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13-TF-0066

SEP 17 2013

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Ms. Hedges:

SUBMITTAL OF HANFORD FEDERAL FACILITY AGREEMENT AND CONSENT ORDER (HFFACO) INTERIM MILESTONE M-045-91E DELIVERABLE

This letter transmits the dome deflection survey report that the U.S. Department of Energy, Office of River Protection (ORP) is required to submit every two years in accordance with HFFACO Interim Milestone M-045-91E starting on September 30, 2013. The attached report is a compilation of all 100-series single-shell tank (SST) dome elevation survey results and discussion thereof. Changes in the elevation of a SST dome can identify deflection of the dome which is an early indication of structural distress. The elevation survey results in the attached report indicate there is no significant dome deflection in any of the 100-series SSTs.

Please note that ORP will submit the report due September 30, 2015, as referring to interim milestone M-045-91E1 and will continue that numbering sequence for future reports (i.e., the September 30, 2017, report will be M-045-91E2 and so on).

If you have any questions, please contact me, or your staff may contact Jeremy M. Johnson, Tank Farms Programs Division, (509) 376-1866.

Kevin W. Smith
Manager

TPD:JMJ

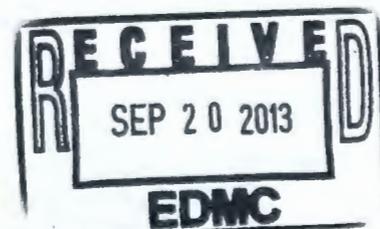
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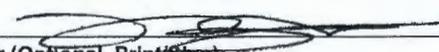
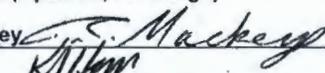
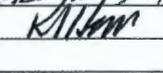
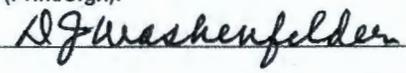
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ATTACHMENT

13-TF-0066

**RPP-RPT-55202, REVISION 0, DOME SURVEY REPORT FOR HANFORD
SINGLE-SHELL TANKS**

DOCUMENT RELEASE FORM

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DOME SURVEY REPORT FOR HANFORD SINGLE-SHELL TANKS

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Abstract: This report documents the cumulated dome survey data for Hanford 100-series Single-Shell Tanks (SSTs). The report also provides interpretation of the existing survey data. This report summarizes results of the implementation of the Single-Shell Tank Expert Panel recommendation to perform dome deflection surveys.

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By Julia Raymer at 11:32 am, Aug 20, 2013

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RPP-RPT-55202

Revision 0

DOME SURVEY REPORT FOR HANFORD SINGLE-SHELL TANKS

August 2013

Prepared by:

RS Rast

**Washington River Protection Solutions, LLC
Richland, Washington**



ACKNOWLEDGEMENT

This report was developed with the assistance of WRPS engineering interns, Beth Anne Feero and Jessica Cawley.

EXECUTIVE SUMMARY

The Single-Shell Tank Integrity Project (SSTIP) Expert Panel (Panel) was established by WRPS to provide recommendations for implementation of an enhanced SSTIP. The Panel documented their findings in RPP-RPT-43116, *Expert Panel Report for Hanford Site Single-Shell Tank Integrity Project*. In Recommendation SI-2, *Perform Dome Deflection Surveys*, the Panel recommended continuation of the current dome deflection survey program. The Panel stated that the dome surveys are important as any future potential for dome collapse would be preceded by excessive downward dome deflection.

WRPS currently maintains the SST Dome Deflection Program. Current dome survey protocols reflect implementation of the Panel recommendation. Benchmark and survey monument protection and installation of new benchmarks have increased ability to detect true dome deflection in the dome elevation surveys. Dome deflection can be determined by subtracting the elevation at the center of the dome from the elevation at the perimeter of the tank. Settlement of the tank can be determined by subtracting the most current elevation at the perimeter of the tank from the first, or oldest, survey elevation at the perimeter of the tank. Current results indicate the tank settlement and dome deflection do not exceed the established criterion of 0.02-ft (0.24-in)

The results of the SST dome surveys are complemented by the limit state analyses provided in Analysis of Record (AOR) and other structural calculation documents. The deflections of the SST domes are far less than what is expected for dome collapse. The results from visual inspection of the inside of SSTs confirm the structural integrity of the domes. Additionally, concrete and rebar testing provide further evidence that the SST domes are structurally sound.

This report provides a compilation of all 100-series SST dome elevation survey results and discussion thereof. This report will be revised biannually to incorporate updates to the SST dome surveys and to satisfy deliverable requirements.

The Tri-Party Agreement for the SSTIP has one interim milestone that focused on this activity;

- M-045-91E, "*DOE shall provide to Ecology a compilation of the Single-Shell Tank farms dome deflection surveys every two years, beginning 9/30/2013, due September 30, 2013.*"

This report serves as the deliverable for the interim milestone M-045-91E.

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LIST OF TERMS

AOR	Analysis of Record
ASTM	American Society for Testing and Materials International
BPF	Blue Print File
DOE	U.S. Department of Energy
DST	Double-Shell Tank
NDE	Non-Destructive Evaluation
Panel	Single-Shell Tank Integrity Project Expert Panel
PER	Problem Evaluation Request
PLS	Professional Land Surveyor
RC	reinforced concrete
SST	single-shell tank
SSTIP	Single-Shell Tank Integrity Project
TOC	Tank Operations Contractor
WRPS	Washington River Protection Solutions, LLC

1.0 INTRODUCTION

The Single-Shell Tank Integrity Project (SSTIP) has implemented Panel recommendations to examine structural integrity of Hanford Single-Shell Tanks (SSTs). In recommendation SI-2, the Panel recommends continuation of the dome deflection survey program. The recommendation from the Executive Summary of RPP-RPT-43116, *Expert Panel Report for Hanford Site Single-Shell Tank Integrity Project*, is as follows:

Recommendation SI-2, Perform Dome Deflection Surveys: The Panel recommends continuation of the current dome deflection survey program. The program should be augmented to obtain dome deflection data near the haunch of the domes. The dome surveys are important as any future potential for dome collapse would be preceded by excessive downward dome deflection. The haunch data is important to determine whether dome deflections are due to downward displacement of the dome or of the footing under the sidewall.

This recommendation was provided to Washington River Protection Solutions, LLC (WRPS) and the United States Department of Energy Office of River Protection (DOE-ORP) as the number 2 priority of all the recommendations, second only to the performance of modern structural analyses, SI-1.

Discussion of the recommendation provided in Section 3.1.1 of RPP-RPT-43116, Rev. 0 is as follows:

Observations Concerning Current Conditions of Concrete Walls

Surveys have been conducted on all of the SSTs approximately every two years since the early 1980s. A maximum allowable decrease in the dome elevation of 0.24 inches, relative to the baseline measurement, has been specified as the acceptable limit for SSTs. Analytical studies summarized in Section 6.4 of Abatt (Abatt, 2002) indicate a safety factor of approximately 3.0 or larger against dome collapse for the in-situ soil overburden load. An evaluation of the safety factor as a function of the increase in dome deflection over initial baseline measurements was conducted on Tank 241-C-106. This evaluation indicated a safety factor of approximately 2.5 for an additional downward deflection of 0.24 inch, and approximately 2.0 for an additional deflection of 0.48 inch. Thus, adequate safety margin exists if dome deflections do not increase more than 0.48 inch.

Remote visual inspection of the underside of the SST concrete domes does not indicate signs of concrete cracking, rust stains, or spalling of the concrete. One would not expect concrete cracks on the underside of the dome except possibly in the haunch area. Cracks in excess of 1/16 inch wide would indicate tensile yielding of the reinforcing steel (rebar). Cracks in excess of 1/8 inch wide are of

significant structural concern. Rust stains or spalling of concrete indicate rebar corrosion.

Additional discussion of the recommendation provided in Section 3.1.1.1 of RPP-RPT-43116, Rev. 0 is as follows:

Recommendation SI-2: Perform Dome Deflection Surveys

The current program of conducting dome deflection surveys on all SSTs at 24-month intervals should be continued. Additionally, it is important to assess whether deflection data can also be obtained near the haunch of the dome as well as at the center. With deflections taken only at the center, a determination of whether the deflection is due to downward displacement of the dome or due to downward displacement of the footing under the sidewall cannot be made.

This remains an important task because any future potential for dome collapse would be preceded by excessive downward dome deflection (e.g., greater than 0.5-inch).

1.1 Background

The Hanford Site Tank Operations Contractor (TOC), WRPS initiated the SSTIP to improve the understanding of the integrity of the SSTs until the waste can be retrieved from the tanks for treatment. The Panel was established by WRPS to provide recommendations for implementation of an enhanced SSTIP. The Panel documented their findings in RPP-RPT-43116, *Expert Panel Report for Hanford Site Single-Shell Tank Integrity Project*. The Panel provided their logic for the development and prioritization of their 33 recommendations with ten providing the basis for a robust plan to enhance the understanding of the SST integrity.

The WRPS adoption of 16 of the Panel's recommendations is addressed and documented in RPP-PLAN-45082, *Implementation Plan for the Single-Shell Tank Integrity Project*. One of the four key elements from the Panel is to improve the understanding of the SST structural integrity (designated as "SI"). Recommendation SI-2, *Perform Dome Deflection Surveys*, addresses performing deflection surveys of the domes of the SSTs. The recommendation served to better determine the current condition of SST reinforced concrete structures.

The Hanford Federal Facility Agreement and Consent Order Tri-Party Agreement (TPA) for the SSTIP has one interim milestone that focused on this activity;

- M-045-91E, "*DOE shall provide to Ecology a compilation of the Single-Shell Tank farms dome deflection surveys every two years, beginning 9/30/2013, due September 30, 2013.*"

This report serves as the deliverable for the interim milestone M-045-91E.

1.2 Objective

The objective of this document is to compile the results of SST dome surveys on a biannual basis. The results of the dome elevation surveys are contained in individual reports per tank farm. This report contains all of the current results for dome elevation surveys and draws conclusions therefrom. This report also provides information related to the program in place for performing dome elevation surveys. Additionally, this report provides discussion relating dome survey results to other SST structural integrity related tasks. It is planned that this document will be revised on a biannual basis, providing updates to the surveys and satisfying the requirements of interim milestone M-045-91E.

2.0 SINGLE-SHELL TANKS

Twelve single shell tank farms are located on the Hanford site. Each of these tank farms has between four and eighteen 100 series tanks located in each farm for a total of one hundred thirty three tanks. Each SST has a primary steel liner and reinforced concrete surrounding the steel liner. The top portion of the reinforced concrete is called the tank dome. The SST dome is reinforced concrete.

The tank dome is buried to a depth of five to ten feet as measured from the tank dome apex. This soil cover prevents direct measurement of dome deflection. The benchmark elevations are measured with respect to control monuments with known elevations. The control monument locations are shown on H-2-2310, *Monument Layout 200-E Area*, and H-2-2500, *Monument Layout 200-W Area*. Benchmarks are connected to various appurtenances above ground to facilitate dome surveys. Multiple benchmark configurations are used to perform dome surveys. The various benchmarks are shown on H-2-68529, *Bench Mark Waste Tank System*.

In some cases, steel pipe "risers" are attached to the tank dome and are extended through the structural backfill to the surface. In other cases, benchmarks are connected to corrugated steel or reinforced concrete "pit" structures that are placed on or directly above the tank domes. Survey monuments directly embedded in concrete at desired locations above the tank dome are also used where a riser or pit does not exist. Where an SST dome was exposed to facilitate retrieval activities, a steel rod was directly embedded in the concrete dome. Any deflection of the tank dome or tank settlement will cause a change in elevation of the tank benchmarks and will be detected in the dome survey.

The following tanks are the 100-series SSTs:

A TANK FARM

- 241-A-101, 241-A-102, 241-A-103, 241-A-104, 241-A-105, 241-A-106

AX TANK FARM

- 241-AX-101, 241-AX-102, 241-AX-103, 241-AX-104

B TANK FARM

- 241-B-101, 241-B-102, 241-B-103, 241-B-104, 241-B-105, 241-B-106, 241-B-107, 241-B-108, 241-B-109, 241-B-110, 241-B-111, 241-B-112

BX TANK FARM

- 241-BX-101, 241-BX-102, 241-BX-103, 241-BX-104, 241-BX-105, 241-BX-106, 241-BX-107, 241-BX-108, 241-BX-109, 241-BX-110, 241-BX-111, 241-BX-112

BY TANK FARM

- 241-BY-101, 241-BY-102, 241-BY-103, 241-BY-104, 241-BY-105, 241-BY-106, 241-BY-107, 241-BY-108, 241-BY-109, 241-BY-110, 241-BY-111, 241-BY-112

C TANK FARM

- 241-C-101, 241-C-102, 241-C-103, 241-C-104, 241-C-105, 241-C-106, 241-C-107, 241-C-108, 241-C-109, 241-C-110, 241-C-111, 241-C-112

S TANK FARM

- 241-S-101, 241-S-102, 241-S-103, 241-S-104, 241-S-105, 241-S-106, 241-S-107, 241-S-108, 241-S-109, 241-S-110, 241-S-111, 241-S-112

SX TANK FARM

- 241-SX-101, 241-SX-102, 241-SX-103, 241-SX-104, 241-SX-105, 241-SX-106, 241-SX-107, 241-SX-108, 241-SX-109, 241-SX-110, 241-SX-111, 241-SX-112, 241-SX-113, 241-SX-114, 241-SX-115

T TANK FARM

- 241-T-101, 241-T-102, 241-T-103, 241-T-104, 241-T-105, 241-T-106, 241-T-107, 241-T-108, 241-T-109, 241-T-110, 241-T-111, 241-T-112

TX TANK FARM

- 241-TX-101, 241-TX-102, 241-TX-103, 241-TX-104, 241-TX-105, 241-TX-106, 241-TX-107, 241-TX-108, 241-TX-109, 241-TX-110, 241-TX-111, 241-TX-112, 241-TX-113, 241-TX-114, 241-TX-115, 241-TX-116, 241-TX-117, 241-TX-118

TY TANK FARM

- 241-TY-101, 241-TY-102, 241-TY-103, 241-TY-104, 241-TY-105, 241-TY-106

U TANK FARM

- 241-U-101, 241-U-102, 241-U-103, 241-U-104, 241-U-105, 241-U-106, 241-U-107, 241-U-108, 241-U-109, 241-U-110, 241-U-111, 241-U-112

3.0 DOME DEFLECTION PROGRAM

Dome loading is controlled by WRPS procedure TFC-ENG-FAC SUP-C-10, *Control of Dome Loading and SSC Load Control*. Dome loading requirements provide defense-in-depth against dome collapse of Double-Shell Tanks (DSTs) and SSTs (100 and 200-series tanks). Per the dome loading requirements, concentrated loads are managed (with discrete limits and requirements on concentrated load limits and vehicular access controls) to maintain the structural integrity of the domes of the DSTs and SSTs. Dome loading requirements for SSTs are documented in OSD-T-151-00013, *Operating Specifications for Single-Shell Storage Tanks*, and TFC-ENG-FAC SUP-C-10, *Control of Dome Loading and SSC Load Control*. The dome load program is also programmatically recognized in TFC-PLN-142, *Dome Loading Management Plan*. Performing dome elevation surveys is a requirement associated with the control of dome loading.

The basis for the dome loading program is documented in RPP-20473, *Design and Dome Load Criteria for Hanford Waste Storage Tanks*. This document provides the basis for the DST and SST domes survey programs. The original version of RPP-20473 was released in 2004. For the purpose of this report, the surveys taken in 2004 and beyond can be credited with being performed with the given protocol. Other surveys performed earlier are subject to higher scrutiny because of lack of programmatic requirements. Surveys were performed in the late 1970s, 1980s, and 1990s. The data is useful as far as trending, but the reported data do hint toward a lack of protocol and benchmark maintenance for the timeframe.

3.1 Historical Dome Elevation Surveys

The SST domes have been surveyed since the late 1970s and early 1980s. According to TFC-PLN-142, SST dome surveys were originally performed to monitor possible excessive dome deflection due to Salt Well pumping. The pumping process removed pumpable liquids from the SSTs. In doing so, the equipment that remained in the tank had build-up of solid waste attached. The concern was that the waste accumulation on the in-tank equipment could result in additional concentrated dome loading.

Early on, there was not established protocol for monitoring the dome deflections and settlement. Review of the early survey data shows that the benchmarks and monuments were not maintained and were sometimes damaged. Other times, the survey benchmarks were not appropriately marked or were disregarded and left to be covered by foam or some other obstruction. The lack of control and protection of the survey benchmarks and monuments was evident in the missing and sometimes clearly erroneous survey data. The findings of disrepair have been noted by the previous and current Tank Operations Contractor and are documented in Problem Evaluation Request PER-2004-4048.

3.2 Current Dome Survey Program

The existing program for monitoring the deflection of the SST domes is referred to as the "Dome Survey Program". The program is documented in RPP-26516, *SST Dome Survey Program*. The program was established to address the need for a *documented design basis and protocol to conduct Single Shell Tank (SST) dome surveys* (RPP-26516). In accordance with TFC-ENG-STD-39, *Civil Survey for Tank Farm Facilities*, all current civil surveying activities are supervised by a Professional Land Surveyor (PLS) licensed in the State of Washington. The PLS shall abide by the Revised Code of Washington (RCW), Chapter 18.43, *ENGINEERS AND LAND SURVEYORS* and the Washington Administrative Code (WAC), Chapter 196-27A, *RULES OF PROFESSIONAL CONDUCT AND PRACTICE*.

The SST Dome Survey Program document and Civil Survey Standard also provide guidance for planning and performing dome surveys, tolerances for equipment, tolerances for performing the survey, as well as instructions for reporting dome survey results. The key element of the survey tolerances is related to the reported dome deflection. RPP-26516 states the following:

If a dome deflection has decreased by more than 0.02 feet and rechecking of the survey and survey data has been performed, then immediately notify the Civil/Structural Discipline Lead Engineer and Base Operations Engineering so the condition can be documented in the Problem Evaluation and Reporting (PER) system.

Deflection of the tank dome of up to approximately 1/2 inch is within dome load limits per RPP-RPT-25608 Rev. 0. Significant load is required to achieve this degree of deflection. All survey data should be reviewed by the responsible tank farm engineer and evaluated for tank settlement and for dome deflection. Measurable deflection of approximately 1/4 inch could be expected but deflection in excess of 1/4 inch should be reviewed by the Civil/Structural Discipline Lead Engineer.

This 0.02-ft (0.24-in) deflection is the same criteria mentioned in the SSTIP Expert Panel recommendation report. Dome deflection greater than this may be an indication that the tank is in distress, or potentially overloaded. In the event that deflection limits are exceeded, TFC-ENG-FAC SUP-C-10 states that the Civil/Structural Engineering Discipline will determine what actions will be taken

3.3 Tank Settlement and Dome Deflection

RPP-26516 establishes the basis and protocol for the SST Dome Survey Program. Civil surveying criteria are established in TFC-ENG-STD-39. The goal of the dome survey program is to monitor the elevation of the tank and tank dome deflection to determine if settlement of the tank is occurring or if excess deflection of the tank dome is occurring. The difference between dome deflection and tank settlement is discussed in RPP-26516, as follows:

Dome deflection can be determined by subtracting the elevation at the center of the dome from the elevation at the perimeter of the tank. Settlement of the tank can be determined by subtracting the most current elevation at the perimeter of the tank from the first, or oldest, survey elevation at the perimeter of the tank.

4.0 DOME SURVEY DATA RESULTS

The dome survey data are tabulated in documents per tank farm. Table 1 lists the documents for each farm. The revisions of the RPP documents incorporate changes to permanent dome loads and inclusion of recently performed SST dome surveys, as they occur. The current (as of 24 July 2012) revisions of these documents are shown in the reference section and appendices to this report.

Table 1 SST Dome Load Record Data Documents

RPP No.	TITLE DESCRIPTION
RPP-20444	241-A Tank Farm Historic Dome Load Record Data
RPP-20445	241-AX Tank Farm Historic Dome Load Record Data
RPP-20446	241-B Tank Farm Historic Dome Load Record Data
RPP-20447	241-BX Tank Farm Historic Dome Load Record Data
RPP-20448	241-BY Tank Farm Historic Dome Load Record Data
RPP-20449	241-C Tank Farm Historic Dome Load Record Data
RPP-20450	241-S Tank Farm Historic Dome Load Record Data
RPP-20451	241-SX Tank Farm Historic Dome Load Record Data
RPP-20452	241-T Tank Farm Historic Dome Load Record Data
RPP-20453	241-TX Tank Farm Historic Dome Load Record Data
RPP-20454	241-TY Tank Farm Historic Dome Load Record Data
RPP-20455	241-U Tank Farm Historic Dome Load Record Data

The following list of Appendices provides the location of the combined current and previous dome elevation surveys:

- Appendix A - Dome Survey Data and Plots for 241-A Farm
- Appendix AX - Dome Survey Data and Plots for 241-AX Farm
- Appendix B - Dome Survey Data and Plots for 241-B Farm
- Appendix BX - Dome Survey Data and Plots for 241-BX Farm
- Appendix BY - Dome Survey Data and Plots for 241-BY Farm
- Appendix C - Dome Survey Data and Plots for 241-C Farm
- Appendix S - Dome Survey Data and Plots for 241-S Farm
- Appendix SX - Dome Survey Data and Plots for 241-SX Farm
- Appendix T - Dome Survey Data and Plots for 241-T Farm
- Appendix TX - Dome Survey Data and Plots for 241-TX Farm
- Appendix TY - Dome Survey Data and Plots for 241-TY Farm
- Appendix U - Dome Survey Data and Plots for 241-U Farm

The appendices are organized in the following format:

- The first page(s) contains the dome survey data for a given tank, as presented in the associated Dome Load Record Data Document.
- The next page is the plotted change in elevation per survey benchmark for the tank, where available. The change in elevation is the difference between the original survey and the survey taken on a given date.
- The last page of each section is the plotted change in elevation per survey benchmark over time for all the tanks in a single farm.

