

NOTE    KI  Computed inverse, Start pt: 25, End pt: 25A,

NOTE    KI  Azimuth: 197.580°, H Dist: 0.007ft, V Dist: -0.015ft,

NOTE    KI  S Dist: 0.017ft

INIT    KI  Init event    High RMS            Week          1047
            Init type     Known Point         seconds       331815.0
            Init counter  7                   Point ID      <no text>
            Survey type   Real Time           Plate H. Dist <null>
            Plate V. Dist <null>              Plate azimuth <null>

INIT    KI  Init event    Good RMS            Week          1047
            Init type     Known Point         seconds       331816.0
            Init counter  7                   Point ID      <no text>
            Survey type   Real Time           Plate H. Dist <null>
            Plate V. Dist <null>              Plate azimuth <null>

NOTE    TS  Time Date 02/03/2000 Time 03:22:11

GPSVEC  TP  Point ID 24           DX   6479.233          DY   -3839.788
            Class Normal          DZ   -1620.572         Code PANEL
            Mthd Phase Diff.      H.pr 0.020             V.pr 0.027

GPSQC1  NM  Min SVs         8                   PDOP max  0.1
            Total GPS pos   170                 HDOP max  0.1
            Monitor status  Yes                 VDOP max  0.1
            Horizontal SD   0.000               Vert SD   0.000
            Start wk 1047 sec 332363.0          End wk 1047   sec 332542.0
```

```
GPSQC2  NM  Ttl satellites 8                    Err Scale 0.0248141997
            VCV xx     0.0000029361             VCV xy    0.0000004832
            VCV xz     0.0000001936             VCV yy    0.0000059117
            VCV yz     -0.0000001002            VCV zz    0.000002391

INIT    KI  Init event     User cancelled init  Week          1047
            Init type      Known Point          seconds       332581.0
            Init counter   7                    Point ID      <no text>
            Survey type    Real Time            Plate H. Dist <null>
            Plate V. Dist  <null>               Plate azimuth <null>

INIT    KI  Init event     Gained               Week          1047
            Init type      Known Point          seconds       332590.0
            Init counter   8                    Point ID      24
            Survey type    Real Time            Plate H. Dist <null>
            Plate V. Dist  <null>               Plate azimuth <null>

GPSVEC  SO  Point ID 23            DX   8085.284          DY   -5028.138
            Class Stake out        DZ   -2468.257         Code PANEL
            Mthd Phase Diff.       H.pr 0.020             V.pr 0.026

GPSQC1  NM  Min SVs         5                   PDOP max  0.3
            Total GPS pos   175                 HDOP max  0.2
            Monitor status  Yes                 VDOP max  0.2
            Horizontal SD   0.000               Vert SD   0.000
            Start wk 1047 sec 333557.0          End wk 1047   sec 333736.0

GPSQC2  NM  Ttl satellites 5                    Err Scale 0.0126059055
            VCV xx     0.0000037081             VCV xy    0.0000027442
            VCV xz     0.0000006739             VCV yy    0.000004831
            VCV yz     -0.0000000459            VCV zz    0.000002764

POINT DGN SO
            Name       223                      To the Point

PT POLAR D SO
            Azmth      292°03'45.353"           H.dist    52.862
            V.dist     -12.991

INIT    KI  Init event     User cancelled init  Week          1047
            Init type      Known Point          seconds       333766.0
            Init counter   8                    Point ID      <no text>
            Survey type    Real Time            Plate H. Dist <null>
            Plate V. Dist  <null>               Plate azimuth <null>
```

```
INIT    KI  Init event     Gained              Week           1047
            Init type      Known Point         seconds        333778.0
            Init counter   9                   Point ID       23
            Survey type    Real Time           Plate H. Dist  <null>
            Plate V. Dist  <null>              Plate azimuth  <null>

INIT    KI  Init event     Lost                Week           1047
            Init type      Known Point         seconds        334316.0
            Init counter   9                   Point ID       <no text>
            Survey type    Real Time           Plate H. Dist  <null>
            Plate V. Dist  <null>              Plate azimuth  <null>

NOTE    TS  Time Date 02/03/2000 Time 03:52:33

INIT    KI  Init event     Gained              Week           1047
            Init type      On the fly          seconds        334364.0
            Init counter   10                  Point ID       <no text>
            Survey type    Real Time           Plate H. Dist  <null>
            Plate V. Dist  <null>              Plate azimuth  <null>

GPSVEC  TP  Point ID 3A          DX   16387.222        DY   -8129.483
            Class Normal         DZ   -2263.616        Code CK SHOT CHUT
            Mthd Phase Diff.     H.pr 0.020             V.pr 0.028

F-CODE  TP  Code CK SHOT CHUTE 2/02/00

GPSQC1  NM  Min SVs          6                  PDOP max  0.3
            Total GPS pos    179                HDOP max  0.1
            Monitor status   Yes                VDOP max  0.2
            Horizontal SD    0.000              Vert SD   0.000
            Start wk 1047 sec 334516.0          End wk 1047   sec 334695.0

GPSQC2  NM  Ttl satellites 6                    Err Scale 0.0136890253
            VCV xx     0.0000044114             VCV xy    0.0000043329
            VCV xz     0.0000002211             VCV yy    0.0000072841
            VCV yz     -0.0000000857            VCV zz    0.0000006654

INIT    KI  Init event     Lost                Week           1047
            Init type      On the fly          seconds        336074.0
            Init counter   10                  Point ID       <no text>
            Survey type    Real Time           Plate H. Dist  <null>
            Plate V. Dist  <null>              Plate azimuth  <null>

INIT    KI  Init event     Gained              Week           1047
            Init type      On the fly          seconds        336133.0
            Init counter   11                  Point ID       <no text>
            Survey type    Real Time           Plate H. Dist  <null>
            Plate V. Dist  <null>              Plate azimuth  <null>
```

```
NOTE     TS  Time Date 02/03/2000 Time 05:38:09

GPSVEC   SO  Point ID 26          DX   1745.366          DY   -105.805
             Class Stake out      DZ   811.273           Code PANEL
             Mthd Phase Diff.     H.pr 0.016             V.pr 0.030

GPSQC1   NM  Min SVs        7                  PDOP max  0.2
             Total GPS pos  172                HDOP max  0.1
             Monitor status Yes                VDOP max  0.2
             Horizontal SD  0.000              Vert SD   0.000
             Start wk 1047 sec 340507.0        End wk 1047   sec 340684.0

GPSQC2   NM  Ttl satellites 7                  Err Scale 0.0196114201
             VCV xx     0.000004648            VCV xy    0.0000022175
             VCV xz     -0.0000008434          VCV yy    0.000003536
             VCV yz     -0.000001391           VCV zz    0.0000034237

POINT DGN SO
             Name       226                    To the Point

PT POLAR D SO
             Azmth      42°44'28.732"          H.dist    30.059
             V.dist     0.082

INIT     KI  Init event    User cancelled init Week          1047
             Init type     On the fly          seconds       340709.0
             Init counter  11                  Point ID      <no text>
             Survey type   Real Time           Plate H. Dist <null>
             Plate V. Dist <null>              Plate azimuth <null>

INIT     KI  Init event    Gained              Week          1047
             Init type     Known Point         seconds       340722.0
             Init counter  12                  Point ID      26
             Survey type   Real Time           Plate H. Dist <null>
             Plate V. Dist <null>              Plate azimuth <null>

GPSVEC   SO  Point ID 77          DX   551.849           DY   1346.045
             Class Stake out      DZ   2200.951          Code LC 1/2/11/12
             Mthd Phase Diff.     H.pr 0.015             V.pr 0.029

F-CODE   SO  Code LC 1/2/11/12 T5N R1W

GPSQC1   NM  Min SVs        6                  PDOP max  0.2
             Total GPS pos  174                HDOP max  0.1
             Monitor status Yes                VDOP max  0.2
             Horizontal SD  0.000              Vert SD   0.000
             Start wk 1047 sec 341498.0        End wk 1047   sec 341676.0
```

```
GPSQC2   NM  Ttl satellites 6                    Err Scale 0.0165408179
             VCV xx     0.000002901              VCV xy    0.0000016134
             VCV xz     -0.0000007526            VCV yy    0.0000030688
             VCV yz     -0.0000016769            VCV zz    0.0000052482

POINT DGN SO
             Name       277                      To the Point

PT POLAR D SO
             Azmth      214°29'26.387"           H.dist    36.709
             V.dist     -0.474

INIT     KI  Init event     User cancelled init Week          1047
             Init type      Known Point         seconds       341706.0
             Init counter   12                  Point ID      <no text>
             Survey type    Real Time           Plate H. Dist <null>
             Plate V. Dist  <null>              Plate azimuth <null>

INIT     KI  Init event     Gained              Week          1047
             Init type      Known Point         seconds       341718.0
             Init counter   13                  Point ID      77
             Survey type    Real Time           Plate H. Dist <null>
             Plate V. Dist  <null>              Plate azimuth <null>

NOTE     TS  Time Date 02/03/2000 Time 06:11:26

GPSVEC   SO  Point ID 27          DX   95.782          DY   1131.599
             Class Stake out      DZ   1613.935        Code PANEL
             Mthd Phase Diff.     H.pr 0.016           V.pr 0.029

GPSQC1   NM  Min SVs        6                    PDOP max  0.2
             Total GPS pos  171                  HDOP max  0.1
             Monitor status Yes                  VDOP max  0.2
             Horizontal SD  0.000                Vert SD   0.000
             Start wk 1047 sec 342510.0          End wk 1047   sec 342688.0

GPSQC2   NM  Ttl satellites 6                    Err Scale 0.0170803871
             VCV xx     0.0000027603             VCV xy    0.0000016996
             VCV xz     -0.000000381             VCV yy    0.0000042583
             VCV yz     -0.0000009382            VCV zz    0.0000042326

POINT DGN SO
             Name       227                      To the Point

POLAR D SO
             Azmth      314°09'25.61"            H.dist    24.795
             V.dist     0.217
```

```
INIT     KI  Init event     User cancelled init Week          1047
             Init type      Known Point         seconds       342705.0
             Init counter   13                  Point ID      <no text>
             Survey type    Real Time           Plate H. Dist <null>
             Plate V. Dist  <null>              Plate azimuth <null>

INIT     KI  Init event     Gained              Week          1047
             Init type      Known Point         seconds       342717.0
             Init counter   14                  Point ID      27
             Survey type    Real Time           Plate H. Dist <null>
             Plate V. Dist  <null>              Plate azimuth <null>

SURVEY   KI  Elev mask 18                       PDOP mask 6.0

EQUIP    BA  Receiver   4700                    Serial no 20176795
             Antenna    Micro-centered L1/L2 w/Ground
             Method     Measured to bottom of notch on ground plane
             Tape adj   0.000                   Serial no <no text>
             Radius     0.766                   V.Const   0.023

SURVEY EVENTKISurvey event Base survey started

NOTE     TS  Time Date 02/03/2000 Time 22:30:28

EQUIP    BA  Receiver   4700                    Serial no 20176795
             Antenna    Micro-centered L1/L2 w/Ground
             Method     Measured to bottom of notch on ground plane
             Tape adj   0.000                   Serial no <no text>
             Radius     0.766                   V.Const   0.023

GPSANT   KI  Antenna ht 4.184                   Measuremt Uncorrected

EQUIP    BA  Receiver   4700                    Serial no 20176795
             Antenna    Micro-centered L1/L2 w/Ground
             Method     Measured to bottom of notch on ground plane
             Tape adj   0.000                   Serial no <no text>
             Radius     0.766                   V.Const   0.023

GPSANT   KI  Antenna ht 4.184                   Measuremt Uncorrected

GPSREF   KI  Reference 5

SURVEY   KI  Elev mask 18                       PDOP mask 6.0
```

```
EQUIP    NM  Receiver  4700                        Serial no 20178300
             Antenna   Micro-centered L1/L2
             Method    Measured to bottom of antenna mount
             Tape adj  0.000                       Serial no <no text>
             Radius    0.000                       V.Const   0.205

SURVEY EVENTKISurvey event Rover survey started

NOTE     TS  Time Date 02/03/2000 Time 22:32:46

GPSANT   KI  Antenna ht 4.137                      Measuremt True

GPSREF   KI  Reference 5

INIT     KI  Init event    Gained                  Week          1047
             Init type     On the fly              seconds       401609.0
             Init counter  1                       Point ID      <no text>
             Survey type   Real Time               Plate H. Dist <null>
             Plate V. Dist <null>                  Plate azimuth <null>

EQUIP    NM  Receiver  4700                        Serial no 20178300
             Antenna   Micro-centered L1/L2
             Method    Measured to bottom of antenna mount
             Tape adj  0.000                       Serial no <no text>
             Radius    0.000                       V.Const   0.205

GPSANT   KI  Antenna ht 6.562                      Measuremt Uncorrected

EQUIP    NM  Receiver  4700                        Serial no 20178300
             Antenna   Micro-centered L1/L2
             Method    Measured to bottom of antenna mount
             Tape adj  0.000                       Serial no <no text>
             Radius    0.000                       V.Const   0.205

GPSANT   KI  Antenna ht 6.562                      Measuremt Uncorrected

GPSVEC   TP  Point ID 79          DX   -4337.082        DY   3337.336
             Class Normal         DZ   2217.383         Code LC 2/3/10/11
             Mthd Phase Diff.     H.pr 0.018            V.pr 0.028

F-CODE   TP  Code LC 2/3/10/11 T5N R1W

GPSQC1   NM  Min SVs        7                      PDOP max  0.2
             Total GPS pos  230                    HDOP max  0.1
             Monitor status Yes                    VDOP max  0.1
             Horizontal SD  0.000                  Vert SD   0.000
             Start wk 1047 sec 402363.0            End wk 1047   sec 402618.0
```

```
GPSQC2  NM  Ttl satellites 7                    Err Scale 0.0214304272
            VCV xx     0.0000026422             VCV xy    0.000002786
            VCV xz     0.0000004805             VCV yy    0.0000068745
            VCV yz     -0.0000002742            VCV zz    0.0000017204

INIT    KI  Init event     User cancelled init  Week          1047
            Init type      On the fly           seconds       402637.0
            Init counter   1                    Point ID      <no text>
            Survey type    Real Time            Plate H. Dist <null>
            Plate V. Dist  <null>               Plate azimuth <null>

INIT    KI  Init event     Gained               Week          1047
            Init type      Known Point          seconds       402665.0
            Init counter   2                    Point ID      79
            Survey type    Real Time            Plate H. Dist <null>
            Plate V. Dist  <null>               Plate azimuth <null>

NOTE    TS  Time Date 02/03/2000 Time 23:23:19

GPSVEC  SO  Point ID 28          DX   -3046.872        DY   3456.016
            Class Stake out      DZ   3396.952         Code PANEL
            Mthd Phase Diff.     H.pr 0.016            V.pr 0.029

GPSQC1  NM  Min SVs        8                    PDOP max  0.2
            Total GPS pos  176                  HDOP max  0.1
            Monitor status Yes                  VDOP max  0.1
            Horizontal SD  0.000                Vert SD   0.000
            Start wk 1047 sec 404402.0          End wk 1047   sec 404606.0

GPSQC2  NM  Ttl satellites 8                    Err Scale 0.0208718106
            VCV xx     0.0000032576             VCV xy    0.000000968
            VCV xz     0.0000004795             VCV yy    0.0000035488
            VCV yz     -0.0000009157            VCV zz    0.0000045327

POINT DGN SO
            Name       228                      To the Point

PT POLAR D SO
            Azmth      359°38'07.751"           H.dist    35.734
            V.dist     -5.365

INIT    KI  Init event     User cancelled init  Week          1047
            Init type      Known Point          seconds       404667.0
            Init counter   2                    Point ID      <no text>
            Survey type    Real Time            Plate H. Dist <null>
            Plate V. Dist  <null>               Plate azimuth <null>
```

```
INIT     KI  Init event     Gained                Week           1047
             Init type     Known Point           seconds        404682.0
             Init counter  3                     Point ID       28
             Survey type   Real Time             Plate H. Dist  <null>
             Plate V. Dist <null>                Plate azimuth  <null>

NOTE     TS  Time Date 02/03/2000 Time 23:55:53

GPSVEC   SO  Point ID 21          DX   -4592.435        DY   4686.296
             Class Stake out      DZ   4091.377         Code PANEL
             Mthd Phase Diff.     H.pr 0.016            V.pr 0.029

GPSQC1   NM  Min SVs        8                   PDOP max  0.2
             Total GPS pos  171                 HDOP max  0.1
             Monitor status Yes                 VDOP max  0.1
             Horizontal SD  0.000               Vert SD   0.000
             Start wk 1047 sec 406316.0         End wk 1047   sec 406493.0

GPSQC2   NM  Ttl satellites 8                   Err Scale 0.0209899843
             VCV xx    0.0000024674             VCV xy    0.0000007808
             VCV xz    -0.0000009815            VCV yy    0.0000032483
             VCV yz    -0.0000025711            VCV zz    0.0000056237

NT DGN SO
             Name      221                      To the Point

PT POLAR D SO
             Azmth     289°55'51.906"           H.dist    64.962
             V.dist    -4.315

INIT     KI  Init event     User cancelled init Week           1047
             Init type     Known Point           seconds        406582.0
             Init counter  3                     Point ID       <no text>
             Survey type   Real Time             Plate H. Dist  <null>
             Plate V. Dist <null>                Plate azimuth  <null>

INIT     KI  Init event     Gained                Week           1047
             Init type     Known Point           seconds        406593.0
             Init counter  4                     Point ID       21
             Survey type   Real Time             Plate H. Dist  <null>
             Plate V. Dist <null>                Plate azimuth  <null>

INIT     KI  Init event     Lost                  Week           1047
             Init type     Known Point           seconds        407850.0
             Init counter  4                     Point ID       <no text>
             Survey type   Real Time             Plate H. Dist  <null>
             Plate V. Dist <null>                Plate azimuth  <null>
```

```
INIT     KI  Init event     Gained                Week           1047
             Init type      On the fly            seconds        407883.0
             Init counter   5                     Point ID       <no text>
             Survey type    Real Time             Plate H. Dist  <null>
             Plate V. Dist  <null>                Plate azimuth  <null>

NOTE     TS  Time Date 02/04/2000 Time 00:39:25

GPSVEC   SO  Point ID 20          DX   -2302.761        DY   5711.854
             Class Stake out      DZ   6903.535         Code PANEL
             Mthd Phase Diff.     H.pr 0.017            V.pr 0.029

GPSQC1   NM  Min SVs         7                    PDOP max  0.2
             Total GPS pos   174                  HDOP max  0.1
             Monitor status  Yes                  VDOP max  0.2
             Horizontal SD   0.000                Vert SD   0.000
             Start wk 1047 sec 408879.0           End wk 1047   sec 409057.0

GPSQC2   NM  Ttl satellites 7                     Err Scale 0.0196389146
             VCV xx     0.0000037684              VCV xy    0.000003811
             VCV xz     -0.0000013912             VCV yy    0.0000060011
             VCV yz     -0.0000014622             VCV zz    0.0000018473

PT DGN SO
             Name       220                       To the Point

PT POLAR D SO
             Azmth      300°36'29.907"            H.dist    78.255
             V.dist     27.404

INIT     KI  Init event     User cancelled init   Week           1047
             Init type      On the fly            seconds        409188.0
             Init counter   5                     Point ID       <no text>
             Survey type    Real Time             Plate H. Dist  <null>
             Plate V. Dist  <null>                Plate azimuth  <null>

INIT     KI  Init event     Gained                Week           1047
             Init type      Known Point           seconds        409201.0
             Init counter   6                     Point ID       20
             Survey type    Real Time             Plate H. Dist  <null>
             Plate V. Dist  <null>                Plate azimuth  <null>

INIT     KI  Init event     Lost                  Week           1047
             Init type      Known Point           seconds        409256.0
             Init counter   6                     Point ID       <no text>
             Survey type    Real Time             Plate H. Dist  <null>
             Plate V. Dist  <null>                Plate azimuth  <null>
```

```
INIT     KI  Init event     Gained                Week           1047
             Init type      On the fly            seconds        409285.0
             Init counter   7                     Point ID       <no text>
             Survey type    Real Time             Plate H. Dist  <null>
             Plate V. Dist  <null>                Plate azimuth  <null>

GPSVEC   TP  Point ID 100          DX   -3428.404          DY   8256.623
             Class Normal          DZ   9708.955           Code CHECK POINT
             Mthd Phase Diff.      H.pr 0.015              V.pr 0.030

GPSQC1   NM  Min SVs         7                    PDOP max  0.2
             Total GPS pos   172                  HDOP max  0.1
             Monitor status  Yes                  VDOP max  0.2
             Horizontal SD   0.000                Vert SD   0.000
             Start wk 1047 sec 410490.0           End wk 1047   sec 410668.0

GPSQC2   NM  Ttl satellites 7                     Err Scale 0.0165274609
             VCV xx     0.0000026528              VCV xy    0.0000026338
             VCV xz     -0.0000011232             VCV yy    0.0000063423
             VCV yz     -0.0000020545             VCV zz    0.000002351

INIT     KI  Init event     User cancelled init   Week           1047
             Init type      On the fly            seconds        410697.0
             Init counter   7                     Point ID       <no text>
             Survey type    Real Time             Plate H. Dist  <null>
             Plate V. Dist  <null>                Plate azimuth  <null>

INIT     KI  Init event     Gained                Week           1047
             Init type      Known Point           seconds        410714.0
             Init counter   8                     Point ID       100
             Survey type    Real Time             Plate H. Dist  <null>
             Plate V. Dist  <null>                Plate azimuth  <null>

NOTE     TS  Time Date 02/04/2000 Time 01:23:57

GPSVEC   SO  Point ID 39           DX   -3609.344          DY   8139.554
             Class Stake out       DZ   9488.240           Code PANEL
             Mthd Phase Diff.      H.pr 0.016              V.pr 0.029

GPSQC1   NM  Min SVs         7                    PDOP max  0.2
             Total GPS pos   172                  HDOP max  0.1
             Monitor status  Yes                  VDOP max  0.2
             Horizontal SD   0.000                Vert SD   0.000
             Start wk 1047 sec 411665.0           End wk 1047   sec 411842.0
```

```
GPSQC2  NM  Ttl satellites 7                    Err Scale 0.0191595964
            VCV xx     0.000002675              VCV xy    0.0000016268
            VCV xz     -0.0000006932            VCV yy    0.0000068524
            VCV yz     -0.0000012806            VCV zz    0.0000017099

POINT DGN SO
            Name       239                      To the Point

PT POLAR D SO
            Azmth      126°12'09.776"           H.dist    47.807
            V.dist     -3.151

INIT    KI  Init event     User cancelled init Week          1047
            Init type      Known Point         seconds       411861.0
            Init counter   8                   Point ID      <no text>
            Survey type    Real Time           Plate H. Dist <null>
            Plate V. Dist  <null>              Plate azimuth <null>

INIT    KI  Init event     Gained              Week          1047
            Init type      Known Point         seconds       411873.0
            Init counter   9                   Point ID      39
            Survey type    Real Time           Plate H. Dist <null>
            Plate V. Dist  <null>              Plate azimuth <null>

INIT    KI  Init event     High RMS            Week          1047
            Init type      Known Point         seconds       412384.0
            Init counter   9                   Point ID      <no text>
            Survey type    Real Time           Plate H. Dist <null>
            Plate V. Dist  <null>              Plate azimuth <null>

INIT    KI  Init event     Good RMS            Week          1047
            Init type      Known Point         seconds       412397.0
            Init counter   9                   Point ID      <no text>
            Survey type    Real Time           Plate H. Dist <null>
            Plate V. Dist  <null>              Plate azimuth <null>

INIT    KI  Init event     High RMS            Week          1047
            Init type      Known Point         seconds       412401.0
            Init counter   9                   Point ID      <no text>
            Survey type    Real Time           Plate H. Dist <null>
            Plate V. Dist  <null>              Plate azimuth <null>

INIT    KI  Init event     Good RMS            Week          1047
            Init type      Known Point         seconds       412409.0
            Init counter   9                   Point ID      <no text>
            Survey type    Real Time           Plate H. Dist <null>
            Plate V. Dist  <null>              Plate azimuth <null>
```

```
INIT    KI  Init event     High RMS          Week          1047
            Init type      Known Point       seconds       412414.0
            Init counter   9                 Point ID      <no text>
            Survey type    Real Time         Plate H. Dist <null>
            Plate V. Dist  <null>            Plate azimuth <null>

INIT    KI  Init event     Good RMS          Week          1047
            Init type      Known Point       seconds       412417.0
            Init counter   9                 Point ID      <no text>
            Survey type    Real Time         Plate H. Dist <null>
            Plate V. Dist  <null>            Plate azimuth <null>

NOTE    TS  Time Date 02/04/2000 Time 01:55:45

INIT    KI  Init event     Lost              Week          1047
            Init type      Known Point       seconds       413757.0
            Init counter   9                 Point ID      <no text>
            Survey type    Real Time         Plate H. Dist <null>
            Plate V. Dist  <null>            Plate azimuth <null>

INIT    KI  Init event     Gained            Week          1047
            Init type      On the fly        seconds       414210.0
            Init counter   10                Point ID      <no text>
            Survey type    Real Time         Plate H. Dist <null>
            Plate V. Dist  <null>            Plate azimuth <null>

GPSVEC  SO  Point ID 40          DX   -2011.663      DY   6789.351
            Class Stake out      DZ   8701.638       Code PANEL
            Mthd Phase Diff.     H.pr 0.018           V.pr 0.028

GPSQC1  NM  Min SVs        8                 PDOP max  0.2
            Total GPS pos  161               HDOP max  0.1
            Monitor status Yes               VDOP max  0.1
            Horizontal SD  0.000             Vert SD   0.000
            Start wk 1047 sec 414400.0       End wk 1047   sec 414579.0

GPSQC2  NM  Ttl satellites 8                 Err Scale 0.0213485416
            VCV xx     0.0000030836          VCV xy    0.0000019624
            VCV xz     -0.0000007308         VCV yy    0.0000039353
            VCV yz     -0.0000011057         VCV zz    0.0000042831

POINT DGN SO
            Name       240                   To the Point

POLAR D SO
            Azmth      147°38'19.622"        H.dist    9.807
            V.dist     -8.286
```

```
INIT    KI  Init event    User cancelled init Week          1047
            Init type     On the fly          seconds       414608.0
            Init counter  10                  Point ID      <no text>
            Survey type   Real Time           Plate H. Dist <null>
            Plate V. Dist <null>              Plate azimuth <null>

INIT    KI  Init event    Gained              Week          1047
            Init type     Known Point         seconds       414620.0
            Init counter  11                  Point ID      40
            Survey type   Real Time           Plate H. Dist <null>
            Plate V. Dist <null>              Plate azimuth <null>

INIT    KI  Init event    Lost                Week          1047
            Init type     Known Point         seconds       414695.0
            Init counter  11                  Point ID      <no text>
            Survey type   Real Time           Plate H. Dist <null>
            Plate V. Dist <null>              Plate azimuth <null>

INIT    KI  Init event    Gained              Week          1047
            Init type     On the fly          seconds       414711.0
            Init counter  12                  Point ID      <no text>
            Survey type   Real Time           Plate H. Dist <null>
            Plate V. Dist <null>              Plate azimuth <null>

NOTE    TS  Time Date 02/04/2000 Time 03:00:04

GPSVEC  SO  Point ID 41          DX   -374.711          DY   5691.145
            Class Stake out      DZ   8067.630          Code PANEL
            Mthd Phase Diff.     H.pr 0.018             V.pr 0.028

GPSQC1  NM  Min SVs        8                 PDOP max  0.1
            Total GPS pos  178               HDOP max  0.1
            Monitor status Yes               VDOP max  0.1
            Horizontal SD  0.000             Vert SD   0.000
            Start wk 1047 sec 417368.0       End wk 1047   sec 417546.0

GPSQC2  NM  Ttl satellites 8                 Err Scale 0.0233650543
            VCV xx    0.0000026422           VCV xy    0.0000010297
            VCV xz    0.0000002545           VCV yy    0.0000066238
            VCV yz    -0.0000008104          VCV zz    0.0000021116

POINT DGN SO
            Name      241                    To the Point

POLAR D SO
            Azmth     117°34'15.905"         H.dist    44.903
            V.dist    -2.518
```

```
INIT    KI  Init event    User cancelled init Week          1047
            Init type     On the fly          seconds       417625.0
            Init counter  12                  Point ID      <no text>
            Survey type   Real Time           Plate H. Dist <null>
            Plate V. Dist <null>              Plate azimuth <null>

INIT    KI  Init event    Gained              Week          1047
            Init type     Known Point         seconds       417637.0
            Init counter  13                  Point ID      41
            Survey type   Real Time           Plate H. Dist <null>
            Plate V. Dist <null>              Plate azimuth <null>

INIT    KI  Init event    Lost                Week          1047
            Init type     Known Point         seconds       418515.0
            Init counter  13                  Point ID      <no text>
            Survey type   Real Time           Plate H. Dist <null>
            Plate V. Dist <null>              Plate azimuth <null>

INIT    KI  Init event    Gained              Week          1047
            Init type     On the fly          seconds       418569.0
            Init counter  14                  Point ID      <no text>
            Survey type   Real Time           Plate H. Dist <null>
            Plate V. Dist <null>              Plate azimuth <null>

NOTE    TS  Time Date 02/04/2000 Time 03:31:13

INIT    KI  Init event    Lost                Week          1047
            Init type     On the fly          seconds       419485.0
            Init counter  14                  Point ID      <no text>
            Survey type   Real Time           Plate H. Dist <null>
            Plate V. Dist <null>              Plate azimuth <null>

INIT    KI  Init event    Gained              Week          1047
            Init type     On the fly          seconds       419530.0
            Init counter  15                  Point ID      <no text>
            Survey type   Real Time           Plate H. Dist <null>
            Plate V. Dist <null>              Plate azimuth <null>