The results of the earlier (pre-dome survey program) surveys are less reliable, but are included because they do show trends and provide general indication that the dome integrity has not changed over time. The results of all the recent surveys, performed under RPP-20473 (2004 and beyond), indicate the difference in elevation between the original and current surveys to be less than the 0.02-ft (0.24-in) criterion. The results as presented indicate that excessive tank settlement has not occurred. Review of the same data points with respect to the location on the tank dome also indicates that excessive dome deflection has not occurred. The plots showing all the tanks for a given farm indicate similar trends for increasing or decreasing elevations for a given dome survey date. These trends further indicate that excessive dome deflection and tank settlement are not occurring.

5.0 COMPLEMENTARY SINGLE-SHELL TANK DOME INTEGRITY RESULTS

The following subsections provide information further confirming the integrity of the SST domes.

5.1 Structural Analysis Documentation

A separate Panel recommendation for the SSTIP relates to performing modern finite element analyses of the SST structures. The recommendation SI-1 from RPP-RPT-43116 is to *Perform Modern Structural Analyses* of the SST structures. Recent applicable structural analyses of the SSTs are listed below:

- RPP-RPT-49989, Rev. 0, *Single Shell Tank Integrity Project Analysis of Record Hanford Type II Single-Shell Tank Thermal and Operating Loads and Seismic Analysis*"
- RPP-RPT-49990, Rev. 0, *Single Shell Tank Integrity Project Analysis of Record Hanford Type III Single-Shell Tank Thermal and Operating Loads and Seismic Analysis*"
- RPP-CALC-43416, Rev. 1, *Single-Shell Tanks Large Riser Evaluation: An Evaluation of Single-Shell Tank 241-C-107 for the Addition of a Large Penetration in the Tank Dome*

Section 11.0 of RPP-RPT-49989 considers a tank limit analysis for loading applied to the Type-II SST (530,000 gallon capacity) structures. A dome displacement relative to the tank footing of 0.1-in is reported from the results of gravity loading only. The analytical model is used to increase concentrated surface loading (load applied over 20-ft diameter area at tank dome apex) or uniform surface loading (load applied at the ground surface over an area to the extent of the projected tank diameter) until the concrete dome fails (no longer takes additional load). The results indicate the tank dome would have to be loaded excessively prior to failure and that failure would be preceded by obvious dome displacement. This further supports the observation that the current dome survey results are not indicative of any structural distress. Similarly, Section 11.0 of RPP-RPT-49990 considers a tank limit analysis for loading applied to the Type-III SST (758,000 gallon capacity) structures.

Section 5.3 of RPP-CALC-43416 evaluates the dome deflection versus the increasing concentrated surface load (load applied at the ground surface over 15-ft diameter area at tank dome apex) from 200-kip (200,000 pounds-force) to 1000-kip (1,000,000 pounds-force) load, with a 55-inch diameter penetration considered at the dome apex. The results of dome displacement, relative to the tank footing are plotted at radial distances from the dome apex. The results indicate that excessive dome deflection should not be anticipated, even under higher loading. This further supports the observation that the structural integrity of the SST tank domes is intact.

5.2 SST Visual Inspections

A separate Panel recommendation for the SSTIP relates to performing non-destructive of the SST structures. The recommendation SI-4 from RPP-RPT-43116 is to *Perform Non-Destructive Evaluation of Concrete* (NDE). Currently, the NDE of the SSTs is limited to visual inspection. The visual inspection protocol requires TOC personnel to inspect the underside of the tank dome and haunch region from inside the tank. The visual inspection looks for signs of degradation such as cracking, spalling, and rust stains. A crack greater than 1/16-in wide could be an indication that the tank is in distress. The plan as implemented in RPP-PLAN-45082 promotes performing visual inspection of twelve SSTs per year. When available, historic photographs are used as a baseline for comparison to current results of visual inspection. Recent visual inspections of 24 SSTs are documented in RPP-RPT-48194, *Fiscal Year 2010 Visual Inspection Report for Single-Shell Tanks*, and RPP-RPT-51404, *Fiscal Year 2011 Visual Inspection Report for Single-Shell Tanks*. The results of both reports indicate that the SST domes are intact and not in any distress. Additional visual inspections are to be performed, reviewed and documented later this fiscal year.

5.3 SST Dome Concrete and Rebar

A separate Panel recommendation for the SSTIP relates to performing testing of concrete and rebar removed from the domes of SSTs. The recommendation SI-5 from RPP-RPT-43116 is to "Test Dome Concrete and Rebar 'Plugs'". A 55-in diameter section ('Plug') removed from SST 241-C-107 was inspected and tested in accordance with the Panel recommendation. The dome 'Plug' was subjected to field inspection and was cored for concrete testing and then demolished for rebar removal and testing. The results are documented in RPP-RPT-50394, *Inspection and Test Report for the Removed 241-C-107 Dome Concrete*, and RPP-RPT-54564, *Inspection and Test Report for the Removed 241-C-107 Dome Rebar*. The results show that the dome cross-section thickness and rebar placement agree with the tank design drawings. The average concrete compressive strength of 8000-psi is greater than the original specified 28-day strength of 3000-psi and the range of values used in the AOR modeling efforts. The average yield strength of the removed rebar was approximately 47-ksi, which is greater than the minimum specified for Grade 40 rebar, 40-ksi. The results of the dome 'Plug' testing provide added confidence that structural integrity of SST domes is intact.

6.0 CONCLUSIONS

The SST dome survey results reveal there are no dome deflections in excess of the 0.02-ft (0.24-in) criterion. The ongoing efforts to perform visual inspections of the inside of the SSTs also confirm the integrity of the SST domes. The results indicating the satisfactory material properties of the tank C-107 dome concrete and rebar provide an additional data point supporting the confirmation of structural integrity.

The dome deflection criterion is also confirmed as a conservative measure to be an early indication of a potential problem by structural analyses that show the dome collapse is preceded by excessive deflection that is far greater than any observed.

The procedures for controlling the loads placed on the tanks are effective in reducing the risk of potentially overloading the tank structures. The dome survey program continues to be augmented by installation of new tank benchmarks that will allow adequate differentiation of tank settlement and dome deflection. Protecting the dome survey benchmarks and monuments is required by procedure and will continue to provide greater confidence in the current and future dome survey results.

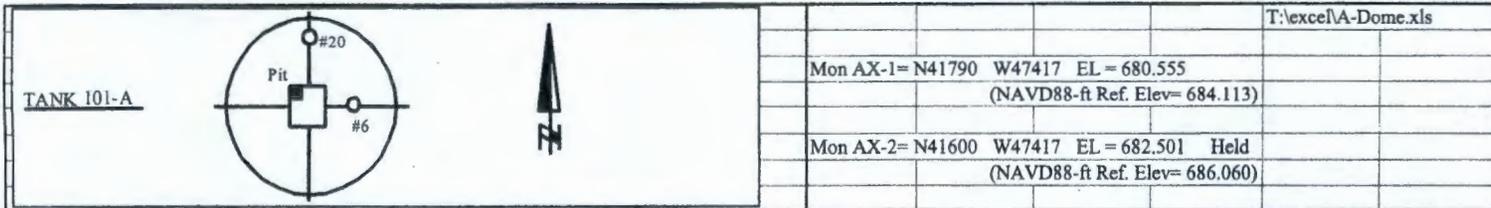
In summary, the results indicate that the SST domes are not deflecting greater than 0.02-ft (0.24-in) and therefore the integrity of the SST domes is not a concern.

7.0 REFERENCES

- H-2-2310, Rev. 9, *MONUMENT LAYOUT 200-E AREA*,
U.S. Department of Energy. Richland, WA.
- H-2-2500, Rev. 10, *MONUMENT LAYOUT 200-W AREA*,
U.S. Department of Energy. Richland, WA.
- H-2-68529, SHT 1, Rev. 6, *BENCH MARK WASTE TANK SYSTEM*,
U.S. Department of Energy. Richland, WA.
- H-2-68529, SHT 2, Rev. 1, *BENCH MARK WASTE TANK SYSTEM*,
U.S. Department of Energy. Richland, WA.
- RPP-CALC-43416, Rev. 1, *Single-Shell Tanks Large Riser Evaluation: An Evaluation of Single-Shell Tank 241-C-107 for the Addition of a Large Penetration in the Tank Dome*
U.S. Department of Energy. Richland, WA.
- RPP-PLAN-45082, Rev. 0, *Implementation Plan for the Single-Shell Tank Integrity Project*.
U.S. Department of Energy. Richland, WA.
- RPP-RPT-43116, Rev. 0, *Expert Panel Report For Hanford Site Single-Shell Tank Integrity Project*. U.S. Department of Energy. Richland, WA.
- RPP-RPT-49989, Rev. 0, *Single Shell Tank Integrity Project Analysis of Record Hanford Type II Single-Shell Tank Thermal and Operating Loads and Seismic Analysis*
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- RPP-RPT-49990, Rev. 0, *Single Shell Tank Integrity Project Analysis of Record Hanford Type III Single-Shell Tank Thermal and Operating Loads and Seismic Analysis*
U.S. Department of Energy. Richland, WA.
- RPP-RPT-50934, Rev. 0, *Inspection and Test Report for the Removed 241-C-107 Dome Concrete*. U.S. Department of Energy. Richland, WA.
- RPP-RPT-54564, Rev. 0, *Inspection and Test Report for the Removed 241-C-107 Dome Rebar*.
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- RPP-20444, Rev. 0D, *241-A Tank Farm Historic Dome Load Record Data*
U.S. Department of Energy. Richland, WA.
- RPP-20445, Rev. 0D, *241-AX Tank Farm Historic Dome Load Record Data*
U.S. Department of Energy. Richland, WA.
- RPP-20446, Rev. 0D, *241-B Tank Farm Historic Dome Load Record Data*
U.S. Department of Energy. Richland, WA.

- RPP-20447, Rev. 0E, *241-BX Tank Farm Historic Dome Load Record Data*
U.S. Department of Energy. Richland, WA.
- RPP-20448, Rev. 0F, *241-BY Tank Farm Historic Dome Load Record Data*
U.S. Department of Energy. Richland, WA.
- RPP-20449, Rev. 0E, *241-C Tank Farm Historic Dome Load Record Data*
U.S. Department of Energy. Richland, WA.
- RPP-20450, Rev. 0D, *241-S Tank Farm Historic Dome Load Record Data*
U.S. Department of Energy. Richland, WA.
- RPP-20451, Rev. 0D, *241-SX Tank Farm Historic Dome Load Record Data*
U.S. Department of Energy. Richland, WA.
- RPP-20452, Rev. 0G, *241-T Tank Farm Historic Dome Load Record Data*
U.S. Department of Energy. Richland, WA.
- RPP-20453, Rev. 0D, *241-TX Tank Farm Historic Dome Load Record Data*
U.S. Department of Energy. Richland, WA.
- RPP-20454, Rev. 0D, *241-TY Tank Farm Historic Dome Load Record Data*
U.S. Department of Energy. Richland, WA.
- RPP-20455, Rev. 0C, *241-U Tank Farm Historic Dome Load Record Data*
U.S. Department of Energy. Richland, WA.
- RPP-20473, Rev. 1A, *Design and Dome Load Criteria for Hanford Waste Storage Tanks.*
U.S. Department of Energy. Richland, WA.
- RPP-26516, Rev. 1, *SST Dome Survey Program.*
U.S. Department of Energy. Richland, WA.
- TFC-ENG-FAC SUP-C-10, Rev. C-21, *Control of Dome Loading and SSC Load Control*
U.S. Department of Energy. Richland, WA.
- TFC-ENG-STD-39, Rev. A-1, *Civil Survey for Tank Farm Facilities*
U.S. Department of Energy. Richland, WA.
- TFC-PLN-142, Rev. A, *Dome Loading Management Plan,*
U.S. Department of Energy. Richland, WA.

Appendix A – 241-A Farm Dome Survey Data and Plots

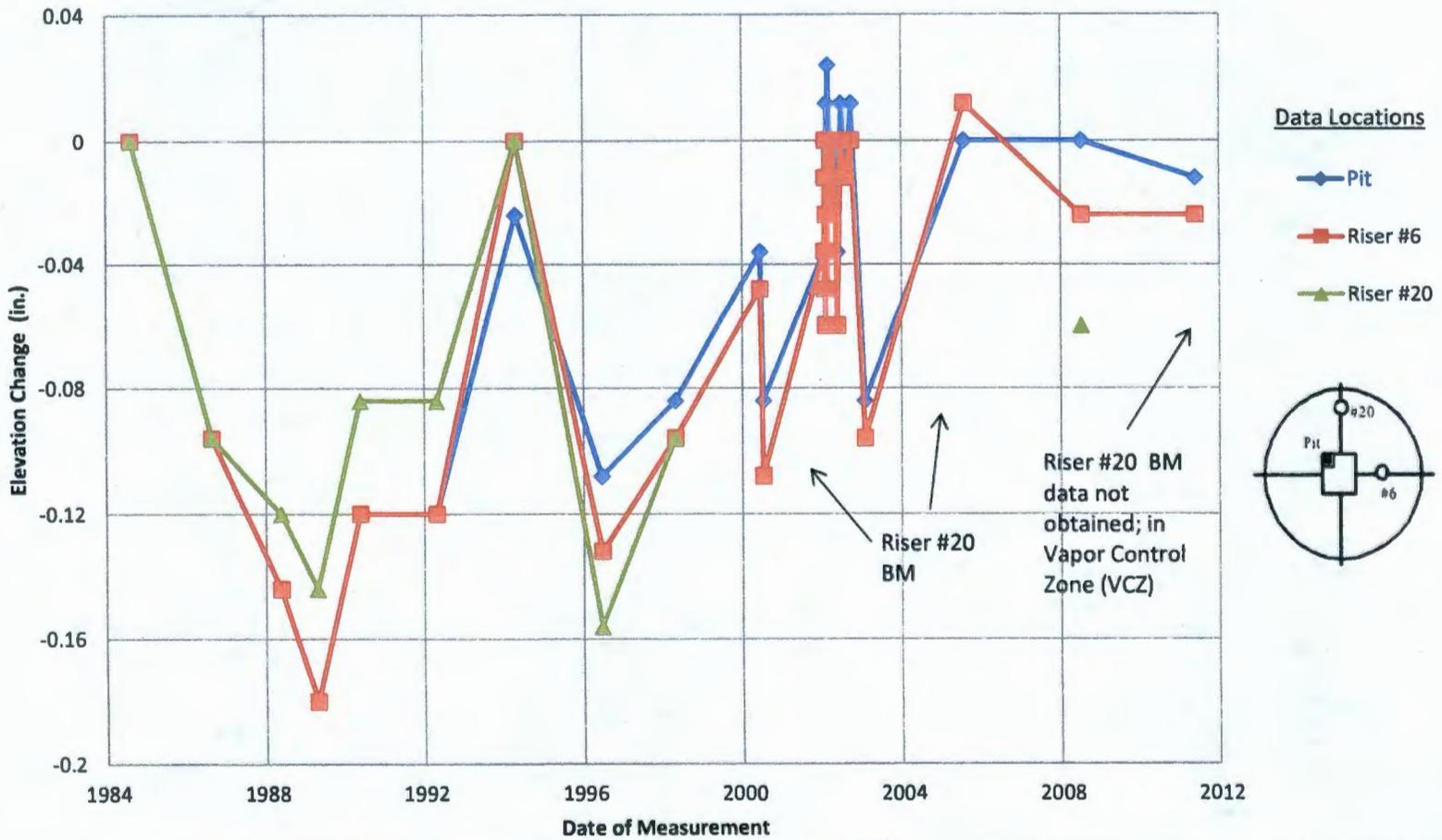


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	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
8/13/1984	691.288	0	0	690.446	0	0	690.038	0	0			
8/26/1986	691.280	-0.008	-0.008	690.438	-0.008	-0.008	690.030	-0.008	-0.008			
5/20/1988	691.276	-0.004	-0.012	690.434	-0.004	-0.012	690.028	-0.002	-0.010			
4/20/1989	691.273	-0.003	-0.015	690.431	-0.003	-0.015	690.026	-0.002	-0.012			
5/17/1990	691.278	0.005	-0.010	690.436	0.005	-0.010	690.031	0.005	-0.007			
4/22/1992	691.278	0	-0.010	690.436	0	-0.010	690.031	0	-0.007			
4/18/1994	691.286	0.008	-0.002	690.446	0.010	0	690.038	0.007	0			
6/18/1996	691.279	-0.007	-0.009	690.435	-0.011	-0.011	690.025	-0.013	-0.013			
4/24/1998	691.281	0.002	-0.007	690.438	0.003	-0.008	690.030	0.005	-0.008			
6/13/2000	691.285	0.004	-0.003	690.442	0.004	-0.004		Blocked				
7/11/2000	691.281	-0.004	-0.007	690.437	-0.005	-0.009		Blocked				
1/21/2002	691.285	0.004	-0.003	690.443	0.006	-0.003		Blocked				
1/24/2002	691.285	0	-0.003	690.442	-0.001	-0.004		Blocked				
1/26/2002	691.288	0.003	0	690.445	0.003	-0.001		Blocked				
1/27/2002	691.287	-0.001	-0.001	690.446	0.001	0		Blocked				
1/30/2002	691.287	0	-0.001	690.443	-0.003	-0.003		Blocked				
2/2/2002	691.285	-0.002	-0.003	690.445	0.002	-0.001		Blocked				
2/4/2002	691.283	-0.002	-0.005	690.441	-0.004	-0.005		Blocked				
2/6/2002	691.287	0.004	-0.001	690.444	0.003	-0.002		Blocked				
2/11/2002	691.288	0.001	0	690.444	0	-0.002		Blocked				
2/14/2002	691.289	0.001	0.001	690.446	0.002	0		Blocked				
2/20/2002	691.286	-0.003	-0.002	690.442	-0.004	-0.004		Blocked				
2/27/2002	691.290	0.004	0.002	690.446	0.004	0		Blocked				
3/14/2002	691.288	-0.002	0	690.444	-0.002	-0.002		Blocked				

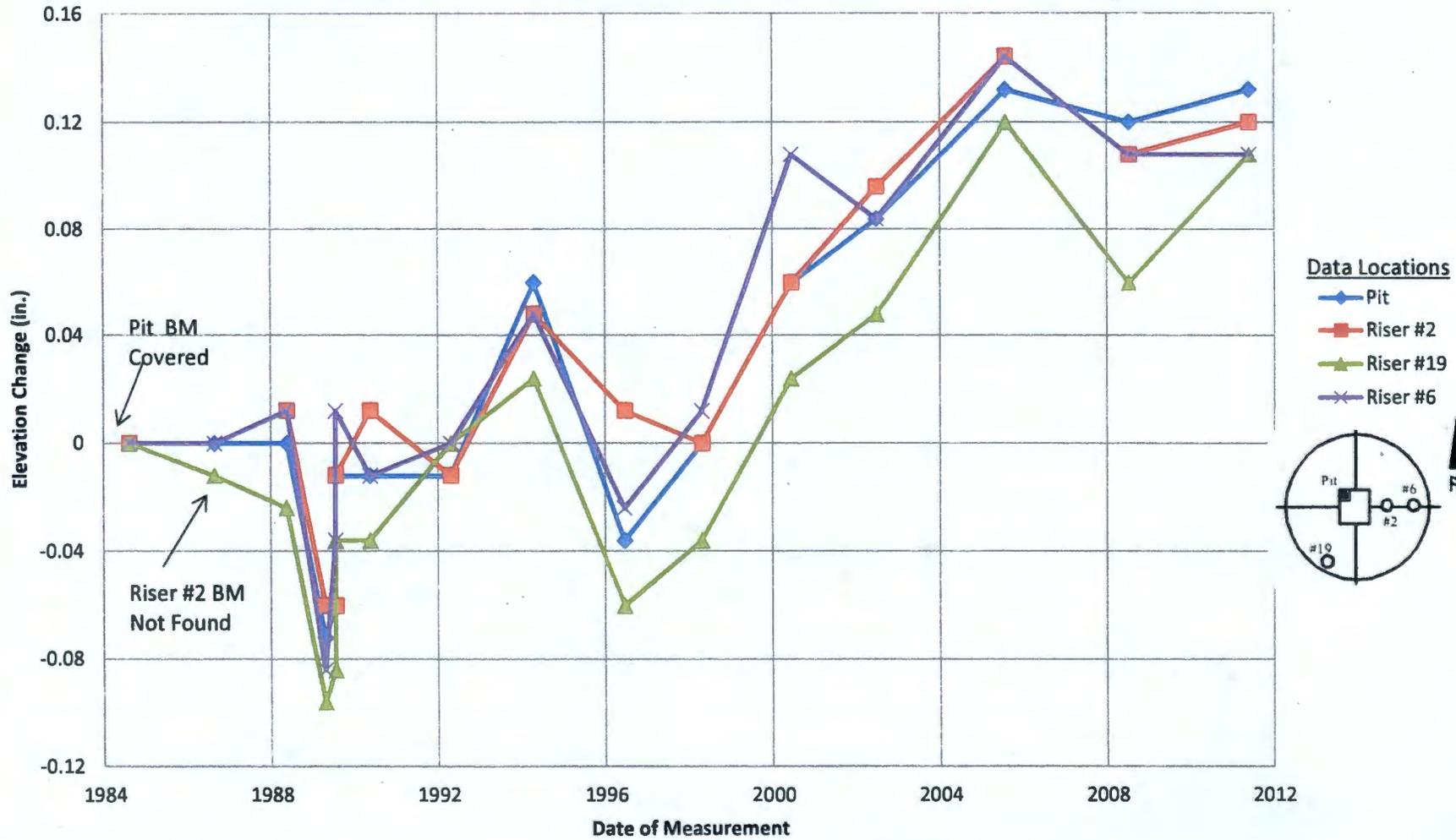
RPP-20444, Rev. 0D
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Page: A-Survey-2 of 8