GPSVEC  SO  Point ID 34          DX   -710.083          DY   4514.723
            Class Stake out      DZ   6017.660          Code PANEL
            Mthd Phase Diff.     H.pr 0.021             V.pr 0.026

GPSQC1  NM  Min SVs        5                 PDOP max  0.2
            Total GPS pos  174               HDOP max  0.1
            Monitor status Yes               VDOP max  0.2
            Horizontal SD  0.000             Vert SD   0.000
            Start wk 1047 sec 419560.0       End wk 1047   sec 419738.0
```

```
GPSQC2  NM  Ttl satellites 5                    Err Scale 0.0174371824
            VCV xx     0.0000027934             VCV xy    0.0000013944
            VCV xz     0.0000004801             VCV yy    0.000004491
            VCV yz     -0.0000007308            VCV zz    0.0000042416

POINT DGN SO
            Name       234                      To the Point

PT POLAR D SO
            Azmth      212°29'37.642"           H.dist    7.691
            V.dist     6.222

INIT    KI  Init event     User cancelled init Week          1047
            Init type      On the fly          seconds       419773.0
            Init counter   15                  Point ID      <no text>
            Survey type    Real Time           Plate H. Dist <null>
            Plate V. Dist  <null>              Plate azimuth <null>

INIT    KI  Init event     Gained              Week          1047
            Init type      Known Point         seconds       419786.0
            Init counter   16                  Point ID      34
            Survey type    Real Time           Plate H. Dist <null>
            Plate V. Dist  <null>              Plate azimuth <null>

INIT    KI  Init event     Lost(RMS)           Week          1047
            Init type      Known Point         seconds       420111.0
            Init counter   16                  Point ID      <no text>
            Survey type    Real Time           Plate H. Dist <null>
            Plate V. Dist  <null>              Plate azimuth <null>

INIT    KI  Init event     Gained              Week          1047
            Init type      On the fly          seconds       420291.0
            Init counter   17                  Point ID      <no text>
            Survey type    Real Time           Plate H. Dist <null>
            Plate V. Dist  <null>              Plate azimuth <null>

INIT    KI  Init event     Lost                Week          1047
            Init type      On the fly          seconds       420381.0
            Init counter   17                  Point ID      <no text>
            Survey type    Real Time           Plate H. Dist <null>
            Plate V. Dist  <null>              Plate azimuth <null>

INIT    KI  Init event     Gained              Week          1047
            Init type      On the fly          seconds       420420.0
            Init counter   18                  Point ID      <no text>
            Survey type    Real Time           Plate H. Dist <null>
            Plate V. Dist  <null>              Plate azimuth <null>
```

```
GPSVEC  SO  Point ID 33          DX   901.155          DY   3355.811
            Class Stake out      DZ   5239.683         Code PANEL
            Mthd Phase Diff.     H.pr 0.020            V.pr 0.030

GPSQC1  NM  Min SVs        6                  PDOP max  0.3
            Total GPS pos  175                HDOP max  0.1
            Monitor status Yes                VDOP max  0.2
            Horizontal SD  0.000              Vert SD   0.000
            Start wk 1047 sec 421071.0        End wk 1047   sec 421249.0

GPSQC2  NM  Ttl satellites 6                  Err Scale 0.0143497372
            VCV xx     0.0000045693           VCV xy    0.0000048903
            VCV xz     0.0000000125           VCV yy    0.0000082832
            VCV yz     -0.0000003847          VCV zz    0.0000005574

POINT DGN SO
            Name       233                    To the Point

PT POLAR D SO
            Azmth      326°47'29.356"         H.dist    19.497
            V.dist     -2.986

NOTE    TS  Time Date 02/04/2000 Time 04:01:21

INIT    KI  Init event    User cancelled init Week          1047
            Init type     On the fly          seconds       421290.0
            Init counter  18                  Point ID      <no text>
            Survey type   Real Time           Plate H. Dist <null>
            Plate V. Dist <null>              Plate azimuth <null>

INIT    KI  Init event    Gained              Week          1047
            Init type     Known Point         seconds       421303.0
            Init counter  19                  Point ID      33
            Survey type   Real Time           Plate H. Dist <null>
            Plate V. Dist <null>              Plate azimuth <null>

GPSVEC  SO  Point ID 35          DX   2573.051         DY   3320.677
            Class Stake out      DZ   6135.713         Code PANEL
            Mthd Phase Diff.     H.pr 0.015            V.pr 0.031

GPSQC1  NM  Min SVs        6                  PDOP max  0.3
            Total GPS pos  177                HDOP max  0.1
            Monitor status Yes                VDOP max  0.3
            Horizontal SD  0.000              Vert SD   0.000
            Start wk 1047 sec 422568.0        End wk 1047   sec 422746.0
```

```
GPSQC2   NM  Ttl satellites 6                    Err Scale 0.0115445144
             VCV xx     0.000006182              VCV xy    0.0000047104
             VCV xz     -0.0000020548            VCV yy    0.0000049788
             VCV yz     -0.0000017493            VCV zz    0.0000013556

POINT DGN SO
             Name       235                      To the Point

PT POLAR D SO
             Azmth      97°34'34.614"            H.dist    15.981
             V.dist     1.126

INIT     KI  Init event     User cancelled init Week          1047
             Init type      Known Point         seconds       422876.0
             Init counter   19                  Point ID      <no text>
             Survey type    Real Time           Plate H. Dist <null>
             Plate V. Dist  <null>              Plate azimuth <null>

INIT     KI  Init event     Gained              Week          1047
             Init type      Known Point         seconds       422894.0
             Init counter   20                  Point ID      35
             Survey type    Real Time           Plate H. Dist <null>
             Plate V. Dist  <null>              Plate azimuth <null>

SURVEY   KI  Elev mask 18                       PDOP mask 6.0

EQUIP    BA  Receiver   4700                    Serial no 20176795
             Antenna    Micro-centered L1/L2 w/Ground
             Method     Measured to bottom of notch on ground plane
             Tape adj   0.000                   Serial no <no text>
             Radius     0.766                   V.Const   0.023

SURVEY EVENTKISurvey event Base survey started

NOTE     TS  Time Date 02/04/2000 Time 21:45:02

EQUIP    BA  Receiver   4700                    Serial no 20176795
             Antenna    Micro-centered L1/L2 w/Ground
             Method     Measured to bottom of notch on ground plane
             Tape adj   0.000                   Serial no <no text>
             Radius     0.766                   V.Const   0.023

GPSANT   KI  Antenna ht 5.225                   Measuremt Uncorrected
```

```
EQUIP    BA  Receiver  4700                        Serial no 20176795
             Antenna   Micro-centered L1/L2 w/Ground
             Method    Measured to bottom of notch on ground plane
             Tape adj  0.000                       Serial no <no text>
             Radius    0.766                       V.Const   0.023

GPSANT   KI  Antenna ht 5.225                      Measuremt Uncorrected

GPSREF   KI  Reference 3

EQUIP    NM  Receiver  4700                        Serial no 20178300
             Antenna   Micro-centered L1/L2
             Method    Measured to bottom of antenna mount
             Tape adj  0.000                       Serial no <no text>
             Radius    0.000                       V.Const   0.205

SURVEY EVENTKISurvey event Rover survey started

NOTE     TS  Time Date 02/04/2000 Time 21:47:16

GPSANT   KI  Antenna ht 0.000                      Measuremt True

GPSPOS   SI  Point ID 3            Lat  33°46'55.61499"N  Lng  112°15'54.88
             Class Check           Hgt  1340.036          Code CHUTE
             Mthd User Input       H.pr <null>            V.pr <null>

GPSANT   KI  Antenna ht 5.190                      Measuremt True

GPSREF   KI  Reference 3

INIT     KI  Init event    Gained                  Week          1047
             Init type     On the fly              seconds       485350.0
             Init counter  1                       Point ID      <no text>
             Survey type   Real Time               Plate H. Dist <null>
             Plate V. Dist <null>                  Plate azimuth <null>

EQUIP    NM  Receiver  4700                        Serial no 20178300
             Antenna   Micro-centered L1/L2
             Method    Measured to bottom of antenna mount
             Tape adj  0.000                       Serial no <no text>
             Radius    0.000                       V.Const   0.205

GPSANT   KI  Antenna ht 6.562                      Measuremt Uncorrected
```

```
EQUIP    NM  Receiver   4700                        Serial no 20178300
             Antenna    Micro-centered L1/L2
             Method     Measured to bottom of antenna mount
             Tape adj   0.000                       Serial no <no text>
             Radius     0.000                       V.Const   0.205

GPSANT   KI  Antenna ht 6.562                       Measuremt Uncorrected

INIT     KI  Init event    Lost(RMS)                Week          1047
             Init type     On the fly               seconds       485662.0
             Init counter  1                        Point ID      <no text>
             Survey type   Real Time                Plate H. Dist <null>
             Plate V. Dist <null>                   Plate azimuth <null>

INIT     KI  Init event    Gained                   Week          1047
             Init type     On the fly               seconds       485779.0
             Init counter  2                        Point ID      <no text>
             Survey type   Real Time                Plate H. Dist <null>
             Plate V. Dist <null>                   Plate azimuth <null>

GPSVEC   SO  Point ID 19          DX   -5184.291        DY   822.697
             Class Stake out      DZ   -1968.149        Code PANEL
             Mthd Phase Diff.     H.pr 0.015            V.pr 0.030

GPSQC1   NM  Min SVs         7                      PDOP max  0.2
             Total GPS pos   172                    HDOP max  0.1
             Monitor status  Yes                    VDOP max  0.2
             Horizontal SD   0.000                  Vert SD   0.000
             Start wk 1047 sec 486444.0             End wk 1047   sec 486621.0

GPSQC2   NM  Ttl satellites 7                       Err Scale 0.0168507677
             VCV xx    0.0000024686                 VCV xy    0.0000015643
             VCV xz    -0.0000006469                VCV yy    0.0000058765
             VCV yz    -0.0000006087                VCV zz    0.0000028818

POINT DGN SO
             Name      219                          To the Point

PT POLAR D SO
             Azmth     149°26'23.384"               H.dist    1.452
             V.dist    -0.685

INIT     KI  Init event    User cancelled init      Week          1047
             Init type     On the fly               seconds       486647.0
             Init counter  2                        Point ID      <no text>
             Survey type   Real Time                Plate H. Dist <null>
             Plate V. Dist <null>                   Plate azimuth <null>
```

```
INIT    KI  Init event     Gained              Week          1047
            Init type      Known Point         seconds       486659.0
            Init counter   3                   Point ID      19
            Survey type    Real Time           Plate H. Dist <null>
            Plate V. Dist  <null>              Plate azimuth <null>

NOTE    TS  Time Date 02/04/2000 Time 22:19:02

INIT    KI  Init event     High RMS            Week          1047
            Init type      Known Point         seconds       487154.0
            Init counter   3                   Point ID      <no text>
            Survey type    Real Time           Plate H. Dist <null>
            Plate V. Dist  <null>              Plate azimuth <null>

INIT    KI  Init event     Good RMS            Week          1047
            Init type      Known Point         seconds       487155.0
            Init counter   3                   Point ID      <no text>
            Survey type    Real Time           Plate H. Dist <null>
            Plate V. Dist  <null>              Plate azimuth <null>

INIT    KI  Init event     Lost(RMS)           Week          1047
            Init type      Known Point         seconds       487158.0
            Init counter   3                   Point ID      <no text>
            Survey type    Real Time           Plate H. Dist <null>
            Plate V. Dist  <null>              Plate azimuth <null>

SURVEY EVENTKISurvey event Communications error

INIT    KI  Init event     Lost                Week          1047
            Init type      Known Point         seconds       487515.0
            Init counter   4                   Point ID      <no text>
            Survey type    Real Time           Plate H. Dist <null>
            Plate V. Dist  <null>              Plate azimuth <null>

INIT    KI  Init event     Lost                Week          1047
            Init type      Known Point         seconds       487519.0
            Init counter   4                   Point ID      <no text>
            Survey type    Real Time           Plate H. Dist <null>
            Plate V. Dist  <null>              Plate azimuth <null>

INIT    KI  Init event     Gained              Week          1047
            Init type      On the fly          seconds       487535.0
            Init counter   5                   Point ID      <no text>
            Survey type    Real Time           Plate H. Dist <null>
            Plate V. Dist  <null>              Plate azimuth <null>
```

```
GPSVEC   SO  Point ID 23A          DX   -8302.446          DY   3100.166
             Class Stake out       DZ   -203.778           Code CK SHOT 2/04
             Mthd Phase Diff.      H.pr 0.017              V.pr 0.029

GPSQC1   NM  Min SVs         9                   PDOP max  0.1
             Total GPS pos   157                 HDOP max  0.1
             Monitor status  Yes                 VDOP max  0.1
             Horizontal SD   0.000               Vert SD   0.000
             Start wk 1047 sec 487648.0          End wk 1047   sec 487826.0

GPSQC2   NM  Ttl satellites 9                    Err Scale 0.0233926121
             VCV xx     0.0000032217             VCV xy    0.0000020641
             VCV xz     -0.0000006104            VCV yy    0.0000047077
             VCV yz     -0.0000003979            VCV zz    0.0000034707

POINT DGN SO
             Name       23                       To the Point

PT POLAR D SO
             Azmth      315°19'09.149"           H.dist    0.047
             V.dist     -0.048

NOTE     TS  Time Date 02/04/2000 Time 23:01:28

GPSVEC   SO  Point ID 18           DX   -2832.464          DY   1931.487
             Class Stake out       DZ   957.771            Code PANEL
             Mthd Phase Diff.      H.pr 0.018              V.pr 0.028

GPSQC1   NM  Min SVs         8                   PDOP max  0.2
             Total GPS pos   173                 HDOP max  0.1
             Monitor status  Yes                 VDOP max  0.1
             Horizontal SD   0.000               Vert SD   0.000
             Start wk 1047 sec 489505.0          End wk 1047   sec 489682.0

GPSQC2   NM  Ttl satellites 8                    Err Scale 0.0214435104
             VCV xx     0.0000033838             VCV xy    0.0000016478
             VCV xz     0.0000008935             VCV yy    0.0000041831
             VCV yz     -0.000000228             VCV zz    0.0000037246

POINT DGN SO
             Name       218                      To the Point

PT POLAR D SO
             Azmth      142°26'38.829"           H.dist    14.909
             V.dist     -5.647
```

```
INIT     KI  Init event     User cancelled init Week          1047
             Init type      On the fly          seconds       489715.0
             Init counter   5                   Point ID      <no text>
             Survey type    Real Time           Plate H. Dist <null>
             Plate V. Dist  <null>              Plate azimuth <null>

INIT     KI  Init event     Gained              Week          1047
             Init type      Known Point         seconds       489726.0
             Init counter   6                   Point ID      18
             Survey type    Real Time           Plate H. Dist <null>
             Plate V. Dist  <null>              Plate azimuth <null>

GPSVEC   SO  Point ID 29          DX   -4334.754        DY   3107.751
             Class Stake out      DZ   1740.532         Code PANEL
             Mthd Phase Diff.     H.pr 0.016            V.pr 0.029

GPSQC1   NM  Min SVs        8                  PDOP max  0.2
             Total GPS pos  173                HDOP max  0.1
             Monitor status Yes                VDOP max  0.1
             Horizontal SD  0.000              Vert SD   0.000
             Start wk 1047 sec 491218.0        End wk 1047   sec 491396.0

GPSQC2   NM  Ttl satellites 8                  Err Scale 0.0211441182
             VCV xx    0.0000032156            VCV xy    0.0000006665
             VCV xz    0.0000001361            VCV yy    0.0000035686
             VCV yz    -0.0000014074           VCV zz    0.0000046497

POINT DGN SO
             Name      229                     To the Point

PT POLAR D SO
             Azmth     249°37'33.611"          H.dist    30.627
             V.dist    2.324

INIT     KI  Init event     User cancelled init Week          1047
             Init type      Known Point         seconds       491444.0
             Init counter   6                   Point ID      <no text>
             Survey type    Real Time           Plate H. Dist <null>
             Plate V. Dist  <null>              Plate azimuth <null>

INIT     KI  Init event     Gained              Week          1047
             Init type      Known Point         seconds       491454.0
             Init counter   7                   Point ID      29
             Survey type    Real Time           Plate H. Dist <null>
             Plate V. Dist  <null>              Plate azimuth <null>

NOTE     TS  Time Date 02/05/2000 Time 00:09:29
```

```
GPSVEC  SO  Point ID 30          DX   -7548.954          DY   5470.057
            Class Stake out      DZ   3507.100           Code PANEL
            Mthd Phase Diff.     H.pr 0.016              V.pr 0.029

GPSQC1  NM  Min SVs        8                  PDOP max  0.2
            Total GPS pos  175                HDOP max  0.1
            Monitor status Yes                VDOP max  0.1
            Horizontal SD  0.000              Vert SD   0.000
            Start wk 1047 sec 493600.0        End wk 1047   sec 493778.0

GPSQC2  NM  Ttl satellites 8                  Err Scale 0.0210169926
            VCV xx    0.0000023882            VCV xy    0.0000015926
            VCV xz    -0.0000004625           VCV yy    0.0000069646
            VCV yz    -0.0000014958           VCV zz    0.000001866

POINT DGN SO
            Name      230                     To the Point

PT POLAR D SO
            Azmth     238°58'01.507"          H.dist    48.340
            V.dist    -16.735

INIT    KI  Init event    User cancelled init Week          1047
            Init type     Known Point         seconds       493798.0
            Init counter  7                   Point ID      <no text>
            Survey type   Real Time           Plate H. Dist <null>
            Plate V. Dist <null>              Plate azimuth <null>

INIT    KI  Init event    Gained              Week          1047
            Init type     Known Point         seconds       493817.0
            Init counter  8                   Point ID      30
            Survey type   Real Time           Plate H. Dist <null>
            Plate V. Dist <null>              Plate azimuth <null>

GPSVEC  TP  Point ID QUADS       DX   -8814.256          DY   6541.855
            Class Normal         DZ   4387.521           Code PARKED
            Mthd Phase Diff.     H.pr 0.015              V.pr 0.031

GPSQC1  NM  Min SVs        7                  PDOP max  0.7
            Total GPS pos  15                 HDOP max  0.3
            Monitor status Yes                VDOP max  0.7
            Horizontal SD  0.000              Vert SD   0.000
            Start wk 1047 sec 495294.0        End wk 1047   sec 495308.0

GPSQC2  NM  Ttl satellites 7                  Err Scale 0.004748005
            VCV xx    0.000003703             VCV xy    0.0000036419
            VCV xz    -0.000002412            VCV yy    0.0000052456
            VCV yz    -0.0000022935           VCV zz    0.0000033605
```

```
INIT     KI  Init event     Lost                  Week          1047
             Init type     Known Point           seconds       495475.0
             Init counter  8                     Point ID      <no text>
             Survey type   Real Time             Plate H. Dist <null>
             Plate V. Dist <null>                Plate azimuth <null>

INIT     KI  Init event     Gained                Week          1047
             Init type     On the fly            seconds       495502.0
             Init counter  9                     Point ID      <no text>
             Survey type   Real Time             Plate H. Dist <null>
             Plate V. Dist <null>                Plate azimuth <null>

EQUIP    NM  Receiver  4700                      Serial no 20178300
             Antenna   Micro-centered L1/L2
             Method    Measured to bottom of antenna mount
             Tape adj  0.000                     Serial no <no text>
             Radius    0.000                     V.Const   0.205

NOTE     TS  Time Date 02/05/2000 Time 01:05:46

GPSANT   KI  Antenna ht 0.000                    Measuremt Uncorrected

GPSVEC   SO  Point ID 75          DX   -10902.658        DY   7642.300
             Class Stake out      DZ   4936.680          Code LC 1/6/7 T5N
             Mthd Phase Diff.     H.pr 0.015             V.pr 0.030

F-CODE   SO  Code LC 1/6/7 T5N R1W: R1E

GPSQC1   NM  Min SVs        7                    PDOP max  0.2
             Total GPS pos  162                  HDOP max  0.1
             Monitor status Yes                  VDOP max  0.2
             Horizontal SD  0.000                Vert SD   0.000
             Start wk 1047 sec 497168.0          End wk 1047   sec 497346.0

GPSQC2   NM  Ttl satellites 7                    Err Scale 0.0168816485
             VCV xx    0.0000024715              VCV xy    0.0000019823
             VCV xz    -0.0000007743             VCV yy    0.0000069432
             VCV yz    -0.0000018455             VCV zz    0.0000020875

POINT DGN SO
             Name      275                       To the Point

PT POLAR D SO
             Azmth     220°26'45.093"            H.dist    47.063
             V.dist    -0.934
```

```
INIT    KI  Init event    User cancelled init Week          1047
            Init type     On the fly          seconds       497379.0
            Init counter  9                   Point ID      <no text>
            Survey type   Real Time           Plate H. Dist <null>
            Plate V. Dist <null>              Plate azimuth <null>

INIT    KI  Init event    Gained              Week          1047
            Init type     Known Point         seconds       497393.0
            Init counter  10                  Point ID      75
            Survey type   Real Time           Plate H. Dist <null>
            Plate V. Dist <null>              Plate azimuth <null>

INIT    KI  Init event    Lost                Week          1047
            Init type     Known Point         seconds       497523.0
            Init counter  10                  Point ID      <no text>
            Survey type   Real Time           Plate H. Dist <null>
            Plate V. Dist <null>              Plate azimuth <null>

INIT    KI  Init event    Gained              Week          1047
            Init type     On the fly          seconds       497608.0
            Init counter  11                  Point ID      <no text>
            Survey type   Real Time           Plate H. Dist <null>
            Plate V. Dist <null>              Plate azimuth <null>

INIT    KI  Init event    Lost                Week          1047
            Init type     On the fly          seconds       497642.0
            Init counter  11                  Point ID      <no text>
            Survey type   Real Time           Plate H. Dist <null>
            Plate V. Dist <null>              Plate azimuth <null>

INIT    KI  Init event    Gained              Week          1047
            Init type     On the fly          seconds       497683.0
            Init counter  12                  Point ID      <no text>
            Survey type   Real Time           Plate H. Dist <null>
            Plate V. Dist <null>              Plate azimuth <null>

EQUIP   NM  Receiver  4700                    Serial no 20178300
            Antenna   Micro-centered L1/L2
            Method    Measured to bottom of antenna mount
            Tape adj  0.000                   Serial no <no text>
            Radius    0.000                   V.Const   0.205

GPSANT  KI  Antenna ht 6.562                  Measuremt Uncorrected
```

```
EQUIP    NM  Receiver   4700                        Serial no 20178300
             Antenna    Micro-centered L1/L2
             Method     Measured to bottom of antenna mount
             Tape adj   0.000                       Serial no <no text>
             Radius     0.000                       V.Const   0.205

GPSANT   KI  Antenna ht 6.562                       Measuremt Uncorrected

GPSVEC   SO  Point ID 31          DX   -10795.664        DY   7725.768
             Class Stake out      DZ   5121.485          Code PANEL
             Mthd Phase Diff.     H.pr 0.017             V.pr 0.029

GPSQC1   NM  Min SVs        8                       PDOP max  0.2
             Total GPS pos  154                     HDOP max  0.1
             Monitor status Yes                     VDOP max  0.1
             Horizontal SD  0.000                   Vert SD   0.000
             Start wk 1047 sec 498639.0             End wk 1047   sec 498817.0

GPSQC2   NM  Ttl satellites 8                       Err Scale 0.0197622534
             VCV xx     0.0000030251                VCV xy    0.0000012119
             VCV xz     -0.000000829                VCV yy    0.0000069307
             VCV yz     -0.000000861                VCV zz    0.0000016041

NT DGN SO
             Name       231                         To the Point

PT POLAR D SO
             Azmth      335°57'13.961"              H.dist    52.899
             V.dist     15.745

INIT     KI  Init event    User cancelled init Week          1047
             Init type     On the fly          seconds       498944.0
             Init counter  12                  Point ID      <no text>
             Survey type   Real Time           Plate H. Dist <null>
             Plate V. Dist <null>              Plate azimuth <null>

INIT     KI  Init event    Gained              Week          1047
             Init type     Known Point         seconds       498956.0
             Init counter  13                  Point ID      31
             Survey type   Real Time           Plate H. Dist <null>
             Plate V. Dist <null>              Plate azimuth <null>

NOTE     TS  Time Date 02/05/2000 Time 01:36:45
```

INIT	KI	Init event	Lost	Week	1047
		Init type	Known Point	seconds	499016.0
		Init counter	13	Point ID	<no text>
		Survey type	Real Time	Plate H. Dist	<null>
		Plate V. Dist	<null>	Plate azimuth	<null>
INIT	KI	Init event	Gained	Week	1047
		Init type	On the fly	seconds	499113.0
		Init counter	14	Point ID	<no text>
		Survey type	Real Time	Plate H. Dist	<null>
		Plate V. Dist	<null>	Plate azimuth	<null>
INIT	KI	Init event	Lost	Week	1047
		Init type	On the fly	seconds	499144.0
		Init counter	14	Point ID	<no text>
		Survey type	Real Time	Plate H. Dist	<null>
		Plate V. Dist	<null>	Plate azimuth	<null>
INIT	KI	Init event	Gained	Week	1047
		Init type	On the fly	seconds	499296.0
		Init counter	15	Point ID	<no text>
		Survey type	Real Time	Plate H. Dist	<null>
		Plate V. Dist	<null>	Plate azimuth	<null>
INIT	KI	Init event	Lost(RMS)	Week	1047
		Init type	On the fly	seconds	499522.0
		Init counter	15	Point ID	<no text>
		Survey type	Real Time	Plate H. Dist	<null>
		Plate V. Dist	<null>	Plate azimuth	<null>
INIT	KI	Init event	Gained	Week	1047
		Init type	On the fly	seconds	500005.0
		Init counter	16	Point ID	<no text>
		Survey type	Real Time	Plate H. Dist	<null>
		Plate V. Dist	<null>	Plate azimuth	<null>

NOTE TS Time Date 02/05/2000 Time 02:28:24

GPSVEC	SO	Point ID 32	DX	-12458.849	DY	8802.810
		Class Stake out	DZ	6111.217	Code	PANEL
		Mthd Phase Diff.	H.pr	0.017	V.pr	0.028

GPSQC1	NM	Min SVs	8	PDOP max	0.2
		Total GPS pos	154	HDOP max	0.1
		Monitor status	Yes	VDOP max	0.1
		Horizontal SD	0.000	Vert SD	0.000
		Start wk 1047 sec 501934.0		End wk 1047 sec 502112.0	

```
GPSQC2   NM  Ttl satellites 8                    Err Scale 0.0200188998
             VCV xx     0.0000023317             VCV xy    0.0000013795
             VCV xz     0.0000000394             VCV yy    0.0000066047
             VCV yz     -0.0000020357            VCV zz    0.0000023034

POINT DGN SO
             Name       232                      To the Point

PT POLAR D SO
             Azmth      295°58'17.108"           H.dist    7.669
             V.dist     -1.516

INIT     KI  Init event     User cancelled init Week          1047
             Init type      On the fly          seconds       502126.0
             Init counter   16                  Point ID      <no text>
             Survey type    Real Time           Plate H. Dist <null>
             Plate V. Dist  <null>              Plate azimuth <null>

INIT     KI  Init event     Gained              Week          1047
             Init type      Known Point         seconds       502137.0
             Init counter   17                  Point ID      32
             Survey type    Real Time           Plate H. Dist <null>
             Plate V. Dist  <null>              Plate azimuth <null>

GPSVEC   SO  Point ID 32A          DX   -12458.843        DY   8802.847
             Class Stake out       DZ   6111.200          Code CK SHOT
             Mthd Phase Diff.      H.pr 0.017             V.pr 0.029

GPSQC1   NM  Min SVs         8                   PDOP max  0.2
             Total GPS pos   160                 HDOP max  0.1
             Monitor status  Yes                 VDOP max  0.1
             Horizontal SD   0.000               Vert SD   0.000
             Start wk 1047 sec 502314.0          End wk 1047   sec 502492.0

GPSQC2   NM  Ttl satellites 8                    Err Scale 0.0207883511
             VCV xx     0.0000024453             VCV xy    0.0000013622
             VCV xz     0.0000000903             VCV yy    0.0000067872
             VCV yz     -0.0000017719            VCV zz    0.0000022442

POINT DGN SO
             Name       32                       To the Point

PT POLAR D SO
             Azmth      131°02'01.318"           H.dist    0.010
             V.dist     0.040
```

```
INIT    KI  Init event    Lost                Week           1047
            Init type     Known Point         seconds        502581.0
            Init counter  17                  Point ID       <no text>
            Survey type   Real Time           Plate H. Dist  <null>
            Plate V. Dist <null>              Plate azimuth  <null>

INIT    KI  Init event    Gained              Week           1047
            Init type     On the fly          seconds        502639.0
            Init counter  18                  Point ID       <no text>
            Survey type   Real Time           Plate H. Dist  <null>
            Plate V. Dist <null>              Plate azimuth  <null>

INIT    KI  Init event    Lost                Week           1047
            Init type     On the fly          seconds        502695.0
            Init counter  18                  Point ID       <no text>
            Survey type   Real Time           Plate H. Dist  <null>
            Plate V. Dist <null>              Plate azimuth  <null>

INIT    KI  Init event    Gained              Week           1047
            Init type     On the fly          seconds        502753.0
            Init counter  19                  Point ID       <no text>
            Survey type   Real Time           Plate H. Dist  <null>
            Plate V. Dist <null>              Plate azimuth  <null>

NOTE    TS  Time Date 02/05/2000 Time 03:02:22

INIT    KI  Init event    Lost                Week           1047
            Init type     On the fly          seconds        504153.0
            Init counter  19                  Point ID       <no text>
            Survey type   Real Time           Plate H. Dist  <null>
            Plate V. Dist <null>              Plate azimuth  <null>

INIT    KI  Init event    Gained              Week           1047
            Init type     On the fly          seconds        504171.0
            Init counter  20                  Point ID       <no text>
            Survey type   Real Time           Plate H. Dist  <null>
            Plate V. Dist <null>              Plate azimuth  <null>

INIT    KI  Init event    Lost                Week           1047
            Init type     On the fly          seconds        504306.0
            Init counter  20                  Point ID       <no text>
            Survey type   Real Time           Plate H. Dist  <null>
            Plate V. Dist <null>              Plate azimuth  <null>
```

INIT	KI	Init event	Gained	Week	1047
		Init type	On the fly	seconds	504346.0
		Init counter	21	Point ID	<no text>
		Survey type	Real Time	Plate H. Dist	<null>
		Plate V. Dist	<null>	Plate azimuth	<null>
INIT	KI	Init event	Lost	Week	1047
		Init type	On the fly	seconds	504603.0
		Init counter	21	Point ID	<no text>
		Survey type	Real Time	Plate H. Dist	<null>
		Plate V. Dist	<null>	Plate azimuth	<null>
INIT	KI	Init event	Gained	Week	1047
		Init type	On the fly	seconds	504684.0
		Init counter	22	Point ID	<no text>
		Survey type	Real Time	Plate H. Dist	<null>
		Plate V. Dist	<null>	Plate azimuth	<null>
INIT	KI	Init event	Lost	Week	1047
		Init type	On the fly	seconds	505083.0
		Init counter	22	Point ID	<no text>
		Survey type	Real Time	Plate H. Dist	<null>
		Plate V. Dist	<null>	Plate azimuth	<null>
INIT	KI	Init event	Gained	Week	1047
		Init type	On the fly	seconds	505146.0
		Init counter	23	Point ID	<no text>
		Survey type	Real Time	Plate H. Dist	<null>
		Plate V. Dist	<null>	Plate azimuth	<null>
INIT	KI	Init event	Lost	Week	1047
		Init type	On the fly	seconds	505228.0
		Init counter	23	Point ID	<no text>
		Survey type	Real Time	Plate H. Dist	<null>
		Plate V. Dist	<null>	Plate azimuth	<null>
INIT	KI	Init event	Gained	Week	1047
		Init type	On the fly	seconds	505294.0
		Init counter	24	Point ID	<no text>
		Survey type	Real Time	Plate H. Dist	<null>
		Plate V. Dist	<null>	Plate azimuth	<null>
INIT	KI	Init event	Lost	Week	1047
		Init type	On the fly	seconds	505398.0
		Init counter	24	Point ID	<no text>
		Survey type	Real Time	Plate H. Dist	<null>
		Plate V. Dist	<null>	Plate azimuth	<null>

```
INIT    KI  Init event     Gained              Week           1047
            Init type      On the fly          seconds        505499.0
            Init counter   25                  Point ID       <no text>
            Survey type    Real Time           Plate H. Dist  <null>
            Plate V. Dist  <null>              Plate azimuth  <null>

NOTE    TS  Time Date 02/05/2000 Time 03:47:08

INIT    KI  Init event     Lost                Week           1047
            Init type      On the fly          seconds        506839.0
            Init counter   25                  Point ID       <no text>
            Survey type    Real Time           Plate H. Dist  <null>
            Plate V. Dist  <null>              Plate azimuth  <null>

INIT    KI  Init event     Gained              Week           1047
            Init type      On the fly          seconds        506873.0
            Init counter   26                  Point ID       <no text>
            Survey type    Real Time           Plate H. Dist  <null>
            Plate V. Dist  <null>              Plate azimuth  <null>

NOTE    TS  Time Date 02/05/2000 Time 04:21:04

GPSVEC  SO  Point ID 53          DX   -2069.379        DY   4264.891
            Class Stake out      DZ   4630.252         Code PANEL
            Mthd Phase Diff.     H.pr 0.015            V.pr 0.030

GPSQC1  NM  Min SVs        6                   PDOP max  0.3
            Total GPS pos  173                 HDOP max  0.1
            Monitor status Yes                 VDOP max  0.3
            Horizontal SD  0.000               Vert SD   0.000
            Start wk 1047 sec 508574.0         End wk 1047   sec 508752.0

GPSQC2  NM  Ttl satellites 6                   Err Scale 0.0116427876
            VCV xx    0.0000057909             VCV xy    0.0000042392
            VCV xz    -0.0000017546            VCV yy    0.0000044768
            VCV yz    -0.000001463             VCV zz    0.0000012271

POINT DGN SO
            Name      253                      To the Point

PT POLAR D SO
            Azmth     288°09'19.343"           H.dist    6.930
            V.dist    3.707
```

```
INIT     KI  Init event     User cancelled init Week          1047
             Init type      On the fly          seconds       508908.0
             Init counter   26                  Point ID      <no text>
             Survey type    Real Time           Plate H. Dist <null>
             Plate V. Dist  <null>              Plate azimuth <null>

INIT     KI  Init event     Gained              Week          1047
             Init type      Known Point         seconds       508923.0
             Init counter   27                  Point ID      53
             Survey type    Real Time           Plate H. Dist <null>
             Plate V. Dist  <null>              Plate azimuth <null>

SURVEY   KI  Elev mask 18                       PDOP mask 6.0

EQUIP    NM  Receiver   4700                    Serial no 20178300
             Antenna    Micro-centered L1/L2
             Method     Measured to bottom of antenna mount
             Tape adj   0.000                   Serial no <no text>
             Radius     0.000                   V.Const   0.205

SURVEY EVENTKISurvey event Rover survey started

NOTE     TS  Time Date 02/05/2000 Time 04:49:49

GPSANT   KI  Antenna ht 5.190                    Measuremt True

GPSREF   KI  Reference 3

EQUIP    NM  Receiver   4700                    Serial no 20178300
             Antenna    Micro-centered L1/L2
             Method     Measured to bottom of antenna mount
             Tape adj   0.000                   Serial no <no text>
             Radius     0.000                   V.Const   0.205

GPSANT   KI  Antenna ht 6.562                    Measuremt Uncorrected

INIT     KI  Init event     Gained              Week          1047
             Init type      On the fly          seconds       510641.0
             Init counter   1                   Point ID      <no text>
             Survey type    Real Time           Plate H. Dist <null>
             Plate V. Dist  <null>              Plate azimuth <null>

EQUIP    NM  Receiver   4700                    Serial no 20178300
             Antenna    Micro-centered L1/L2
             Method     Measured to bottom of antenna mount
             Tape adj   0.000                   Serial no <no text>
             Radius     0.000                   V.Const   0.205
```

```
GPSANT   KI   Antenna ht 6.562                        Measuremt Uncorrected

GPSVEC   SO   Point ID 52          DX   -3553.197          DY   5423.053
              Class Stake out      DZ   5353.156           Code PANEL
              Mthd Phase Diff.     H.pr 0.012              V.pr 0.031

GPSQC1   NM   Min SVs        6                   PDOP max  0.3
              Total GPS pos  293                 HDOP max  0.1
              Monitor status Yes                 VDOP max  0.2
              Horizontal SD  0.000               Vert SD   0.000
              Start wk 1047 sec 511170.0         End wk 1047   sec 511469.0

GPSQC2   NM   Ttl satellites 6                   Err Scale 0.013441301
              VCV xx    0.0000042953             VCV xy    0.0000026848
              VCV xz    -0.0000018529            VCV yy    0.0000045039
              VCV yz    -0.0000026258            VCV zz    0.0000028894

POINT DGN SO
              Name      252                      To the Point

PT POLAR D SO
              Azmth     302°47'08.639"           H.dist    70.781
              V.dist    39.662

INIT     KI   Init event    User cancelled init Week          1047
              Init type     On the fly          seconds       511511.0
              Init counter  1                   Point ID      <no text>
              Survey type   Real Time           Plate H. Dist <null>
              Plate V. Dist <null>              Plate azimuth <null>

INIT     KI   Init event    Gained              Week          1047
              Init type     Known Point         seconds       511530.0
              Init counter  2                   Point ID      52
              Survey type   Real Time           Plate H. Dist <null>
              Plate V. Dist <null>              Plate azimuth <null>

NOTE     TS   Time Date 02/05/2000 Time 05:42:59

GPSVEC   SO   Point ID 55          DX   -1579.752          DY   6015.874
              Class Stake out      DZ   7356.453           Code PANEL
              Mthd Phase Diff.     H.pr 0.015              V.pr 0.029

GPSQC1   NM   Min SVs        6                   PDOP max  0.1
              Total GPS pos  332                 HDOP max  0.1
              Monitor status Yes                 VDOP max  0.1
              Horizontal SD  0.000               Vert SD   0.000
              Start wk 1047 sec 513435.0         End wk 1047   sec 513785.0
```

```
GPSQC2  NM  Ttl satellites 6                    Err Scale 0.0229678638
            VCV xx     0.0000029606             VCV xy    0.0000016477
            VCV xz    -0.0000009369             VCV yy    0.0000029107
            VCV yz    -0.0000019082             VCV zz    0.0000053651

POINT DGN SO
            Name       255                      To the Point

PT POLAR D SO
            Azmth      226°17'35.798"           H.dist    32.979
            V.dist     2.696

INIT    KI  Init event    User cancelled init   Week          1047
            Init type     Known Point           seconds       513798.0
            Init counter  2                     Point ID      <no text>
            Survey type   Real Time             Plate H. Dist <null>
            Plate V. Dist <null>                Plate azimuth <null>

INIT    KI  Init event    Gained                Week          1047
            Init type     Known Point           seconds       513806.0
            Init counter  3                     Point ID      55
            Survey type   Real Time             Plate H. Dist <null>
            Plate V. Dist <null>                Plate azimuth <null>

INIT    KI  Init event    Lost                  Week          1047
            Init type     Known Point           seconds       514084.0
            Init counter  3                     Point ID      <no text>
            Survey type   Real Time             Plate H. Dist <null>
            Plate V. Dist <null>                Plate azimuth <null>

INIT    KI  Init event    Gained                Week          1047
            Init type     On the fly            seconds       514112.0
            Init counter  4                     Point ID      <no text>
            Survey type   Real Time             Plate H. Dist <null>
            Plate V. Dist <null>                Plate azimuth <null>

GPSVEC  SO  Point ID 54          DX   -1144.736        DY   4910.402
            Class Stake out      DZ   6095.989         Code PANEL
            Mthd Phase Diff.     H.pr 0.016            V.pr 0.029

GPSQC1  NM  Min SVs         6                   PDOP max  0.2
            Total GPS pos   175                 HDOP max  0.1
            Monitor status  Yes                 VDOP max  0.2
            Horizontal SD   0.000               Vert SD   0.000
            Start wk 1047 sec 514769.0          End wk 1047   sec 514947.0
```

```
GPSQC2   NM  Ttl satellites 6                    Err Scale 0.017185444
             VCV xx     0.0000027782             VCV xy    0.0000016965
             VCV xz     -0.0000003942            VCV yy    0.0000041718
             VCV yz     -0.0000009698            VCV zz    0.0000043036

POINT DGN SO
             Name       254                      To the Point

PT POLAR D SO
             Azmth      346°05'30.338"           H.dist    5.916
             V.dist     5.964

INIT     KI  Init event     User cancelled init Week          1047
             Init type      On the fly          seconds       514981.0
             Init counter   4                   Point ID      <no text>
             Survey type    Real Time           Plate H. Dist <null>
             Plate V. Dist  <null>              Plate azimuth <null>

INIT     KI  Init event     Gained              Week          1047
             Init type      Known Point         seconds       514994.0
             Init counter   5                   Point ID      54
             Survey type    Real Time           Plate H. Dist <null>
             Plate V. Dist  <null>              Plate azimuth <null>

SURVEY   KI  Elev mask 18                       PDOP mask 6.0

EQUIP    BA  Receiver   4700                    Serial no 20176795
             Antenna    Micro-centered L1/L2 w/Ground
             Method     Measured to bottom of notch on ground plane
             Tape adj   0.000                   Serial no <no text>
             Radius     0.766                   V.Const   0.023

SURVEY EVENTKISurvey event Base survey started

NOTE     TS  Time Date 02/05/2000 Time 21:32:37

EQUIP    BA  Receiver   4700                    Serial no 20176795
             Antenna    Micro-centered L1/L2 w/Ground
             Method     Measured to bottom of notch on ground plane
             Tape adj   0.000                   Serial no <no text>
             Radius     0.766                   V.Const   0.023

GPSANT   KI  Antenna ht 4.867                    Measuremt Uncorrected
```

```
EQUIP    BA  Receiver  4700                        Serial no 20176795
             Antenna   Micro-centered L1/L2 w/Ground
             Method    Measured to bottom of notch on ground plane
             Tape adj  0.000                       Serial no <no text>
             Radius    0.766                       V.Const   0.023

GPSANT   KI  Antenna ht 4.867                      Measuremt Uncorrected

GPSREF   KI  Reference 6

EQUIP    NM  Receiver  4700                        Serial no 20178300
             Antenna   Micro-centered L1/L2
             Method    Measured to bottom of antenna mount
             Tape adj  0.000                       Serial no <no text>
             Radius    0.000                       V.Const   0.205

SURVEY EVENTKISurvey event Rover survey started

NOTE     TS  Time Date 02/05/2000 Time 21:55:22

GPSANT   KI  Antenna ht 0.000                      Measuremt True

GPSPOS   SI  Point ID 6            Lat  33°50'08.64655"N  Lng  112°20'58.58
             Class Check           Hgt  1762.011          Code STA. CUT
             Mthd User Input       H.pr <null>            V.pr <null>

GPSANT   KI  Antenna ht 4.829                      Measuremt True

GPSREF   KI  Reference 6

INIT     KI  Init event    Gained                  Week           1047
             Init type     On the fly              seconds        572187.0
             Init counter  1                       Point ID       <no text>
             Survey type   Real Time               Plate H. Dist  <null>
             Plate V. Dist <null>                  Plate azimuth  <null>

EQUIP    NM  Receiver  4700                        Serial no 20178300
             Antenna   Micro-centered L1/L2
             Method    Measured to bottom of antenna mount
             Tape adj  0.000                       Serial no <no text>
             Radius    0.000                       V.Const   0.205

GPSANT   KI  Antenna ht 6.562                      Measuremt Uncorrected
```

```
EQUIP    NM  Receiver  4700                        Serial no 20178300
             Antenna   Micro-centered L1/L2
             Method    Measured to bottom of antenna mount
             Tape adj  0.000                       Serial no <no text>
             Radius    0.000                       V.Const   0.205

GPSANT   KI  Antenna ht 6.562                      Measuremt Uncorrected

NOTE     TS  Time Date 02/05/2000 Time 22:10:13

GPSVEC   SO  Point ID 67          DX   4211.298          DY   -1138.820
             Class Stake out      DZ   670.788           Code PANEL
             Mthd Phase Diff.     H.pr 0.016             V.pr 0.029

GPSQC1   NM  Min SVs        9                      PDOP max  0.1
             Total GPS pos  175                    HDOP max  0.1
             Monitor status Yes                    VDOP max  0.1
             Horizontal SD  0.000                  Vert SD   0.000
             Start wk 1047 sec 572843.0            End wk 1047   sec 573021.0

GPSQC2   NM  Ttl satellites 9                      Err Scale 0.0232920982
             VCV xx    0.0000030059                VCV xy    0.000002121
             VCV xz    -0.0000003643               VCV yy    0.0000059055
             VCV yz    -0.0000001363               VCV zz    0.0000025055

POINT DGN SO
             Name      267                         To the Point

PT POLAR D SO
             Azmth     354°28'59.699"              H.dist    12.803
             V.dist    5.233

INIT     KI  Init event    User cancelled init Week          1047
             Init type     On the fly          seconds       573035.0
             Init counter  1                   Point ID      <no text>
             Survey type   Real Time           Plate H. Dist <null>
             Plate V. Dist <null>              Plate azimuth <null>

INIT     KI  Init event    Gained              Week          1047
             Init type     Known Point         seconds       573047.0
             Init counter  2                   Point ID      67
             Survey type   Real Time           Plate H. Dist <null>
             Plate V. Dist <null>              Plate azimuth <null>

GPSVEC   SO  Point ID 68          DX   2736.463          DY   -188.204
             Class Stake out      DZ   1240.606          Code PANEL
             Mthd Phase Diff.     H.pr 0.018             V.pr 0.028
```

```
GPSQC1  NM  Min SVs          7                    PDOP max  0.2
            Total GPS pos    173                  HDOP max  0.1
            Monitor status   Yes                  VDOP max  0.1
            Horizontal SD    0.000                Vert SD   0.000
            Start wk 1047 sec 574561.0            End wk 1047   sec 574739.0

GPSQC2  NM  Ttl satellites 7                      Err Scale 0.0201326162
            VCV xx     0.0000024362               VCV xy    0.0000023633
            VCV xz     0.0000004691               VCV yy    0.0000067914
            VCV yz     -0.0000004883              VCV zz    0.0000019432

POINT DGN SO
            Name       268                        To the Point

PT POLAR D SO
            Azmth      154°25'46.095"             H.dist    46.197
            V.dist     2.666

INIT    KI  Init event     User cancelled init   Week          1047
            Init type      Known Point           seconds       574758.0
            Init counter   2                     Point ID      <no text>
            Survey type    Real Time             Plate H. Dist <null>
            Plate V. Dist  <null>                Plate azimuth <null>

INIT    KI  Init event     Gained                Week          1047
            Init type      Known Point           seconds       574773.0
            Init counter   3                     Point ID      68
            Survey type    Real Time             Plate H. Dist <null>
            Plate V. Dist  <null>                Plate azimuth <null>

NOTE    TS  Time Date 02/05/2000 Time 23:03:19

INIT    KI  Init event     Lost                  Week          1047
            Init type      Known Point           seconds       576209.0
            Init counter   3                     Point ID      <no text>
            Survey type    Real Time             Plate H. Dist <null>
            Plate V. Dist  <null>                Plate azimuth <null>

INIT    KI  Init event     Gained                Week          1047
            Init type      On the fly            seconds       576229.0
            Init counter   4                     Point ID      <no text>
            Survey type    Real Time             Plate H. Dist <null>
            Plate V. Dist  <null>                Plate azimuth <null>

CONVEC  SO  Point ID 37          DX   -3044.138        DY   1359.523
            Class Stake out      DZ   330.939          Code PANEL
            Mthd Phase Diff.     H.pr 0.016            V.pr 0.029
```

```
GPSQC1  NM  Min SVs          8                    PDOP max  0.2
            Total GPS pos    175                  HDOP max  0.1
            Monitor status   Yes                  VDOP max  0.1
            Horizontal SD    0.000                Vert SD   0.000
            Start wk 1047 sec 577239.0            End wk 1047   sec 577417.0

GPSQC2  NM  Ttl satellites 8                      Err Scale 0.0209324472
            VCV xx     0.0000031778               VCV xy    0.0000007115
            VCV xz     0.0000002062               VCV yy    0.0000035214
            VCV yz     -0.0000012952              VCV zz    0.0000045879

POINT DGN SO
            Name       237                        To the Point

PT POLAR D SO
            Azmth      95°14'36.872"              H.dist    16.055
            V.dist     2.320

INIT    KI  Init event     User cancelled init   Week          1047
            Init type      On the fly            seconds       577439.0
            Init counter   4                     Point ID      <no text>
            Survey type    Real Time             Plate H. Dist <null>
            Plate V. Dist  <null>                Plate azimuth <null>

INIT    KI  Init event     Gained                Week          1047
            Init type      Known Point           seconds       577453.0
            Init counter   5                     Point ID      37
            Survey type    Real Time             Plate H. Dist <null>
            Plate V. Dist  <null>                Plate azimuth <null>

NOTE    TS  Time Date 02/05/2000 Time 23:47:16

INIT    KI  Init event     Lost                  Week          1047
            Init type      Known Point           seconds       578847.0
            Init counter   5                     Point ID      <no text>
            Survey type    Real Time             Plate H. Dist <null>
            Plate V. Dist  <null>                Plate azimuth <null>

INIT    KI  Init event     Gained                Week          1047
            Init type      On the fly            seconds       578881.0
            Init counter   6                     Point ID      <no text>
            Survey type    Real Time             Plate H. Dist <null>
            Plate V. Dist  <null>                Plate azimuth <null>

VEC     SO  Point ID 36          DX   -5075.301        DY   493.926
            Class Stake out      DZ   -2132.744        Code PANEL
            Mthd Phase Diff.     H.pr 0.017            V.pr 0.028
```

```
GPSQC1  NM  Min SVs          8                    PDOP max  0.1
            Total GPS pos    170                  HDOP max  0.1
            Monitor status   Yes                  VDOP max  0.1
            Horizontal SD    0.000                Vert SD   0.000
            Start wk 1047 sec 580247.0            End wk 1047   sec 580425.0

GPSQC2  NM  Ttl satellites 8                      Err Scale 0.0231167246
            VCV xx     0.0000037116               VCV xy    0.000003179
            VCV xz     -0.0000009602              VCV yy    0.0000058132
            VCV yz     -0.0000010994              VCV zz    0.0000017491

POINT DGN SO
            Name       236                        To the Point

PT POLAR D SO
            Azmth      91°20'41.533"              H.dist    29.594
            V.dist     7.129

INIT    KI  Init event     User cancelled init   Week          1047
            Init type      On the fly            seconds       580491.0
            Init counter   6                     Point ID      <no text>
            Survey type    Real Time             Plate H. Dist <null>
            Plate V. Dist  <null>                Plate azimuth <null>

INIT    KI  Init event     Gained                Week          1047
            Init type      Known Point           seconds       580505.0
            Init counter   7                     Point ID      36
            Survey type    Real Time             Plate H. Dist <null>
            Plate V. Dist  <null>                Plate azimuth <null>

NOTE    TS  Time Date 02/06/2000 Time 00:29:02

GPSVEC  TP  Point ID 85            DX   -3717.063        DY   -705.580
            Class Normal           DZ   -3057.916        Code LC 27/28/33/
            Mthd Phase Diff.       H.pr 0.016            V.pr 0.029

F-CODE  TP  Code LC 27/28/33/34 T6N R1W

GPSQC1  NM  Min SVs          7                    PDOP max  0.2
            Total GPS pos    172                  HDOP max  0.1
            Monitor status   Yes                  VDOP max  0.2
            Horizontal SD    0.000                Vert SD   0.000
            Start wk 1047 sec 581176.0            End wk 1047   sec 581354.0

GPSQC2  NM  Ttl satellites 7                      Err Scale 0.0191905163
            VCV xx     0.0000035234               VCV xy    0.0000034917
            VCV xz     -0.0000020169              VCV yy    0.0000051291
            VCV yz     -0.0000019429              VCV zz    0.0000026944
```

```
INIT     KI  Init event     User cancelled init Week          1047
             Init type      Known Point         seconds       581422.0
             Init counter   7                   Point ID      <no text>
             Survey type    Real Time           Plate H. Dist <null>
             Plate V. Dist  <null>              Plate azimuth <null>

INIT     KI  Init event     Gained              Week          1047
             Init type      Known Point         seconds       581433.0
             Init counter   8                   Point ID      85
             Survey type    Real Time           Plate H. Dist <null>
             Plate V. Dist  <null>              Plate azimuth <null>

GPSVEC   TP  Point ID 85A          DX   -3717.072        DY   -705.591
             Class Normal          DZ   -3057.900        Code LC 27/28/33/
             Mthd Phase Diff.      H.pr 0.014            V.pr 0.030

F-CODE   TP  Code LC 27/28/33/34 T6N R1W

GPSQC1   NM  Min SVs         7                  PDOP max  0.2
             Total GPS pos   174                HDOP max  0.1
             Monitor status  Yes                VDOP max  0.2
             Horizontal SD   0.000             Vert SD   0.000
             Start wk 1047 sec 581575.0         End wk 1047   sec 581753.0

GPSQC2   NM  Ttl satellites 7                   Err Scale 0.0150394505
             VCV xx     0.0000032281            VCV xy    0.0000032799
             VCV xz    -0.0000021625            VCV yy    0.0000048681
             VCV yz    -0.0000021727            VCV zz    0.0000031186

GPSVEC   SO  Point ID 38           DX   -3485.735        DY   -849.533
             Class Stake out       DZ   -3072.571        Code PANEL
             Mthd Phase Diff.      H.pr 0.014            V.pr 0.030

GPSQC1   NM  Min SVs         7                  PDOP max  0.2
             Total GPS pos   178                HDOP max  0.1
             Monitor status  Yes                VDOP max  0.2
             Horizontal SD   0.000             Vert SD   0.000
             Start wk 1047 sec 582686.0         End wk 1047   sec 582865.0

GPSQC2   NM  Ttl satellites 7                   Err Scale 0.0160588529
             VCV xx     0.0000026099            VCV xy    0.0000027213
             VCV xz    -0.0000011926            VCV yy    0.0000063534
             VCV yz    -0.0000021398            VCV zz    0.0000023584

POINT DGN SO
             Name       238                     To the Point
```

```
PT POLAR D SO
            Azmth      274°47'10.075"          H.dist     36.446
            V.dist     -9.393

INIT     KI Init event     User cancelled init Week          1047
            Init type      Known Point         seconds       582902.0
            Init counter   8                   Point ID      <no text>
            Survey type    Real Time           Plate H. Dist <null>
            Plate V. Dist  <null>              Plate azimuth <null>

INIT     KI Init event     Gained              Week          1047
            Init type      Known Point         seconds       582914.0
            Init counter   9                   Point ID      38
            Survey type    Real Time           Plate H. Dist <null>
            Plate V. Dist  <null>              Plate azimuth <null>

NOTE     TS Time Date 02/06/2000 Time 01:16:38

GPSVEC   SO Point ID 100A        DX   -93.651          DY   -3064.714
            Class Stake out      DZ   -4475.239        Code CK SHOT 2/05
            Mthd Phase Diff.     H.pr 0.016            V.pr 0.029

GPSQC1   NM Min SVs          8                  PDOP max  0.2
            Total GPS pos    173                HDOP max  0.1
            Monitor status   Yes                VDOP max  0.1
            Horizontal SD    0.000              Vert SD   0.000
            Start wk 1047 sec 584016.0          End wk 1047   sec 584194.0

GPSQC2   NM Ttl satellites 8                    Err Scale 0.019998353
            VCV xx     0.0000027289             VCV xy    0.0000016612
            VCV xz     -0.0000007683            VCV yy    0.0000072473
            VCV yz     -0.0000011347            VCV zz    0.0000012793

POINT DGN SO
            Name       100                      To the Point

PT POLAR D SO
            Azmth      149°54'43.712"          H.dist     0.096
            V.dist     -0.028

NOTE     TS Time Date 02/06/2000 Time 01:48:12

GPSVEC   SO Point ID 42          DX   404.235          DY   -1030.226
            Class Stake out      DZ   -1120.297        Code PANEL
            Mthd Phase Diff.     H.pr 0.017            V.pr 0.030
```

```
GPSQC1  NM  Min SVs          7                    PDOP max   0.2
            Total GPS pos    165                  HDOP max   0.1
            Monitor status   Yes                  VDOP max   0.2
            Horizontal SD    0.000                Vert SD    0.000
            Start wk 1047 sec 585912.0            End wk 1047   sec 586090.0

GPSQC2  NM  Ttl satellites 7                      Err Scale 0.0159793887
            VCV xx     0.0000021346               VCV xy    0.0000022372
            VCV xz     -0.0000003928              VCV yy    0.0000080801
            VCV yz     -0.0000005897              VCV zz    0.0000019909

POINT DGN SO
            Name       242                        To the Point

PT POLAR D SO
            Azmth      330°17'22.898"             H.dist    65.321
            V.dist     -16.119

INIT    KI  Init event     User cancelled init   Week           1047
            Init type      Known Point           seconds        586117.0
            Init counter   9                     Point ID       <no text>
            Survey type    Real Time             Plate H. Dist  <null>
            Plate V. Dist  <null>                Plate azimuth  <null>

INIT    KI  Init event     Gained                Week           1047
            Init type      Known Point           seconds        586136.0
            Init counter   10                    Point ID       42
            Survey type    Real Time             Plate H. Dist  <null>
            Plate V. Dist  <null>                Plate azimuth  <null>

NOTE    TS  Time Date 02/06/2000 Time 02:21:15

INIT    KI  Init event     Lost                  Week           1047
            Init type      Known Point           seconds        588086.0
            Init counter   10                    Point ID       <no text>
            Survey type    Real Time             Plate H. Dist  <null>
            Plate V. Dist  <null>                Plate azimuth  <null>

INIT    KI  Init event     Gained                Week           1047
            Init type      On the fly            seconds        588125.0
            Init counter   11                    Point ID       <no text>
            Survey type    Real Time             Plate H. Dist  <null>
            Plate V. Dist  <null>                Plate azimuth  <null>

GPS VEC SO  Point ID 43          DX   3500.610          DY   -3430.327
            Class Stake out      DZ   -2683.253         Code PANEL
            Mthd Phase Diff.     H.pr 0.018             V.pr 0.028
```

```
GPSQC1  NM  Min SVs          8                    PDOP max   0.1
            Total GPS pos    252                  HDOP max   0.1
            Monitor status   Yes                  VDOP max   0.1
            Horizontal SD    0.000                Vert SD    0.000
            Start wk 1047 sec 589161.0            End wk 1047   sec 589420.0

GPSQC2  NM  Ttl satellites 8                      Err Scale 0.0271655023
            VCV xx     0.0000026135               VCV xy    0.0000011781
            VCV xz     0.0000001793               VCV yy    0.0000065175
            VCV yz     -0.0000010224              VCV zz    0.0000021556