A-1

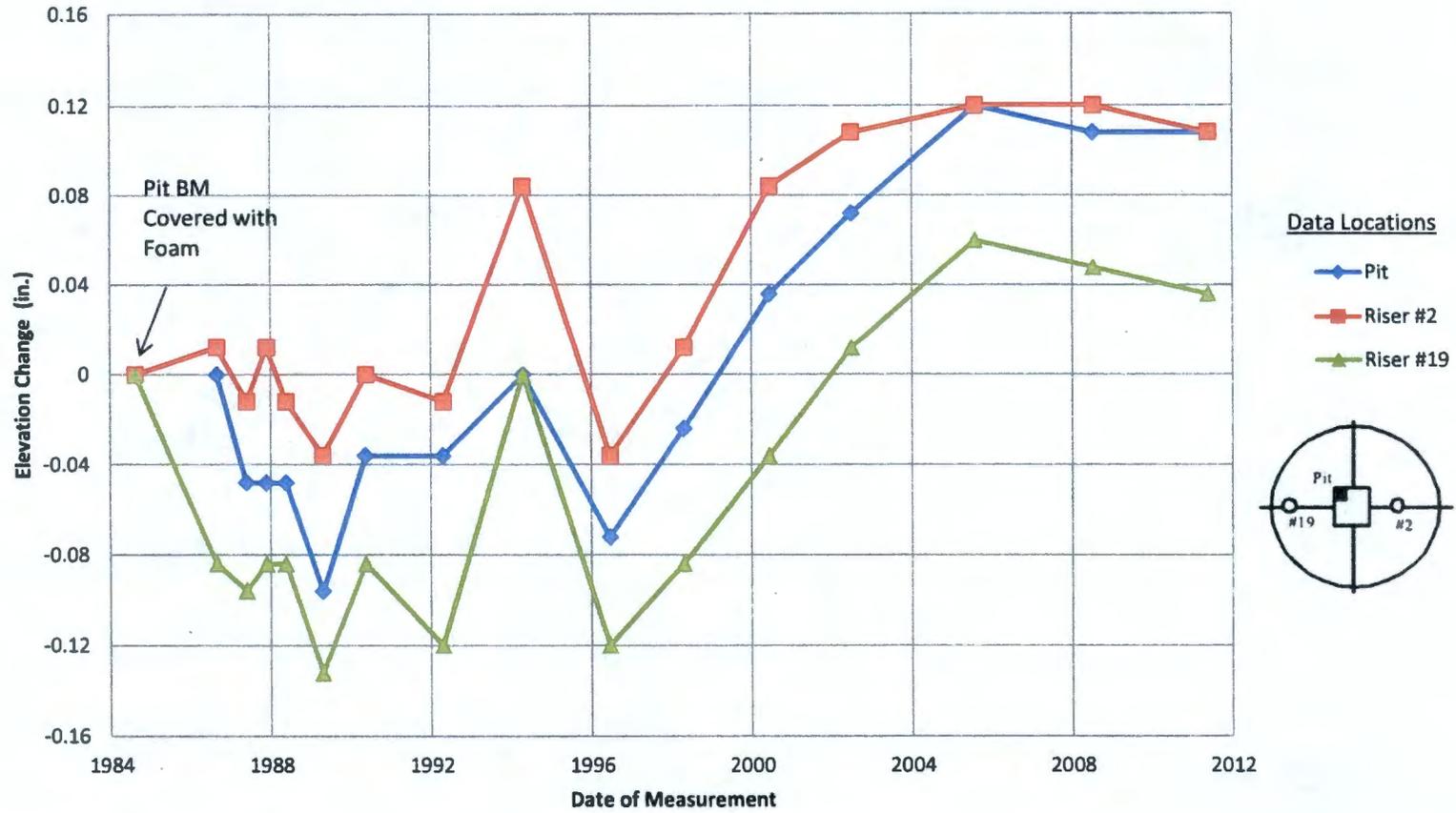
Tank 241-A-101 Dome Benchmark Elevation Change



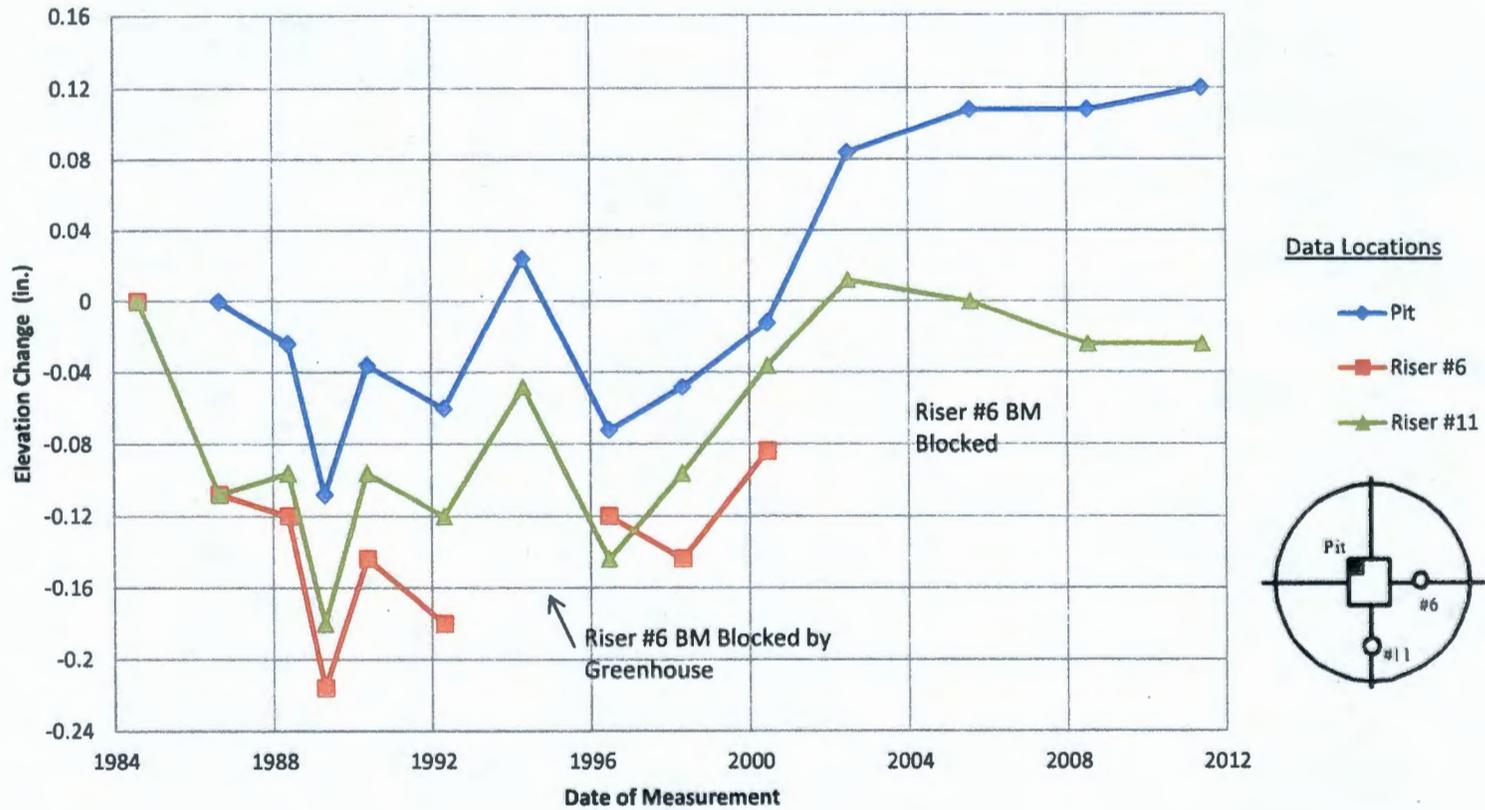
Tank 241-A-102 Dome Benchmark Elevation Change



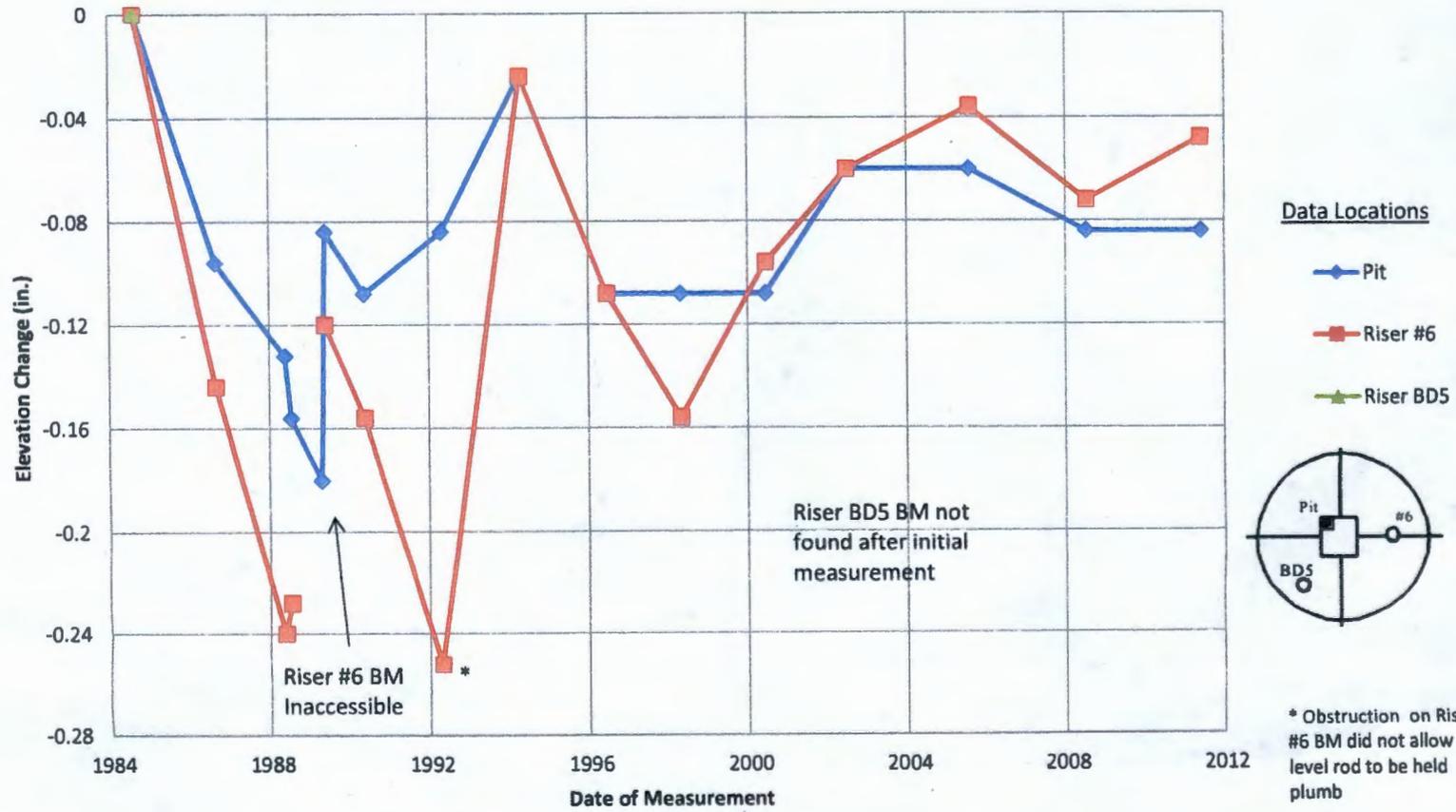
Tank 241-A-103 Dome Benchmark Elevation Change



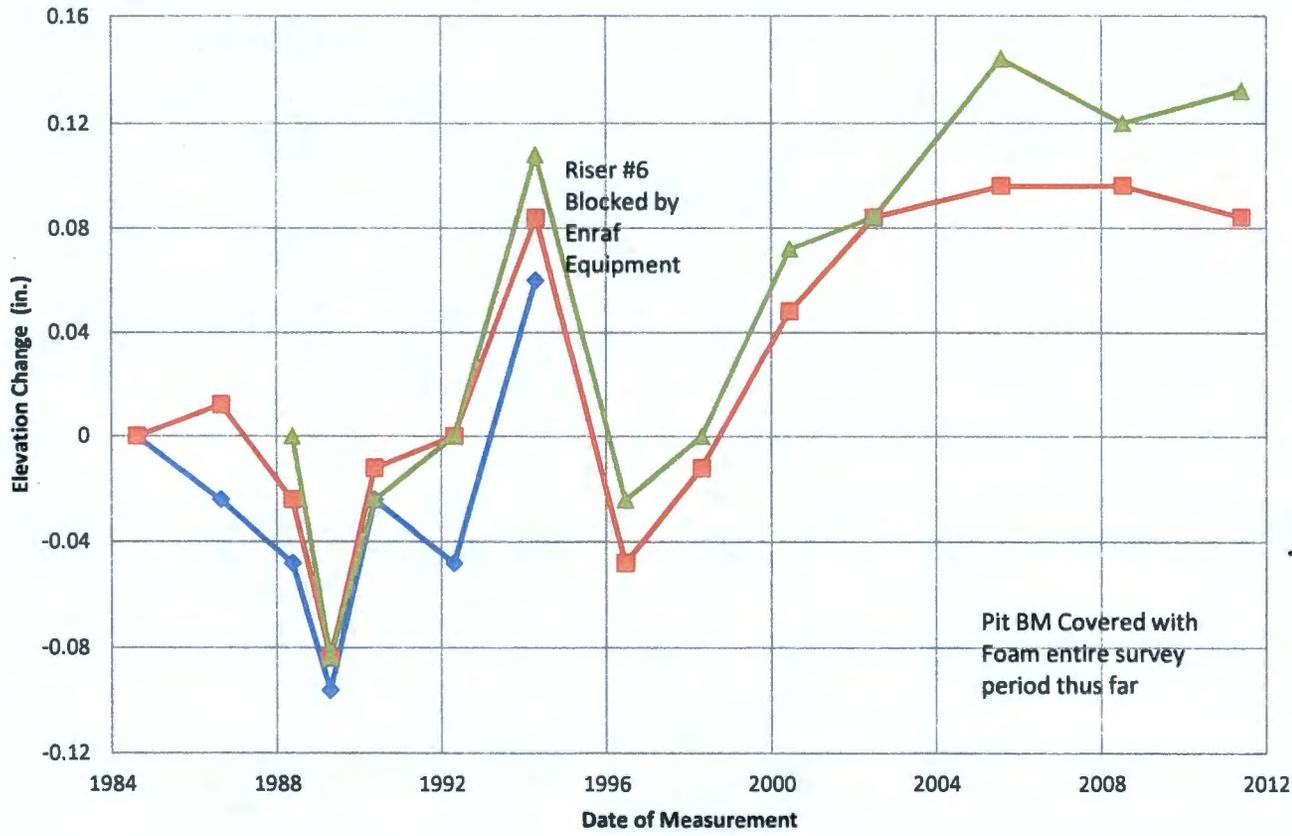
Tank 241-A-104 Dome Benchmark Elevation Change



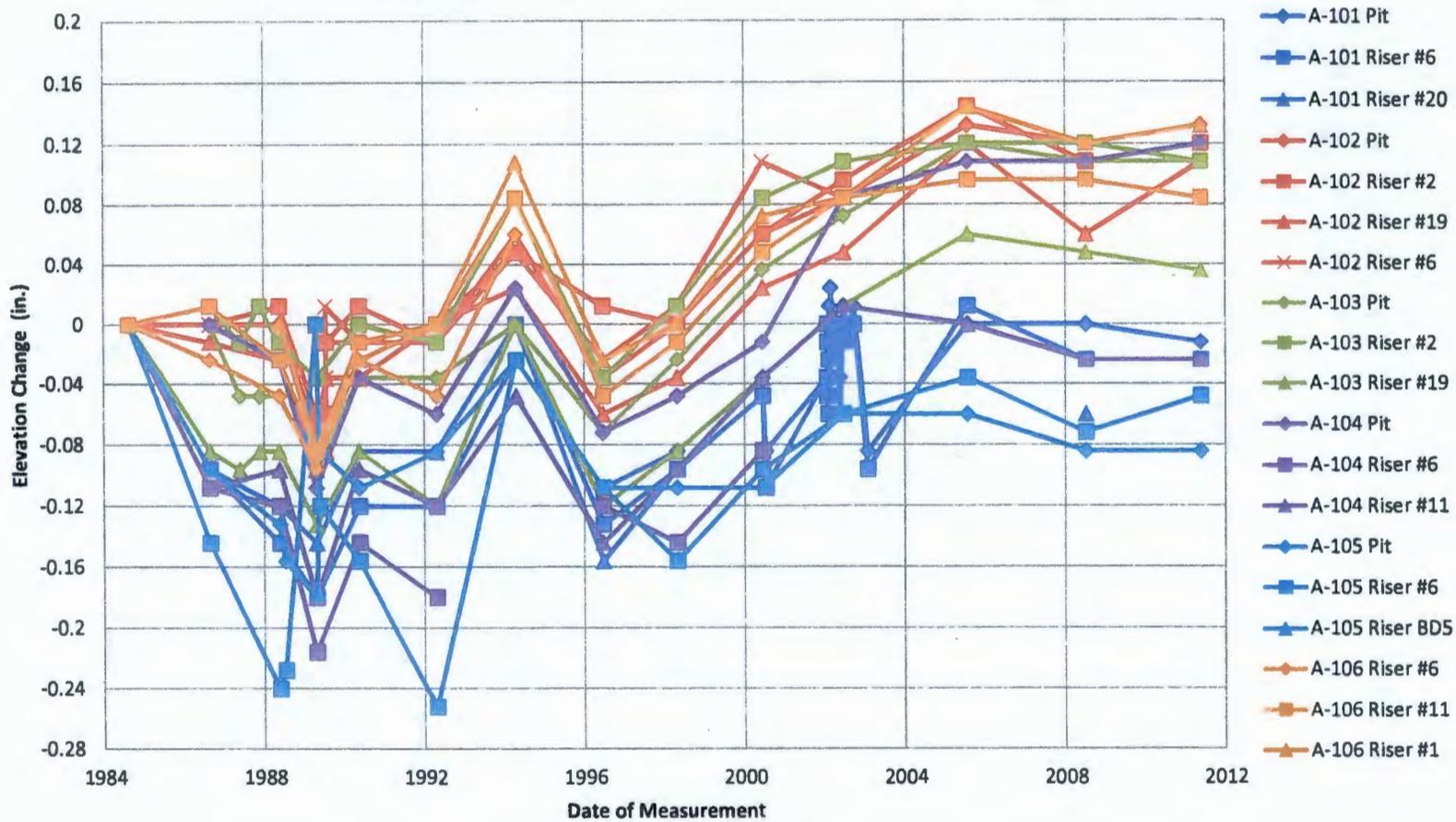
Tank 241-A-105 Dome Benchmark Elevation Change



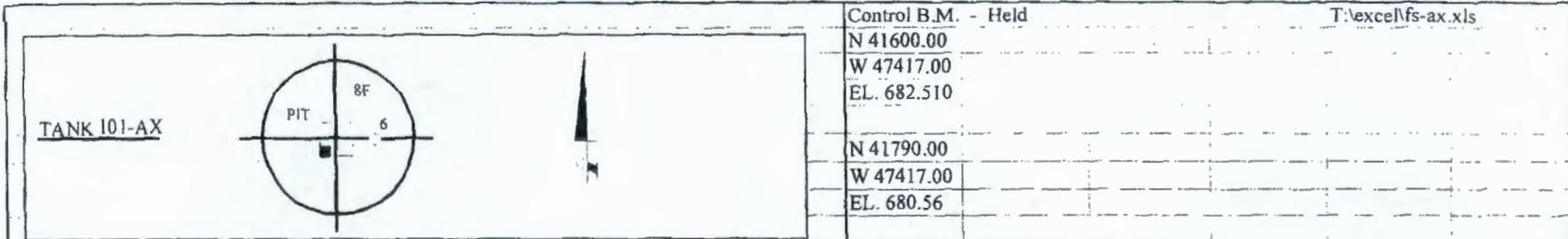
Tank 241-A-106 Dome Benchmark Elevation Change



A Farm Dome Benchmark Elevation Change



Appendix AX – 241-AX Farm Dome Survey Data and Plots



Control B.M. - Held
 N 41600.00
 W 47417.00
 EL. 682.510
 N 41790.00
 W 47417.00
 EL. 680.56

Accuracy of Control Mons.: +0.007

DATE	RISER PIT			RISER-009B (6)			RISER-009A (8F)			RISER		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
8/13/1984	685.026	0	0	681.639	0	0	681.602	0	0			
8/25/1986	685.029	0.003	0.003	681.648	0.009	0.009	681.612	0.01	0.01			
5/23/1988	685.028	-0.001	0.002	681.648	0	0.009	681.609	-0.003	0.007			
5/1/1989	685.028	0	0.002	681.647	-0.001	0.008	681.611	0.002	0.009			
5/17/1990	685.027	-0.001	0.001	681.647	0	0.008	681.610	-0.001	0.008			
5/16/1991	685.027	0	0.001	681.645	-0.002	0.006	681.610	0	0.008			
4/21/1992	685.027	0	0.001	681.644	-0.001	0.005	681.607	-0.003	0.005			
3/24/1993	685.024	-0.003	-0.002	681.646	0.002	0.007	681.609	0.002	0.007			
2/23/1994	685.024	0	-0.002	681.645	-0.001	0.006	681.607	-0.002	0.005			
2/27/1995	685.027	0.003	0.001	681.644	-0.001	0.005	681.606	-0.001	0.004			
3/27/1996	685.026	-0.001	0	681.645	0.001	0.006	681.608	0.002	0.006			
4/22/1997	685.025	-0.001	-0.001	681.644	-0.001	0.005	681.607	-0.001	0.005			
4/17/1998	BLOCKED BY SCAFFOLD			681.644	0	0.005	681.606	-0.001	0.004			
4/13/1999	BLOCKED BY SCAFFOLD			681.646	0.002	0.007	681.608	0.002	0.006			
5/10/2000	BLOCKED BY SCAFFOLD			681.645	-0.001	0.006	681.609	0.001	0.007			
3/23/2001	BM HAS BEEN REMOVED			681.644	-0.001	0.005	681.607	-0.002	0.005			
6/12/2001	BM HAS BEEN REMOVED			681.647	0.003	0.008	681.609	0.002	0.007			
1/30/2002				681.641	-0.006	0.002	681.604	-0.005	0.002			
2/2/2002				681.644	0.003	0.005	681.607	0.003	0.005			
2/4/2002				681.642	-0.002	0.003	681.606	-0.001	0.004			
2/6/2002				681.642	0	0.003	681.604	-0.002	0.002			
2/8/2002				681.642	0	0.003	681.606	0.002	0.004			