POINT DGN SO
            Name       243                        To the Point

PT POLAR D SO
            Azmth      219°07'52.079"             H.dist    32.954
            V.dist     7.625

INIT    KI  Init event     User cancelled init   Week          1047
            Init type      On the fly            seconds       589438.0
            Init counter   11                    Point ID      <no text>
            Survey type    Real Time             Plate H. Dist <null>
            Plate V. Dist  <null>                Plate azimuth <null>

INIT    KI  Init event     Gained                Week          1047
            Init type      Known Point           seconds       589447.0
            Init counter   12                    Point ID      43
            Survey type    Real Time             Plate H. Dist <null>
            Plate V. Dist  <null>                Plate azimuth <null>

NOTE    TS  Time Date 02/06/2000 Time 03:25:14

INIT    KI  Init event     Lost                  Week          1047
            Init type      Known Point           seconds       591925.0
            Init counter   12                    Point ID      <no text>
            Survey type    Real Time             Plate H. Dist <null>
            Plate V. Dist  <null>                Plate azimuth <null>

INIT    KI  Init event     Gained                Week          1047
            Init type      On the fly            seconds       592261.0
            Init counter   13                    Point ID      <no text>
            Survey type    Real Time             Plate H. Dist <null>
            Plate V. Dist  <null>                Plate azimuth <null>
```

```
INIT     KI  Init event     Lost                  Week           1047
             Init type     On the fly            seconds        592355.0
             Init counter  13                    Point ID       <no text>
             Survey type   Real Time             Plate H. Dist  <null>
             Plate V. Dist <null>                Plate azimuth  <null>

INIT     KI  Init event     Gained                Week           1047
             Init type     On the fly            seconds        592831.0
             Init counter  14                    Point ID       <no text>
             Survey type   Real Time             Plate H. Dist  <null>
             Plate V. Dist <null>                Plate azimuth  <null>

GPSVEC   SO  Point ID 44          DX   6725.086          DY   -5783.123
             Class Stake out      DZ   -4390.710         Code PANEL
             Mthd Phase Diff.     H.pr 0.020             V.pr 0.029

GPSQC1   NM  Min SVs         6                   PDOP max  0.2
             Total GPS pos   234                 HDOP max  0.1
             Monitor status  Yes                 VDOP max  0.2
             Horizontal SD   0.000               Vert SD   0.000
             Start wk 1047 sec 592963.0          End wk 1047   sec 593201.0

GPSQC2   NM  Ttl satellites 6                    Err Scale 0.0158794168
             VCV xx     0.0000044398             VCV xy    0.0000044416
             VCV xz     0.0000003048             VCV yy    0.0000074839
             VCV yz     -0.0000000709            VCV zz    0.0000006416

POINT DGN SO
             Name       244                      To the Point

PT POLAR D SO
             Azmth      80°20'56.369"            H.dist    9.413
             V.dist     7.721

INIT     KI  Init event     User cancelled init   Week           1047
             Init type     On the fly            seconds        593215.0
             Init counter  14                    Point ID       <no text>
             Survey type   Real Time             Plate H. Dist  <null>
             Plate V. Dist <null>                Plate azimuth  <null>

INIT     KI  Init event     Gained                Week           1047
             Init type     Known Point           seconds        593227.0
             Init counter  15                    Point ID       44
             Survey type   Real Time             Plate H. Dist  <null>
             Plate V. Dist <null>                Plate azimuth  <null>
```

```
INIT    KI  Init event     Lost                Week           1047
            Init type      Known Point         seconds        593361.0
            Init counter   15                  Point ID       <no text>
            Survey type    Real Time           Plate H. Dist  <null>
            Plate V. Dist  <null>              Plate azimuth  <null>

INIT    KI  Init event     Gained              Week           1047
            Init type      On the fly          seconds        593384.0
            Init counter   16                  Point ID       <no text>
            Survey type    Real Time           Plate H. Dist  <null>
            Plate V. Dist  <null>              Plate azimuth  <null>

NOTE    TS  Time Date 02/06/2000 Time 04:40:23

INIT    KI  Init event     Lost                Week           1047
            Init type      On the fly          seconds        596434.0
            Init counter   16                  Point ID       <no text>
            Survey type    Real Time           Plate H. Dist  <null>
            Plate V. Dist  <null>              Plate azimuth  <null>

INIT    KI  Init event     Gained              Week           1047
            Init type      On the fly          seconds        596490.0
            Init counter   17                  Point ID       <no text>
            Survey type    Real Time           Plate H. Dist  <null>
            Plate V. Dist  <null>              Plate azimuth  <null>

INIT    KI  Init event     Lost                Week           1047
            Init type      On the fly          seconds        597078.0
            Init counter   17                  Point ID       <no text>
            Survey type    Real Time           Plate H. Dist  <null>
            Plate V. Dist  <null>              Plate azimuth  <null>

INIT    KI  Init event     Gained              Week           1047
            Init type      On the fly          seconds        597143.0
            Init counter   18                  Point ID       <no text>
            Survey type    Real Time           Plate H. Dist  <null>
            Plate V. Dist  <null>              Plate azimuth  <null>

GPSVEC  SO  Point ID 66          DX   7205.814        DY   -3652.749
            Class Stake out      DZ   -1116.102       Code PANEL
            Mthd Phase Diff.     H.pr 0.012           V.pr 0.031

GPSQC1  NM  Min SVs        6                PDOP max  0.3
            Total GPS pos  232              HDOP max  0.1
            Monitor status Yes              VDOP max  0.3
            Horizontal SD  0.000            Vert SD   0.000
            Start wk 1047 sec 597448.0      End wk 1047   sec 597687.0
```

```
GPSQC2   NM  Ttl satellites 6                    Err Scale 0.012022824
             VCV xx     0.0000040892             VCV xy    0.0000024501
             VCV xz     -0.0000016521            VCV yy    0.00000432
             VCV yz     -0.0000024211            VCV zz    0.0000027619

POINT DGN SO
             Name       266                      To the Point

PT POLAR D SO
             Azmth      229°44'52.516"           H.dist    7.814
             V.dist     -1.391

INIT     KI  Init event     User cancelled init Week          1047
             Init type      On the fly          seconds       597703.0
             Init counter   18                  Point ID      <no text>
             Survey type    Real Time           Plate H. Dist <null>
             Plate V. Dist  <null>              Plate azimuth <null>

INIT     KI  Init event     Gained              Week          1047
             Init type      Known Point         seconds       597718.0
             Init counter   19                  Point ID      66
             Survey type    Real Time           Plate H. Dist <null>
             Plate V. Dist  <null>              Plate azimuth <null>

INIT     KI  Init event     Lost                Week          1047
             Init type      Known Point         seconds       597777.0
             Init counter   19                  Point ID      <no text>
             Survey type    Real Time           Plate H. Dist <null>
             Plate V. Dist  <null>              Plate azimuth <null>

INIT     KI  Init event     Gained              Week          1047
             Init type      On the fly          seconds       597876.0
             Init counter   20                  Point ID      <no text>
             Survey type    Real Time           Plate H. Dist <null>
             Plate V. Dist  <null>              Plate azimuth <null>

INIT     KI  Init event     Lost                Week          1047
             Init type      On the fly          seconds       598065.0
             Init counter   20                  Point ID      <no text>
             Survey type    Real Time           Plate H. Dist <null>
             Plate V. Dist  <null>              Plate azimuth <null>

INIT     KI  Init event     Gained              Week          1047
             Init type      On the fly          seconds       598102.0
             Init counter   21                  Point ID      <no text>
             Survey type    Real Time           Plate H. Dist <null>
             Plate V. Dist  <null>              Plate azimuth <null>
```

```
NOTE    TS  Time Date 02/06/2000 Time 05:16:15

T       KI  Init event    Lost                Week           1047
            Init type     On the fly          seconds        598587.0
            Init counter  21                  Point ID       <no text>
            Survey type   Real Time           Plate H. Dist  <null>
            Plate V. Dist <null>              Plate azimuth  <null>

INIT    KI  Init event    Gained              Week           1047
            Init type     On the fly          seconds        598677.0
            Init counter  22                  Point ID       <no text>
            Survey type   Real Time           Plate H. Dist  <null>
            Plate V. Dist <null>              Plate azimuth  <null>

INIT    KI  Init event    Lost                Week           1047
            Init type     On the fly          seconds        598793.0
            Init counter  22                  Point ID       <no text>
            Survey type   Real Time           Plate H. Dist  <null>
            Plate V. Dist <null>              Plate azimuth  <null>

INIT    KI  Init event    Gained              Week           1047
            Init type     On the fly          seconds        598926.0
            Init counter  23                  Point ID       <no text>
            Survey type   Real Time           Plate H. Dist  <null>
            Plate V. Dist <null>              Plate azimuth  <null>

GPSVEC  SO  Point ID 65          DX   8810.466          DY   -4782.897
            Class Stake out      DZ   -1929.520         Code PANEL
            Mthd Phase Diff.     H.pr 0.016             V.pr 0.029

GPSQC1  NM  Min SVs        6                  PDOP max  0.1
            Total GPS pos  368                HDOP max  0.1
            Monitor status Yes                VDOP max  0.1
            Horizontal SD  0.000              Vert SD   0.000
            Start wk 1047 sec 599197.0        End wk 1047   sec 599574.0

GPSQC2  NM  Ttl satellites 6                  Err Scale 0.0275309924
            VCV xx    0.0000037436            VCV xy    0.000001916
            VCV xz    -0.0000008831           VCV yy    0.0000031061
            VCV yz    -0.0000016632           VCV zz    0.0000043928

POINT DGN SO
            Name      265                     To the Point

P POLAR D SO
            Azmth     161°35'27.215"          H.dist    38.923
            V.dist    4.244
```

```
INIT     KI  Init event     User cancelled init Week          1047
             Init type      On the fly          seconds       599589.0
             Init counter   23                  Point ID      <no text>
             Survey type    Real Time           Plate H. Dist <null>
             Plate V. Dist  <null>              Plate azimuth <null>

INIT     KI  Init event     Gained              Week          1047
             Init type      Known Point         seconds       599599.0
             Init counter   24                  Point ID      65
             Survey type    Real Time           Plate H. Dist <null>
             Plate V. Dist  <null>              Plate azimuth <null>

SURVEY   KI  Elev mask 18                       PDOP mask 6.0

EQUIP    NM  Receiver   4700                    Serial no 20178300
             Antenna    Micro-centered L1/L2
             Method     Measured to bottom of antenna mount
             Tape adj   0.000                   Serial no <no text>
             Radius     0.000                   V.Const   0.205

SURVEY EVENTKISurvey event Rover survey started

NOTE     TS  Time Date 02/06/2000 Time 05:40:20

GPSANT   KI  Antenna ht 4.829                    Measuremt True

GPSREF   KI  Reference 6

INIT     KI  Init event     Gained              Week          1047
             Init type      On the fly          seconds       600072.0
             Init counter   1                   Point ID      <no text>
             Survey type    Real Time           Plate H. Dist <null>
             Plate V. Dist  <null>              Plate azimuth <null>

EQUIP    NM  Receiver   4700                    Serial no 20178300
             Antenna    Micro-centered L1/L2
             Method     Measured to bottom of antenna mount
             Tape adj   0.000                   Serial no <no text>
             Radius     0.000                   V.Const   0.205

GPSANT   KI  Antenna ht 6.562                    Measuremt Uncorrected

EQUIP    NM  Receiver   4700                    Serial no 20178300
             Antenna    Micro-centered L1/L2
             Method     Measured to bottom of antenna mount
             Tape adj   0.000                   Serial no <no text>
             Radius     0.000                   V.Const   0.205
```

```
OTE     TS  Time Date 02/08/2000 Time 21:21:36

P       BA  Receiver  4700                        Serial no 20176795
            Antenna   Micro-centered L1/L2 w/Ground
            Method    Measured to bottom of notch on ground plane
            Tape adj  0.000                       Serial no <no text>
            Radius    0.766                       V.Const   0.023

PSANT   KI  Antenna ht 5.194                      Measuremt Uncorrected

QUIP    BA  Receiver  4700                        Serial no 20176795
            Antenna   Micro-centered L1/L2 w/Ground
            Method    Measured to bottom of notch on ground plane
            Tape adj  0.000                       Serial no <no text>
            Radius    0.766                       V.Const   0.023

PSANT   KI  Antenna ht 5.194                      Measuremt Uncorrected

PSREF   KI  Reference 1

QUIP    NM  Receiver  4700                        Serial no 20178300
            Antenna   Micro-centered L1/L2
            Method    Measured to bottom of antenna mount
            Tape adj  0.000                       Serial no <no text>
            Radius    0.000                       V.Const   0.205

SURVEY EVENTKISurvey event Rover survey started

NOTE    TS  Time Date 02/08/2000 Time 21:46:09

GPSANT  KI  Antenna ht 0.000                      Measuremt True

GPSPOS  SI  Point ID 1            Lat  33°50'01.48112"N  Lng  112°18'30.15
            Class Check           Hgt  1637.191           Code STA. LAKE
            Mthd User Input       H.pr <null>             V.pr <null>

GPSANT  KI  Antenna ht 5.161                      Measuremt True

GPSREF  KI  Reference 1

INIT    KI  Init event    Gained                  Week           1048
            Init type     On the fly              seconds        226044.0
            Init counter  1                       Point ID       <no text>
            Survey type   Real Time               Plate H. Dist  <null>
            Plate V. Dist <null>                  Plate azimuth  <null>
```

```
QUIP    NM  Receiver  4700                        Serial no 20178300
            Antenna   Micro-centered L1/L2
            Method    Measured to bottom of antenna mount
            Tape adj  0.000                       Serial no <no text>
            Radius    0.000                       V.Const   0.205

IOTE    TS  Time Date 02/08/2000 Time 21:55:39

;PSANT  KI  Antenna ht 6.562                      Measuremt Uncorrected

:QUIP   NM  Receiver  4700                        Serial no 20178300
            Antenna   Micro-centered L1/L2
            Method    Measured to bottom of antenna mount
            Tape adj  0.000                       Serial no <no text>
            Radius    0.000                       V.Const   0.205

3PSANT  KI  Antenna ht 6.562                      Measuremt Uncorrected

3PSVEC  SO  Point ID 101C        DX   -2235.606        DY   -123.043
            Class Stake out      DZ   -1542.409        Code CK SHOT 2/08
            Mthd Phase Diff.     H.pr 0.016            V.pr 0.029

3PSQC1  NM  Min SVs        9                      PDOP max  0.1
            Total GPS pos  175                    HDOP max  0.1
            Monitor status Yes                    VDOP max  0.1
            Horizontal SD  0.000                  Vert SD   0.000
            Start wk 1048 sec 226842.0            End wk 1048   sec 227020.0

GPSQC2  NM  Ttl satellites 9                      Err Scale 0.0239105057
            VCV xx    0.0000031875                VCV xy    0.0000023044
            VCV xz    -0.0000004116               VCV yy    0.0000052981
            VCV yz    -0.0000000601               VCV zz    0.0000027652

POINT DGN SO
            Name      101                         To the Point

PT POLAR D SO
            Azmth     261°27'44.029"              H.dist    0.059
            V.dist    0.046

INIT    KI  Init event    User cancelled init Week          1048
            Init type     On the fly          seconds       227068.0
            Init counter  1                   Point ID      <no text>
            Survey type   Real Time           Plate H. Dist <null>
            Plate V. Dist <null>              Plate azimuth <null>
```

```
NIT     KI  Init event     Gained                Week           1048
            Init type      Known Point           seconds        227080.0
            Init counter   2                     Point ID       101C
            Survey type    Real Time             Plate H. Dist  <null>
            Plate V. Dist  <null>                Plate azimuth  <null>

OTE     TS  Time Date 02/08/2000 Time 22:34:44

PSVEC   SO  Point ID 64            DX   -984.475          DY   -918.279
            Class Stake out        DZ   -1851.464         Code PANEL
            Mthd Phase Diff.       H.pr 0.018             V.pr 0.029

PSQC1   NM  Min SVs          7                  PDOP max  0.2
            Total GPS pos    174                HDOP max  0.1
            Monitor status   Yes                VDOP max  0.2
            Horizontal SD    0.000              Vert SD   0.000
            Start wk 1048 sec 228702.0          End wk 1048   sec 228880.0

PSQC2   NM  Ttl satellites 7                    Err Scale 0.0185254682
            VCV xx     0.0000026949             VCV xy    0.0000026426
            VCV xz     0.000000553              VCV yy    0.0000069384
            VCV yz     -0.0000002678            VCV zz    0.0000020408

NT DGN SO
            Name       264                      To the Point

PT POLAR D SO
            Azmth      78°59'19.875"            H.dist    35.843
            V.dist     23.057

INIT    KI  Init event     User cancelled init  Week           1048
            Init type      Known Point          seconds        228907.0
            Init counter   2                    Point ID       <no text>
            Survey type    Real Time            Plate H. Dist  <null>
            Plate V. Dist  <null>               Plate azimuth  <null>

INIT    KI  Init event     Gained               Week           1048
            Init type      Known Point          seconds        228917.0
            Init counter   3                    Point ID       64
            Survey type    Real Time            Plate H. Dist  <null>
            Plate V. Dist  <null>               Plate azimuth  <null>

INIT    KI  Init event     Lost                 Week           1048
            Init type      Known Point          seconds        228977.0
            Init counter   3                    Point ID       <no text>
            Survey type    Real Time            Plate H. Dist  <null>
            Plate V. Dist  <null>               Plate azimuth  <null>
```

```
NIT     KI  Init event     Gained                Week           1048
            Init type      On the fly            seconds        229008.0
            Init counter   4                     Point ID       <no text>
            Survey type    Real Time             Plate H. Dist  <null>
            Plate V. Dist  <null>                Plate azimuth  <null>

IOTE    TS  Time Date 02/08/2000 Time 23:05:52

;PSVEC  SO  Point ID 63          DX   505.888          DY   -1681.102
            Class Stake out      DZ   -2143.483        Code PANEL
            Mthd Phase Diff.     H.pr 0.016            V.pr 0.029

;PSQC1  NM  Min SVs        8                  PDOP max  0.2
            Total GPS pos  176                HDOP max  0.1
            Monitor status Yes                VDOP max  0.1
            Horizontal SD  0.000              Vert SD   0.000
            Start wk 1048 sec 230473.0        End wk 1048   sec 230652.0

;PSQC2  NM  Ttl satellites 8                  Err Scale 0.0208705869
            VCV xx     0.0000032158           VCV xy    0.0000009092
            VCV xz     0.0000004406           VCV yy    0.0000035627
            VCV yz     -0.0000009824          VCV zz    0.000004517

E NT DGN SO
            Name       263                    To the Point

PT POLAR D SO
            Azmth      156°29'13.883"         H.dist    50.825
            V.dist     -0.700

INIT    KI  Init event     User cancelled init Week          1048
            Init type      On the fly          seconds       230774.0
            Init counter   4                   Point ID      <no text>
            Survey type    Real Time           Plate H. Dist <null>
            Plate V. Dist  <null>              Plate azimuth <null>

INIT    KI  Init event     Gained              Week          1048
            Init type      Known Point         seconds       230785.0
            Init counter   5                   Point ID      63
            Survey type    Real Time           Plate H. Dist <null>
            Plate V. Dist  <null>              Plate azimuth <null>

INIT    KI  Init event     High RMS            Week          1048
            Init type      Known Point         seconds       231874.0
            Init counter   5                   Point ID      <no text>
            Survey type    Real Time           Plate H. Dist <null>
            Plate V. Dist  <null>              Plate azimuth <null>
```

```
INIT     KI  Init event     Good RMS              Week           1048
             Init type     Known Point           seconds        231875.0
             Init counter  5                     Point ID       <no text>
             Survey type   Real Time             Plate H. Dist  <null>
             Plate V. Dist <null>                Plate azimuth  <null>

NOTE     TS  Time Date 02/08/2000 Time 23:39:55

GPSVEC   SO  Point ID 62          DX   2166.616          DY   -3207.183
             Class Stake out      DZ   -3352.877         Code PANEL
             Mthd Phase Diff.     H.pr 0.015             V.pr 0.029

GPSQC1   NM  Min SVs        8                  PDOP max  0.2
             Total GPS pos  170                HDOP max  0.1
             Monitor status Yes                VDOP max  0.1
             Horizontal SD  0.000              Vert SD   0.000
             Start wk 1048 sec 232623.0        End wk 1048   sec 232801.0

GPSQC2   NM  Ttl satellites 8                  Err Scale 0.0209533665
             VCV xx    0.0000023093            VCV xy    0.0000007501
             VCV xz    -0.000001037            VCV yy    0.0000034556
             VCV yz    -0.0000029026           VCV zz    0.0000055028

PNT DGN SO
             Name      262                     To the Point

PT POLAR D SO
             Azmth     307°00'54.836"          H.dist    13.926
             V.dist    3.101

INIT     KI  Init event     User cancelled init Week           1048
             Init type     Known Point         seconds        232818.0
             Init counter  5                   Point ID       <no text>
             Survey type   Real Time           Plate H. Dist  <null>
             Plate V. Dist <null>              Plate azimuth  <null>

INIT     KI  Init event     Gained              Week           1048
             Init type     Known Point         seconds        232831.0
             Init counter  6                   Point ID       62
             Survey type   Real Time           Plate H. Dist  <null>
             Plate V. Dist <null>              Plate azimuth  <null>

NOTE     TS  Time Date 02/09/2000 Time 00:19:29

VEC      SO  Point ID 57          DX   4122.073          DY   -3097.663
             Class Stake out      DZ   -2158.000         Code PANEL
             Mthd Phase Diff.     H.pr 0.014             V.pr 0.030
```

```
;PSQC1  NM  Min SVs          7                    PDOP max  0.2
            Total GPS pos    173                  HDOP max  0.1
            Monitor status   Yes                  VDOP max  0.2
            Horizontal SD    0.000                Vert SD   0.000
            Start wk 1048 sec 235000.0            End wk 1048   sec 235178.0

;PSQC2  NM  Ttl satellites 7                      Err Scale 0.0154873617
            VCV xx     0.0000033941               VCV xy    0.0000035246
            VCV xz     -0.000002038               VCV yy    0.0000053691
            VCV yz     -0.0000021123              VCV zz    0.000002769

?OINT DGN SO
            Name       257                        To the Point

PT POLAR D SO
            Azmth      86°48'47.196"              H.dist    35.205
            V.dist     -11.567

INIT    KI  Init event     User cancelled init   Week          1048
            Init type      Known Point           seconds       235189.0
            Init counter   6                     Point ID      <no text>
            Survey type    Real Time             Plate H. Dist <null>
            Plate V. Dist  <null>                Plate azimuth <null>

INIT    KI  Init event     Gained                Week          1048
            Init type      Known Point           seconds       235199.0
            Init counter   7                     Point ID      57
            Survey type    Real Time             Plate H. Dist <null>
            Plate V. Dist  <null>                Plate azimuth <null>

INIT    KI  Init event     Lost                  Week          1048
            Init type      Known Point           seconds       236891.0
            Init counter   7                     Point ID      <no text>
            Survey type    Real Time             Plate H. Dist <null>
            Plate V. Dist  <null>                Plate azimuth <null>

INIT    KI  Init event     Gained                Week          1048
            Init type      On the fly            seconds       236972.0
            Init counter   8                     Point ID      <no text>
            Survey type    Real Time             Plate H. Dist <null>
            Plate V. Dist  <null>                Plate azimuth <null>

NOTE    TS  Time Date 02/09/2000 Time 00:52:54

VEC     SO  Point ID 58            DX   3404.058          DY   -1976.190
            Class Stake out        DZ   -1025.456         Code PANEL
            Mthd Phase Diff.       H.pr 0.014             V.pr 0.030
```

```
GPSQC1  NM  Min SVs          7                    PDOP max   0.2
            Total GPS pos    160                  HDOP max   0.1
            Monitor status   Yes                  VDOP max   0.2
            Horizontal SD    0.000                Vert SD    0.000
            Start wk 1048 sec 237000.0            End wk 1048   sec 237178.0

GPSQC2  NM  Ttl satellites 7                      Err Scale 0.0157576017
            VCV xx     0.0000022255               VCV xy    0.0000018553
            VCV xz     -0.0000007292              VCV yy    0.0000070778
            VCV yz     -0.0000019005              VCV zz    0.0000019577

POINT DGN SO
            Name       258                        To the Point

PT POLAR D SO
            Azmth      195°45'08.415"             H.dist    20.985
            V.dist     -6.360

INIT    KI  Init event     User cancelled init   Week           1048
            Init type      On the fly            seconds        237198.0
            Init counter   8                     Point ID       <no text>
            Survey type    Real Time             Plate H. Dist  <null>
            Plate V. Dist  <null>                Plate azimuth  <null>

INIT    KI  Init event     Gained                Week           1048
            Init type      Known Point           seconds        237209.0
            Init counter   9                     Point ID       58
            Survey type    Real Time             Plate H. Dist  <null>
            Plate V. Dist  <null>                Plate azimuth  <null>

INIT    KI  Init event     Lost                  Week           1048
            Init type      Known Point           seconds        237407.0
            Init counter   9                     Point ID       <no text>
            Survey type    Real Time             Plate H. Dist  <null>
            Plate V. Dist  <null>                Plate azimuth  <null>

INIT    KI  Init event     Gained                Week           1048
            Init type      On the fly            seconds        237434.0
            Init counter   10                    Point ID       <no text>
            Survey type    Real Time             Plate H. Dist  <null>
            Plate V. Dist  <null>                Plate azimuth  <null>

NOTE    TS  Time Date 02/09/2000 Time 01:33:57
```

INIT	KI	Init event	Lost	Week	1048
		Init type	On the fly	seconds	239648.0
		Init counter	10	Point ID	<no text>
		Survey type	Real Time	Plate H. Dist	<null>
		Plate V. Dist	<null>	Plate azimuth	<null>
INIT	KI	Init event	Gained	Week	1048
		Init type	On the fly	seconds	239679.0
		Init counter	11	Point ID	<no text>
		Survey type	Real Time	Plate H. Dist	<null>
		Plate V. Dist	<null>	Plate azimuth	<null>
INIT	KI	Init event	Lost	Week	1048
		Init type	On the fly	seconds	239766.0
		Init counter	11	Point ID	<no text>
		Survey type	Real Time	Plate H. Dist	<null>
		Plate V. Dist	<null>	Plate azimuth	<null>
INIT	KI	Init event	Gained	Week	1048
		Init type	On the fly	seconds	239822.0
		Init counter	12	Point ID	<no text>
		Survey type	Real Time	Plate H. Dist	<null>
		Plate V. Dist	<null>	Plate azimuth	<null>
INIT	KI	Init event	Lost	Week	1048
		Init type	On the fly	seconds	239842.0
		Init counter	12	Point ID	<no text>
		Survey type	Real Time	Plate H. Dist	<null>
		Plate V. Dist	<null>	Plate azimuth	<null>
INIT	KI	Init event	Gained	Week	1048
		Init type	On the fly	seconds	239993.0
		Init counter	13	Point ID	<no text>
		Survey type	Real Time	Plate H. Dist	<null>
		Plate V. Dist	<null>	Plate azimuth	<null>

NOTE TS Time Date 02/09/2000 Time 02:13:44

GPSVEC	SO	Point ID 61	DX 1804.708	DY -4298.682	
		Class Stake out	DZ -5029.286	Code PANEL	
		Mthd Phase Diff.	H.pr 0.017	V.pr 0.028	
GPSQC1	NM	Min SVs 8	PDOP max 0.2		
		Total GPS pos 176	HDOP max 0.1		
		Monitor status Yes	VDOP max 0.1		
		Horizontal SD 0.000	Vert SD 0.000		
		Start wk 1048 sec 241755.0	End wk 1048 sec 241933.0		

```
PSQC2  NM  Ttl satellites 8                    Err Scale 0.0213625059
           VCV xx     0.0000025487             VCV xy    0.000001874
           VCV xz     -0.0000009279            VCV yy    0.0000038095
           VCV yz     -0.0000020261            VCV zz    0.0000048647

OINT DGN SO
           Name       261                      To the Point

T POLAR D SO
           Azmth      31°35'09.333"            H.dist    20.774
           V.dist     -6.914

INIT   KI  Init event     User cancelled init Week          1048
           Init type      On the fly          seconds       242043.0
           Init counter   13                  Point ID      <no text>
           Survey type    Real Time           Plate H. Dist <null>
           Plate V. Dist  <null>              Plate azimuth <null>

INIT   KI  Init event     Gained              Week          1048
           Init type      Known Point         seconds       242055.0
           Init counter   14                  Point ID      61
           Survey type    Real Time           Plate H. Dist <null>
           Plate V. Dist  <null>              Plate azimuth <null>

INIT   KI  Init event     Lost(RMS)           Week          1048
           Init type      Known Point         seconds       242242.0
           Init counter   14                  Point ID      <no text>
           Survey type    Real Time           Plate H. Dist <null>
           Plate V. Dist  <null>              Plate azimuth <null>

INIT   KI  Init event     Gained              Week          1048
           Init type      On the fly          seconds       242261.0
           Init counter   15                  Point ID      <no text>
           Survey type    Real Time           Plate H. Dist <null>
           Plate V. Dist  <null>              Plate azimuth <null>

NOTE   TS  Time Date 02/09/2000 Time 02:51:58

GPSVEC SO  Point ID 47          DX   437.298          DY   -4204.437
           Class Stake out      DZ   -5814.315        Code PANEL
           Mthd Phase Diff.     H.pr 0.019            V.pr 0.027

GPSQC1 NM  Min SVs         8                   PDOP max  0.1
           Total GPS pos   170                 HDOP max  0.1
           Monitor status  Yes                 VDOP max  0.1
           Horizontal SD   0.000               Vert SD   0.000
           Start wk 1048 sec 244020.0          End wk 1048   sec 244197.0
```

```
;PSQC2  NM  Ttl satellites 8                    Err Scale 0.0246269647
            VCV xx     0.0000031319             VCV xy    0.0000008152
            VCV xz     0.0000001461             VCV yy    0.0000056625
            VCV yz     -0.0000001666            VCV zz    0.0000026534

?OINT DGN SO
            Name       247                      To the Point

?T POLAR D SO
            Azmth      84°47'30.974"            H.dist    3.823
            V.dist     -8.665

INIT    KI  Init event     User cancelled init Week          1048
            Init type      On the fly          seconds       244367.0
            Init counter   15                  Point ID      <no text>
            Survey type    Real Time           Plate H. Dist <null>
            Plate V. Dist  <null>              Plate azimuth <null>

INIT    KI  Init event     Gained              Week          1048
            Init type      Known Point         seconds       244379.0
            Init counter   16                  Point ID      47
            Survey type    Real Time           Plate H. Dist <null>
            Plate V. Dist  <null>              Plate azimuth <null>

INIT    KI  Init event     Lost                Week          1048
            Init type      Known Point         seconds       244422.0
            Init counter   16                  Point ID      <no text>
            Survey type    Real Time           Plate H. Dist <null>
            Plate V. Dist  <null>              Plate azimuth <null>

INIT    KI  Init event     Gained              Week          1048
            Init type      On the fly          seconds       244453.0
            Init counter   17                  Point ID      <no text>
            Survey type    Real Time           Plate H. Dist <null>
            Plate V. Dist  <null>              Plate azimuth <null>

INIT    KI  Init event     Lost                Week          1048
            Init type      On the fly          seconds       244640.0
            Init counter   17                  Point ID      <no text>
            Survey type    Real Time           Plate H. Dist <null>
            Plate V. Dist  <null>              Plate azimuth <null>

INIT    KI  Init event     Gained              Week          1048
            Init type      On the fly          seconds       244851.0
            Init counter   18                  Point ID      <no text>
            Survey type    Real Time           Plate H. Dist <null>
            Plate V. Dist  <null>              Plate azimuth <null>
```

```
INIT    KI  Init event     Lost                Week           1048
            Init type      On the fly          seconds        245286.0
            Init counter   18                  Point ID       <no text>
            Survey type    Real Time           Plate H. Dist  <null>
            Plate V. Dist  <null>              Plate azimuth  <null>

INIT    KI  Init event     Gained              Week           1048
            Init type      On the fly          seconds        245306.0
            Init counter   19                  Point ID       <no text>
            Survey type    Real Time           Plate H. Dist  <null>
            Plate V. Dist  <null>              Plate azimuth  <null>

INIT    KI  Init event     Lost                Week           1048
            Init type      On the fly          seconds        245697.0
            Init counter   19                  Point ID       <no text>
            Survey type    Real Time           Plate H. Dist  <null>
            Plate V. Dist  <null>              Plate azimuth  <null>

NOTE    TS  Time Date 02/09/2000 Time 03:22:57

INIT    KI  Init event     Gained              Week           1048
            Init type      On the fly          seconds        246188.0
            Init counter   20                  Point ID       <no text>
            Survey type    Real Time           Plate H. Dist  <null>
            Plate V. Dist  <null>              Plate azimuth  <null>

GPSVEC  SO  Point ID 46          DX   -1185.644        DY   -3088.055
            Class Stake out      DZ   -5067.430        Code PANEL
            Mthd Phase Diff.     H.pr 0.019            V.pr 0.027

GPSQC1  NM  Min SVs        6                PDOP max  0.2
            Total GPS pos  228              HDOP max  0.1
            Monitor status Yes              VDOP max  0.2
            Horizontal SD  0.000            Vert SD   0.000
            Start wk 1048 sec 246226.0      End wk 1048   sec 246466.0

GPSQC2  NM  Ttl satellites 6                Err Scale 0.0149918823
            VCV xx     0.0000041589         VCV xy    0.0000037814
            VCV xz     0.0000005665         VCV yy    0.0000064468
            VCV yz     0.000000159          VCV zz    0.0000007838

POINT DGN SO
            Name       246                  To the Point

POLAR D SO
            Azmth      255°53'56.898"       H.dist    12.134
            V.dist     -2.965
```

INIT	KI	Init event	User cancelled init	Week	1048
		Init type	On the fly	seconds	246485.0
		Init counter	20	Point ID	<no text>
		Survey type	Real Time	Plate H. Dist	<null>
		Plate V. Dist	<null>	Plate azimuth	<null>
INIT	KI	Init event	Gained	Week	1048
		Init type	Known Point	seconds	246497.0
		Init counter	21	Point ID	46
		Survey type	Real Time	Plate H. Dist	<null>
		Plate V. Dist	<null>	Plate azimuth	<null>
INIT	KI	Init event	Lost	Week	1048
		Init type	Known Point	seconds	246530.0
		Init counter	21	Point ID	<no text>
		Survey type	Real Time	Plate H. Dist	<null>
		Plate V. Dist	<null>	Plate azimuth	<null>
INIT	KI	Init event	Gained	Week	1048
		Init type	On the fly	seconds	246757.0
		Init counter	22	Point ID	<no text>
		Survey type	Real Time	Plate H. Dist	<null>
		Plate V. Dist	<null>	Plate azimuth	<null>
INIT	KI	Init event	Lost	Week	1048
		Init type	On the fly	seconds	246913.0
		Init counter	22	Point ID	<no text>
		Survey type	Real Time	Plate H. Dist	<null>
		Plate V. Dist	<null>	Plate azimuth	<null>
INIT	KI	Init event	Gained	Week	1048
		Init type	On the fly	seconds	247000.0
		Init counter	23	Point ID	<no text>
		Survey type	Real Time	Plate H. Dist	<null>
		Plate V. Dist	<null>	Plate azimuth	<null>
INIT	KI	Init event	Lost	Week	1048
		Init type	On the fly	seconds	247441.0
		Init counter	23	Point ID	<no text>
		Survey type	Real Time	Plate H. Dist	<null>
		Plate V. Dist	<null>	Plate azimuth	<null>
INIT	KI	Init event	Gained	Week	1048
		Init type	On the fly	seconds	247478.0
		Init counter	24	Point ID	<no text>
		Survey type	Real Time	Plate H. Dist	<null>
		Plate V. Dist	<null>	Plate azimuth	<null>

```
NOTE     TS  Time Date 02/09/2000 Time 04:05:35

GPSVEC   TP  Point ID 70          DX   -1627.234        DY   -4322.398
             Class Normal         DZ   -6866.907        Code LC 31/36/1/6
             Mthd Phase Diff.     H.pr 0.014            V.pr 0.030

T-CODE   TP  Code LC 31/36/1/6 T5&6N R1E&1W

GPSQC1   NM  Min SVs        6                  PDOP max  0.3
             Total GPS pos  279                HDOP max  0.1
             Monitor status Yes                VDOP max  0.2
             Horizontal SD  0.000              Vert SD   0.000
             Start wk 1048 sec 248463.0        End wk 1048   sec 248746.0

GPSQC2   NM  Ttl satellites 6                  Err Scale 0.0134307668
             VCV xx    0.0000057453            VCV xy    0.0000044289
             VCV xz    -0.0000017394           VCV yy    0.0000047147
             VCV yz    -0.000001521            VCV zz    0.0000011361

INIT     KI  Init event    User cancelled init Week          1048
             Init type     On the fly          seconds       248755.0
             Init counter  24                  Point ID      <no text>
             Survey type   Real Time           Plate H. Dist <null>
             Plate V. Dist <null>              Plate azimuth <null>

INIT     KI  Init event    Gained              Week          1048
             Init type     Known Point         seconds       248765.0
             Init counter  25                  Point ID      70
             Survey type   Real Time           Plate H. Dist <null>
             Plate V. Dist <null>              Plate azimuth <null>

INIT     KI  Init event    Lost                Week          1048
             Init type     Known Point         seconds       249083.0
             Init counter  25                  Point ID      <no text>
             Survey type   Real Time           Plate H. Dist <null>
             Plate V. Dist <null>              Plate azimuth <null>

INIT     KI  Init event    Gained              Week          1048
             Init type     On the fly          seconds       249293.0
             Init counter  26                  Point ID      <no text>
             Survey type   Real Time           Plate H. Dist <null>
             Plate V. Dist <null>              Plate azimuth <null>

NOTE     TS  Time Date 02/09/2000 Time 04:43:33

GPSVEC   SO  Point ID 50          DX   -1777.210        DY   -4290.319
             Class Stake out      DZ   -6877.118        Code PANEL
             Mthd Phase Diff.     H.pr 0.012            V.pr 0.031
```

```
GPSQC1  NM  Min SVs          6                    PDOP max   0.3
            Total GPS pos    298                  HDOP max   0.1
            Monitor status   Yes                  VDOP max   0.2
            Horizontal SD    0.000                Vert SD    0.000
            Start wk 1048 sec 250719.0            End wk 1048   sec 251021.0

GPSQC2  NM  Ttl satellites 6                      Err Scale 0.0132026114
            VCV xx     0.000003812                VCV xy    0.0000037472
            VCV xz     -0.0000020545              VCV yy    0.0000059226
            VCV yz     -0.0000027267              VCV zz    0.0000016428

POINT DGN SO
            Name       250                        To the Point

PT POLAR D SO
            Azmth      171°03'35.792"             H.dist    20.226
            V.dist     -3.580

INIT    KI  Init event     User cancelled init   Week           1048
            Init type      On the fly            seconds        251045.0
            Init counter   26                    Point ID       <no text>
            Survey type    Real Time             Plate H. Dist  <null>
            Plate V. Dist  <null>                Plate azimuth  <null>

INIT    KI  Init event     Gained                Week           1048
            Init type      Known Point           seconds        251061.0
            Init counter   27                    Point ID       50
            Survey type    Real Time             Plate H. Dist  <null>
            Plate V. Dist  <null>                Plate azimuth  <null>

INIT    KI  Init event     Lost                  Week           1048
            Init type      Known Point           seconds        251117.0
            Init counter   27                    Point ID       <no text>
            Survey type    Real Time             Plate H. Dist  <null>
            Plate V. Dist  <null>                Plate azimuth  <null>

INIT    KI  Init event     Gained                Week           1048
            Init type      On the fly            seconds        251146.0
            Init counter   28                    Point ID       <no text>
            Survey type    Real Time             Plate H. Dist  <null>
            Plate V. Dist  <null>                Plate azimuth  <null>

INIT    KI  Init event     Lost                  Week           1048
            Init type      On the fly            seconds        251946.0
            Init counter   28                    Point ID       <no text>
            Survey type    Real Time             Plate H. Dist  <null>
            Plate V. Dist  <null>                Plate azimuth  <null>
```

```
INIT    KI  Init event    Gained              Week          1048
            Init type     On the fly          seconds       252313.0
            Init counter  29                  Point ID      <no text>
            Survey type   Real Time           Plate H. Dist <null>
            Plate V. Dist <null>              Plate azimuth <null>

NOTE    TS  Time Date 02/09/2000 Time 05:27:39

INIT    KI  Init event    Lost                Week          1048
            Init type     On the fly          seconds       253670.0
            Init counter  29                  Point ID      <no text>
            Survey type   Real Time           Plate H. Dist <null>
            Plate V. Dist <null>              Plate azimuth <null>

INIT    KI  Init event    Gained              Week          1048
            Init type     On the fly          seconds       253729.0
            Init counter  30                  Point ID      <no text>
            Survey type   Real Time           Plate H. Dist <null>
            Plate V. Dist <null>              Plate azimuth <null>

SURVEY  KI  Elev mask 18                      PDOP mask 6.0

EQUIP   BA  Receiver  4700                    Serial no 20176795
            Antenna   Micro-centered L1/L2 w/Ground
            Method    Measured to bottom of notch on ground plane
            Tape adj  0.000                   Serial no <no text>
            Radius    0.766                   V.Const   0.023

SURVEY EVENTKISurvey event Base survey started

NOTE    TS  Time Date 02/09/2000 Time 21:37:18

EQUIP   BA  Receiver  4700                    Serial no 20176795
            Antenna   Micro-centered L1/L2 w/Ground
            Method    Measured to bottom of notch on ground plane
            Tape adj  0.000                   Serial no <no text>
            Radius    0.766                   V.Const   0.023

GPSANT  KI  Antenna ht 5.069                  Measuremt Uncorrected

EQUIP   BA  Receiver  4700                    Serial no 20176795
            Antenna   Micro-centered L1/L2 w/Ground
            Method    Measured to bottom of notch on ground plane
            Tape adj  0.000                   Serial no <no text>
            Radius    0.766                   V.Const   0.023

GPSANT  KI  Antenna ht 5.069                  Measuremt Uncorrected
```

```
;PSREF  KI  Reference 3

[illegible]IP   NM  Receiver  4700                        Serial no 20178300
                    Antenna   Micro-centered L1/L2
                    Method    Measured to bottom of antenna mount
                    Tape adj  0.000                       Serial no <no text>
                    Radius    0.000                       V.Const   0.205

3URVEY EVENTKISurvey event Rover survey started

NOTE    TS  Time Date 02/09/2000 Time 21:58:28

3PSANT  KI  Antenna ht 5.033                              Measuremt True

3PSREF  KI  Reference 3

INIT    KI  Init event    Gained                          Week          1048
            Init type     On the fly                      seconds       313199.0
            Init counter  1                               Point ID      <no text>
            Survey type   Real Time                       Plate H. Dist <null>
            Plate V. Dist <null>                          Plate azimuth <null>

E[illegible]UIP NM  Receiver  4700                        Serial no 20178300
            Antenna   Micro-centered L1/L2
            Method    Measured to bottom of antenna mount
            Tape adj  0.000                               Serial no <no text>
            Radius    0.000                               V.Const   0.205

GPSANT  KI  Antenna ht 0.000                              Measuremt Uncorrected

GPSVEC  TP  Point ID 102          DX   1028.637           DY   3894.097
            Class Normal          DZ   5969.362           Code VALCO TBM 65
            Mthd Phase Diff.      H.pr 0.016              V.pr 0.029

GPSQC1  NM  Min SVs         9                             PDOP max  0.1
            Total GPS pos   160                           HDOP max  0.1
            Monitor status  Yes                           VDOP max  0.1
            Horizontal SD   0.000                         Vert SD   0.000
            Start wk 1048 sec 313267.0                    End wk 1048   sec 313444.0

GPSQC2  NM  Ttl satellites 9                              Err Scale 0.023096988
            VCV xx    0.0000032026                        VCV xy    0.0000022003
            VCV xz    -0.0000004919                       VCV yy    0.0000050342
            VCV yz    -0.0000001867                       VCV zz    0.000003054
```

```
INIT    KI  Init event     User cancelled init Week          1048
            Init type      On the fly          seconds       313475.0
            Init counter   1                   Point ID      <no text>
            Survey type    Real Time           Plate H. Dist <null>
            Plate V. Dist  <null>              Plate azimuth <null>

INIT    KI  Init event     Gained              Week          1048
            Init type      Known Point         seconds       313485.0
            Init counter   2                   Point ID      102
            Survey type    Real Time           Plate H. Dist <null>
            Plate V. Dist  <null>              Plate azimuth <null>

EQUIP   NM  Receiver   4700                    Serial no 20178300
            Antenna    Micro-centered L1/L2
            Method     Measured to bottom of antenna mount
            Tape adj   0.000                   Serial no <no text>
            Radius     0.000                   V.Const   0.205

GPSANT  KI  Antenna ht 6.562                   Measuremt Uncorrected

INIT    KI  Init event     Lost                Week          1048
            Init type      Known Point         seconds       313587.0
            Init counter   2                   Point ID      <no text>
            Survey type    Real Time           Plate H. Dist <null>
            Plate V. Dist  <null>              Plate azimuth <null>

NOTE    TS  Time Date 02/09/2000 Time 22:07:07

INIT    KI  Init event     Gained              Week          1048
            Init type      On the fly          seconds       313639.0
            Init counter   3                   Point ID      <no text>
            Survey type    Real Time           Plate H. Dist <null>
            Plate V. Dist  <null>              Plate azimuth <null>

EQUIP   NM  Receiver   4700                    Serial no 20178300
            Antenna    Micro-centered L1/L2
            Method     Measured to bottom of antenna mount
            Tape adj   0.000                   Serial no <no text>
            Radius     0.000                   V.Const   0.205

GPSANT  KI  Antenna ht 6.562                   Measuremt Uncorrected

GPSVEC  TP  Point ID 52A         DX   -3553.292        DY   5422.874
            Class Normal         DZ   5353.270         Code CK SHOT 2/09
            Mthd Phase Diff.     H.pr 0.017            V.pr 0.028
```

```
GPSQC1  NM  Min SVs          9                    PDOP max   0.1
            Total GPS pos    178                  HDOP max   0.1
            Monitor status   Yes                  VDOP max   0.1
            Horizontal SD    0.000                Vert SD    0.000
            Start wk 1048 sec 314086.0            End wk 1048   sec 314263.0

GPSQC2  NM  Ttl satellites 9                      Err Scale 0.0249182023
            VCV xx     0.0000020034               VCV xy    0.0000012772
            VCV xz     0.0000002669               VCV yy    0.0000074129
            VCV yz     -0.0000012066              VCV zz    0.0000017445

INIT    KI  Init event     User cancelled init    Week          1048
            Init type      On the fly             seconds       314297.0
            Init counter   3                      Point ID      <no text>
            Survey type    Real Time              Plate H. Dist <null>
            Plate V. Dist  <null>                 Plate azimuth <null>

INIT    KI  Init event     Gained                 Week          1048
            Init type      Known Point            seconds       314312.0
            Init counter   4                      Point ID      52A
            Survey type    Real Time              Plate H. Dist <null>
            Plate V. Dist  <null>                 Plate azimuth <null>

SURVEY EVENTKISurvey event Communications error

INIT    KI  Init event     Gained                 Week          1048
            Init type      On the fly             seconds       314416.0
            Init counter   4                      Point ID      <no text>
            Survey type    Real Time              Plate H. Dist <null>
            Plate V. Dist  <null>                 Plate azimuth <null>

NOTE    TS  Time Date 02/09/2000 Time 22:43:08

INIT    KI  Init event     Lost                   Week          1048
            Init type      On the fly             seconds       315800.0
            Init counter   4                      Point ID      <no text>
            Survey type    Real Time              Plate H. Dist <null>
            Plate V. Dist  <null>                 Plate azimuth <null>

INIT    KI  Init event     Gained                 Week          1048
            Init type      On the fly             seconds       315820.0
            Init counter   5                      Point ID      <no text>
            Survey type    Real Time              Plate H. Dist <null>
            Plate V. Dist  <null>                 Plate azimuth <null>
```

```
INIT    KI  Init event     Lost                Week            1048
            Init type      On the fly          seconds         315849.0
            Init counter   5                   Point ID        <no text>
            Survey type    Real Time           Plate H. Dist   <null>
            Plate V. Dist  <null>              Plate azimuth   <null>

INIT    KI  Init event     Gained              Week            1048
            Init type      On the fly          seconds         315891.0
            Init counter   6                   Point ID        <no text>
            Survey type    Real Time           Plate H. Dist   <null>
            Plate V. Dist  <null>              Plate azimuth   <null>

INIT    KI  Init event     Lost(RMS)           Week            1048
            Init type      On the fly          seconds         317079.0
            Init counter   6                   Point ID        <no text>
            Survey type    Real Time           Plate H. Dist   <null>
            Plate V. Dist  <null>              Plate azimuth   <null>

INIT    KI  Init event     Gained              Week            1048
            Init type      On the fly          seconds         317258.0
            Init counter   7                   Point ID        <no text>
            Survey type    Real Time           Plate H. Dist   <null>
            Plate V. Dist  <null>              Plate azimuth   <null>

NOTE    TS  Time Date 02/09/2000 Time 23:16:03

INIT    KI  Init event     Lost                Week            1048
            Init type      On the fly          seconds         317775.0
            Init counter   7                   Point ID        <no text>
            Survey type    Real Time           Plate H. Dist   <null>
            Plate V. Dist  <null>              Plate azimuth   <null>

INIT    KI  Init event     Gained              Week            1048
            Init type      On the fly          seconds         317843.0
            Init counter   8                   Point ID        <no text>
            Survey type    Real Time           Plate H. Dist   <null>
            Plate V. Dist  <null>              Plate azimuth   <null>

GPSVEC  SO  Point ID 51          DX   -6833.696        DY   7734.136
            Class Stake out      DZ   7160.102         Code PANEL
            Mthd Phase Diff.     H.pr 0.016            V.pr 0.029

GPSQC1  NM  Min SVs        8                PDOP max  0.2
            Total GPS pos  167              HDOP max  0.1
            Monitor status Yes              VDOP max  0.1
            Horizontal SD  0.000            Vert SD   0.000
            Start wk 1048 sec 318316.0      End wk 1048   sec 318494.0
```

```
;PSQC2  NM  Ttl satellites 8                    Err Scale 0.0211129151
            VCV xx    0.0000025398              VCV xy    0.0000007673
            VCV xz    -0.0000009291             VCV yy    0.0000032067
            VCV yz    -0.0000023936             VCV zz    0.0000056657

?OINT DGN SO
            Name      251                       To the Point

?T POLAR D SO
            Azmth     20°45'55.039"             H.dist    11.172
            V.dist    -12.434

INIT    KI  Init event    User cancelled init Week          1048
            Init type     On the fly          seconds       318559.0
            Init counter  8                   Point ID      <no text>
            Survey type   Real Time           Plate H. Dist <null>
            Plate V. Dist <null>              Plate azimuth <null>

INIT    KI  Init event    Gained              Week          1048
            Init type     Known Point         seconds       318568.0
            Init counter  9                   Point ID      51
            Survey type   Real Time           Plate H. Dist <null>
            Plate V. Dist <null>              Plate azimuth <null>

NOTE    TS  Time Date 02/09/2000 Time 23:58:40

GPSVEC  SO  Point ID 60          DX   -5750.681        DY   8791.059
            Class Stake out      DZ   9051.960         Code PANEL
            Mthd Phase Diff.     H.pr 0.016            V.pr 0.029

GPSQC1  NM  Min SVs        8                    PDOP max  0.2
            Total GPS pos  171                  HDOP max  0.1
            Monitor status Yes                  VDOP max  0.1
            Horizontal SD  0.000                Vert SD   0.000
            Start wk 1048 sec 320099.0          End wk 1048   sec 320277.0

GPSQC2  NM  Ttl satellites 8                    Err Scale 0.0217516217
            VCV xx    0.0000036723              VCV xy    0.0000033859
            VCV xz    -0.0000010142             VCV yy    0.0000060579
            VCV yz    -0.0000012516             VCV zz    0.0000016151

POINT DGN SO
            Name      260                       To the Point

POLAR D SO
            Azmth     88°05'44.371"             H.dist    27.328
            V.dist    8.830
```

```
INIT    KI  Init event     User cancelled init Week          1048
            Init type      Known Point         seconds       320341.0
            Init counter   9                   Point ID      <no text>
            Survey type    Real Time           Plate H. Dist <null>
            Plate V. Dist  <null>              Plate azimuth <null>

INIT    KI  Init event     Gained              Week          1048
            Init type      Known Point         seconds       320355.0
            Init counter   10                  Point ID      60
            Survey type    Real Time           Plate H. Dist <null>
            Plate V. Dist  <null>              Plate azimuth <null>

INIT    KI  Init event     Lost                Week          1048
            Init type      Known Point         seconds       321610.0
            Init counter   10                  Point ID      <no text>
            Survey type    Real Time           Plate H. Dist <null>
            Plate V. Dist  <null>              Plate azimuth <null>

INIT    KI  Init event     Gained              Week          1048
            Init type      On the fly          seconds       321704.0
            Init counter   11                  Point ID      <no text>
            Survey type    Real Time           Plate H. Dist <null>
            Plate V. Dist  <null>              Plate azimuth <null>

INIT    KI  Init event     Lost                Week          1048
            Init type      On the fly          seconds       321834.0
            Init counter   11                  Point ID      <no text>
            Survey type    Real Time           Plate H. Dist <null>
            Plate V. Dist  <null>              Plate azimuth <null>

INIT    KI  Init event     Gained              Week          1048
            Init type      On the fly          seconds       321854.0
            Init counter   12                  Point ID      <no text>
            Survey type    Real Time           Plate H. Dist <null>
            Plate V. Dist  <null>              Plate azimuth <null>

NOTE    TS  Time Date 02/10/2000 Time 00:35:57

GPSVEC  SO  Point ID 59          DX   -5102.847        DY   7425.470
            Class Stake out      DZ   7453.074         Code PANEL
            Mthd Phase Diff.     H.pr 0.013            V.pr 0.030

GPSQC1  NM  Min SVs        7                PDOP max  0.2
            Total GPS pos  176              HDOP max  0.1
            Monitor status Yes              VDOP max  0.2
            Horizontal SD  0.000            Vert SD   0.000
            Start wk 1048 sec 322327.0      End wk 1048   sec 322504.0
```

```
GPSQC2  NM  Ttl satellites 7                    Err Scale 0.01493348
            VCV xx     0.0000027206             VCV xy    0.0000031032
            VCV xz    -0.0000019306             VCV yy    0.0000053287
            VCV yz    -0.0000024591             VCV zz    0.000003328

POINT DGN SO
            Name       259                      To the Point

PT POLAR D SO
            Azmth      57°05'46.922"            H.dist    28.425
            V.dist     2.823

INIT    KI  Init event    User cancelled init  Week          1048
            Init type     On the fly           seconds       322580.0
            Init counter  12                   Point ID      <no text>
            Survey type   Real Time            Plate H. Dist <null>
            Plate V. Dist <null>               Plate azimuth <null>

INIT    KI  Init event    Gained               Week          1048
            Init type     Known Point          seconds       322596.0
            Init counter  13                   Point ID      59
            Survey type   Real Time            Plate H. Dist <null>
            Plate V. Dist <null>               Plate azimuth <null>

INIT    KI  Init event    Lost                 Week          1048
            Init type     Known Point          seconds       322868.0
            Init counter  13                   Point ID      <no text>
            Survey type   Real Time            Plate H. Dist <null>
            Plate V. Dist <null>               Plate azimuth <null>

INIT    KI  Init event    Gained               Week          1048
            Init type     On the fly           seconds       323043.0
            Init counter  14                   Point ID      <no text>
            Survey type   Real Time            Plate H. Dist <null>
            Plate V. Dist <null>               Plate azimuth <null>

NOTE    TS  Time Date 02/10/2000 Time 01:41:45

INIT    KI  Init event    Lost                 Week          1048
            Init type     On the fly           seconds       326516.0
            Init counter  14                   Point ID      <no text>
            Survey type   Real Time            Plate H. Dist <null>
            Plate V. Dist <null>               Plate azimuth <null>
```

```
INIT     KI  Init event     Gained                Week           1048
             Init type      On the fly            seconds        326543.0
             Init counter   15                    Point ID       <no text>
             Survey type    Real Time             Plate H. Dist  <null>
             Plate V. Dist  <null>                Plate azimuth  <null>

INIT     KI  Init event     Lost(RMS)             Week           1048
             Init type      On the fly            seconds        326576.0
             Init counter   15                    Point ID       <no text>
             Survey type    Real Time             Plate H. Dist  <null>
             Plate V. Dist  <null>                Plate azimuth  <null>

INIT     KI  Init event     Gained                Week           1048
             Init type      On the fly            seconds        326874.0
             Init counter   16                    Point ID       <no text>
             Survey type    Real Time             Plate H. Dist  <null>
             Plate V. Dist  <null>                Plate azimuth  <null>

EQUIP    NM  Receiver   4700                      Serial no 20178300
             Antenna    Micro-centered L1/L2
             Method     Measured to bottom of antenna mount
             Tape adj   0.000                     Serial no <no text>
             Radius     0.000                     V.Const   0.205

NOTE     TS  Time Date 02/10/2000 Time 02:14:38

GPSANT   KI  Antenna ht 0.000                     Measuremt Uncorrected

GPSVEC   SO  Point ID 72          DX   -2508.459          DY   7533.440
             Class Stake out      DZ   9102.923           Code LC 1/4 COR S
             Mthd Phase Diff.     H.pr 0.018              V.pr 0.028

F-CODE   SO  Code LC 1/4 COR S5/S32

GPSQC1   NM  Min SVs          7                    PDOP max   0.2
             Total GPS pos    174                  HDOP max   0.1
             Monitor status   Yes                  VDOP max   0.1
             Horizontal SD    0.000                Vert SD    0.000
             Start wk 1048 sec 328492.0            End wk 1048   sec 328671.0

GPSQC2   NM  Ttl satellites 7                      Err Scale  0.0207961351
             VCV xx     0.0000033863               VCV xy     0.0000020812
             VCV xz     -0.0000002147              VCV yy     0.0000060686
             VCV yz     -0.0000011427              VCV zz     0.000001983

POINT DGN SO
             Name       272                        To the Point
```

```
PT POLAR D SO
            Azmth      171°43'04.029"          H.dist     68.701
            V.dist     -11.258

INIT     KI Init event     User cancelled init Week          1048
            Init type      On the fly          seconds       328691.0
            Init counter   16                  Point ID      <no text>
            Survey type    Real Time           Plate H. Dist <null>
            Plate V. Dist  <null>              Plate azimuth <null>

INIT     KI Init event     Gained              Week          1048
            Init type      Known Point         seconds       328703.0
            Init counter   17                  Point ID      72
            Survey type    Real Time           Plate H. Dist <null>
            Plate V. Dist  <null>              Plate azimuth <null>

EQUIP    NM Receiver   4700                    Serial no 20178300
            Antenna    Micro-centered L1/L2
            Method     Measured to bottom of antenna mount
            Tape adj   0.000                   Serial no <no text>
            Radius     0.000                   V.Const   0.205