AX-1

RPP-20445, Rev 0C
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 Page: AX-Survey-2 of 6

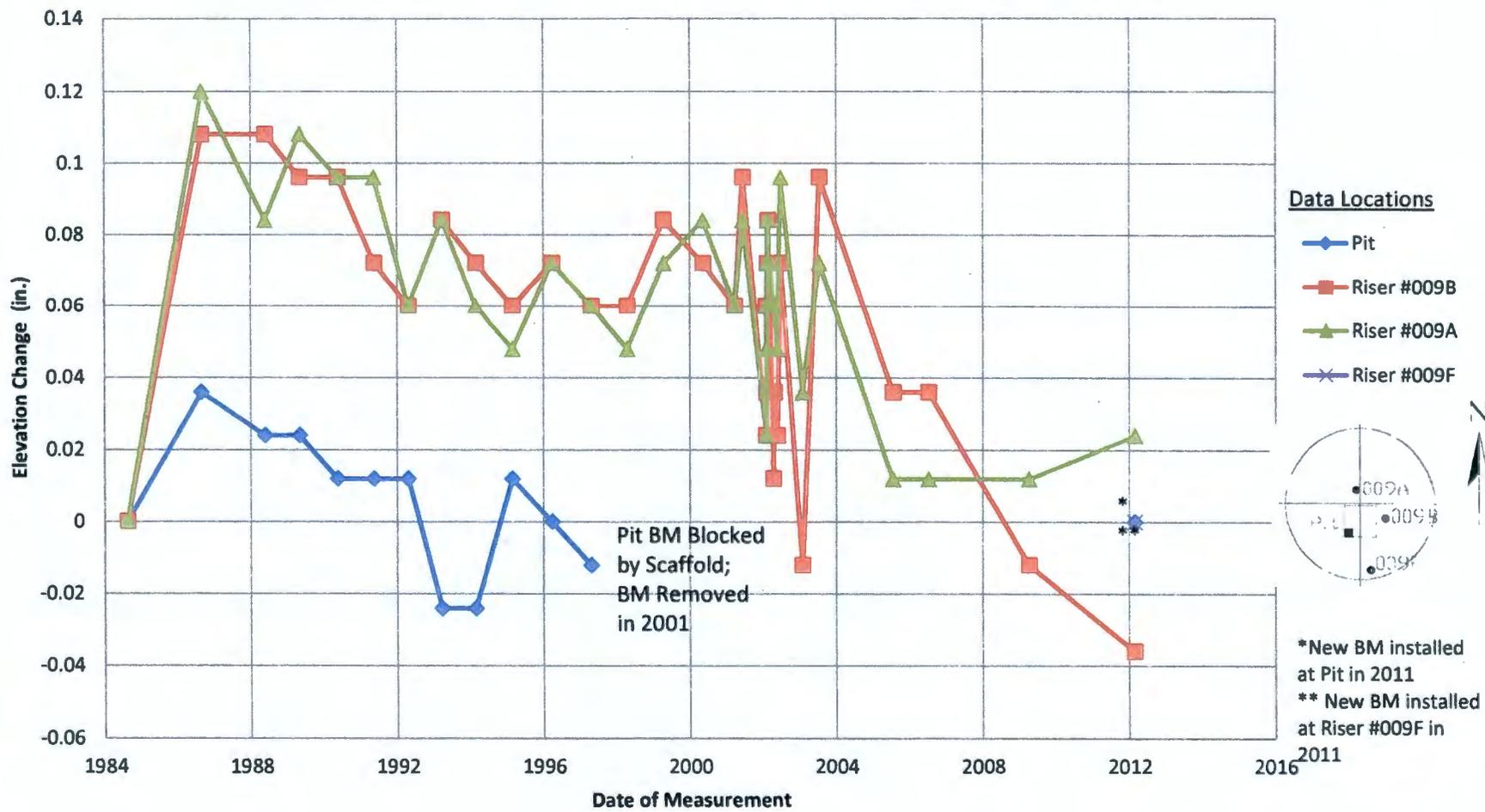
RPP-RPT-55202, Rev. 0

FIELD SKETCH												
										Control B.M. - Held Mon AX-2 N 41600.00 W47417.00 El. 682.510 (NAVD88-ft Ref. Elev= 686.060) Mon AX-1 N 41790.00 W47417.00 El. 680.56 (NAVD88-ft Ref. Elev= 684.113)		
RISER PIT			RISER-009B			RISER-009A			RISER-009F			
DATE	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
2/9/2002	BM HAS BEEN REMOVED			681.644	0.002	0.005	681.608	0.002	0.006			
2/11/2002				681.644	0	0.005	681.607	-0.001	0.005			
2/14/2002				681.645	0.001	0.006	681.609	0.002	0.007			
2/20/2002				681.646	0.001	0.007	681.609	0	0.007			
2/27/2002				681.644	-0.002	0.005	681.608	-0.001	0.006			
3/14/2002				681.644	0	0.005	681.608	0	0.006			
4/15/2002				681.640	-0.004	0.001	681.607	-0.001	0.005			
4/23/2002				681.642	0.002	0.003	681.607	0	0.005			
5/23/2002				681.641	-0.001	0.002	681.606	-0.001	0.004			
6/27/2002				681.645	0.004	0.006	681.610	0.004	0.008			
1/29/2003				681.638	-0.007	-0.001	681.605	-0.005	0.003			
7/17/2003				681.647	0.009	0.008	681.608	0.003	0.006			
7/20/2005				681.642	-0.005	0.003	681.603	-0.005	0.001			
7/10/2006				681.642	0	0.003	681.603	0	0.001			
4/6/2009	*New BM Installed 2011			681.638	-0.004	-0.001	681.603	0	0.001	*New BM Installed 2011		
2/28/2012	684.473	0	0	681.636	-0.002	-0.003	681.604	0.001	0.002	682.418	0	0

AX-2

RPP-RPT-55202, Rev. 0

Tank 241-AX-101 Dome Benchmark Elevation Change

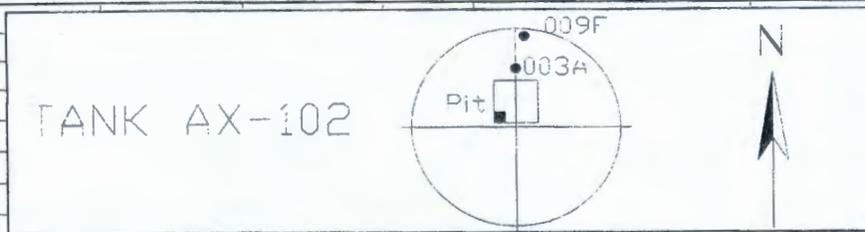


Fluor Government Group

Tank 102-AX Dome Settlement Study

FIELD SKETCH

T:\excel\fs-ax.xls



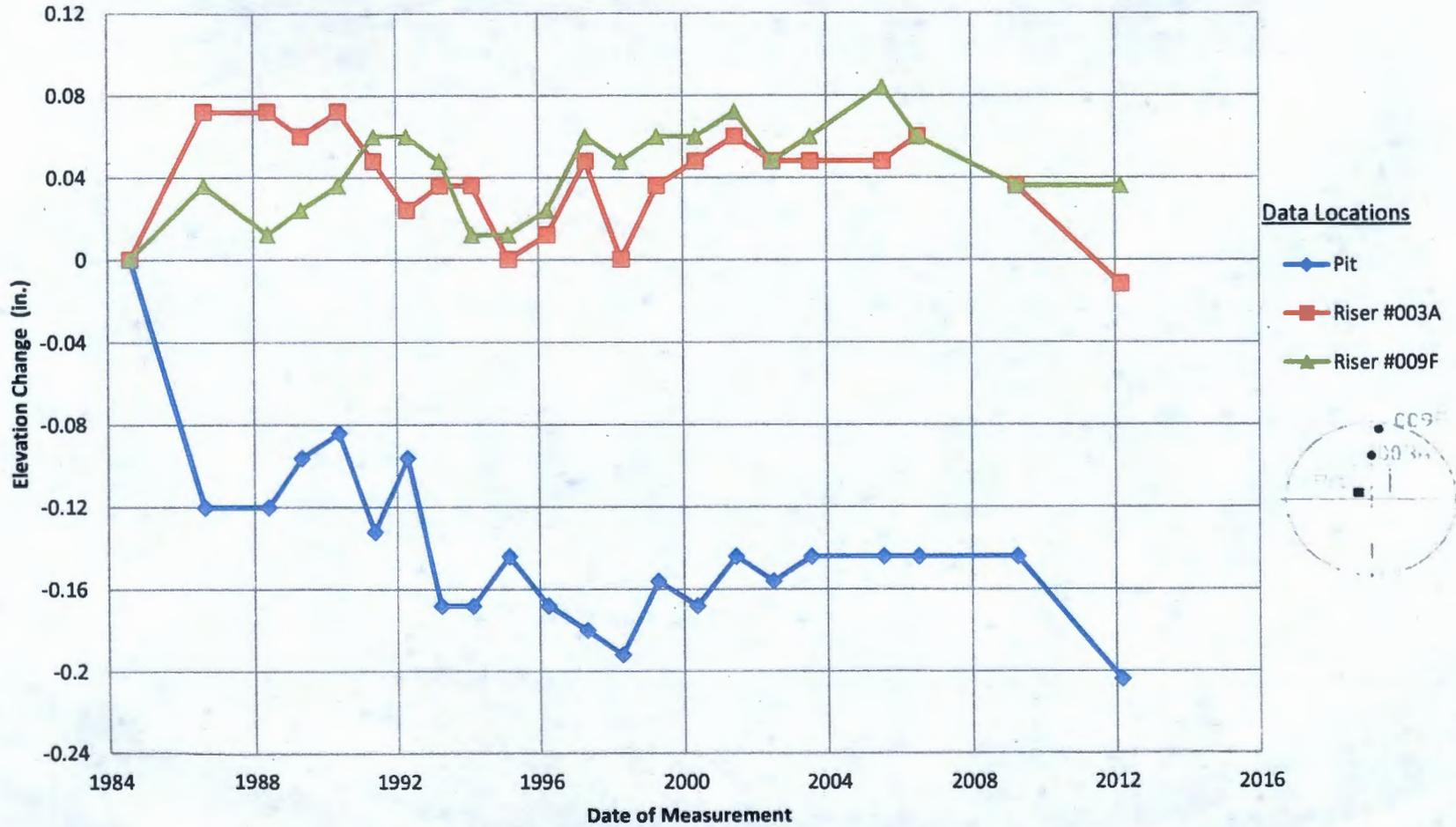
DATE	RISER PIT			RISER-003A			RISER-009F			RISER		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
8/13/1984	685.021	0	0	682.619	0	0	682.675	0	0			
8/25/1986	685.011	-0.010	-0.010	682.625	0.006	0.006	682.678	0.003	0.003			
5/23/1988	685.011	0	-0.010	682.625	0	0.006	682.676	-0.002	0.001			
5/1/1989	685.013	0.002	-0.008	682.624	-0.001	0.005	682.677	0.001	0.002			
5/17/1990	685.014	0.001	-0.007	682.625	0.001	0.006	682.678	0.001	0.003			
5/16/1991	685.010	-0.004	-0.011	682.623	-0.002	0.004	682.680	0.002	0.005			
4/21/1992	685.013	0.003	-0.008	682.621	-0.002	0.002	682.680	0	0.005			
3/24/1993	685.007	-0.006	-0.014	682.622	0.001	0.003	682.679	-0.001	0.004			
2/23/1994	685.007	0	-0.014	682.622	0	0.003	682.676	-0.003	0.001			
2/27/1995	685.009	0.002	-0.012	682.619	-0.003	0	682.676	0	0.001			
3/27/1996	685.007	-0.002	-0.014	682.620	0.001	0.001	682.677	0.001	0.002			
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4/17/1998	685.005	-0.001	-0.016	682.619	-0.004	0	682.679	-0.001	0.004			
4/13/1999	685.008	0.003	-0.013	682.622	0.003	0.003	682.680	0.001	0.005			
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6/12/2001	685.009	0.002	-0.012	682.624	0.001	0.005	682.681	0.001	0.006			
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7/17/2003	685.009	0.001	-0.012	682.623	0	0.004	682.680	0.001	0.005			
7/20/2005	685.009	0	-0.012	682.623	0	0.004	682.682	0.002	0.007			
7/10/2006	685.009	0	-0.012	682.624	0.001	0.005	682.680	-0.002	0.005			
4/6/2009	685.009	0	-0.012	682.622	-0.002	0.003	682.678	-0.002	0.003			
2/28/2012	685.004	-0.005	-0.017	682.618	-0.004	-0.001	682.678	0	0.003			

AX-4

RPP-RPT-55202, Rev. 0

AX-5

Tank 241-AX-102 Dome Benchmark Elevation Change

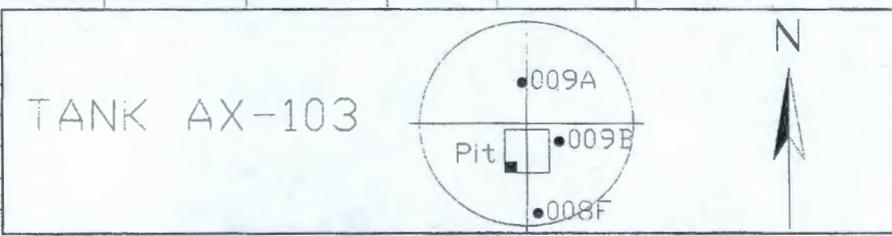


Fluor Government Group

Tank 103-AX Dome Settlement Study

FIELD SKETCH

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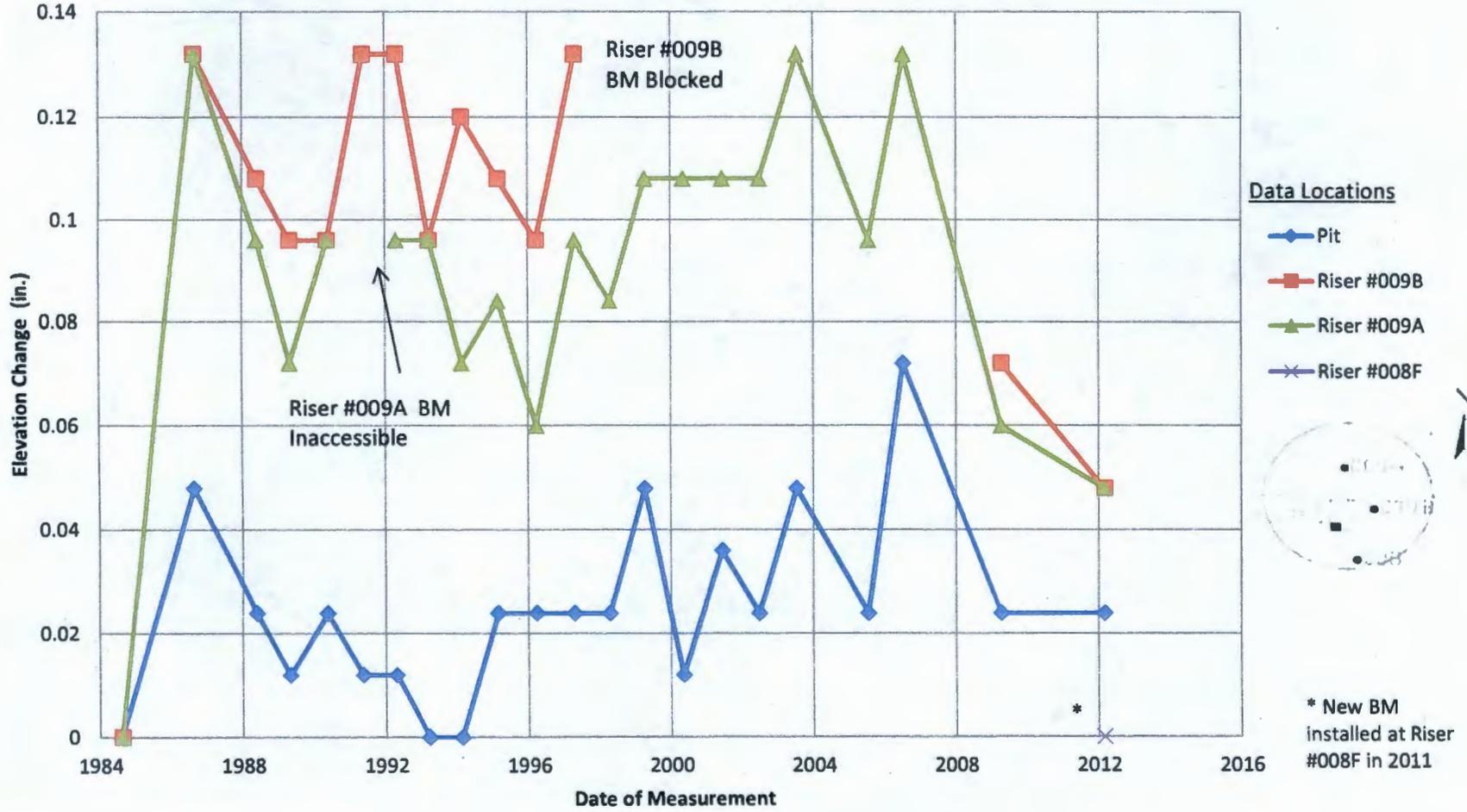
DATE	RISER PIT			RISER-009B			RISER-009A			RISER-008F		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
8/13/1984	685.029	0	0	681.616	0	0	681.627	0	0			
8/25/1986	685.033	0.004	0.004	681.627	0.011	0.011	681.638	0.011	0.011			
5/25/1988	685.031	-0.002	0.002	681.625	-0.002	0.009	681.635	-0.003	0.008			
5/1/1989	685.030	-0.001	0.001	681.624	-0.001	0.008	681.633	-0.002	0.006			
5/17/1990	685.031	0.001	0.002	681.624	0	0.008	681.635	0.002	0.008			
5/16/1991	685.030	-0.001	0.001	681.627	0.003	0.011	Inaccessible (covered w/plastic)					
4/22/1992	685.030	0	0.001	681.627	0	0.011	681.635	0	0.008			
3/24/1993	685.029	-0.001	0	681.624	-0.003	0.008	681.635	0	0.008			
2/23/1994	685.029	0	0	681.626	0.002	0.01	681.633	-0.002	0.006			
2/27/1995	685.031	0.002	0.002	681.625	-0.001	0.009	681.634	0.001	0.007			
3/27/1996	685.031	0	0.002	681.624	-0.001	0.008	681.632	-0.002	0.005			
4/22/1997	685.031	0	0.002	681.627	0.003	0.011	681.635	0.003	0.008			
4/17/1998	685.031	0	0.002		BLOCKED		681.634	-0.001	0.007			
4/13/1999	685.033	0.002	0.004		BLOCKED		681.636	0.002	0.009			
5/10/2000	685.030	-0.003	0.001		BLOCKED		681.636	0.000	0.009			
6/12/2001	685.032	0.002	0.003		BLOCKED		681.636	0.000	0.009			
6/27/2002	685.031	-0.001	0.002		BLOCKED		681.636	0.000	0.009			
7/17/2003	685.033	0.002	0.004		BLOCKED		681.638	0.002	0.011			
7/20/2005	685.031	-0.002	0.002		BLOCKED		681.635	-0.003	0.008			
7/10/2006	685.035	0.004	0.006		BLOCKED		681.638	0.003	0.011			
4/6/2009	685.031	-0.004	0.002	681.622	-0.005	0.006	681.632	-0.006	0.005	*New BM Installed 2011		
2/28/2012	685.031	0	0.002	681.620	-0.002	0.004	681.631	-0.001	0.004	681.676	0	0

AX-6

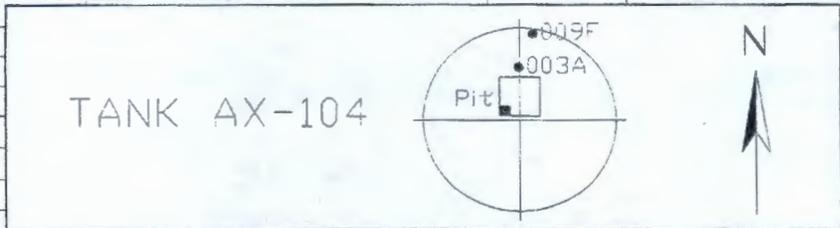
RPP-RPT-55202, Rev. 0

AX-7

Tank 241-AX-103 Dome Benchmark Elevation Change



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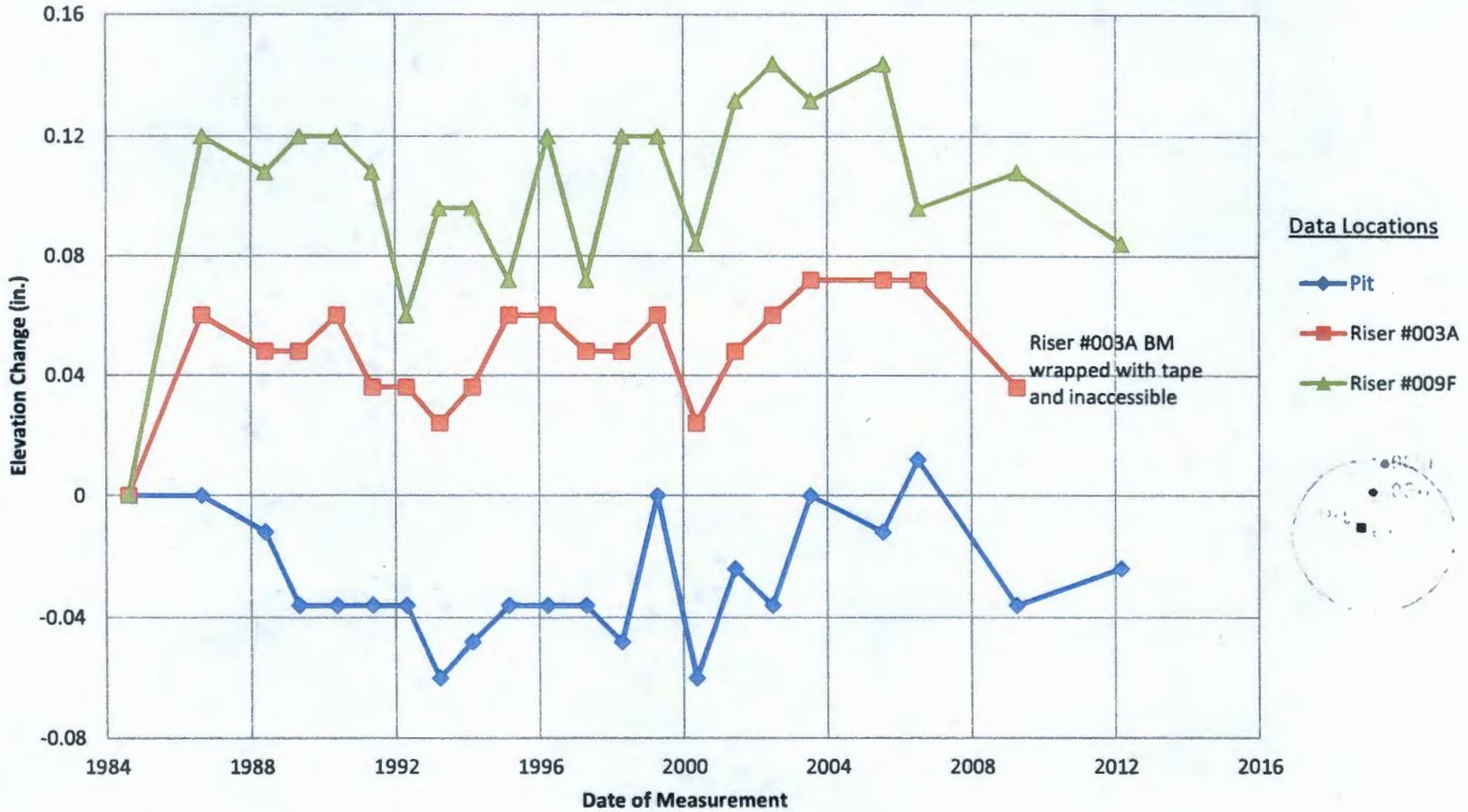


DATE	RISER PIT			RISER-003A			RISER-009F			RISER		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
8/13/1984	685.016	0	0	682.613	0	0	682.663	0	0			
8/25/1986	685.016	0	0	682.618	0.005	0.005	682.673	0.010	0.010			
5/25/1988	685.015	-0.001	-0.001	682.617	-0.001	0.004	682.672	-0.001	0.009			
5/1/1989	685.013	-0.002	-0.003	682.617	0	0.004	682.673	0.001	0.010			
5/17/1990	685.013	0	-0.003	682.618	0.001	0.005	682.673	0	0.010			
5/16/1991	685.013	0	-0.003	682.616	-0.002	0.003	682.672	-0.001	0.009			
4/22/1992	685.013	0	-0.003	682.616	0	0.003	682.668	-0.004	0.005			
3/24/1993	685.011	-0.002	-0.005	682.615	-0.001	0.002	682.671	0.003	0.008			
2/23/1994	685.012	0.001	-0.004	682.616	0.001	0.003	682.671	0	0.008			
2/27/1995	685.013	0.001	-0.003	682.618	0.002	0.005	682.669	-0.002	0.006			
3/27/1996	685.013	0	-0.003	682.618	0	0.005	682.673	0.004	0.010			
4/22/1997	685.013	0	-0.003	682.617	-0.001	0.004	682.669	-0.004	0.006			
4/17/1998	685.012	-0.001	-0.004	682.617	0	0.004	682.673	0.004	0.010			
4/13/1999	685.016	0.004	0	682.618	0.001	0.005	682.673	0	0.010			
5/10/2000	685.011	-0.005	-0.005	682.615	-0.003	0.002	682.670	-0.003	0.007			
6/12/2001	685.014	0.003	-0.002	682.617	0.002	0.004	682.674	0.004	0.011			
6/27/2002	685.013	-0.001	-0.003	682.618	0.001	0.005	682.675	0.001	0.012			
7/17/2003	685.016	0.003	0	682.619	0.001	0.006	682.674	-0.001	0.011			
7/20/2005	685.015	-0.001	-0.001	682.619	0	0.006	682.675	0.001	0.012			
7/10/2006	685.017	0.002	0.001	682.619	0	0.006	682.671	-0.004	0.008			
4/6/2009	685.013	-0.004	-0.003	682.616	-0.003	0.003	682.672	0.001	0.009			
2/28/2012	685.014	0.001	-0.002	Wrapped w/Tape - Inaccessible			682.670	-0.002	0.007			

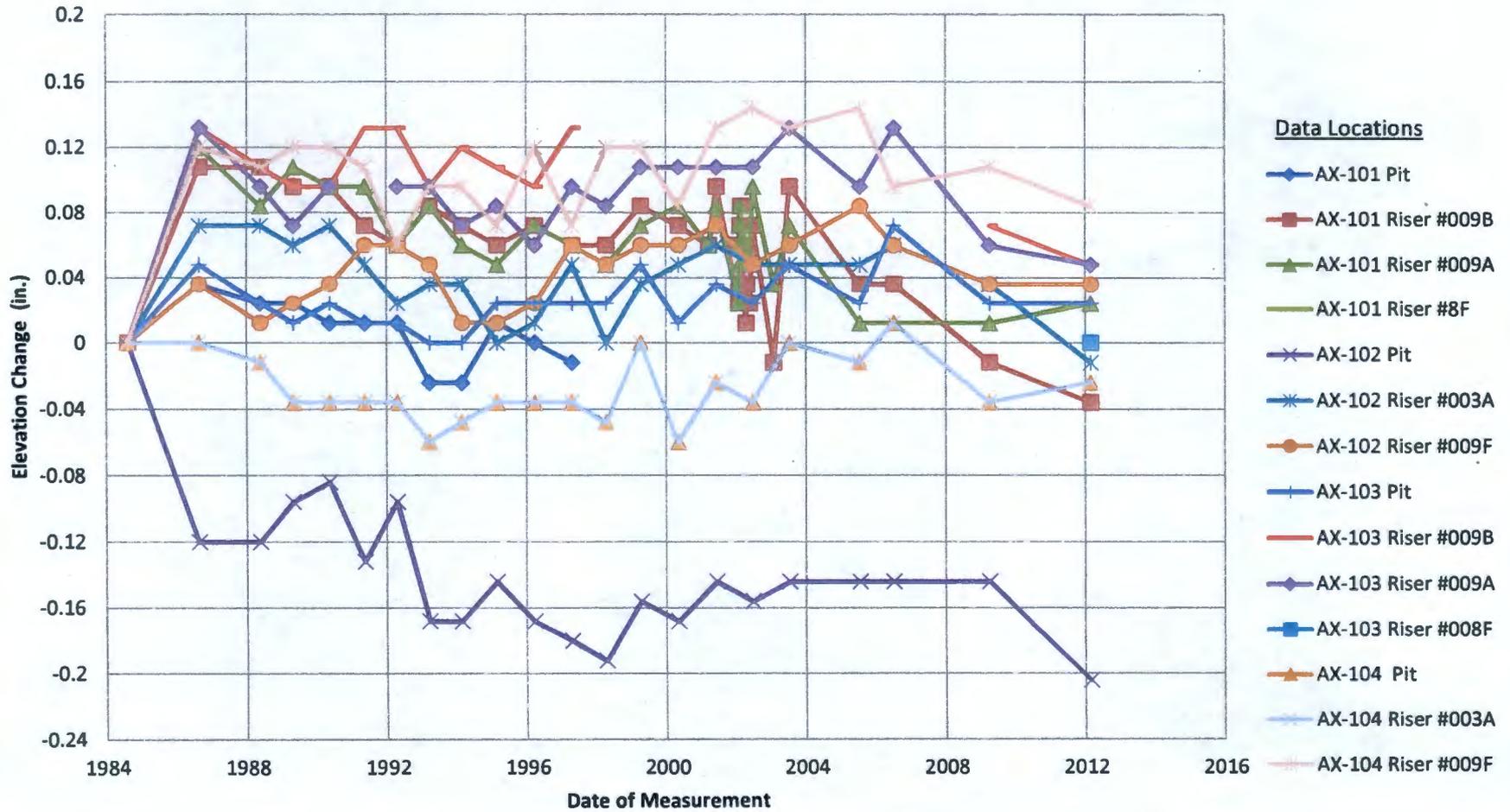
AX-8

RPP-RPT-55202, Rev. 0

Tank 241-AX-104 Dome Benchmark Elevation Change

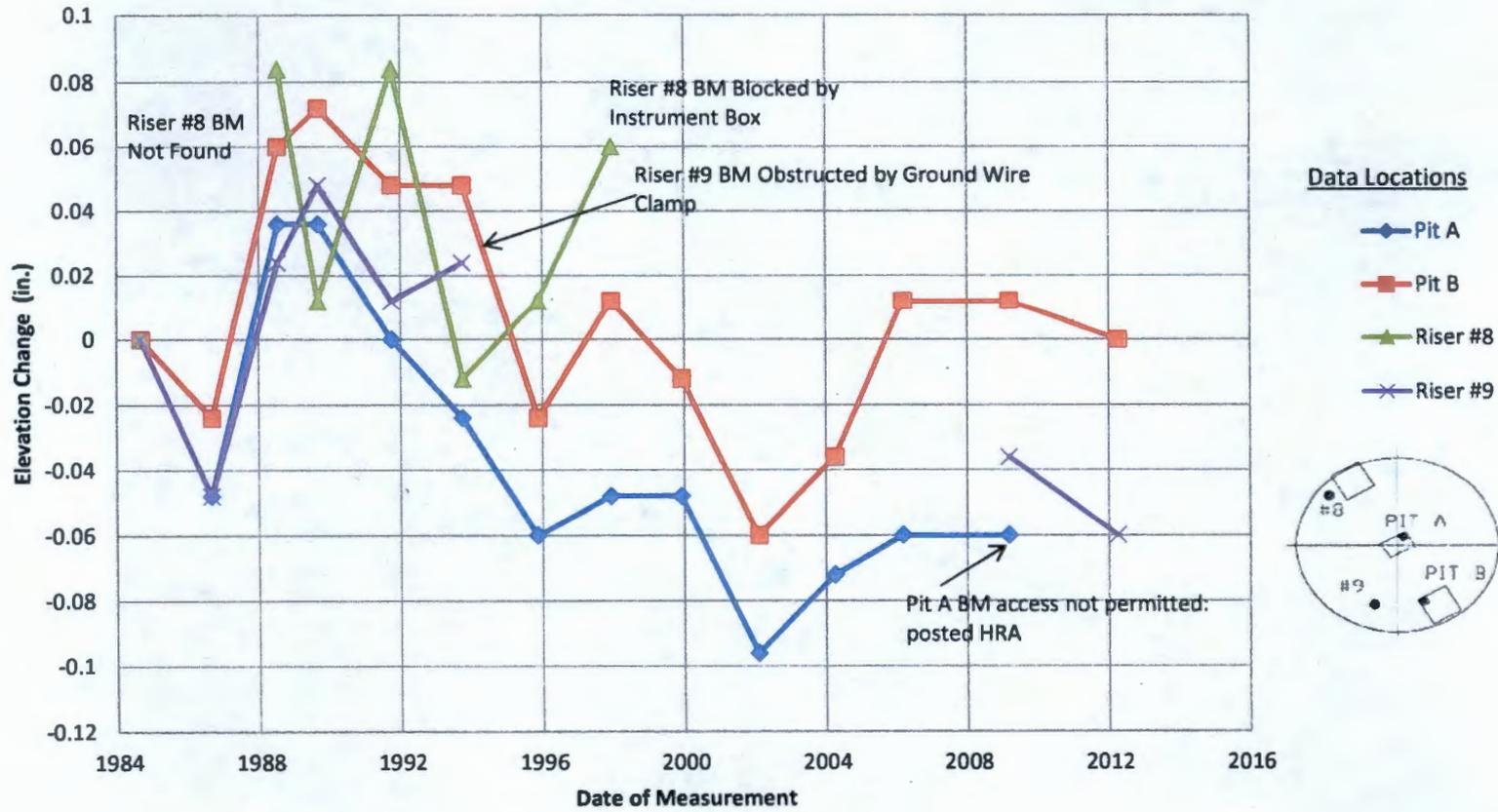


AX Farm Dome Benchmark Elevation Change

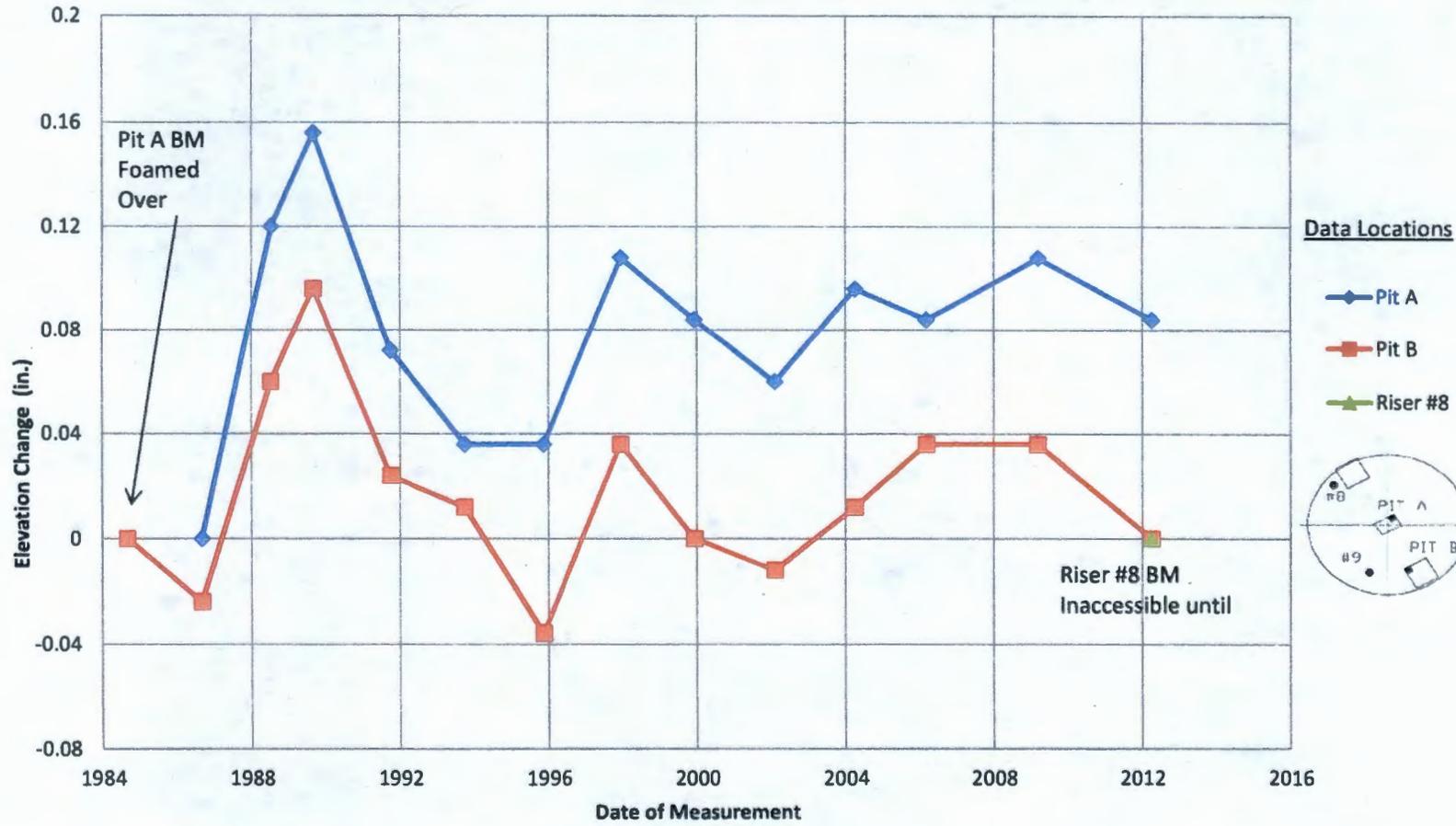


Appendix B – 241-B Farm Dome Survey Data and Plots

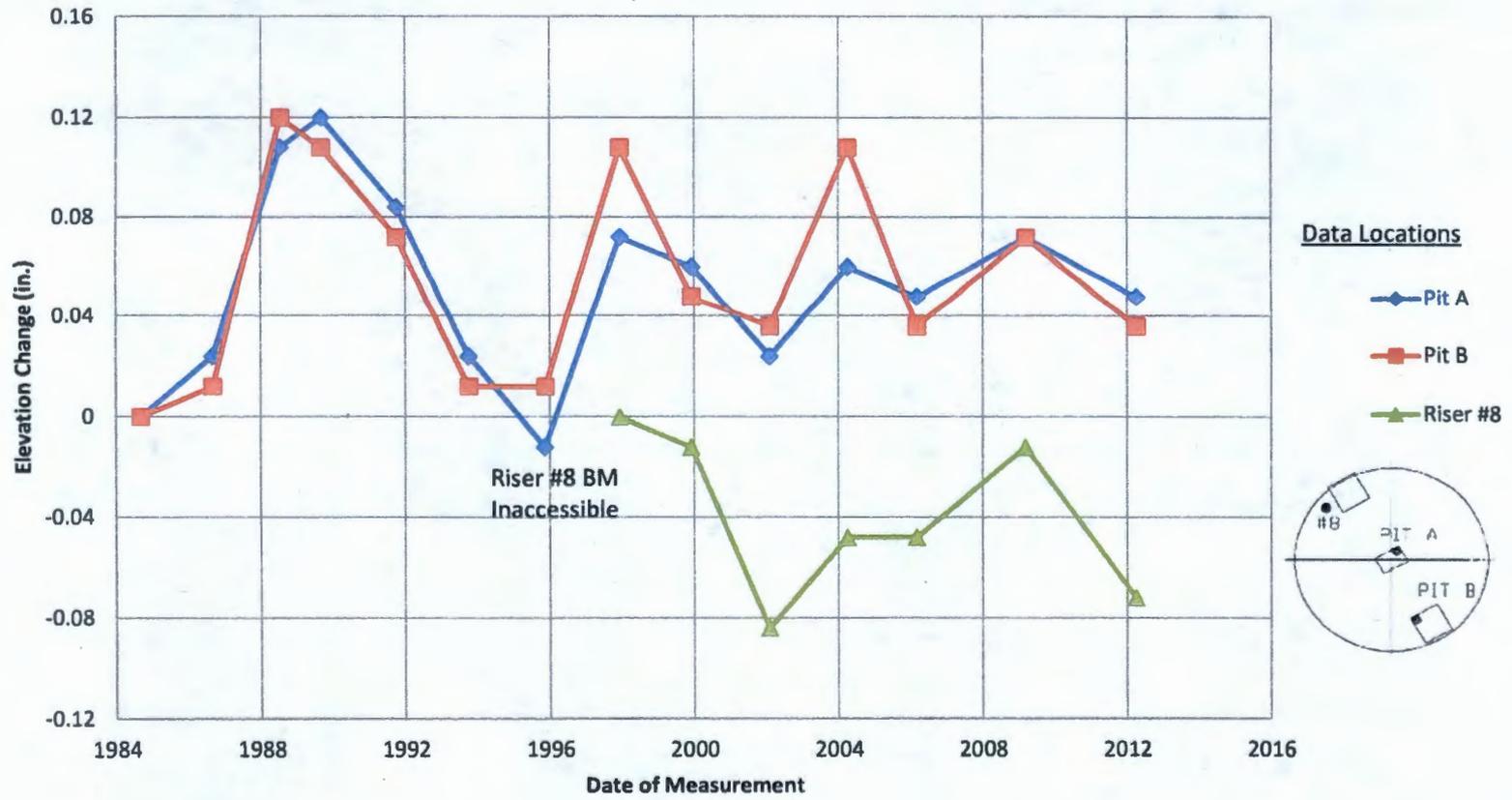
Tank 241-B-101 Dome Benchmark Elevation Change