GPSANT   KI Antenna ht 6.562                   Measuremt Uncorrected

EQUIP    NM Receiver   4700                    Serial no 20178300
            Antenna    Micro-centered L1/L2
            Method     Measured to bottom of antenna mount
            Tape adj   0.000                   Serial no <no text>
            Radius     0.000                   V.Const   0.205

NOTE     TS Time Date 02/10/2000 Time 02:45:22

GPSANT   KI Antenna ht 6.562                   Measuremt Uncorrected

GPSVEC   SO Point ID 56          DX   -2881.457        DY   8652.345
            Class Stake out      DZ   10477.637        Code PANEL
            Mthd Phase Diff.     H.pr 0.020            V.pr 0.027

GPSQC1   NM Min SVs          8                 PDOP max  0.2
            Total GPS pos    137               HDOP max  0.1
            Monitor status   Yes               VDOP max  0.1
            Horizontal SD    0.000             Vert SD   0.000
            Start wk 1048 sec 330336.0         End wk 1048   sec 330513.0

QC2      NM Ttl satellites 8                   Err Scale 0.0228405297
            VCV xx     0.0000033145            VCV xy    0.0000008062
            VCV xz     0.0000001022            VCV yy    0.0000055794
            VCV yz     -0.0000001233           VCV zz    0.0000028642
```

```
POINT DGN SO
            Name      256                         To the Point

PT POLAR D SO
            Azmth     16°37'10.052"               H.dist    11.451
            V.dist    2.966

INIT    KI  Init event    User cancelled init Week          1048
            Init type     Known Point         seconds       330567.0
            Init counter  17                  Point ID      <no text>
            Survey type   Real Time           Plate H. Dist <null>
            Plate V. Dist <null>              Plate azimuth <null>

INIT    KI  Init event    Gained              Week          1048
            Init type     Known Point         seconds       330578.0
            Init counter  18                  Point ID      56
            Survey type   Real Time           Plate H. Dist <null>
            Plate V. Dist <null>              Plate azimuth <null>

SURVEY  KI  Elev mask 18                      PDOP mask 6.0

EQUIP   BA  Receiver  4700                    Serial no 20176795
            Antenna   Micro-centered L1/L2 w/Ground
            Method    Measured to bottom of notch on ground plane
            Tape adj  0.000                   Serial no <no text>
            Radius    0.766                   V.Const   0.023

SURVEY EVENTKISurvey event Base survey started

NOTE    TS  Time Date 02/11/2000 Time 21:49:43

EQUIP   BA  Receiver  4700                    Serial no 20176795
            Antenna   Micro-centered L1/L2 w/Ground
            Method    Measured to bottom of notch on ground plane
            Tape adj  0.000                   Serial no <no text>
            Radius    0.766                   V.Const   0.023

GPSANT  KI  Antenna ht 4.159                  Measuremt Uncorrected

EQUIP   BA  Receiver  4700                    Serial no 20176795
            Antenna   Micro-centered L1/L2 w/Ground
            Method    Measured to bottom of notch on ground plane
            Tape adj  0.000                   Serial no <no text>
            Radius    0.766                   V.Const   0.023

GPSANT  KI  Antenna ht 4.159                  Measuremt Uncorrected

GPSREF  KI  Reference 5
```

```
EQUIP   NM  Receiver  4700                        Serial no 20178300
            Antenna   Micro-centered L1/L2
            Method    Measured to bottom of antenna mount
            Tape adj  0.000                       Serial no <no text>
            Radius    0.000                       V.Const   0.205

SURVEY EVENTKISurvey event Rover survey started

NOTE    TS  Time Date 02/11/2000 Time 21:52:54

GPSANT  KI  Antenna ht 4.111                      Measuremt True

GPSREF  KI  Reference 5

INIT    KI  Init event    Gained                  Week          1048
            Init type     On the fly              seconds       485628.0
            Init counter  1                       Point ID      <no text>
            Survey type   Real Time               Plate H. Dist <null>
            Plate V. Dist <null>                  Plate azimuth <null>

EQUIP   NM  Receiver  4700                        Serial no 20178300
            Antenna   Micro-centered L1/L2
            Method    Measured to bottom of antenna mount
            Tape adj  0.000                       Serial no <no text>
            Radius    0.000                       V.Const   0.205

GPSANT  KI  Antenna ht 6.562                      Measuremt Uncorrected

EQUIP   NM  Receiver  4700                        Serial no 20178300
            Antenna   Micro-centered L1/L2
            Method    Measured to bottom of antenna mount
            Tape adj  0.000                       Serial no <no text>
            Radius    0.000                       V.Const   0.205

GPSANT  KI  Antenna ht 6.562                      Measuremt Uncorrected

NOTE    TS  Time Date 02/11/2000 Time 22:22:55

GPSVEC  SO  Point ID 35A          DX   2573.038        DY   3320.676
            Class Stake out       DZ   6135.713        Code CK SHOT 2/11
            Mthd Phase Diff.      H.pr 0.017           V.pr 0.029

GPSQC1  NM  Min SVs         7                     PDOP max  0.2
            Total GPS pos   176                   HDOP max  0.1
            Monitor status  Yes                   VDOP max  0.2
            Horizontal SD   0.000                 Vert SD   0.000
            Start wk 1048 sec 487408.0            End wk 1048   sec 487586.0
```

```
GPSQC2  NM  Ttl satellites 7                    Err Scale 0.0182904378
            VCV xx     0.0000026111             VCV xy    0.0000023919
            VCV xz     0.0000005703             VCV yy    0.0000066442
            VCV yz     -0.0000002675            VCV zz    0.0000022072

POINT DGN SO
            Name       35                       To the Point

PT POLAR D SO
            Azmth      72°40'44.391"            H.dist    0.012
            V.dist     0.022

INIT    KI  Init event    User cancelled init  Week          1048
            Init type     On the fly           seconds       487623.0
            Init counter  1                    Point ID      <no text>
            Survey type   Real Time            Plate H. Dist <null>
            Plate V. Dist <null>               Plate azimuth <null>

INIT    KI  Init event    Gained               Week          1048
            Init type     Known Point          seconds       487634.0
            Init counter  2                    Point ID      35A
            Survey type   Real Time            Plate H. Dist <null>
            Plate V. Dist <null>               Plate azimuth <null>

NOTE    TS  Time Date 02/11/2000 Time 23:11:10

INIT    KI  Init event    Lost                 Week          1048
            Init type     Known Point          seconds       490280.0
            Init counter  2                    Point ID      <no text>
            Survey type   Real Time            Plate H. Dist <null>
            Plate V. Dist <null>               Plate azimuth <null>

INIT    KI  Init event    Gained               Week          1048
            Init type     On the fly           seconds       490325.0
            Init counter  3                    Point ID      <no text>
            Survey type   Real Time            Plate H. Dist <null>
            Plate V. Dist <null>               Plate azimuth <null>

INIT    KI  Init event    High RMS             Week          1048
            Init type     On the fly           seconds       490454.0
            Init counter  3                    Point ID      <no text>
            Survey type   Real Time            Plate H. Dist <null>
            Plate V. Dist <null>               Plate azimuth <null>
```

```
:NIT     KI  Init event     Good RMS              Week          1048
             Init type     On the fly            seconds       490454.0
             Init counter  3                     Point ID      <no text>
             Survey type   Real Time             Plate H. Dist <null>
             Plate V. Dist <null>                Plate azimuth <null>

GPSVEC   SO  Point ID 48          DX   3278.398          DY   4531.314
             Class Stake out      DZ   8157.549          Code PANEL
             Mthd Phase Diff.     H.pr 0.016             V.pr 0.029

GPSQC1   NM  Min SVs        9                    PDOP max  0.1
             Total GPS pos  174                  HDOP max  0.1
             Monitor status Yes                  VDOP max  0.1
             Horizontal SD  0.000                Vert SD   0.000
             Start wk 1048 sec 491098.0          End wk 1048   sec 491276.0

GPSQC2   NM  Ttl satellites 9                    Err Scale 0.0226171035
             VCV xx    0.0000029003              VCV xy    0.0000010933
             VCV xz    -0.0000012347             VCV yy    0.0000029101
             VCV yz    -0.00000263               VCV zz    0.0000054589

POINT DGN SO
             Name      248                       To the Point

PT POLAR D SO
             Azmth     129°34'13.192"            H.dist    44.115
             V.dist    -10.884

INIT     KI  Init event     User cancelled init Week          1048
             Init type     On the fly            seconds       491338.0
             Init counter  3                     Point ID      <no text>
             Survey type   Real Time             Plate H. Dist <null>
             Plate V. Dist <null>                Plate azimuth <null>

INIT     KI  Init event     Gained                Week          1048
             Init type     Known Point           seconds       491349.0
             Init counter  5                     Point ID      48
             Survey type   Real Time             Plate H. Dist <null>
             Plate V. Dist <null>                Plate azimuth <null>

INIT     KI  Init event     Lost                  Week          1048
             Init type     Known Point           seconds       491432.0
             Init counter  5                     Point ID      <no text>
             Survey type   Real Time             Plate H. Dist <null>
             Plate V. Dist <null>                Plate azimuth <null>
```

```
INIT     KI  Init event     Gained                Week           1048
             Init type     On the fly            seconds        491447.0
             Init counter  6                     Point ID       <no text>
             Survey type   Real Time             Plate H. Dist  <null>
             Plate V. Dist <null>                Plate azimuth  <null>

NOTE     TS  Time Date 02/12/2000 Time 00:10:15

GPSVEC   SO  Point ID 45          DX   5004.007          DY   4216.581
             Class Stake out      DZ   8961.980          Code PANEL
             Mthd Phase Diff.     H.pr 0.013             V.pr 0.030

GPSQC1   NM  Min SVs        7                    PDOP max  0.2
             Total GPS pos  174                  HDOP max  0.1
             Monitor status Yes                  VDOP max  0.2
             Horizontal SD  0.000                Vert SD   0.000
             Start wk 1048 sec 493627.0          End wk 1048   sec 493805.0

GPSQC2   NM  Ttl satellites 7                    Err Scale 0.0136861093
             VCV xx    0.0000030952              VCV xy    0.0000033427
             VCV xz    -0.0000021152             VCV yy    0.0000051674
             VCV yz    -0.0000023114             VCV zz    0.0000029419

POINT DGN SO
             Name      245                       To the Point

PT POLAR D SO
             Azmth     271°47'42.213"            H.dist    27.898
             V.dist    5.946

INIT     KI  Init event     User cancelled init Week           1048
             Init type     On the fly            seconds        493857.0
             Init counter  6                     Point ID       <no text>
             Survey type   Real Time             Plate H. Dist  <null>
             Plate V. Dist <null>                Plate azimuth  <null>

INIT     KI  Init event     Gained                Week           1048
             Init type     Known Point           seconds        493868.0
             Init counter  7                     Point ID       45
             Survey type   Real Time             Plate H. Dist  <null>
             Plate V. Dist <null>                Plate azimuth  <null>

INIT     KI  Init event     Lost                  Week           1048
             Init type     Known Point           seconds        493924.0
             Init counter  7                     Point ID       <no text>
             Survey type   Real Time             Plate H. Dist  <null>
             Plate V. Dist <null>                Plate azimuth  <null>
```

```
INIT    KI  Init event     Gained                 Week           1048
            Init type      On the fly             seconds        493950.0
            Init counter   8                      Point ID       <no text>
            Survey type    Real Time              Plate H. Dist  <null>
            Plate V. Dist  <null>                 Plate azimuth  <null>

INIT    KI  Init event     Lost                   Week           1048
            Init type      On the fly             seconds        495045.0
            Init counter   8                      Point ID       <no text>
            Survey type    Real Time              Plate H. Dist  <null>
            Plate V. Dist  <null>                 Plate azimuth  <null>

INIT    KI  Init event     Gained                 Week           1048
            Init type      On the fly             seconds        495085.0
            Init counter   9                      Point ID       <no text>
            Survey type    Real Time              Plate H. Dist  <null>
            Plate V. Dist  <null>                 Plate azimuth  <null>

NOTE    TS  Time Date 02/12/2000 Time 00:44:57

GPSVEC  SO  Point ID 49            DX   4728.570          DY   3180.226
            Class Stake out        DZ   7442.203          Code PANEL
            Mthd Phase Diff.       H.pr 0.014             V.pr 0.030

GPSQC1  NM  Min SVs          7                   PDOP max  0.2
            Total GPS pos    172                 HDOP max  0.1
            Monitor status   Yes                 VDOP max  0.2
            Horizontal SD    0.000               Vert SD   0.000
            Start wk 1048 sec 495559.0           End wk 1048   sec 495737.0

GPSQC2  NM  Ttl satellites 7                     Err Scale 0.0157211814
            VCV xx     0.000002087               VCV xy    0.0000017128
            VCV xz     -0.000000678              VCV yy    0.0000072339
            VCV yz     -0.0000018907             VCV zz    0.0000018789

POINT DGN SO
            Name       249                       To the Point

PT POLAR D SO
            Azmth      232°04'43.709"            H.dist    7.956
            V.dist     1.304

INIT    KI  Init event     User cancelled init    Week           1048
            Init type      On the fly             seconds        495921.0
            Init counter   9                      Point ID       <no text>
            Survey type    Real Time              Plate H. Dist  <null>
            Plate V. Dist  <null>                 Plate azimuth  <null>
```

```
INIT     KI  Init event     Gained              Week           1048
             Init type      Known Point         seconds        495931.0
             Init counter   10                  Point ID       49
             Survey type    Real Time           Plate H. Dist  <null>
             Plate V. Dist  <null>              Plate azimuth  <null>

INIT     KI  Init event     Lost                Week           1048
             Init type      Known Point         seconds        495985.0
             Init counter   10                  Point ID       <no text>
             Survey type    Real Time           Plate H. Dist  <null>
             Plate V. Dist  <null>              Plate azimuth  <null>

INIT     KI  Init event     Gained              Week           1048
             Init type      On the fly          seconds        496011.0
             Init counter   11                  Point ID       <no text>
             Survey type    Real Time           Plate H. Dist  <null>
             Plate V. Dist  <null>              Plate azimuth  <null>

NOTE     TS  Time Date 02/12/2000 Time 01:50:12

GPSVEC   SO  Point ID 78          DX   1636.608        DY   3994.245
             Class Stake out      DZ   6635.884        Code LC 35/36/1/2
             Mthd Phase Diff.     H.pr 0.018           V.pr 0.028

F-CODE   SO  Code LC 35/36/1/2  T5&6N R1W

GPSQC1   NM  Min SVs        8                   PDOP max  0.2
             Total GPS pos  177                 HDOP max  0.1
             Monitor status Yes                 VDOP max  0.1
             Horizontal SD  0.000               Vert SD   0.000
             Start wk 1048 sec 499627.0         End wk 1048   sec 499805.0

GPSQC2   NM  Ttl satellites 8                   Err Scale 0.0215878673
             VCV xx    0.0000026535             VCV xy    0.000001464
             VCV xz    -0.0000000131            VCV yy    0.0000062236
             VCV yz    -0.0000016731            VCV zz    0.0000023826

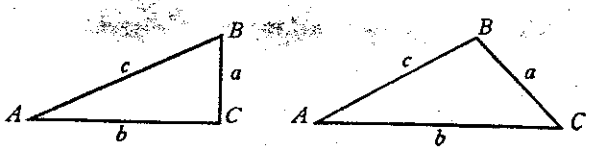
POINT DGN SO
             Name      278                      To the Point