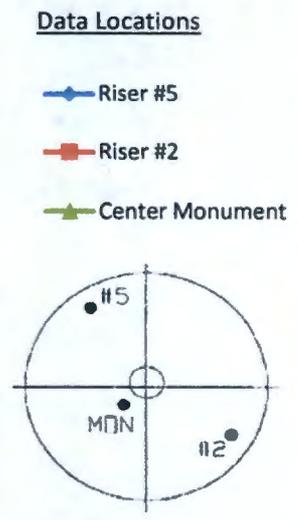
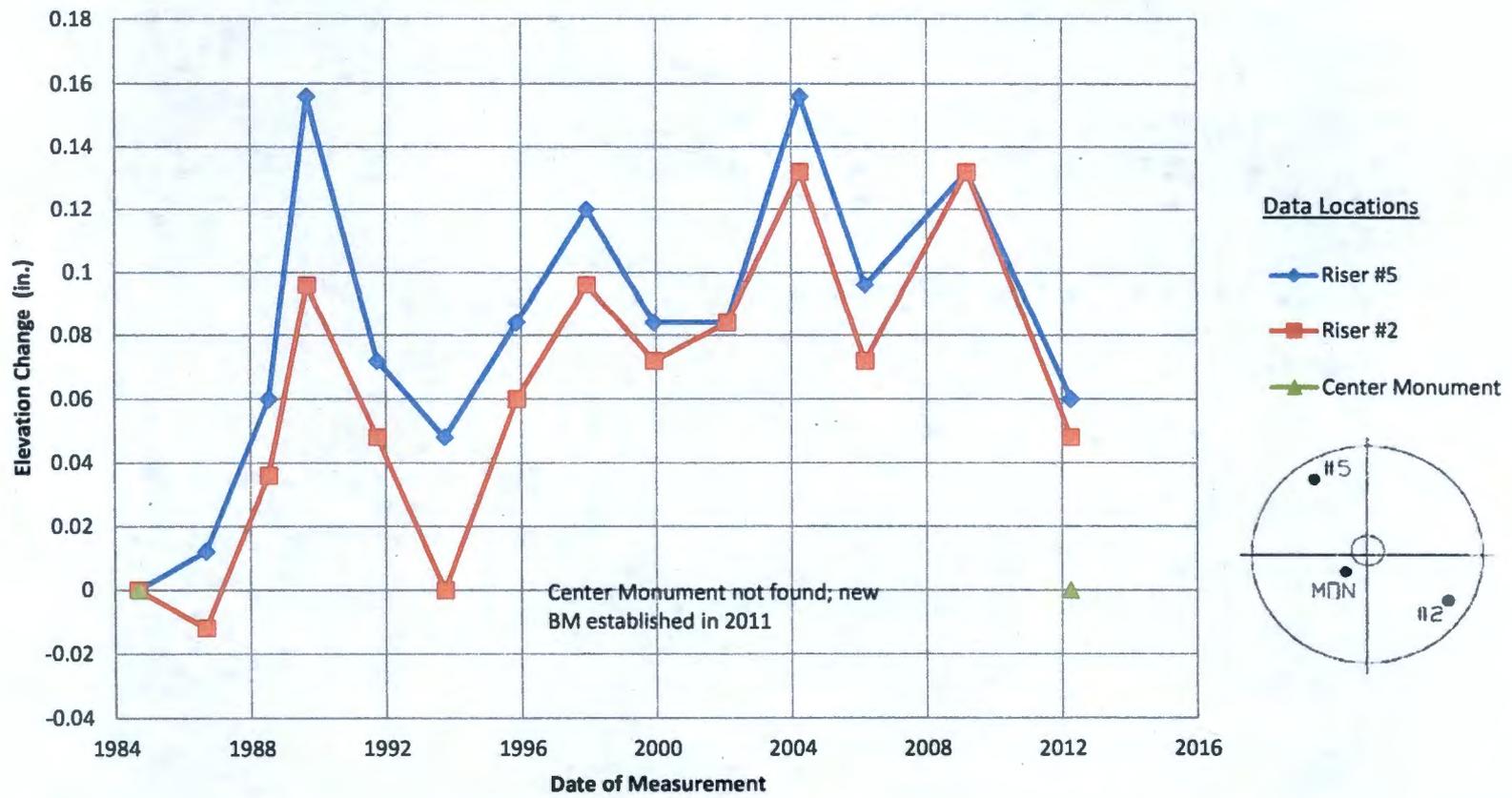
Tank 241-B-102 Dome Benchmark Elevation Change



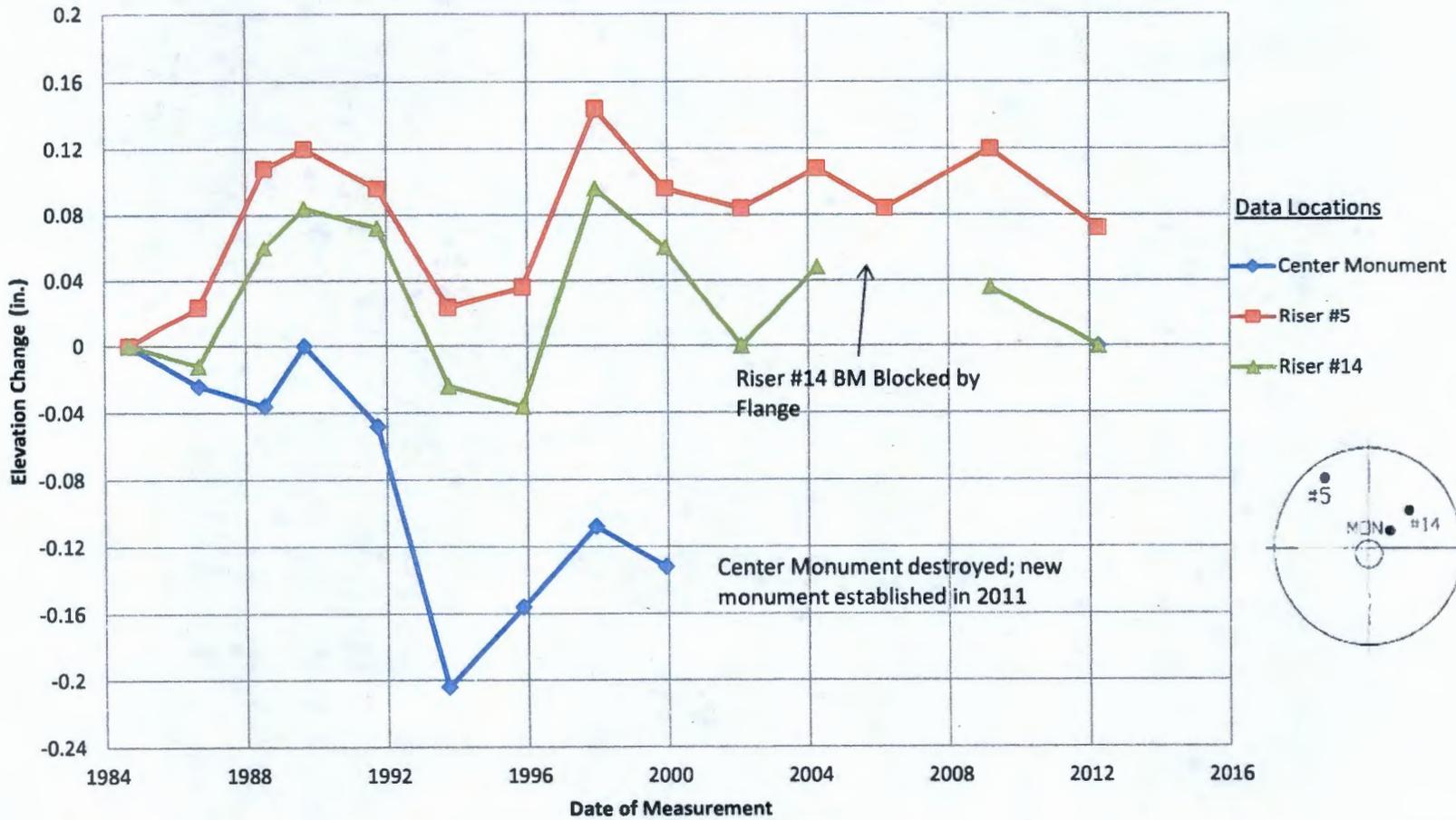
Tank 241-B-103 Dome Benchmark Elevation Change



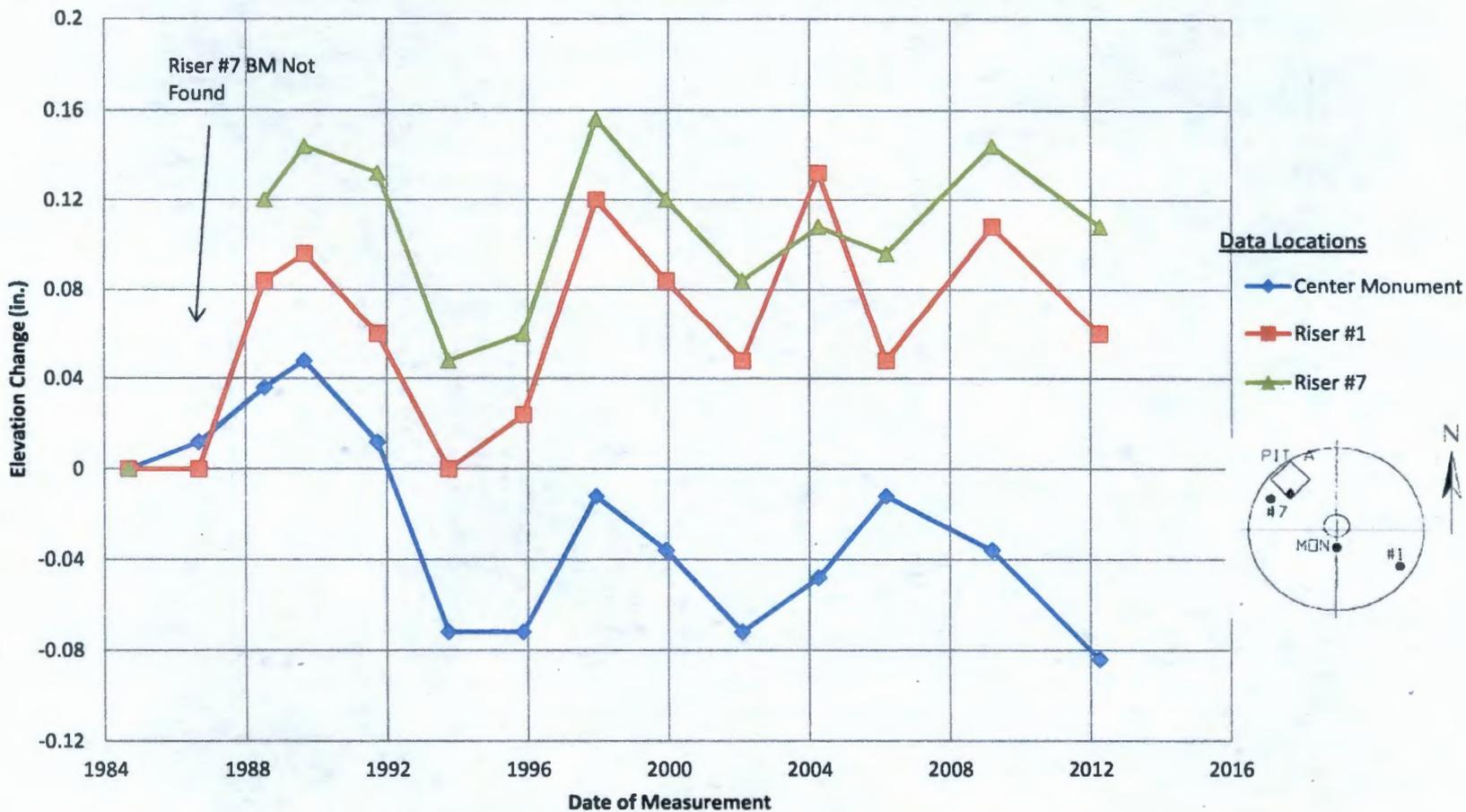
Tank 241-B-104 Dome Benchmark Elevation Change



Tank 241-B-105 Dome Benchmark Elevation Change

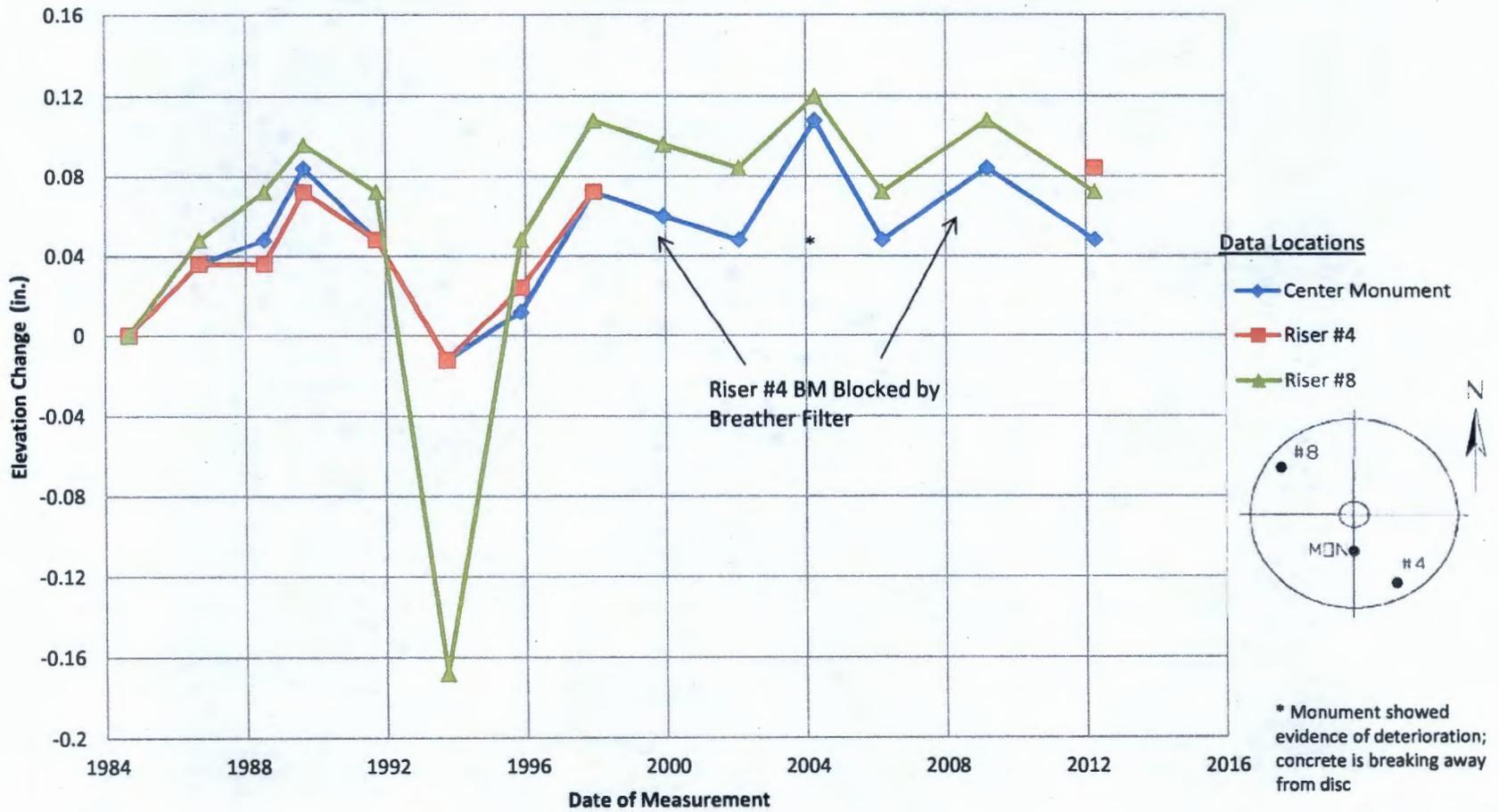


Tank 241-B-106 Dome Benchmark Elevation Change

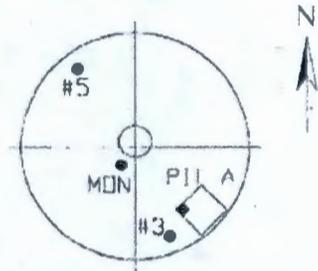
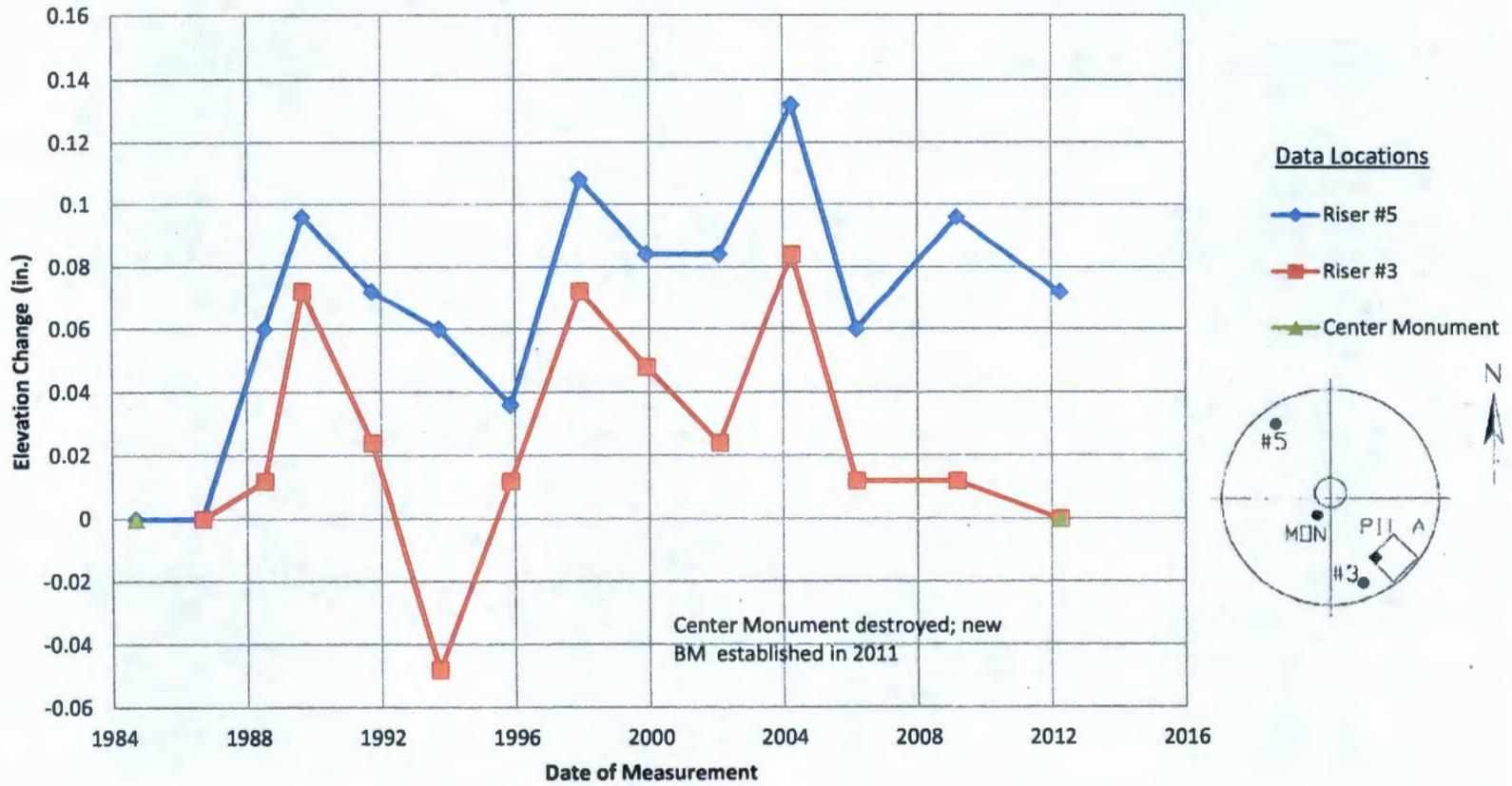


B-12

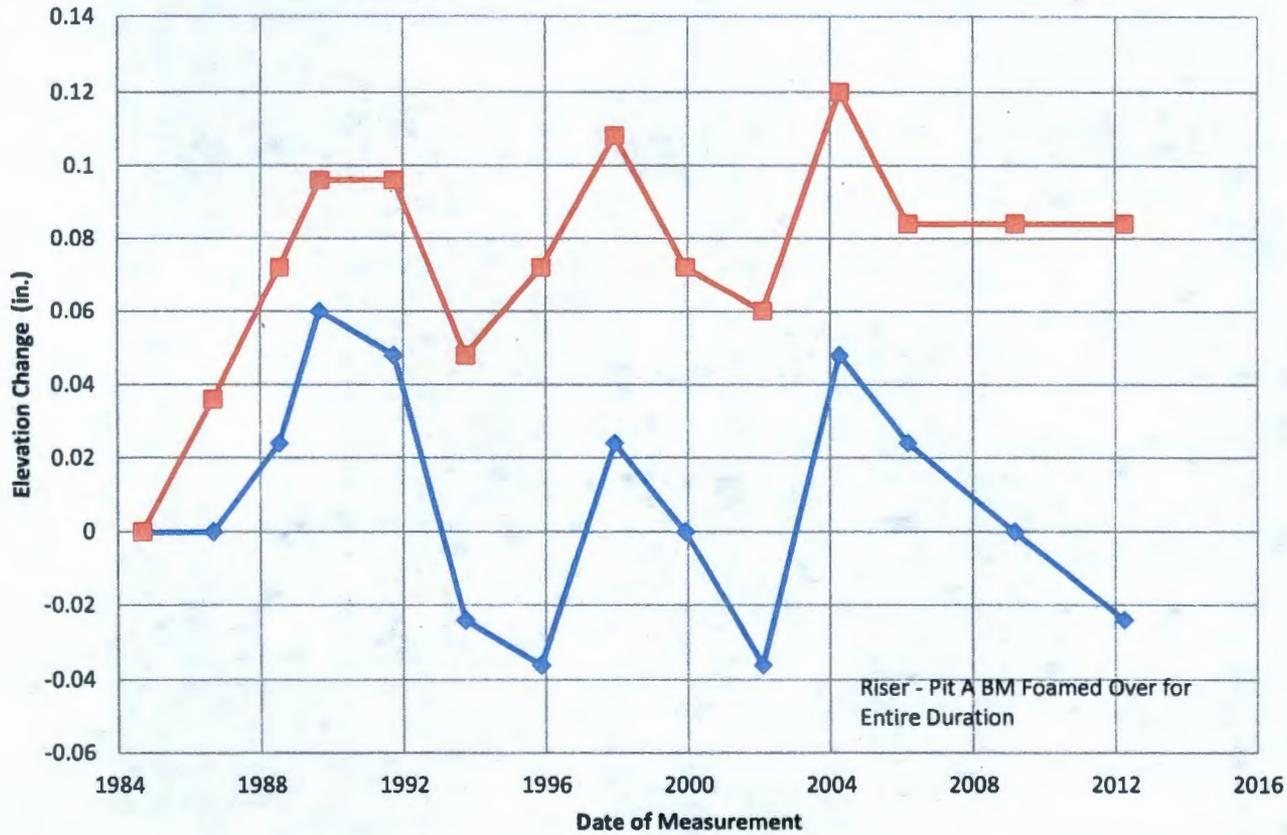
Tank 241-B-107 Dome Benchmark Elevation Change



Tank 241-B-108 Dome Benchmark Elevation Change

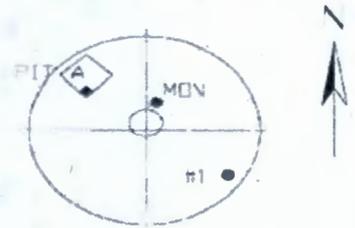


Tank 241-B-109 Dome Benchmark Elevation Change



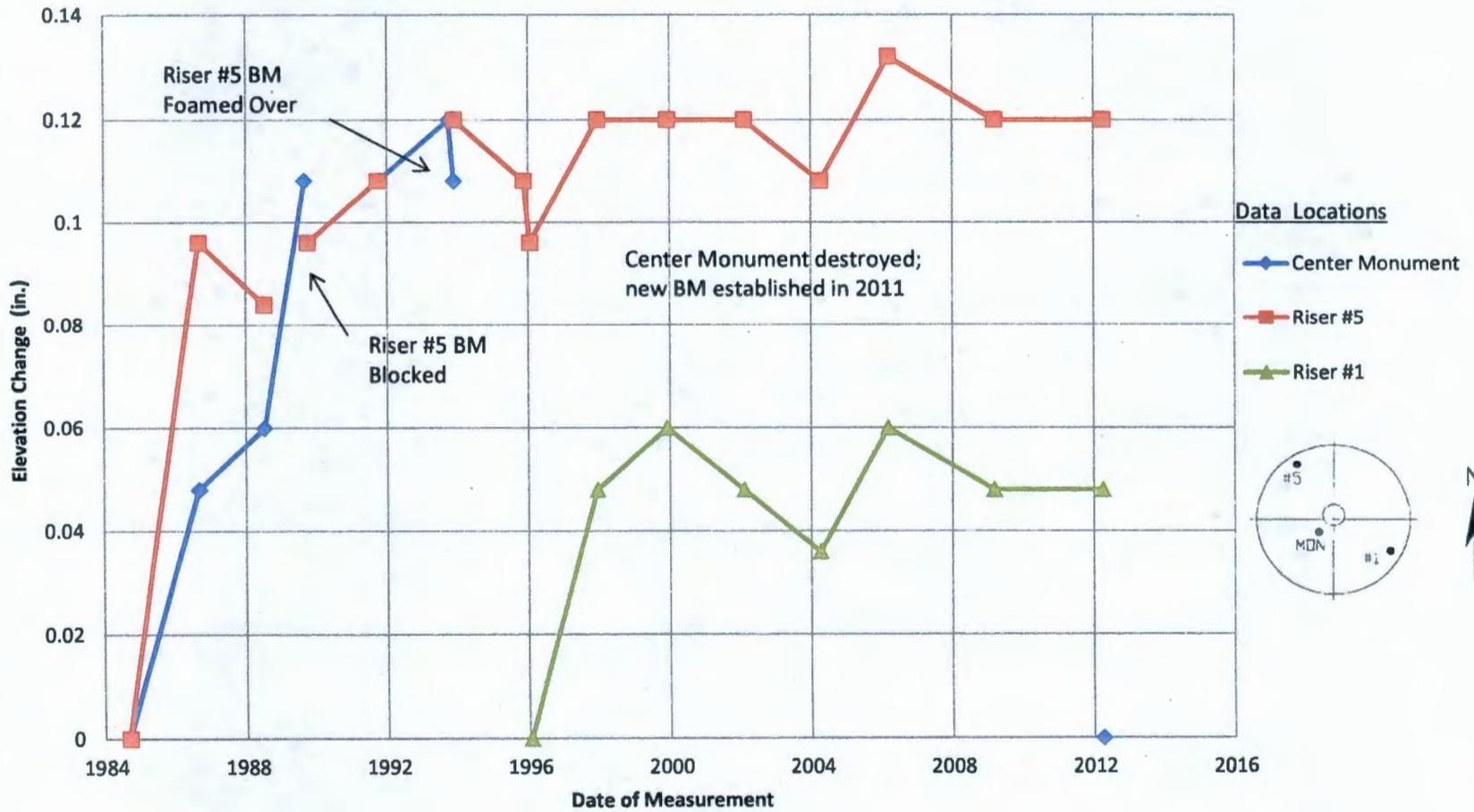
Data Locations

- Center Monument
- Riser #1

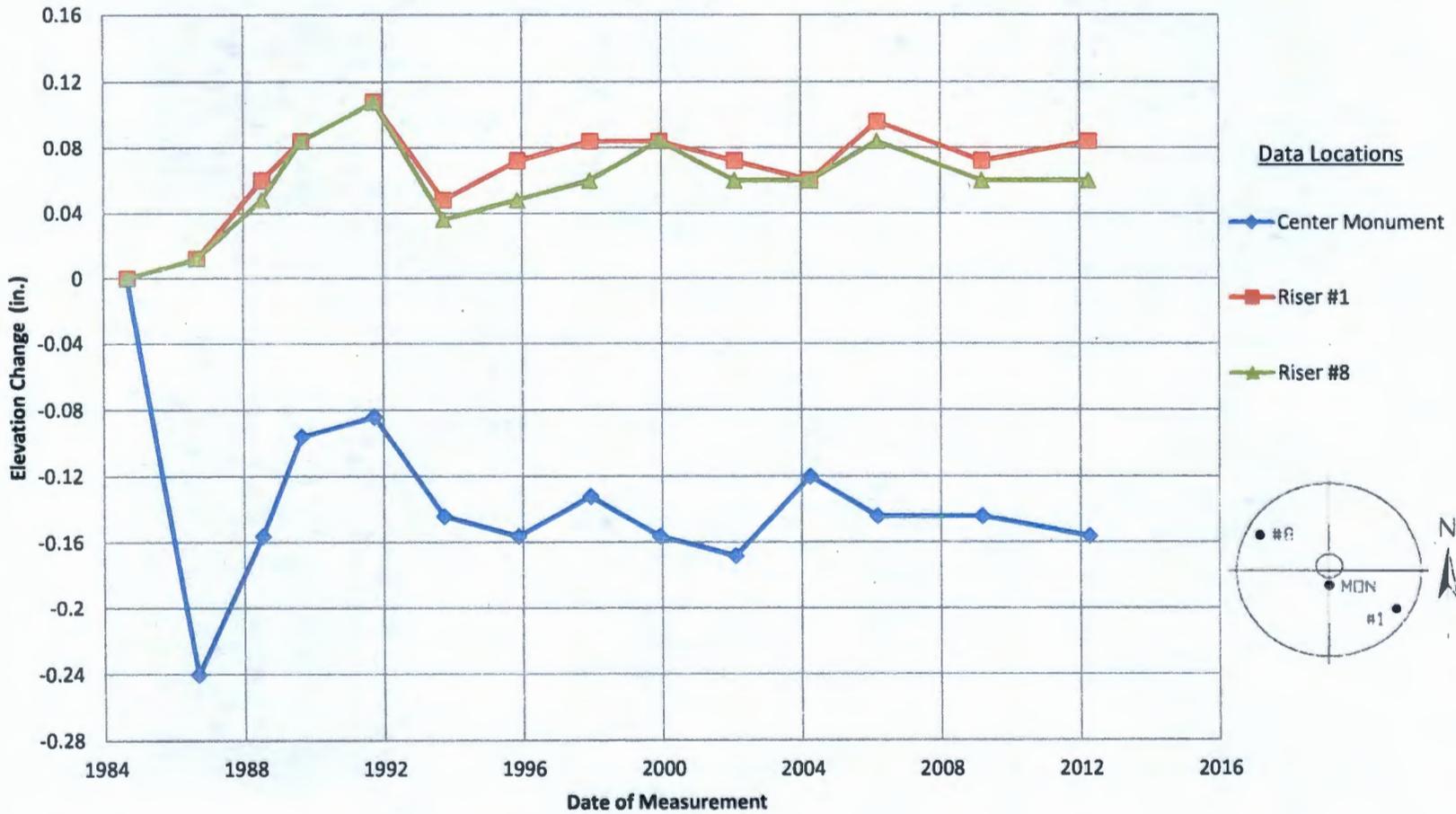


Riser - Pit A BM Foamed Over for Entire Duration

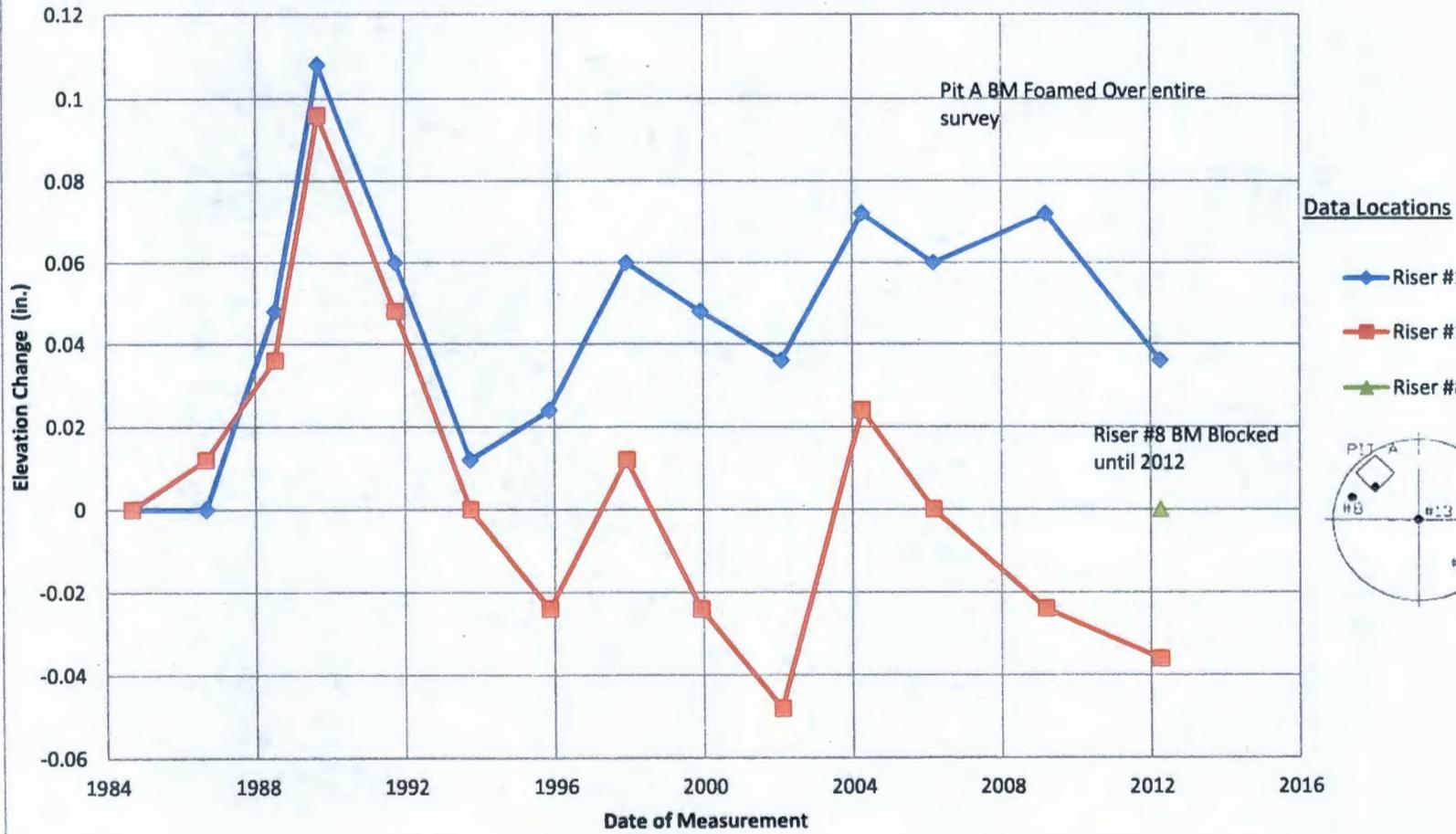
Tank 241-B-110 Dome Benchmark Elevation Change



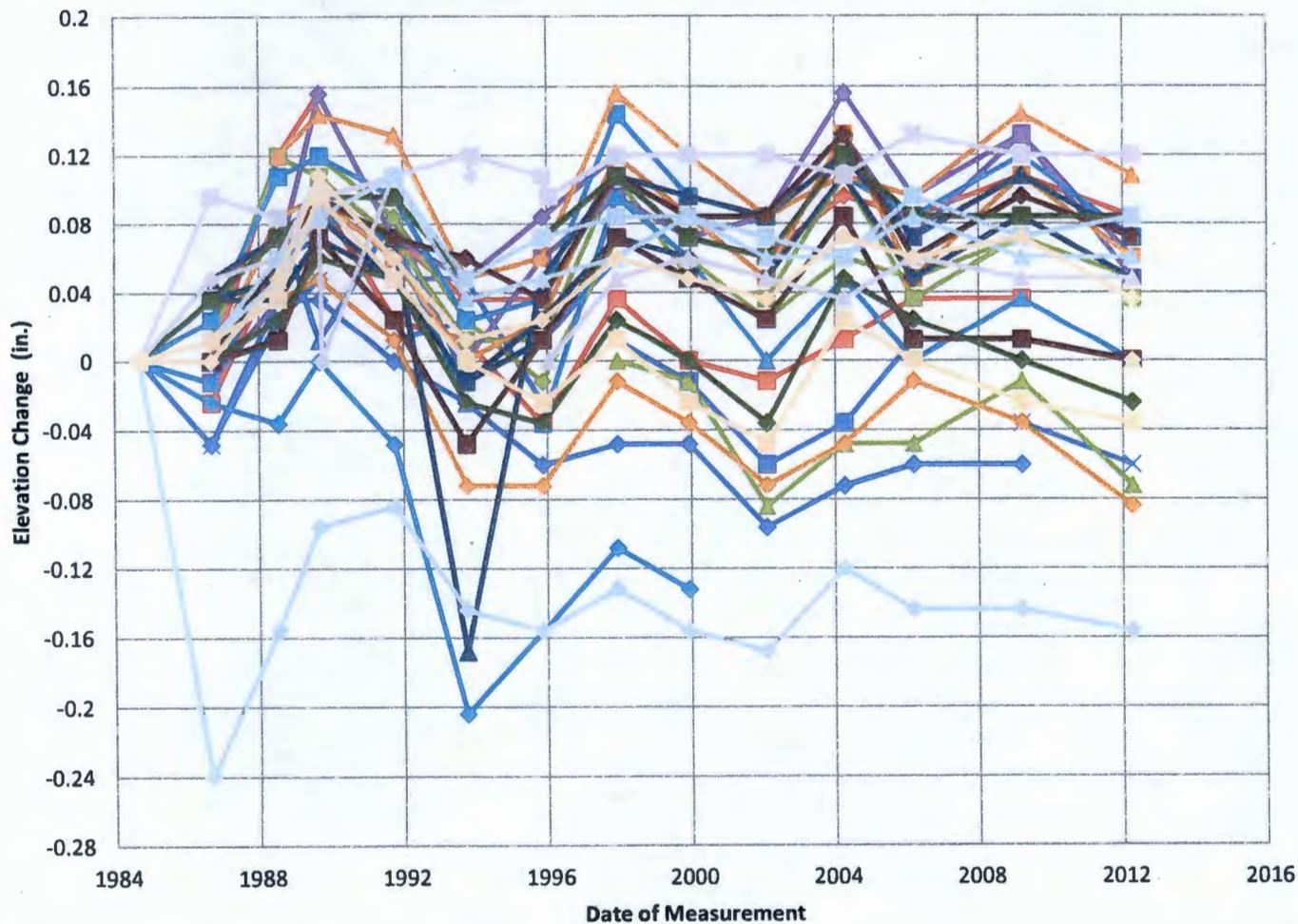
Tank 241-B-111 Dome Benchmark Elevation Change



Tank 241-B-112 Dome Benchmark Elevation Change

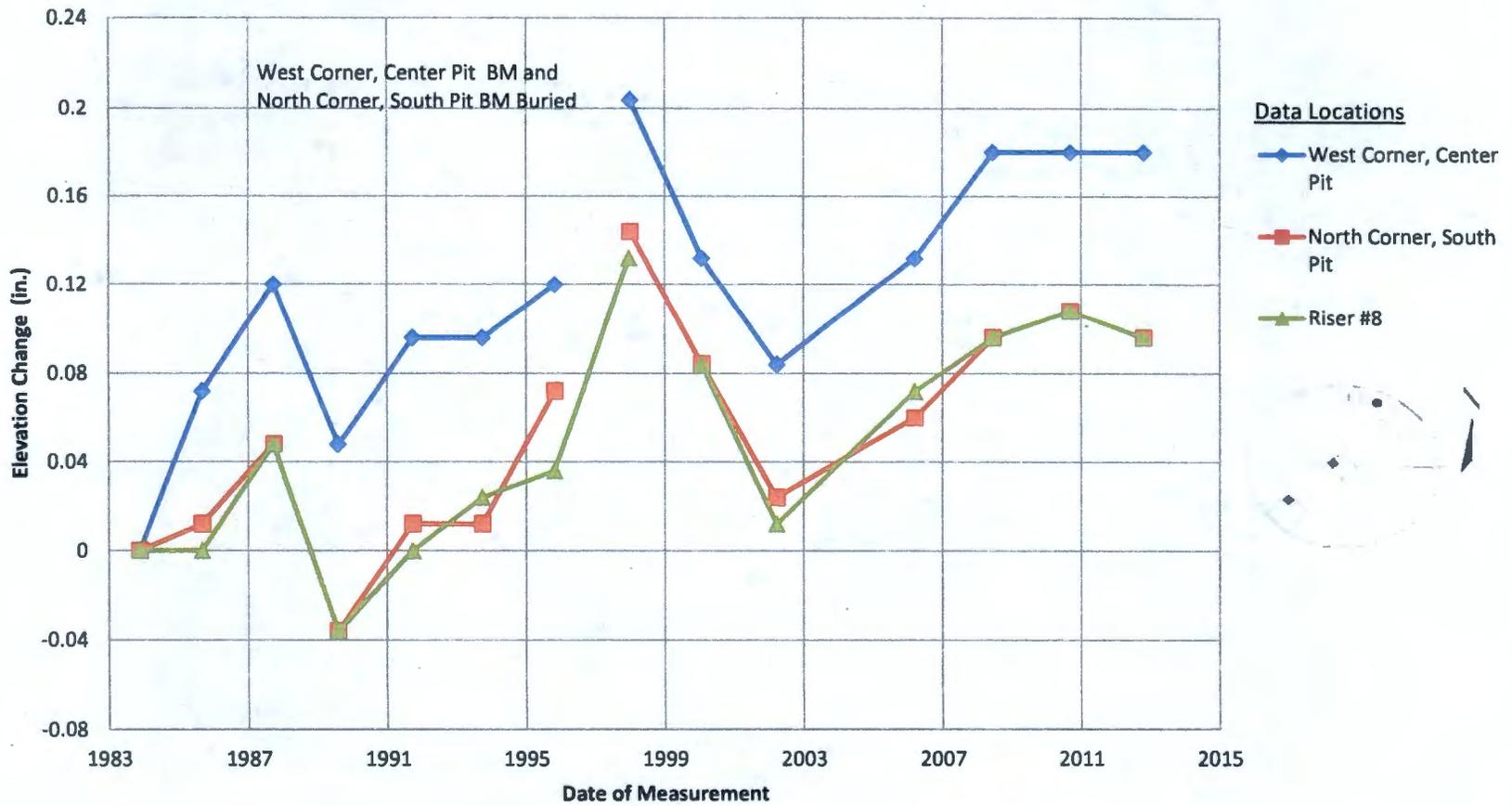


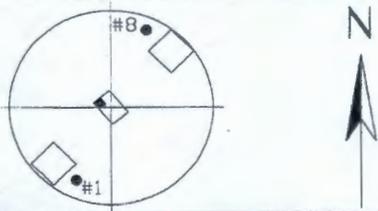
B Farm Dome Benchmark Elevation Change



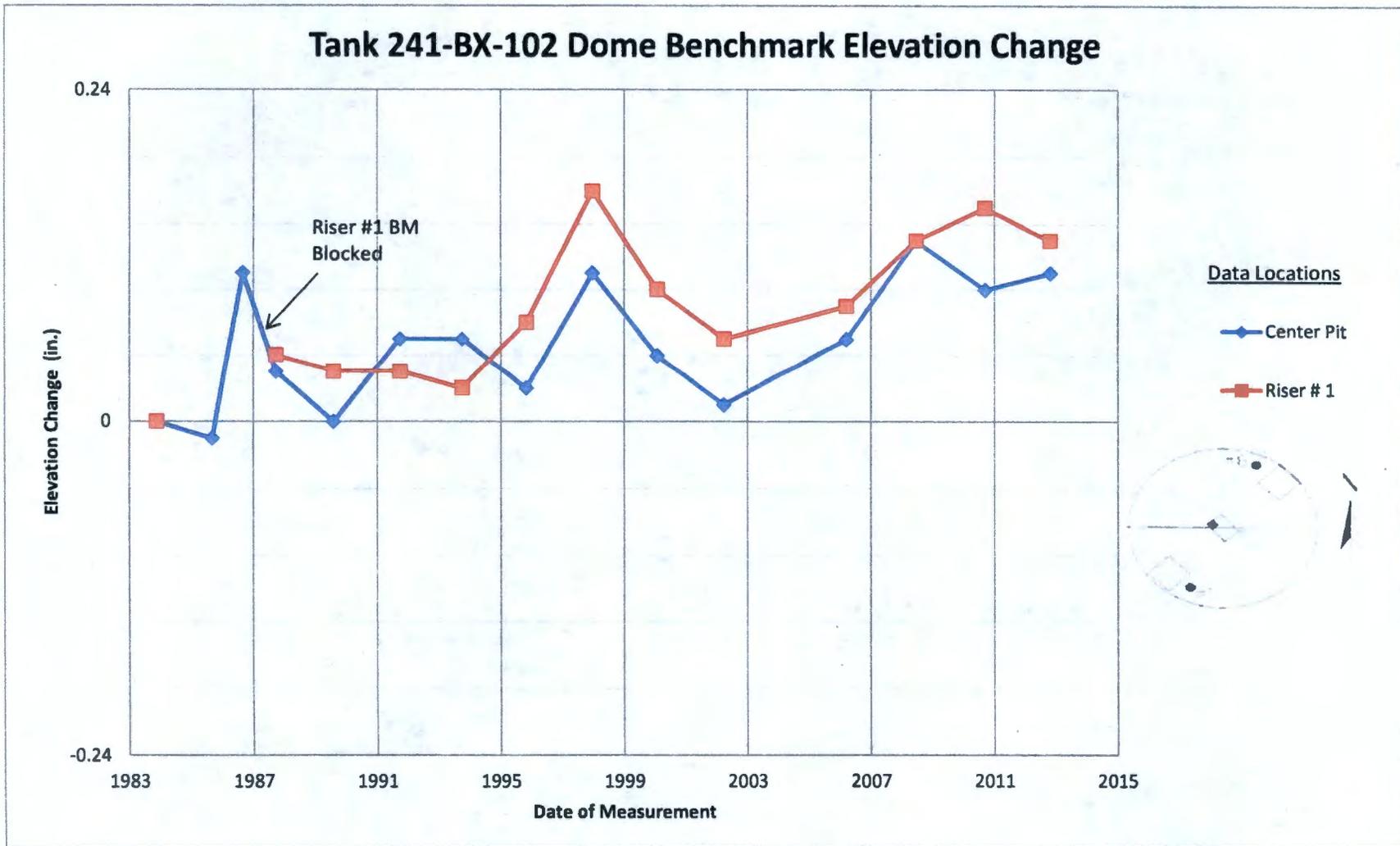
Appendix BX – 241-BX Farm Dome Survey Data and Plots