PT POLAR D SO
             Azmth     145°41'24.608"           H.dist    12.633
             V.dist    3.008
```

INIT	KI	Init event	User cancelled init	Week	1048
		Init type	On the fly	seconds	499833.0
		Init counter	11	Point ID	<no text>
		Survey type	Real Time	Plate H. Dist	<null>
		Plate V. Dist	<null>	Plate azimuth	<null>

INIT	KI	Init event	Gained	Week	1048
		Init type	Known Point	seconds	499844.0
		Init counter	12	Point ID	78
		Survey type	Real Time	Plate H. Dist	<null>
		Plate V. Dist	<null>	Plate azimuth	<null>

FORMULAE FOR SOLVING RIGHT TRIANGLES



$\text{Sin } A = \frac{a}{c} = \text{Cos } B \qquad \text{Cot } A = \frac{b}{a} = \text{Tan } B$

$\text{Cos } A = \frac{b}{c} = \text{Sin } B \qquad \text{Sec } A = \frac{c}{b} = \text{Cosec } B$

$\text{Tan } A = \frac{a}{b} = \text{Cot } B \qquad \text{Cosec } A = \frac{c}{a} = \text{Sec } B$

Given	Required	Solution
A, c	B, a, b	$B = 90° - A, a = c \sin A, b = c \cos A.$
A, b	B, a, c	$B = 90° - A, a = b \tan A, c = \frac{b}{\cos A}.$
A, a	B, b, c	$B = 90° - A, b = a \cot A, c = \frac{a}{\sin A}.$
a, c	A, B, b	$\sin A = \frac{a}{c} = \cos B, b = \sqrt{(c+a)(c-a)}$
a, b	A, B, c	$\tan A = \frac{a}{b} = \cot B, c = \sqrt{a^2 + b^2}$

FORMULAE FOR SOLVING OBLIQUE TRIANGLES

Given	Required	Solution
A, a, b	B, c	$\sin B = \frac{b \sin A}{a}, c = \frac{a \sin C}{\sin A}$
A, B, a	b	$b = \frac{a \sin B}{\sin A}$
a, b, C	A, c	$A + B = 180° - C, c = \frac{a \sin C}{\sin A}$
a, b, c	Area	side $\frac{a+b+c}{2}$, area $= \sqrt{s(s-a)(s-b)(s-c)}$
A, b, c	Area	area $= \frac{bc \sin A}{2}$
A, B, C, a	Area	area $= \frac{a^2 \sin B \sin C}{2 \sin A}$

MADE IN U.S.A.

Book 1 of 3

North Peoria Aerial Mapping

Usko #

Stawiec

50 H.&V. Ground Control Pts

(1) Level Runs "A" Datum (1989)

BM# 5366 Alum. Disk in Conc. beneath Flume at Beardsley Canal N. East to SR 74 Bridge x-ing Agua Fria River

Inst. Level - Topcon AT-G6

Philly Rod - Mound City

Jan. 30, 00

Supervisor Phillips

P.C. - Jim Archibald

T - Kevin Reed

P - Perry Odom

Sta.	+	Hi	—	Elev	Adjusted
B.M.				1319.07	
	11.22	30.29			
A-1			0.14	30.15	
	13.23	43.38			
A-2			0.71	42.67	
	7.82	50.49			
A-3			0.95	49.54	1349.53
	3.79	53.33			
A-4			2.14	51.19	
	4.57	55.76			
A-5			6.10	49.66	
	9.52	59.18			
A-6			4.96	54.22	
	5.54	59.76			
A-7			8.11	51.65	
	8.82	60.47			
A-8			7.62	52.85	
Loop	7.49	60.34			
A-7			8.70	51.64	
	7.93	59.57			
A-6			5.36	54.21	
	5.01	59.22			
A-5			9.57	49.65	

Jan. 31, 05

Elev. 1319.07 + B.M. [illegible] in [illegible]
S 366 1967 Stamped
Elev 1319.07 (Adj) NAVD 88

Cotton Picker Canal RD. 18'+/- S. Canal

N.E. End Flume Total Lt. = 6090

	+	H.	−	Elev	
TP-5				1349.65	
	6.18	55.83			
A-4			4.66	51.17	−
	1.35	52.52			
A-3	S.Shot		3.00	49.52	−
A-2			9.87	42.65	−
	0.51	43.16			
A-1			13.02	30.14	−
	0.30	30.44			
BM.S-366			11.39	19.05	1319.06
				.02 Adj	
A-3				1349.53	1349.53
	7.84	57.37			
R.P. S-366			5.11	52.26	1352.26
	4.95	57.21			
			7.67	49.54	
A. #8				1352.86	1352.86
	3.15	56.01			
A-9.			4.30	51.71	
	4.28	55.99			
A-10.			4.52	51.47	
	5.91	57.38			
A-11.			5.94	51.44	

R.P. S-366 Survey Cap on Pipe
Set By Others Lynn Jonsen

Sta	+	H.	−	Elev
A-11				135.44
	5.43	56.87		
A-12			3.53	53.34
	3.30	56.64		
A-13			2.74	53.90
	3.78	57.68		
A-14			5.82	51.86
	6.15	58.01		
A-15			5.73	52.28
	4.80	57.08		
A-16			1.57	55.51
	2.61	58.12		
A-17			3.56	54.56
	5.23	59.79		
A-18			4.27	55.52
	2.91	58.43		
A-19			5.77	52.66
	7.71	60.37		
A-20			8.42	51.95
	5.92	57.87		
A-21			4.56	53.31
	5.83	59.14		
A-22			4.69	54.45

2/1/2000

	+	H.	−	Elev	
A-22				1354.45	
	3.29	57.74			
A-23			5.14	52.60	
	6.05	58.65			
A-24			5.09	53.56	
	4.65	58.21			
A-25			2.69	55.52	
	5.40	60.92			
A-26			4.75	56.17	
	6.72	62.89			
A-27			7.65	55.24	
	4.90	60.14			
A-28			6.48	53.66	
	8.73	62.39			ADJ. 58.13
ERM-61			4.24	1358.15	
Loop.	4.04	62.19			
A-28			8.50	53.69	
	6.52	60.21			
A-27			4.93	55.28	
	7.74	63.02			
A-26			6.80	56.22	
	4.79	61.01			
A-25			5.43	55.58	
	2.47	58.05			
A-24			4.44	53.61	

2/1/2000

.7 Mile

+2.1 miles A-8 to ERM61

ERM#61 + on N.E. Cor. of Cattle Guard
At the North side of orchard on
Beardsley Canal Rd. Loc. 1950'+ - East
And 400'+ - N. of S.W. Cor Sec. 17
Set by others — T5N - R1-E

1355.76 (1929) Coc & Van Loo
+2.06
1357.82 (1988) Valco + 0.31 High

	+	Hi	−	Elev
A24				1353.61
	5.23	58.84		
A-23			6.19	52.65
	5.23	57.88		
A-22			3.38	54.50
	4.70	59.20		
A-21			5.86	53.34
	4.67	58.01		
A-20			6.03	51.98
	8.48	60.46		
A-19			7.77	52.69
	5.68	58.37		
A-18			2.81	55.56
	4.26	59.82		
A-17			5.22	54.60
	3.56	58.16		
A-16			~~2.61~~	~~55.55~~
	1.48	57.03		
A-15			4.71	52.32
	5.47	57.79		
A-14			5.90	51.89
	5.39	57.28		
A-13			3.36	53.92

	+	Hi	—	Elev
A-13				1353.92
	2.87	56.79		
A-12			3.42	53.37
	3.45	56.82		
A-11			5.34	51.48
	5.76	57.24		
A-10			5.73	51.51
	4.38	55.89		
A-9			4.13	51.76
	4.36	56.12		
A-8			3.22	52.90
			.04 High	
			(20 Turns)	
ERM-61				1358.13
	7.23	65.36		
A-29			8.37	56.99
	6.06	63.05		
A-30			5.95	57.10
	3.77	60.87		
A-31			5.36	55.51
	3.00	58.51		
A-32			2.93	55.58

N.E. End Flume

	+	Hi	−	Elev	
A-32				1355.58	ADJ 55.57
	2.31	57.89			
A-33			3.37	54.52	
	6.05	60.57			
A-34			4.61	55.96	
	4.22	60.18			
A-35			5.81	54.37	
	5.21	59.58			
A-36			8.18	51.40	135.45
Loo P.	7.30	58.70			ADJ
A35			4.31	54.39	
	5.45	59.84			
A-34			3.85	55.99	
	4.52	61.51			
A-33			5.95	55.56	+.04
	3.25	58.81			
A-32			2.19	56.62	+.01
	3.20	59.82			
A-31			3.26	56.56	+.05
	5.38	61.94			
A-30			3.80	58.14	+.04
	6.03	64.17			
A-29			6.13	58.04	+.05
	8.49	66.53			
FRM-61			7.35	59.18	+.05
				0.05 High 2 Miles	

West End Flume Aqua Fill
2x2 Hub.
2/2/2000

	+	H_I	−	(88) Elev	1929
A-36				1351.38	1349.31
	0.80	52.18			
A-37			15.38	36.80	
	0.35	37.15			
A-38			2.03	35.12	
	5.06	40.18			
A-39			4.98	35.20	
	12.49	47.69			
A-40			0.53	47.16	
	16.61	63.77			
A-41			0.48	63.29	
	17.13	80.42			
A-42			0.66	79.76	
	13.42	93.18			
A-43			4.37	88.81	
	7.63	95.94			
A-44			3.37	92.57	
	3.41	95.98			
A-45			5.75	90.23	
	4.43	94.66			
A-46			0.97	93.69	
	6.33	1400.02			
A-47			0.33	1399.69	

(5)

2 X 2 Hub West end Alum Aqua Fria

17.13
.60
16.47

7.63
3.37
4.26

	+	Hi	−	Elev	1929
A-47				1399.69	
	15.08	1414.77			
A-48			0.21	14.56	
	15.06	29.62			
A-49			1.05	28.57	
	11.28	39.85			
Chute			2.93	1436.92	34.85
Loop.	2.80	39.78			
A-49			11.15	28.57	
	1.12	29.69			
A-48			15.13	14.56	
*	0.47	15.03			
A-47			15.34	1399.69	
	0.41	1400.10			
A-46			6.41	1393.69	
	1.00	94.69			
A-45			4.46	90.23	
	5.80	96.03			
A-44			3.46	92.57	
	3.49	96.06			
A-43			7.75	88.31	
	5.35	93.66			
A-42	*		13.88	79.78	

Chute - N.W. Cor. + Long. 4/W. I-form

	+	Hi	−	Elev	
A-42				1379.78	
	17.10 0.64	80.42			
A-41	16.46		17.10	63.32	
	0.60	63.92			
A-40			16.74	47.18	
	0.36	47.54			
A-39			12.33	35.21	
	4.72	39.93			
A-38			4.80	35.13	
	2.07	37.20			
A-37			0.39	36.81	
	15.54	52.35			
A-36			0.96	51.39	1351.38
			1.8 Miles	101 High	
		2/7/2000			
Chute				1436.92	
	5.33	42.25			
A-50			6.00	36.25	
	4.27	40.52			
A-51			4.58	35.94	
	5.81	41.75			
A-52			5.55	36.20	

	+	Ht	—	Elev	
A-52				1436.20	
	7.74	43.94			
A-53			6.77	37.17	
	4.58	41.75			
A-54			3.30	38.45	
	8.98	47.43			
A-55			4.89	42.54	
	0.65	43.19			
A-56			3.41	39.78	
	4.07	43.85			
A-57			3.20	40.65	
	8.00	48.65			
A-58			6.43	42.22	
	4.09	46.31			
A-59			6.21	40.10	
	5.17	45.27			
A-60			1.71	43.56	
	3.65	47.21			
A-61			7.48	39.73	Sec. Line
	6.54	46.27			
A-62			3.42	42.85	
	8.06	50.91			
A-63			6.29	44.62	

Section Line N. side Race Track

	+	Hi	−	Elev	
A-63				1444.62	
	5.82	50.44			
A-64			3.87	46.57	
	3.81	50.38			Adj
A-65			7.63	1442.75	1442.74
Loop	7.46	50.21			
A-64			3.63	46.58	
	3.72	50.30			
A-63			5.67	44.63	
	6.27	50.90			
A-62			8.05	42.85	
	3.42	46.27			
A-61			6.53	39.74	
	7.37	47.11			
A-60			3.54	43.57	
	1.72	45.29			
A-59			5.18	40.11	
	6.21	46.32			
A-58			4.09	42.23	
	6.52	48.75			
A-57			8.08	40.67	
	3.29	43.96			
A-56			4.15	39.81	
	3.28	43.09			
A-55			0.53	42.56	

1.5 [illegible] Bridge To Rice Tank
[illegible] Canal

	+	H.	−	Elev
A-55				1442.56
	4.93	47.49		
A-54			9.02	38.47
	3.22	41.69		
A-53			4.50	37.19
	6.86	44.05		
A-52			7.83	36.22
	5.56	41.78		
A-51			5.82	35.96
	4.62	40.58		
A-50			4.31	36.27
	5.99	42.26		
Chute			5.32	1436.94
			3.0 miles	.02 High
		2/8/2000		
A-65				1442.74
	10.78	53.52		
A-66			10.69	42.83
	4.77	47.60		
A-67			3.07	44.53
	2.89	47.42		
A-68			5.10	42.32
	8.31	50.63		
A-69			5.07	45.56

	+	Hi	–	Elev
A-69				1445.56
	5.35	50.91		
A-70			7.00	43.91
	2.10	46.01		
A-71			4.94	41.07
	5.83	46.90		
A-72			4.40	42.50
	4.56	47.06		
A-73			5.38	41.68
	5.24	46.92		
A-74			5.20	41.72
	4.07	45.79		
A-75			2.31	43.48
	7.06	50.54		
A-76			8.62	41.92
	6.63	48.55		
A-77			4.27	44.28
	2.01	46.29		
A78			4.53	41.76
	6.54	48.30		
A-79			4.92	43.38
	3.16	46.54		
A-80			4.90	41.64

	+	Hi	−	Elev	
A-80				1441.64	
	7.26	48.90			
A-81			6.22	42.68	
	11.82	54.50			
A-82			3.33	51.17	
	1.50	52.67			
A-83			8.36	44.31	
	6.00	50.31			
A-84			5.32	44.99	
	7.51	52.50			
A-85			11.61	40.89	
	9.65	50.54			
A-86			7.79	42.75	
	4.02	46.77			
A-87			4.76	42.01	
	5.22	47.23			
Section Cor.			7.39	1439.84	Adj 1439.85
Loop	7.53	47.37			
A-87			5.36	42.01	
	4.93	46.94			
A-86			4.19	42.75	
	7.84	50.59			
A-85			9.71	40.88	

1" Pipe N.E. Cor Sec 31 T6N R1E

	+	Hi	—	Elev
A-85				1440.88
	11.74	52.62		
A-84			7.65	44.97
	5.59	50.56		
A83			6.27	44.29
	8.44	52.73		
A-82			1.59	51.14
	3.40	54.54		
A-81			11.89	42.65
	6.10	48.75		
A-80			7.14	41.61
	4.85	46.46		
A-79			3.11	43.35
	5.07	48.42		
A-78			6.69	41.73
	4.51	46.24		
A-77			1.99	44.25
	4.27	48.52		
A-76			6.63	41.89
	8.57	50.46		
A-75			7.00	43.46
	2.23	45.69		
A74			3.98	41.71

	+	H.	−	Elev
A-74				1441.71
	5.29	47.00		
A-73			5.33	41.67
	5.45	47.12		
A-72			4.63	42.49
	4.43	46.92		
A-71			5.86	41.06
	4.65	45.71		
A-70			1.81	43.90
	6.97	50.87		
A-69			5.32	45.55
	5.10	50.65		
A-68			8.33	42.32
	5.11	47.43		
A67			2.90	44.53
	3.03	47.56		
A-66			4.73	42.83
	10.63	53.46		
A-65			10.74	42.72
		4.5 Miles	.02 Low	
		2/9/2000		
Sec. Cor				143985 Adj
	9.12	48.95		
A-88			4.96	44.01

N.E. Cor Bridge ADOT B.C.

	+	Hi	-	Elev	
A-88				1444.01	—
	13.80	57.81			
A-89			0.52	57.29	
	12.07	69.36			
A-90			0.27	69.09	
	6.25	75.34			
B/C			3.68	1471.66	
	3.47	75.13			
A-90			6.04	69.09	C-1
	0.30	69.39			
A-89			12.09	57.30	C-2
	0.62	57.92			
A-88			13.91	44.01	C-3 Rock
	4.91	48.92			
Sec Cor			9.06	39.86	
				.01 High	

Rock inside R/W

ADOT R/W NE Cor Section Parallelog CANAL

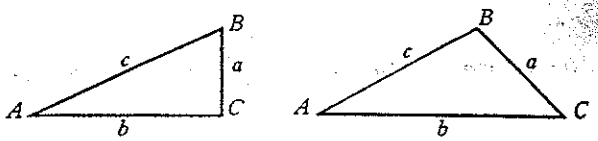
STAM pcd. Elev. 1469.31 & Hi. TA-

Valco + 0.28 HI + 2.06 Co Vaco & Ado Adj.

1471.37

1471.66
-1471.37
+0.29

FORMULAE FOR SOLVING RIGHT TRIANGLES



$$\text{Sin } A = \frac{a}{c} = \text{Cos } B \qquad \text{Cot } A = \frac{b}{a} = \text{Tan } B$$

$$\text{Cos } A = \frac{b}{c} = \text{Sin } B \qquad \text{Sec } A = \frac{c}{b} = \text{Cosec } B$$

$$\text{Tan } A = \frac{a}{b} = \text{Cot } B \qquad \text{Cosec } A = \frac{c}{a} = \text{Sec } B$$

Given	Required	Solution
A, c	B, a, b	$B = 90° - A, a = c \sin A, b = c \cos A.$
A, b	B, a, c	$B = 90° - A, a = b \tan A, c = \frac{b}{\cos A}.$
A, a	B, b, c	$B = 90° - A, b = a \cot A, c = \frac{a}{\sin A}.$
a, c	A, B, b	$\sin A = \frac{a}{c} = \cos B, b = \sqrt{(c + a)(c - a)}$
a, b	A, B, c	$\tan A = \frac{a}{b} = \cot B, c = \sqrt{a^2 + b^2}$

FORMULAE FOR SOLVING OBLIQUE TRIANGLES

Given	Required	Solution
A, a, b	B, c	$\sin B = \frac{b \sin A}{a}, c = \frac{a \sin C}{\sin A}$
A, B, a	b	$b = \frac{a \sin B}{\sin A}$
a, b, C	A, c	$A + B = 180° - C, c = \frac{a \sin C}{\sin A}$
a, b, c	Area	side $\frac{a + b + c}{2}$, area $= \sqrt{s(s-a)(s-b)(s-c)}$
A, b, c	Area	area $= \frac{bc \sin A}{2}$.
A, B, C, a	Area	area $= \frac{a^2 \sin B \sin C}{2 \sin A}$

MADE IN U.S.A.

Book 2 of 3

North Peoria Aerial Photo

STANTEC

Vaco Surveying #

① Level Run "B" N. West from B.M. S-366 (998 Datum to SR 74 B.M. ADOT Photo

Level - Topcon AT-G6
Philip Reed - Mound City

Feb 3, 00

Supv - Jim Pollitt
P.C. - Jim Archibald
T - Kevin Reed
T - Perry Oaten

STA	+	H.I.	−	1988 Elev.	Adjust
B.M				1319.07	
	8.81	27.88			
B-1			0.43	27.45	
	13.78	41.23			
B-2			2.27	38.96	
	15.18	54.14			
B-3			0.35	53.79	
	17.11	70.90			
B-4			0.57	70.33	
	17.07	87.40			
B-5			1.96	85.44	
	7.88	93.32			
B-6			2.64	90.68	
	8.68	99.36			
B-7			1.49	1397.87	
	7.13	14.05.00			
B-8			3.87	01.13	
	6.37	07.50			
B-9			2.64	04.86	
	7.07	11.93			
B-10			7.32	04.61	
	4.04	08.65			
B-11			3.31	05.34	

(1)

Feb 3 00

Bench Mark - stamped S-366 1967
Elev 1319.07 (Adj) NAVD 88

	+	H.I.	−	Elev
B-11				1405.34
	1.85	07.19		
B-12			8.35	1398.84
Bolt N.	5.60	1404.44		
B-13			8.86	1395.58
	7.96	1403.54		
B-14			6.37	1397.17
Loop	6.40	1403.57		
B-13			7.99	1395.58
	8.80	1404.38		
B-12			5.55	1398.83
	8.51	1407.34		
B-11			2.00	05.34
	3.26	08.60		
B-10			4.00	04.60
	7.39	11.99		
B-9			7.13	04.86
	2.80	07.66		
B-8			6.53	01.13
	3.95	1405.08		
B-7			7.21	1397.87
	1.47	99.34		
B-6			8.66	90.68

Bolt S.E. Leg West Power Line Tower

	+	H.	−	Elev
B-6				1390.68
	3.18	93.86		
B-5			8.43	85.43
	2.04	87.47		
B-4			17.14	70.33
	0.68	71.01		
B-3			17.22	53.79
	0.67	54.46		
B-2			15.49	38.97
	2.32	41.29		
B-1			13.83	27.46
	0.41	27.87		
S-366			8.79	1319.08
			2.6 miles .01 High	
B-14				1397.17
	4.46	1401.63		
B-15			1.22	1400.41
	15.42	15.83		
B-16			3.17	12.66
	8.75	21.41		
B-17			2.00	19.41
	10.55	29.96		
B-18			2.83	27.13

Bolt N.E Leg of west P.Line Tower

	+	Hi	−	Elev
B-18				1427.13
	7.75	34.88		
B-19			2.78	32.10
	4.55	36.65		
B-20			1.80	34.85
	9.04	43.89		
B-21			1.93	41.96
	9.88	51.84		
B-22			2.31	49.53
	7.85	57.38		
B-23			1.75	55.63
	5.74	61.37		
B-24			2.18	59.19
	10.44	69.63		
B-25			0.89	68.74
	6.66	75.40		
B-26			2.10	73.30
	6.45	79.75		
B-27			3.61	76.14
	8.01	84.15		
B-28			8.19	75.96
	10.67	86.63		
B-29			0.20	86.43
	12.87	99.30		
B-30			3.17	96.13

	+	H.	-	Elev		
B-30				1496.13		
	10.65	1506.78				
B-31			0.45	1506.33		
	12.34	18.67				
B-32			3.45	15.22		
	8.77	23.99				
B-33			2.30	21.69		
	6.52	28.21				
B-34			2.56	25.65		
	7.24	32.89				
B-35			2.09	30.80		
	9.63	40.43				
B-36			0.53	39.90		
	7.77	47.67				
B-37			0.91	46.76		
	7.50	54.26			ADJ.	
B-38			7.11	1547.15	47.14	Top Conc Wall @ S.E. Cor. Bridge Cap
Loop	6.97	54.12				
B-37			7.36	46.76		
	0.96	47.72				
B-36			7.81	39.91		
	0.64	40.55				
B-35			9.73	30.82		
	2.16	32.98				
B-34			7.31	25.67		

	+	H.I.	−	Elev
B-34				1525.67
	2.72	28.39		
B-33			6.68	21.71
	2.22	23.93		
B-32			8.68	15.25
	3.81	19.06		
B-31			12.71	06.35
	0.71	07.06		
B-30			10.91	1496.15
	3.19	99.34		
B-29			12.90	86.44
	0.38	86.82		
B-28			10.86	75.96
	8.33	84.29		
B-27			8.17	76.12
	3.69	79.81		
B-26			6.53	73.28
	2.17	75.45		
B-25			6.75	68.70
	0.97	69.67		
B-24			10.51	59.16
	2.37	61.53		
B-23			5.93	55.60
	1.88	57.48		
B-22			7.97	49.51

	—	H.	—	Elev
B-22				1449.51
	3.44	51.95		
B-21			10.01	41.94
	1.87	43.81		
B-20			8.96	34.85
	1.82	36.67		
B-19			4.57	32.10
	2.81	34.91		
B-18			7.77	27.14
	2.89	30.03		
B-17			10.61	19.42
	2.15	21.57		
B-16			8.90	12.67
	3.17	15.84		
B-15			15.42	1400.42
	1.07	1401.49		
B-14			4.30	1397.19
		5.2	Miles	.02 High

N.E. Leg Power Line Tower (West)

			7/5/2000		
B.38	+	4/1	–	1547.14	
	7.22	54.36			
B-39			0.56	53.80	
	14.10	67.90			
B-40			1.05	66.85	
	9.03	75.88			
B-41			3.49	72.39	
	4.74	77.13			
B-42			0.63	76.50	
	12.69	89.19			
B-43			1.79	87.40	
	3.02	90.42			
B-44			7.77	82.65	
	7.68	90.33			
B-45			0.65	89.68	1589.69
	15.31	1604.99			
B-46			0.40	1604.59	
	13.92	18.51			ADJ
1/4 Cor.			4.53-	1613.98	1613.99
LooP	4.33	18.31			
B-46			13.73	04.58	
	0.63	05.21			
B.45			15.54	1589.67	

S.F for Cons. Village C/L P.

C. Picker to go North 1589.69

1/4 Cor GLO B/L Sec11 W 12 E T5N R1W
± 4.5 m. 4s

	+	H.	-	Elev
B-45				1589.67
	0.71	90.38		
B-44			7.74	82.64
	7.50	90.14		
B-43			2.76	87.38
	1.74	89.12		
B-42			12.64	76.48
	0.75	77.23		
B-41			4.86	72.37
	3.46	75.83		
B-40			9.00	66.83
	0.80	67.63		
S.S. B-39			13.85	53.78
B-38			20.51	1547.12
		1.4	Miles	.02 Low

	+	H.	−	Elev
B-45				1589.69
	1.15	90.84		
B-47			9.49	81.35
	2.50	83.85		
B-48			16.79	67.06
	2.84	69.90		
B-49			3.48	66.42
	8.41	74.83		
B-50			0.36	74.47
	12.04	86.51		
B-51			7.65	78.86
	3.68	82.54		
B-52			6.83	75.71
	5.03	80.74		
B53			3.18	77.56
	9.22	86.78		
B-54			4.12	82.66
	12.61	95.27		
B-55			0.45	94.82
	9.58	1604.40		
B-56			3.32	1501.08
	9.77	10.85		
B-57			9.69	01.16
	2.57	03.73		
B-58			4.07	1599.66

2/11/2000

C. Pickar To go North

To go To Sec Cor & PANA!
NW. 12

	-	H.	—	Elev	
B-58				1599.66	
	7.85	1607.51			
B-59			17.17	1590.34	
	7.23	1597.57			
B-60			16.57	1581.00	
	7.98	88.98			
B-61			5.92	83.06	
	10.32	93.38			
B-62			0.93	1592.45	
	18.05	1610.50			
B-63			1.93	08.57	
	10.39	18.96			
B-64			2.69	16.27	
	9.12	25.39			
B-65			1.11	1624.28	
	17.13	41.41			
B-66			5.24	1636.17	ADJ 1636.19
LOOP	4.95	41.12			
B-65			16.84	24.28	
	1.13	25.41			
B-64			9.16	16.25	
	2.65	18.90			
B-63			10.35	08.55	

1"x2" Hub 12' E of Rd 5 side WASH

Cotton Picker

Road Forks

	+	H.	—	Elev
B-63				1608.55
	2.11	10.66		
B-62				1592.42
	0.83	1593.25		
B-61			10.22	83.03
	5.85	88.88		
B-60			7.91	80.97
	16.63	97.60		
B.59			7.29	90.31
	16.97	1607.28		
B-58			7.64	1599.64
	3.95	1603.59		
B-57			2.45	1601.14
	9.64	1610.78		
B-56			9.73	1601.05
	3.52	1604.57		
B-55			9.78	1594.79
	0.39	95.18		
B-54			12.54	82.64
	3.94	86.58		
B-53			9.04	77.54
	3.38	80.92		
B-52			5.23	75.69

To go to NW Cor 12
NW #27 SE #26

	+	H.	−	Elev	
B-52				1575.69	
	6.81	82.50			
B-51			3.67	78.83	
	7.55	86.38			
B-50			11.95	74.43	
	0.32	74.75			
B-49			8.37	66.38	
	4.09	70.47			
B-48			3.45	67.02	
	16.68	83.70			
B-47			2.38	81.32	
	9.39	90.71			
B-45			1.05	1589.66	
		2.4	Miles	.03 Low	
	2/14/2000			ADJ.	Fork in Rd going N.W
B-66				1636.19	
	2.36	38.55			
B-67			18.10	20.45	
	7.23	27.68			
B-68			2.59	25.09	
	14.53	39.62			
B-69			0.58	1639.04	

	-	H.	-	Elev
B-69				1639.04
	11.01	50.05		
B-70			1.37	48.68
	14.98	63.66		
B-71			3.84	59.82
	13.02	72.84		
B-72			0.89	71.95
	18.87	90.82		
B-73			0.67	1690.15
	12.42	1702.57		
B-74			4.38	1698.19
	15.34	1713.53		
B-75			2.58	10.95
	6.71	17.66		
SS #34			5.15	1712.51
B-76			0.37	17.29
	5.83	23.12		
B-77			6.79	16.33
	9.93	26.26		
B-78			1.68	24.58
	5.96	30.54		
B-79			3.93	26.61
	16.80	43.41		
B-80			0.49	42.92

VALCO Panel #34 Spike

	+	H.	−	Elev	
B-80				1742.92	
	14.57	57.49			
B-81			0.64	56.85	
	12.21	69.06			
To Panel B-82 #20			1.21	67.85	
	7.95	75.80			
B-83			17.95	57.85	
	0.79	58.64			
B-84			6.15	52.46	
	10.96	63.42			
B-85			0.58	62.84	
	11.86	74.70			
B-86			2.15	72.55	
	7.76	80.31			
B-87	C. Picker		3.13	77.18	
	11.60	88.78			
B-88			1.69	1787.09	
	16.63	1803.72			
B-89	To go To Panel E,		0.21	1803.51	ADJ. 03.50
LOOP	0.55	04.06			
B-88			16.97	1787.09	
	1.65	88.74			
B-87			11.56	77.18	

VALCO
Finish Panel S. of To Sec Cor
#20

2/15/2000

Cotton Picker To Panel EAST
#40

	+	H.	−	Elev
B-87				1777.18
	3.35	80.53		
B-86			7.97	72.56
	2.20	74.76		
B-85			11.90	62.86
	0.56	63.42		
B-84			10.94	52.48
	6.56	59.04		
B-83			1.20	57.84
	18.00	75.84		
B-82			7.99	67.85
	1.21	69.06		
B-81			12.21	56.85
	0.74	57.59		
B-80			14.67	42.92
	0.54	43.46		
B-79			16.85	26.61
	4.02	30.63		
B-78			6.05	24.58
	1.78	26.36		
B-77			10.02	16.34
	6.78	23.12		
B-76			5.81	17.31

	+	Hi	−	Elev
B-76				1717.31
	0.46	17.77		
Bmel #34	S.S.		5.25	1712.52
B-75			6.81	10.96
	2.68	13.64		
B-74			15.45	1698.19
	4.23	1702.42		
B-73			12.26	1690.16
	0.68	90.84		
B-72			18.87	71.97
	1.07	73.04		
B-71			13.19	59.85
	3.87	63.72		
B-70			15.01	48.71
	1.46	50.17		
B-69			11.10	39.07
	0.77	39.84		
B-68			14.73	25.11
	2.91	28.02		
B-67			7.55	20.47
	18.11	38.58		
B-66	TBM		2.37	-1636.21
				.02 high
		3 Miles		

	+	Hi	−	Elev
B-89				1803.50
	3.11	06.61		
B-90			19.41	1787.20
	1.87	89.07		
B-91			19.75	69.32
	3.16	72.48		
B-92			2.52	69.96
	2.26	72.22		
B-93			23.63	48.59
	0.30	48.89	*	
B-94	West Side	Big Wash	11.82	37.07
	22.83	59.90		
B-95	R.R. Spike		10.68	49.22
	16.65	65.87		
B-96			0.20	65.67
	13.24	78.91		
B-97			3.35	75.56
	12.94	88.50		
B-98	Road S.W		1.32	87.18
	6.49	93.67		
B-99	To go EAST	TO ERM	12.67	81.00
	1.53	82.53		
B-100			11.19	1771.34

8/16/2000

To N.E. Cor Sec #2 T6N R1W 1781.00
− 2.07
1778.93

	+	H	−	1988 Elev
B-100				1771.34
	14.10	85.44		
B-101			2.99	82.45
	16.51	98.96		
B-102			1.23	97.73
	1.32	99.05		
B-103			11.49	87.56
*	19.53	1807.09		
B-104			3.55	1803.54
*	12.77	16.31		
B-105	W. side Rd 40'		3.48	12.83
	15.02	27.85		
S.S. To go to #39			2.22	1825.63
B-106			0.80	27.05
	18.64	45.69		
S.S. B-107 To go CAHL 6.			8.10	1837.59
2-B-107			0.62	45.07
	24.93	70.00		
CUT-ERM			11.52	1858.48
LOOP	11.33	69.81		
2-B-107			24.74	45.07

16.03 - 1808.7

1953 BS 103 FS 104 - 3.55

EAST TO PANEL # 39
ON ROCK

BS 106 - 19.02
FS B-107 - 8.48
FS 2B-107 - 0.99

B.M. ADOT Photo Div. Brk. in Cave N. side Rt 74

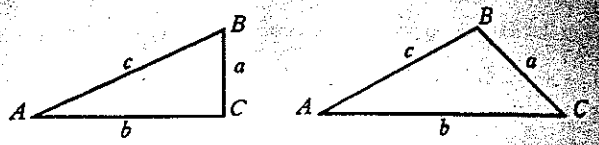
1858.48 (33)
− 2.07
1856.41 (29)

2/17/2006

	+	Hi	−	Elev
2-B-107				1845.07
	0.99	46.06		
B-107			8.48	37.58
B-106			19.02	27.04
	0.62	27.66		
To go S.S Panel #39			2.03	25.63
B-105			14.83	12.83
	3.47	16.30		
B-104			12.76	1803.54
	3.55	1807.09		
B 103			19.53	1787.56
	11.43	98.99		
B-102			1.25	97.74
	1.18	98.92		
B-101			16.46	82.46
	2.89	85.35		
B-100			14.00	71.35
	11.19	82.54		
B-99	To go EAST	To ERM	1.52	81.02
	12.83	93.85		
B-98	Road S.W		6.66	87.19
	1.25	88.44		
B-97			12.86	75.58

	+	Hi	−	Elev
B-97				1775.58
	3.28	78.86		
B-96			13.17	65.69
	0.14	65.83		
B-95			16.60	49.23
	10.68	59.91		
B-94			22.83	37.08
*	11.95	49.03		
B-93			0.43	48.60
	23.54	72.14		
B-92			2.18	69.96
	2.49	72.45		
B-91			3.12	69.33
	19.46	88.79		
B-90			1.58	87.21
	19.72	1806.93		
B-89 TBM			3.42	1803.51
		3.4 Miles		.01 High

FORMULAE FOR SOLVING RIGHT TRIANGLES



$$\text{Sin } A = \frac{a}{c} = \text{Cos } B \qquad \text{Cot } A = \frac{b}{a} = \text{Tan } B$$

$$\text{Cos } A = \frac{b}{c} = \text{Sin } B \qquad \text{Sec } A = \frac{c}{b} = \text{Cosec } B$$

$$\text{Tan } A = \frac{a}{b} = \text{Cot } B \qquad \text{Cosec } A = \frac{c}{a} = \text{Sec } B$$

Given	Required	Solution
A, c	B, a, b	$B = 90° - A, a = c \sin A, b = c \cos A.$
A, b	B, a, c	$B = 90° - A, a = b \tan A, c = \frac{b}{\cos A}.$
A, a	B, b, c	$B = 90° - A, b = a \cot A, c = \frac{a}{\sin A}.$
a, c	A, B, b	$\sin A = \frac{a}{c} = \cos B, b = \sqrt{(c+a)(c-a)}$
a, b	A, B, c	$\tan A = \frac{a}{b} = \cot B, c = \sqrt{a^2 + b^2}$

FORMULAE FOR SOLVING OBLIQUE TRIANGLES

Given	Required	Solution
A, a, b	B, c	$\sin B = \frac{b \sin A}{a}, c = \frac{a \sin C}{\sin A}$
A, B, a	b	$b = \frac{a \sin B}{\sin A}$
a, b, C	A, c	$A + B = 180° - C, c = \frac{a \sin C}{\sin A}$
a, b, c	Area	side $\frac{a+b+c}{2}$, area $= \sqrt{s(s-a)(s-b)(s-c)}$
A, b, c	Area	area $= \frac{bc \sin A}{2}$
A, B, C, a	Area	area $= \frac{a^2 \sin B \sin C}{2 \sin A}$

MADE IN U.S.A.

Book 3 of 3

North Peoria Road Map

① Loop "C" West from Brearcliff Bridge on SR. 74
page ①

② Loop "C" East from B.M. "Cut" Along SR 74 to B.M. @ Agua Fria Bridge

Intermediate - Topcon - AT-G6
Philly Rod - Round City

Feb. 1, 00

Sup. - Val Padilla
RC - Jim Archibald
T - Kevin Reed
H - Perry Oster

	+	HI	-	Elev	
C-3				1820.75	1820.50
	18.74	39.49			
C-2			1.72	37.77	
	12.41	50.18			
C-1			4.93	4525	
	24.74	69.99			
			11.33	58.66	58.41
C-27				1697.26	ADJ
	11.57	1708.83			
TP#1			0.35	1708.48	
	17.90	26.38			
TP#2			0.98	25.40	
	11.03	36.43			
ERM LAKE			2.72	1733.71	
	2.17	35.88			
TP#2			10.48	25.40	
	0.89	26.29			
TP#1			17.81	08.48	
	0.58	09.06			
C-27			11.80	1697.26	

C-1 BM

ERM LAKE B.C.
Jensens 1733.65 +0.06

	+	H.	−	Elev		
C-15				1731.16	1730.71	
	5.48	36.64				
C-14			2.75	33.89		
	7.74	41.63				Mile Post 18
C-13			3.17	38.46		Pipe Crossing
	8.24	46.70				
C-12			2.76	43.94		
	8.03	51.97				
C-11			2.85	49.12		
	8.59	57.71				
C-10			1.55	56.16		
	9.75	65.91				
C-9			0.67	65.24		
	10.19	75.43				
C-8			1.16	74.27		
	10.27	84.54				
C-7			0.42	84.12		Pipe Crossing
	10.66	94.78				
C-6			1.08	1793.70		
	10.08	1803.78				
C-5			1.29	1802.49		
	10.03	12.52				
C-4			1.31	11.21		
	10.19	21.40				
C-3			0.65	20.75	1820.50	N.W. Cor Gatlo Br.

	+	H.I.	−	(1988) Elev	(1929)
C-27				1697.34	
	7.05	1704.39			
C-26			3.57	1700.82	
	7.16	07.98			
C-25			3.85	04.13	
	9.28	13.41			
C-24			1.19	12.22	
	13.15	25.37			
C-23			0.70	24.67	
	13.49	38.16			
C-22			0.60	37.56	
	11.92	49.48			
C-21			0.49	48.99	
	10.94	59.93			
C-20			2.13	57.80	
	6.74	64.54			
C-19			5.66	58.88	
	3.04	61.92			
C-18			8.50	53.42	
	0.81	54.23			
C-17			9.49	44.74	
	0.85	45.59			
C-16			8.62	36.97	
	1.21	38.18			
C-15			7.02	1731.16	1729.09

100' ± EAST MVE POST 19

	+	Hi	-	Elev
C-39				1601.08
	19.26	20.34		
C-38			0.56	19.78
	18.62	38.40		
C-37			0.58	37.82
	16.66	54.48		
C-36			0.90	53.58
	13.08	66.66		
C-35			1.60	65.06
	10.80	75.86		
C-34			2.13	73.73
	8.67	82.40		
C-33			3.31	79.09
	7.16	86.25		
C-32			3.62	82.63
	6.62	89.25		
C-31			4.21	85.04
	6.62	91.66		
C-30			3.79	87.87
	6.63	94.50		
C-29			3.97	90.53
	7.14	97.67		
C-28			3.47	1694.20
	7.00	1701.20		
C-27			3.86	1697.34

FAWL 150'+- N. of R/W

To go To LAKE

3/1/2000 (7)

ADOT B.C. N. Elev Hugh Fin. Bridge

	+	Hi	−	Elev	
				1437.80	1437.55
	1.36	39.16			
C-50			5.46	33.70	
	8.23	41.93			
C-49			2.39	39.54	
	13.61	53.15			
C-48			1.52	51.63	
	15.64	67.27			
C-47			0.55	66.72	
	17.50	84.22			
C-46			0.19	84.03	
	16.81	1500.84			
C-45			1.09	99.75	
	15.45	1515.20			
C-44			0.43	1477	
	16.49	31.26			
C-43			1.11	30.15	
	17.18	47.33			
C-42			0.19	47.14	
	17.30	64.44			
C-41			0.50	63.94	
	19.48	83.42			
C-40			0.48	82.94	
	19.18	1602.12			
C-39			1.04	1601.08	1600.83

+ − 300' South To Sea Car

	+	Hi	−	Elev	
C-44				1514.53	
	0.91	15.44			
C-45			15.93	1499.51	
	1.12	1500.63			
C-46			16.85	1483.78	
	0.32	84.10			
C-47			17.63	66.47	
	1.57	68.04			
C-48			16.67	51.37	
	1.60	52.97			
C-49			13.68	39.29	
	2.32	41.61			
C-50			8.17	33.44	
	5.36	38.80			
B.C.			1.25	1437.55	1437.30
				-.25	

ADOT B.C N.E Cor Aug A Fria Bridge
4.6 Miles

	+	Hi	-	Elev
C-33				1678.88
	3.26	82.14		
C-34			8.63	73.51
	2.14	75.65		
C-35			10.82	64.83
	1.58	66.41		
C-36			13.07	53.34
	0.79	54.13		
C-37			16.55	37.58
	0.07	37.65		
C-38			18.11	19.54
	0.24	19.78		
C-39			18.94	1600.84
	0.84	1601.68		
C-40			18.97	1582.71
	0.26	82.97		
C-41			19.27	63.70
	1.01	64.71		
C-42			17.81	46.90
	0.17	47.07		
C-43			17.15	29.92
	1.25	31.17		
C-44			16.64	14.53

Mile Post #20

to point 13

	+	Hi	−	Elev
C-22				1737.37
	0.36	37.73		
C-23			13.24	24.49
Gate South	0.21	24.70		
C-24			12.67	12.03
	1.20	13.23		
C-25			9.29	03.94
	4.01	07.95		
C-26			7.32	1700.63
	3.73	1704.36		
C-27			7.22	1697.14
	4.05	1701.19		.12 / 97.26
C-28			7.19	1694.00
	3.47	97.47		
*C-29			7.14	90.33
	3.88	94.21		
C-30			6.54	87.67
	3.78	91.45		
C-31			6.62	84.83
	4.32	89.15		
C-32			6.73	82.42
	3.60	86.02		
C-33			7.14	78.88

Road North To New Boat Ramp

ADJ. 1697.26 to go to ERM "Lake"

To go To ERM South
West End G/R
To Lake A

STA	+	H.I.	−	(1988) Elev.	Adj.
C-11				1748.93	
	2.78	51.71			
C-12			7.96	43.75	
	2.91	46.66			
C-13			8.39	38.27	
Mile Post 18	3.29	41.56			
C-14			7.87	33.69	
"	2.81	36.50			
C-15			5.53	30.97	
	7.07	38.04		4.78 / 31.15	
C-16			1.26	36.78	Road South
	8.76	45.54			
C-17			0.99	44.55	
	9.55	54.10			
C-18			0.87	53.23	
	8.75	61.98			
C-19			3.29	58.69	
	5.82	64.51			
C-20			6.91	57.60	
	2.27	59.87			
C-21			11.07	48.80	
	0.55	49.35			
C-22			11.98	37.37	

STA	+	H.I.	−	1988 Elev.	Adj.
				1858.48	
	11.33	69.81			
C-1			24.74	45.07	
	0.99	46.0[illegible]			
C-2			8.48	37.58	
	2.44	40.02			
C-3			19.45	20.57	
	0.83	21.40			
C-4			10.36	11.04	
	1.34	12.38			
C-5			10.06	1802.32	
	1.38	1803.70			
C-6			10.17	1793.53	
	0.93	94.46			
C-7			10.51	83.95	
	0.19	84.14			
C-8			10.05	74.09	
	1.22	75.31			
C-9			10.25	65.06	
	0.66	65.72			
C-10			9.74	55.98	
	1.57	57.55			
C-11			8.62	48.93	

2/20/2000

Brn. Cut going EAST 1858.48 (39)
− 2.07
1856.41 (29)

N.W. Cor. CATTle Guard

STA	+	H.I.	−	Elev.	Adjust
BM				147.66	
	3.47	75.13			
C-1			6.04	69.09	
	0.30	69.39			
C-2			12.09	57.30	
	0.62	57.92			
C-3			13.91	44.01	
	9.04	53.05			
C-4			12.79	40.26	
	1.65	41.91			
B/C			4.11	1437.80	
LooP	3.93	41.73			
C-4			1.47	40.26	
	12.88	53.14			
C-3			9.13	44.01	
	13.80	57.81			
C-2			0.52	57.29	
	12.07	69.36			
C-1			0.27	69.09	
	6.25	75.34			
B/C			3.68	147.66	

(1)

B.M. - Brass Cap in N.W. Cor. Foundation
Bridge at Sta 74 [illegible]
NAVD 88 147.66
− 2.57
69.09

Rod in Stone N.W. Corner

BM ADOT B/C N.E. Cor Bridge Aqua Fria @ 74
Stamped 1435.47 1974
STA 1115+79
1435.47
42.06 Coe Van
1437.53
Valco + 0.27 High

NORTH PEORIA DRAINAGE AREA MASTER PLAN
CONTROL POINTS WITH ELEVATIONS IN 1929 DATUM

INFORMATION PROVIDED TO COOPER AERIAL MAPPING AND STANTEC ON 9/11/00

PT. #	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	1031113.90500	581053.81100	1731.57700	LAKE
2	995162.19600	583513.55300	1350.17900	S-366RP
3	1012280.19900	594087.16000	1434.83000	CHUTE
4	1003121.90100	597764.87500	1464.19400	WHITEWAY
5	1014953.75600	575853.30900	1611.93100	1/4 S11/12 T5N R1W
6	1031888.33200	568536.27400	1856.40200	CUT
18	1013484.57600	590738.60600	1372.44400	PANEL
19	1009993.10700	588970.67700	1339.58000	PANEL
20	1023158.86600	571586.64800	1786.22400	PANEL
21	1019817.84100	569845.16900	1733.04600	PANEL
23	1011986.99800	585229.41500	1551.86200	PANEL
24	1012971.08600	583296.50200	1615.82500	PANEL
25	1013919.11500	581417.71500	1875.88100	PANEL
26	1015935.56400	577511.69000	1590.72500	PANEL
27	1016898.50500	575519.82200	1606.57300	PANEL
28	1018926.91200	571738.41100	1804.11400	PANEL
29	1014430.01800	588906.10700	1376.46400	PANEL
30	1016449.49000	585043.95000	1555.49400	PANEL
31	1018280.73800	581191.52400	1742.98000	PANEL
32	1019313.51700	579248.23600	1990.22300	PANEL
33	1021225.89200	575437.11000	1659.65500	PANEL
34	1022135.77300	573510.32300	1710.43000	PANEL
35	1022299.33200	577001.05800	1657.50900	PANEL
36	1029317.54300	563644.35600	1891.34600	PANEL
37	1032232.77600	565205.82300	1956.06700	PANEL
38	1028173.45500	565620.25400	1897.89500	PANEL
39	1026287.83000	569468.55000	1771.69800	PANEL
40	1025269.22300	571455.03800	1866.85600	PANEL
41	1024515.62800	573383.15700	1841.10400	PANEL
42	1030509.83100	569295.97300	1894.54600	PANEL
43	1028615.61100	573063.84100	1890.85000	PANEL
44	1026652.40200	576931.95300	1730.79600	PANEL
45	1025614.48400	578922.32700	1774.59400	PANEL
46	1025064.05000	581106.07100	1656.51300	PANEL
47	1024204.38800	583027.75500	1587.22900	PANEL
48	1024750.32500	577203.35600	1629.45600	PANEL
49	1023759.82200	579053.82200	1812.28400	PANEL
50	1022817.25200	581006.61600	1760.18800	PANEL
51	1020801.38300	584862.81700	1621.08000	PANEL
52	1018788.59900	588766.90100	1359.01800	PANEL
53	1017898.39500	590575.64200	1379.98300	PANEL
54	1019641.27600	591192.57800	1407.67800	PANEL
55	1021168.67200	590376.42500	1395.91400	PANEL

NORTH PEORIA DRAINAGE AREA MASTER PLAN
CONTROL POINTS WITH ELEVATIONS IN 1929 DATUM

INFORMATION PROVIDED TO COOPER AERIAL MAPPING AND STANTEC ON 9/11/00

PT. #	NORTHING	EASTING	ELEVATION	DESCRIPTION
56	1024852.11600	588185.64900	1515.55900	PANEL
57	1028578.33600	586032.81200	1610.00200	PANEL
58	1029948.94400	584948.21700	1604.76400	PANEL
59	1021244.88200	586582.75200	1475.80400	PANEL
60	1023143.48500	585472.41400	1519.75200	PANEL
61	1025091.86200	584331.76500	1665.44900	PANEL
62	1027123.07400	584260.00700	1645.38100	PANEL
63	1028570.58600	582150.11900	1669.15200	PANEL
64	1028897.40300	580483.24000	1715.39000	PANEL
65	1029646.37400	578492.72300	1674.19000	PANEL
66	1030572.18600	576583.01000	1764.80500	PANEL
67	1032732.35100	572867.15800	1773.12800	PANEL
68	1033390.09100	571144.65900	1825.68100	PANEL
70	1022840.32200	581157.60800	1743.22700	31/36/1/6 T5&6NR1E&W
72	1023210.00100	588949.10500	1499.82500	1/4 COR S5/S32
75	1018061.90900	581123.39900	1744.66800	1/6/7 T5N R1E&W
77	1017591.57200	575862.94200	1624.24400	1/2/11/12 T5NR1W
78	1022868.04300	575881.36900	1713.61500	35/36/1/5 T5&6NR1W
79	1017617.76400	570584.93900	1646.76200	2/3/10/11 T5NR1W
85	1028211.90000	565351.76200	1868.56300	27/28/33/34 T6NR1W
102	1019462.85300	593588.02900	1440.68800	VALCO TBM 65

NORTH PEORIA DRAINAGE AREA MASTER PLAN

CROSS-SECTIONS

CROSS SECTION PLOTS ARE LOCATED IN THE NORTH PEORIA AREA DRAINAGE MASTER PLAN FLOOD INSURANCE STUDY TECHNICAL DATA NOTE BOOK.

NORTH PEORIA DRAINAGE AREA MASTER PLAN

CROSS-SECTIONS IN 1929 DATUM

INFORMATION PROVIDED TO STANTEC ON 9/22/00

PT. #	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	1031113.90500	581053.81100	1731.57700	LAKE
2	995162.19600	583513.55300	1350.17900	S-366RP
3	1012280.19900	594087.16000	1434.83000	CHUTE
4	1003121.90100	597764.87500	1464.19400	WHITEWAY
5	1014953.75600	575853.30900	1611.93100	1/4 S11/12 T5N R1W
6	1031888.33200	568536.27400	1856.40200	CUT
18	1013484.57600	590738.60600	1372.44400	PANEL
19	1009993.10700	588970.67700	1339.58000	PANEL
20	1023158.86600	571586.64800	1786.22400	PANEL
21	1019817.84100	569845.16900	1733.04600	PANEL
23	1011986.99800	585229.41500	1551.86200	PANEL
24	1012971.08600	583296.50200	1615.82000	PANEL
25	1013919.11500	581417.71500	1875.88100	PANEL
26	1015935.56400	577511.69000	1590.72500	PANEL
27	1016898.50500	575519.82200	1606.57300	PANEL
28	1018926.91200	571738.41100	1804.11400	PANEL
29	1014430.01800	588906.10700	1376.46400	PANEL
30	1016449.49000	585043.95000	1555.49400	PANEL
31	1018280.73800	581191.52400	1742.98000	PANEL
32	1019313.51700	579248.23600	1990.22300	PANEL
33	1021225.89200	575437.11000	1659.65500	PANEL
34	1022135.77300	573510.32300	1710.43000	PANEL
35	1022299.33200	577001.05800	1657.50900	PANEL
36	1029317.54300	563644.35600	1891.34600	PANEL
37	1032232.77600	565205.82300	1956.06700	PANEL
38	1028173.45500	565620.25400	1897.89500	PANEL
39	1026287.83000	569468.55000	1771.69800	PANEL
40	1025269.22300	571455.03800	1866.85600	PANEL
41	1024515.62800	573383.15700	1841.10400	PANEL
42	1030509.83100	569295.97300	1894.54600	PANEL
43	1028615.61100	573063.84100	1890.85000	PANEL
44	1026652.40200	576931.95300	1730.79600	PANEL
52	1018788.59900	588766.90100	1359.01800	PANEL
53	1017898.39500	590575.64200	1379.98300	PANEL
54	1019641.27600	591192.57800	1407.67800	PANEL
57	1028578.33600	586032.81200	1610.00000	PANEL
62	1027123.07400	584260.00700	1645.38000	PANEL
200	1031510.33743	568660.63117	1863.33000	
201	1030209.30240	566184.91488	1829.79003	NATURAL GROUND
202	1030151.94178	566164.66603	1827.55380	TOP OF BANK
203	1030096.66370	566140.92020	1805.30373	TOE
204	1030006.61383	566099.81058	1803.74954	
205	1029982.01498	566088.17561	1825.59046	TOP OF BANK

NORTH PEORIA DRAINAGE AREA MASTER PLAN

CROSS-SECTIONS IN 1929 DATUM

INFORMATION PROVIDED TO STANTEC ON 9/22/00

PT. #	NORTHING	EASTING	ELEVATION	DESCRIPTION
206	1029909.16999	566045.85572	1840.42714	NATURAL GROUND
207	1029996.54358	566095.21330	1811.18954	NATURAL GROUND
208	1027982.58074	568098.64454	1785.87247	TRAVERSE POINT
209	1031164.26018	574784.06287	1772.64704	TRAVERSE POINT
210	1031681.79833	576526.00181	1797.55719	ROCK
211	1031007.39832	573823.30090	1731.52215	NATURAL GROUND
212	1030951.93614	573808.11903	1731.00920	TOP OF BANK
213	1030909.01469	573797.73201	1719.79630	TOE
214	1030783.40614	573758.16516	1716.11537	TOE
215	1030762.25464	573753.54694	1725.84871	TOP OF BANK
216	1030710.93864	573746.16208	1734.80649	NATURAL GROUND
217	1030656.48422	573734.07989	1746.07446	NATURAL GROUND
218	1027606.66803	576499.08383	1770.69464	TRAVERSE POINT
219	1028397.30893	570345.80453	1762.43785	NATURAL GROUND
220	1028366.98438	570291.95130	1755.14837	
221	1028349.14653	570258.71778	1744.32871	
222	1028327.94175	570231.10241	1740.55400	TOP OF BANK
223	1028323.63828	570213.29938	1734.50114	TOP OF BANK
224	1028318.93909	570193.85928	1729.50114	TOE
225	1028285.48149	570146.93336	1731.09894	TOE
226	1028255.96063	570074.84298	1744.19629	TOP OF BANK
227	1028231.60738	570039.32091	1745.58997	GRADE BREAK
228	1028213.71791	570015.75467	1743.58587	GRADE BREAK
229	1028188.25096	569971.82712	1750.75236	GRADE BREAK
230	1026651.36757	576933.09734	1730.78976	PANEL
231	1027550.02121	577781.09752	1671.85677	NATURAL GROUND
232	1027469.77496	577730.39460	1663.73438	TOP OF BANK
233	1027432.46094	577715.97603	1648.02516	TOE
234	1027350.68698	577702.05915	1653.07336	TOE
235	1027332.31069	577692.54833	1657.40476	TOP OF BANK
236	1027292.41042	577666.13484	1658.76578	NATURAL GROUND
237	1027248.15115	577629.13813	1660.46685	NATURAL GROUND
238	1025775.75572	575653.47281	1641.14446	NATURAL GROUND
239	1025747.94550	575610.78224	1641.30973	GRADE BREAK
240	1025726.30544	575582.58310	1635.37729	GRADE BREAK
241	1025702.24547	575545.46716	1633.55784	TOP OF BANK
242	1025696.05691	575536.72452	1617.63729	TOE
243	1025677.10116	575503.14858	1618.97504	TOE
244	1025650.88628	575462.78905	1645.28986	TOP OF BANK
245	1025626.31941	575415.65452	1660.14635	NATURAL GROUND
246	1025580.46467	575347.27570	1676.90913	NATURAL GROUND
247	1028153.71251	586537.32652	1632.92000	TRAVERSE POINT
248	1028578.62488	586033.05598	1610.05015	TRAVERSE POINT

NORTH PEORIA DRAINAGE AREA MASTER PLAN

CROSS-SECTIONS IN 1929 DATUM

INFORMATION PROVIDED TO STANTEC ON 9/22/00

PT. #	NORTHING	EASTING	ELEVATION	DESCRIPTION
249	1028578.33622	586032.81174	1610.11803	
250	1027452.84613	586083.73238	1586.85913	TOP OF BANK
251	1027396.44472	586048.53117	1581.14972	GRADE BREAK
252	1027296.18416	585985.65150	1554.90547	TOP OF BANK
256	1026910.21303	585735.35662	1531.69605	TOP OF BANK
257	1026798.96165	585663.59799	1546.70401	NATURAL GROUND
258	1027409.75182	586056.69633	1583.97284	TRAVERSE POINT
259	1028205.28903	583672.69250	1664.28784	TRAVERSE POINT
260	1027634.34521	582229.66569	1624.34164	NATURAL GROUND
261	1027552.19282	582249.59288	1610.37726	NATURAL GROUND
262	1027486.70468	582255.85453	1600.40581	TOE
263	1027465.10454	582254.55163	1599.46444	GRADE BREAK
264	1027453.39124	582256.17193	1596.62979	TOE
265	1027433.04084	582260.34346	1596.00005	TOE
266	1027393.08912	582258.30930	1606.94284	NATURAL GROUND
267	1027337.79902	582251.13902	1613.62220	NATURAL GROUND
268	1027263.33804	582250.97830	1621.40593	NATURAL GROUND
271	1027186.81702	585909.00680	1536.28737	GRADE BREAK
272	1027052.81620	585823.89446	1521.62791	TOE
273	1027006.68121	585792.68575	1526.85563	GRADE BREAK
274	1026943.72747	585748.89084	1522.23696	TOE
275	1019824.25458	588747.53560	1409.39829	TRAVERSE POINT
276	1018259.02027	587796.03303	1417.20200	TRAVERSE POINT
277	1018315.98712	587710.13339	1431.42880	NATURAL GROUND
278	1018230.60014	587746.20868	1414.80102	GRADE BREAK
279	1018191.11742	587765.24148	1399.89882	GRADE BREAK
280	1018170.72400	587770.77126	1374.36252	TOE
281	1018131.51083	587780.32574	1366.93760	GRADE BREAK
282	1017995.89479	587805.41772	1361.54244	TOE
283	1017936.74790	587863.78913	1413.06738	NATURAL GROUND
284	1017900.63370	587877.19991	1426.27267	NATURAL GROUND
285	1019981.49965	588837.86063	1410.04725	TOP OF BANK
286	1020000.69598	588782.06358	1384.28075	TOE
287	1020005.33904	588768.92334	1381.13142	GRADE BREAK
288	1020009.95336	588751.11510	1371.32465	TOE
289	1020016.39430	588731.92210	1371.21532	TOE
290	1020017.68433	588717.32354	1378.39260	GRADE BREAK
291	1020031.69324	588653.27038	1375.88657	GRADE BREAK
292	1020041.80282	588607.30611	1392.44423	NATURAL GROUND
293	1009992.79670	588969.98281	1339.60327	
294	1012670.25906	588786.27512	1385.71263	TRAVERSE POINT
295	1013276.36484	588565.66225	1388.62959	NATURAL GROUND
296	1013209.42118	588517.69856	1376.27472	GRADE BREAK

NORTH PEORIA DRAINAGE AREA MASTER PLAN

CROSS-SECTIONS IN 1929 DATUM

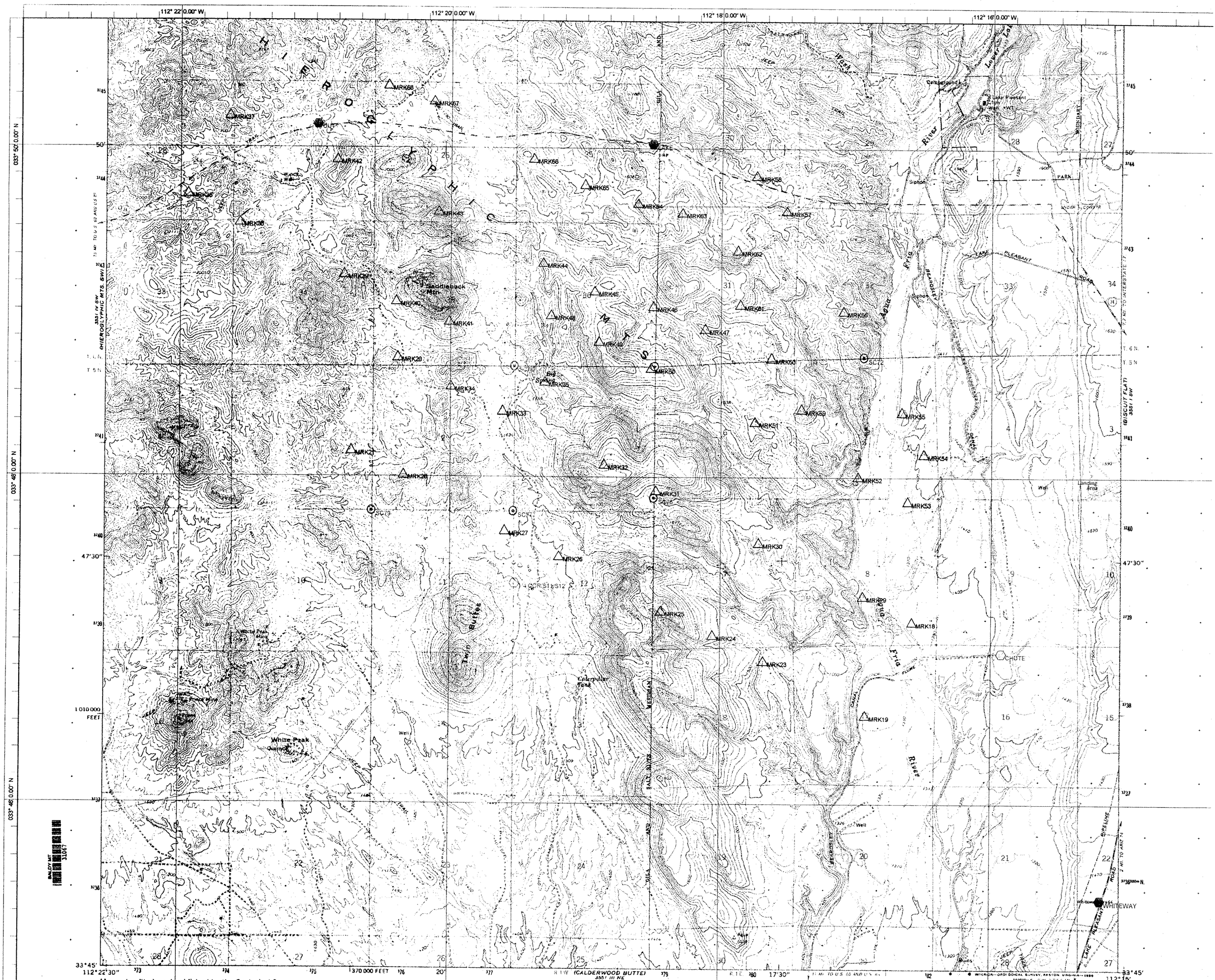
INFORMATION PROVIDED TO STANTEC ON 9/22/00

PT. #	NORTHING	EASTING	ELEVATION	DESCRIPTION
297	1013158.94786	588479.81852	1370.53762	TOP OF BANK
298	1013128.06167	588462.76376	1353.48197	TOE
302	1022573.39536	576750.36964	1674.13000	TRAVERSE POINT
303	1022508.82738	577311.19704	1618.45152	NATURAL GROUND
304	1022616.35621	577365.64463	1590.53448	TOP OF BANK
305	1022649.94468	577379.97377	1571.11554	GRADE BREAK
306	1022683.05940	577400.16274	1563.04815	GRADE BREAK
307	1022707.61098	577412.67569	1563.88170	TOP OF BANK
308	1022709.33373	577429.16985	1548.82001	TOE
309	1022721.62422	577441.48719	1549.26837	TOE
310	1022723.58857	577444.22872	1554.54706	GRADE BREAK
311	1022747.18511	577466.10537	1558.68335	GRADE BREAK
312	1022800.96117	577494.27999	1575.45155	TOP OF BANK
313	1022830.18394	577513.36650	1581.42770	GRADE BREAK
314	1022876.50916	577536.38554	1584.13302	NATURAL GROUND
315	1021215.84138	575585.44948	1689.26000	TRAVERSE POINT
316	1020303.79195	574696.88334	1644.87512	NATURAL GROUND
317	1020211.85299	574741.77414	1633.77272	NATURAL GROUND
318	1019952.89489	574634.33567	1646.38030	TOP OF BANK
319	1020032.31863	574660.89025	1628.09321	TOP OF BANK
320	1020207.74947	574737.82542	1633.70384	TRAVERSE POINT
321	1020306.31507	574701.37364	1644.56634	NATURAL GROUND
322	1020156.54656	574754.40983	1627.02397	TOP OF BANK
323	1020134.06304	574759.55946	1616.32493	TOE
324	1020093.28960	574772.33865	1614.48791	TOE
325	1020065.03334	574784.29457	1622.55940	TOP OF BANK
326	1020024.33472	574798.14678	1627.66502	GRADE BREAK
327	1019963.45558	574819.09896	1633.37645	NATURAL GROUND
330	1022508.82738	577311.19704	1618.45152	

NORTH PEORIA AREA MASTER PLAN
PROJECT ERM'S
PROVIDED BY VALCO SURVEYING CORP.

9/11/01

ID #	DESCRIPTION	LOCATION	EASTING	NORTHING	ELEVATION
1	GLO BRASS CAP	1/4 CORNER, SECTIONS 11& 12 T5N, R1W	575853.309	1014953.756	1611.931
2	GLO BRASS CAP	SECTION CORNER, SECTIONS 1,2,11, 12 T5N, R1W	575862.942	1017591.572	1624.244
3	GLO BRASS CAP	SECTION CORNER, SECTIONS 2,3, 10, 11 T5N, R1W	570584.939	1017617.764	1646.762
4	GLO BRASS CAP	SECTION CORNER, SECTIONS 1,6,7 T5N, R1W & R1E	581123.399	1018061.909	1744.668
5	GLO BRASS CAP	SECTION CORNER, SECTIONS 27,28, 33, 34 T6N, R1W	565351.762	1028211.900	1868.563
6	GLO BRASS CAP	SECTION CORNER SECTIONS 31, 36, 1, 6, T5N, T6N, R1E, R1W	581157.608	1022840.322	1743.227
7	GLO BRASS CAP	1/4 CORNER SECTIONS 5 & 32 T6N, R1E	588949.105	1023210.001	1499.825
8	GLO BRASS CAP	SECTION CORNER, SECTIONS 35, 36, 1, 2 T5N T6N, R1W	575881.369	1022868.043	1713.615
9	CHISLED "+" NW COR. CONC. HEADWALL	CHUTE - SOUTH OF BEARDSLEY CANAL AND NORTH OF CAP SERVICE ROAD. ± 1.0 MILES WEST OF LAKE PLEASANT ROAD AND CAP BRIDGE.	594087.160	1012280.199	1434.830
10	ADOT DISK STAMPED "CUT" IN 10" CONC. MONUMENT	CUT - IN NORTH R/W SR 74, 5 MI WSW OF LAKE PLEASANT AT MILEPOST 16.99. THE MARK IS 3.5 FEET SOUTH OF THE NORTH R/W FENCE ON TOP OF A 15 FOOT CUTBANK.	568536.274	1031888.332	1856.402
11	ADOT DISK STAMPED "LAKE" IN ROCK OUTCROP	LAKE - IN SOUTH R/W SR 74, 1 MILE SW OF LAKE PLEASANT AT MILEPOST 19.20. THE STATION IS 3 FEET INSIDE THE SOUTH R/W FENCE AND MARKED BY A WITNESS POST & SIGN.	581053.811	1031113.905	1731.577
12	CHISLED "+" ON STRUCTURE	VALCO TBM 65 - NORTHEAST CORNER OF CONCRETE BARRIER ON BRIDGE OVER BEARDSLEY CANAL ± 1.6 MILES WEST OF LAKE PLEASANT ROAD AND WEST CAREFREE HIGHWAY.	593588.029	1019462.853	1440.688
13	GLO BRASS CAP	1/4 CORNER SECTION 26 AND 25, T6N, R1W	575913.787	1030780.041	1747.520
14	DEPT. OF INTERIOR ALUM. CAP	1/4 CORNER SECTIONS 5 & 8 T5N, R1E	589126.608	1018052.383	1356.700
15	+' TOP BOLT IN SW CORNER CONCRETE ABUTTMENT AT WEST END OF FLUME	WEST END BEARDSLEY CANAL FLUME CROSSING AGUA FRIA RIVER	590082.699	1011568.327	1353.720



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Cooper Aerial Surveys Co.

July 10, 2001

Val Padilla
Valco Surveying
6426E. Virginia Ave
Scottsdale, AZ 85257

RE: North Peoria Area Drainage Master Plan-FCD No. 99-45

Dear Mr. Padilla,

This purpose of this letter is to state that the topographic mapping produced for the above referenced project (based on ground control provided by "VALCO") meets FEMA 37 specifications for 1" = 200' scale topographic mapping with a 2-foot contour interval.

This is based on the mapping data being within the allowable tolerances with the cross-section data provided by VALCO and the RMSE on the ground control being within the tolerances for FEMA 37 spot checks. Please see the attached sheet that shows the results from the analytics report for the ground control. Please note that the ground control panels were the only truly photo-identifiable available in this area.

Sincerely,

Frank R. Taylor

Frank R. Taylor
Vice President of Operations

Cc: Pat Ellison-Stantec Consulting

11402 N. Cave Creek Road Phoenix AZ 85020
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6007-010300
FC 12345
1929 OAT
Rev 9-12-2000

PHOTO COORDINATE RMS = .0034

CONTROL COORDINATE RESIDUALS AND STANDARD ERRORS

STATION	X RESID.	SD	Y RESID.	SD	Z RESID.	SD
9018	-.070	.300	.619	.300	-.289	.300
9019	-.295	.300	.186	.300	.039	.300
9023	-.525	.300	.175	.300	.211	.300
9024	-.541	.300	-.083	.300	.104	.300
9025	-.705	.300	-.325	.300	-.078	.300
9026	-.671	.300	-.103	.300	-.003	.300
9027	-.550	.300	-.224	.300	-.106	.300
9028	-.354	.300	-.207	.300	-.251	.300
9029	-.065	.300	.545	.300	.255	.300
9030	-.167	.300	.041	.300	-.114	.300
9031	-.128	.300	-.020	.300	.026	.300
9032	-.123	.300	-.329	.300	-.005	.300
9033	-.231	.300	-.604	.300	-.216	.300
9034	.247	.300	-.425	.300	.057	.300
9035	-.127	.300	-.203	.300	.292	.300
9036	-.116	.300	-.182	.300	-.027	.300
9036	-.116	.300	-.182	.300	-.027	.300
9037	.521	.300	-.089	.300	.054	.300
9038	-.328	.300	-.112	.300	-.037	.300
9039	-.417	.300	-.372	.300	-.081	.300
9040	-.485	.300	-.474	.300	-.121	.300
9041	-.163	.300	-.577	.300	.232	.300
9042	.184	.300	-.449	.300	-.146	.300
9043	.142	.300	-.116	.300	.049	.300
9044	.061	.300	-.096	.300	-.035	.300
9045	-.084	.300	.280	.300	-.283	.300
9046	-.470	.300	.147	.300	.106	.300
9047	-.690	.300	.154	.300	-.084	.300
9048	.006	.300	.052	.300	.302	.300
9049	-.062	.300	.242	.300	.266	.300
9050	.263	.300	.322	.300	.060	.300
9051	.587	.300	.262	.300	-.316	.300
9052	.004	.300	.412	.300	-.020	.300
9054	.593	.300	.085	.300	-.217	.300
9056	.573	.300	.310	.300	-.020	.300
9057	.348	.300	.054	.300	.013	.300
9058	.583	.300	-.239	.300	-.008	.300
9059	.392	.300	.325	.300	.144	.300
9060	.090	.300	.149	.300	.174	.300
9062	-.001	.300	.565	.300	.232	.300
9063	.302	.300	-.065	.300	-.196	.300
9064	.437	.300	.109	.300	-.177	.300
9065	.607	.300	.023	.300	.036	.300
9066	.667	.300	.172	.300	-.071	.300
9067	.395	.300	.174	.300	.111	.300
9068	.364	.300	-.109	.300	.138	.300

CONTROL RMS ERRORS	X	Y	Z
	.392	.293	.161