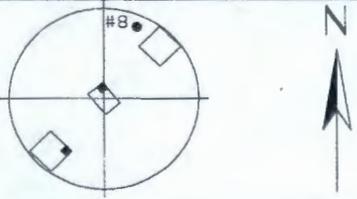
Tank 241-BX-101 Dome Benchmark Elevation Change



TANK BX-102									
									
1) N45300 W53314 EL=656.854 - Held (NAVD88-Ft. Ref. EL= 660.491) 2) N45300 W53650 EL=660.740 (NAVD88-Ft. Ref. EL= 664.377)									
DATE	WEST COR CENTER PIT			RISER #1			RISER #8		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
11/17/1983	655.785	0	0	656.516	0	0	656.030	0	0
9/4/1985	655.784	-0.001	-0.001		Blocked			Blocked	
8/28/1986	655.794	0.010	0.009		Blocked		655.848	-0.182	-0.182
9/25/1987	655.788	-0.006	0.003	656.520	0.004	0.004		Blocked	
8/4/1989	655.785	-0.003	0.000	656.519	-0.001	0.003		Blocked	
9/26/1991	655.790	0.005	0.005	656.519	0.000	0.003		Blocked	
9/30/1993	655.790	0	0.005	656.518	-0.001	0.002		Blocked	
10/31/1995	655.787	-0.003	0.002	656.522	0.004	0.006		Blocked	
12/22/1997	655.794	0.007	0.009	656.530	0.008	0.014		Blocked	
1/26/2000	655.789	-0.005	0.004	656.524	-0.006	0.008		Blocked	
3/26/2002	655.786	-0.003	0.001	656.521	-0.003	0.005		Blocked	
3/15/2006	655.790	0.004	0.005	656.523	0.002	0.007		Blocked	
6/17/2008	655.796	0.006	0.011	656.527	0.004	0.011		Blocked	
9/10/2010	655.793	-0.003	0.008	656.529	0.002	0.013		Blocked	
10/22/2012	655.794	0.001	0.009	656.527	-0.002	0.011		Blocked	

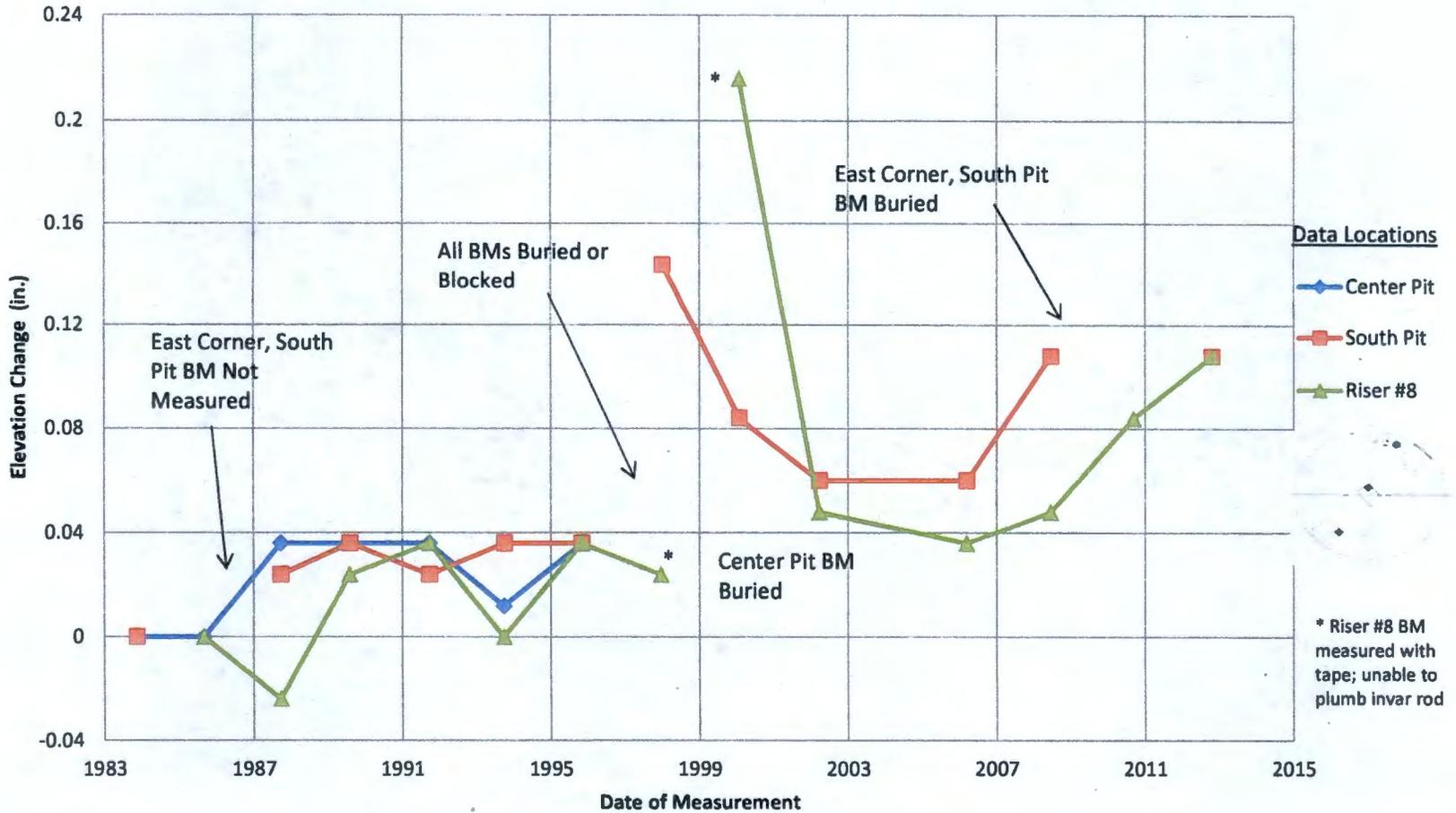
BX-3

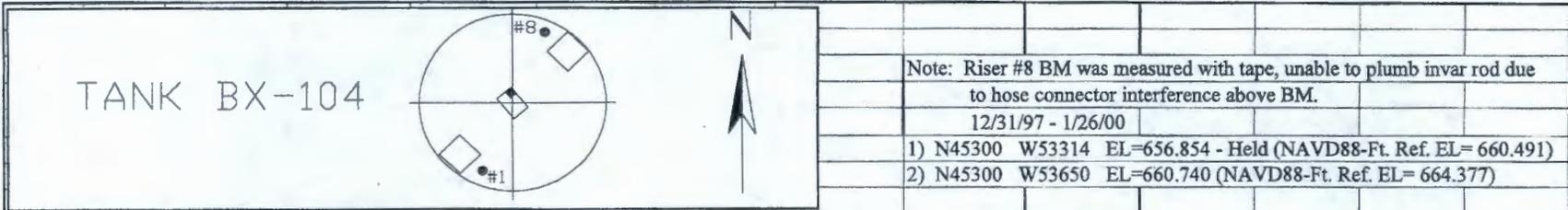


TANK BX-103									
				Note: Riser #8 BM was measured with tape, unable to plumb invar rod due to level transmitter and ground attachment above BM. 12/31/97 - 1/26/00 1) N45300 W53314 EL=656.854 - Held (NAVD88-Ft. Ref. EL= 660.491) 2) N45300 W53650 EL=660.740 (NAVD88-Ft. Ref. EL= 664.377)					
DATE	CENTER PIT			EAST COR SOUTH PIT			RISER #8		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
11/17/1983	654.826	0	0	654.802	0	0	655.016	0	0
9/4/1985	654.826	0	0	Not Measured			655.014	-0.002	-0.002
9/25/1987	654.829	0.003	0.003	654.804	0.002	0.002	655.018	0.004	0.002
8/4/1989	654.829	0	0.003	654.805	0.001	0.003	655.019	0.001	0.003
9/26/1991	654.829	0	0.003	654.804	-0.001	0.002	655.016	-0.003	0
9/30/1993	654.827	-0.002	0.001	654.805	0.001	0.003	655.019	0.003	0.003
10/31/1995	654.829	0.002	0.003	654.805	0	0.003	655.018	-0.001	0.002
12/22/1997		Buried			Buried			Blocked	
12/31/1997		Buried		654.814	0.009	0.012	655.034	0.016	0.018
1/26/2000		Buried (+/- 3" Below Grade)		654.809	-0.005	0.007	655.020	-0.014	0.004
3/26/2002		Buried (+/- 3" Below Grade)		654.807	-0.002	0.005	655.019	-0.001	0.003
3/15/2006		Buried (+/- 3" Below Grade)		654.807	0	0.005	655.020	0.001	0.004
6/17/2008		Buried (+/- 3" Below Grade)		654.811	0.004	0.009	655.023	0.003	0.007
9/10/2010		Buried (+/- 3" Below Grade)			Buried		655.025	0.002	0.009
10/22/2012		Buried (+/- 3" Below Grade)		654.811	0	0.009	655.024	-0.001	0.008

BX-5

Tank 241-BX-103 Dome Benchmark Elevation Change

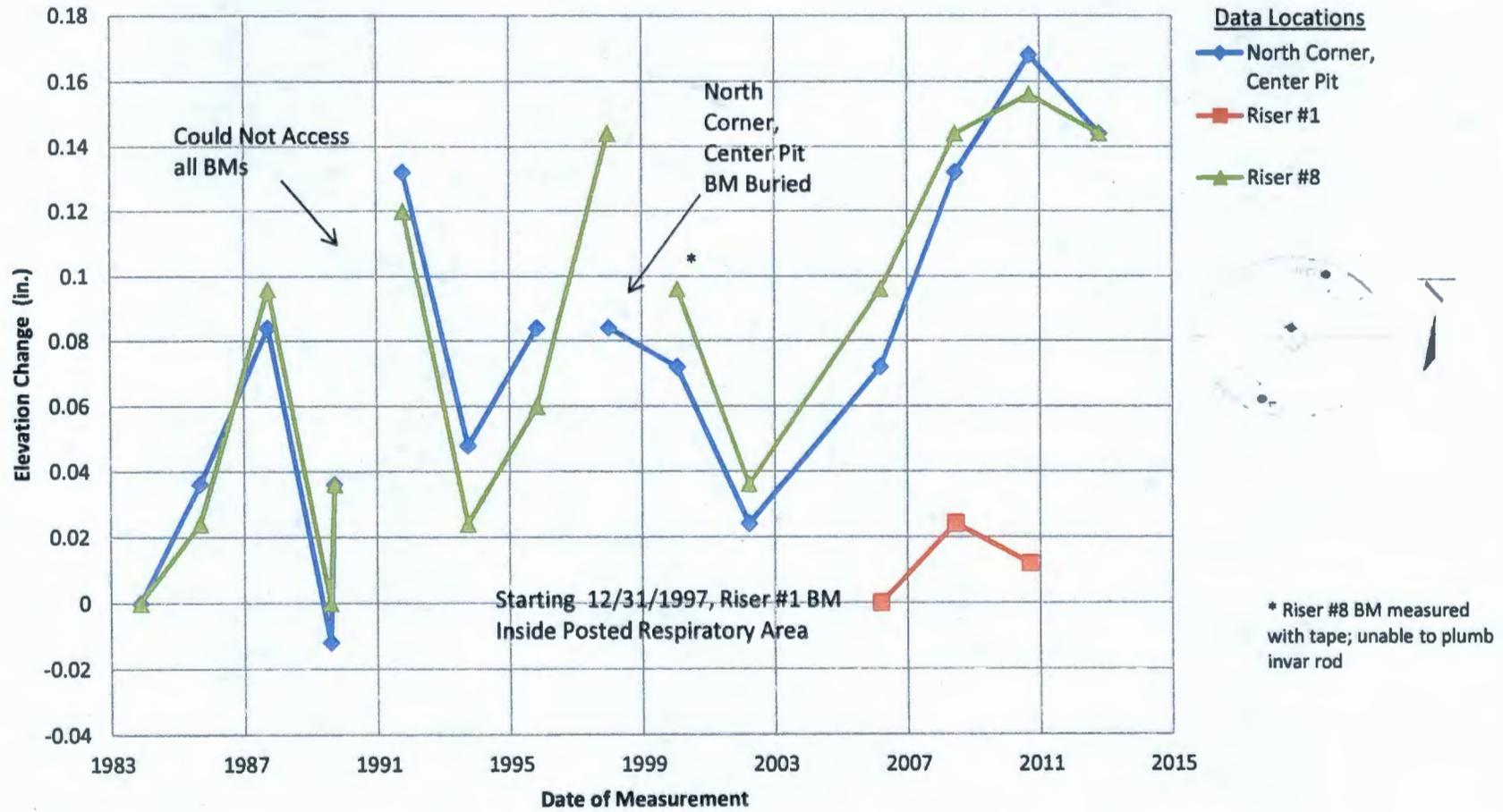


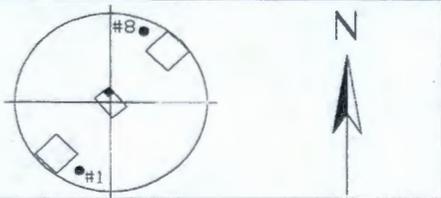


DATE	NORTH COR CENTER PIT			RISER #1			RISER #8		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
11/17/1983	656.824	0	0				657.100	0	0
9/4/1985	656.827	0.003	0.003				657.102	0.002	0.002
9/25/1987	656.831	0.004	0.007				657.108	0.006	0.008
8/4/1989	656.823	-0.008	-0.001				657.100	-0.008	0
9/18/1989	656.827	0.004	0.003				657.103	0.003	0.003
9/26/1991	Could not Access						Could not Access		
10/21/1991	656.835	0.008	0.011				657.110	0.007	0.010
9/30/1993	656.828	-0.007	0.004				657.102	-0.008	0.002
10/31/1995	656.831	0.003	0.007				657.105	0.003	0.005
12/22/1997		Buried					657.112	0.007	0.012
12/31/1997	656.831	0	0.007	Inside Posted Respiratory Area					
1/26/2000	656.830	-0.001	0.006	Inside Posted Respiratory Area			657.108	-0.004	0.008
3/26/2002	656.826	-0.004	0.002	Inside Posted Respiratory Area			657.103	-0.005	0.003
3/15/2006	656.830	0.004	0.006	657.533	0	0	657.108	0.005	0.008
6/17/2008	656.835	0.005	0.011	657.535	0.002	0.002	657.112	0.004	0.012
9/10/2010	656.838	0.003	0.014	657.534	-0.001	0.001	657.113	0.001	0.013
10/22/2012	656.836	-0.002	0.012	Inside Posted CA-Unable to Access			657.112	-0.001	0.012

BX-7

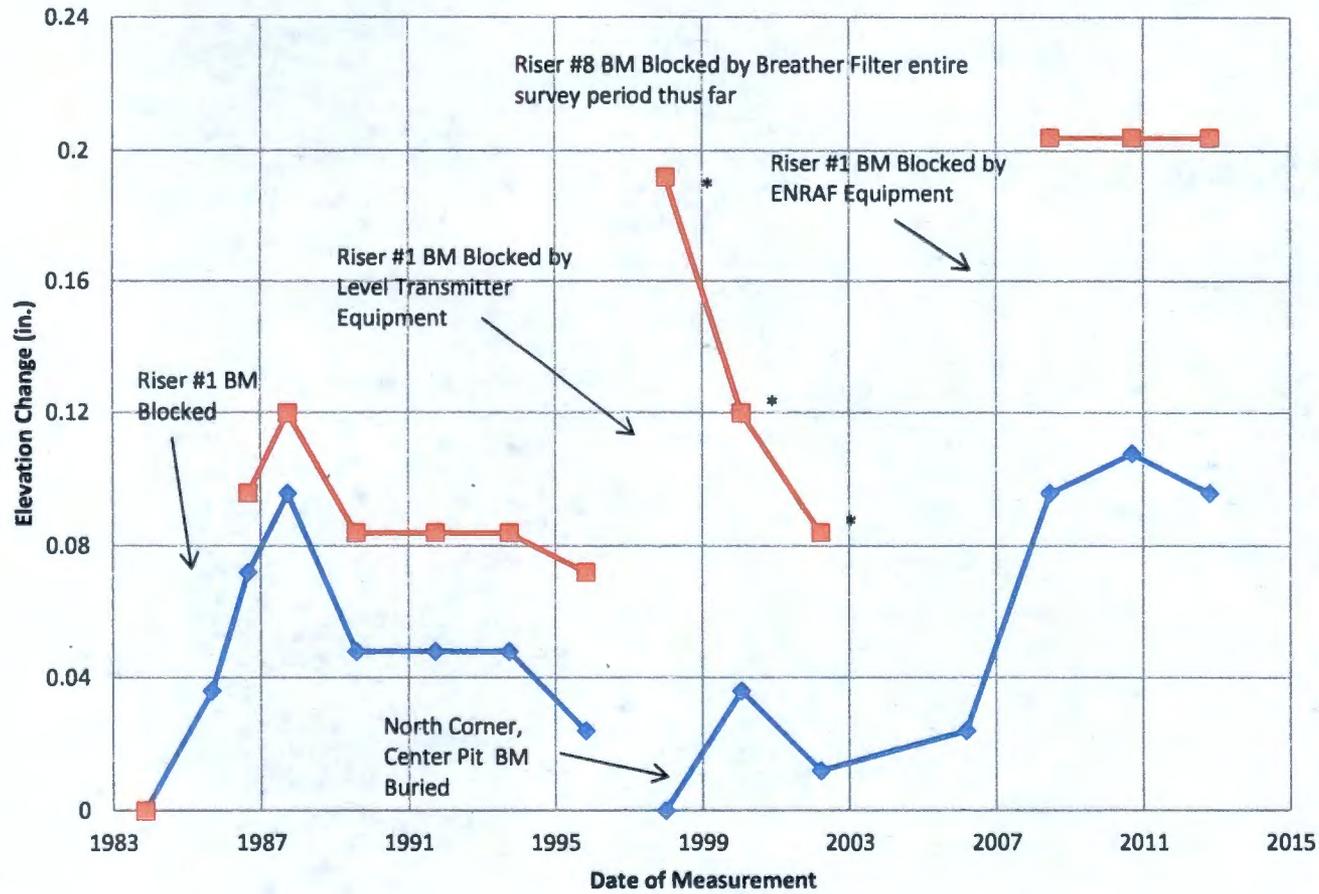
Tank 241-BX-104 Dome Benchmark Elevation Change



TANK BX-105							FIELD SKETCH		
							Note: Riser #1 BM was measured with tape, unable to plumb rod due to level transmitter equip. and hose connection above BM. 12/31/97 - 10/22/12		
							1) N45300 W53314 EL=656.854 - Held (NAVD88-Ft.Ref.EL= 660.491) 2) N45300 W53650 EL=660.740 (NAVD88-Ft. Ref. EL= 664.377)		
DATE	NORTH COR CENTER PIT			RISER #1			RISER #8		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
11/17/1983	655.877	0	0	656.464	0	0	Blocked by Breather Filter		
9/4/1985	655.880	0.003	0.003	Blocked			Blocked by Breather Filter		
8/28/1986	655.883	0.003	0.006	656.472	0.008	0.008	Blocked by Breather Filter		
9/25/1987	655.885	0.002	0.008	656.474	0.002	0.010	Blocked by Breather Filter		
8/4/1989	655.881	-0.004	0.004	656.471	-0.003	0.007	Blocked by Breather Filter		
9/26/1991	655.881	0	0.004	656.471	0	0.007	Blocked by Breather Filter		
9/30/1993	655.881	0	0.004	656.471	0	0.007	Blocked by Breather Filter		
10/31/1995	655.879	-0.002	0.002	656.470	-0.001	0.006	Blocked by Breather Filter		
12/22/1997	Buried			Blocked by Level Transmitter Equip.			Blocked by Breather Filter		
12/31/1997	655.877	-0.002	0	656.480	0.010	0.016	Blocked by Breather Filter		
1/26/2000	655.880	0.003	0.003	656.474	-0.006	0.010	Blocked by Breather Filter		
3/26/2002	655.878	-0.002	0.001	656.471	-0.003	0.007	Blocked by Breather Filter		
3/15/2006	655.879	0.001	0.002	Blocked by ENRAF Equip.			Blocked by Breather Filter		
6/17/2008	655.885	0.006	0.008	656.481	0.010	0.017	Blocked by Breather Filter		
9/10/2010	655.886	0.001	0.009	656.481	0	0.017	Blocked by Breather Filter		
10/22/2012	655.885	-0.001	0.008	656.481	0	0.017	656.069	0	0

BX-9

Tank 241-BX-105 Dome Benchmark Elevation Change

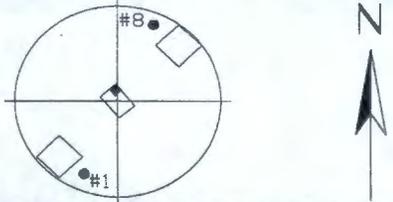


Data Locations

- North Corner, Center Pit
- Riser # 1

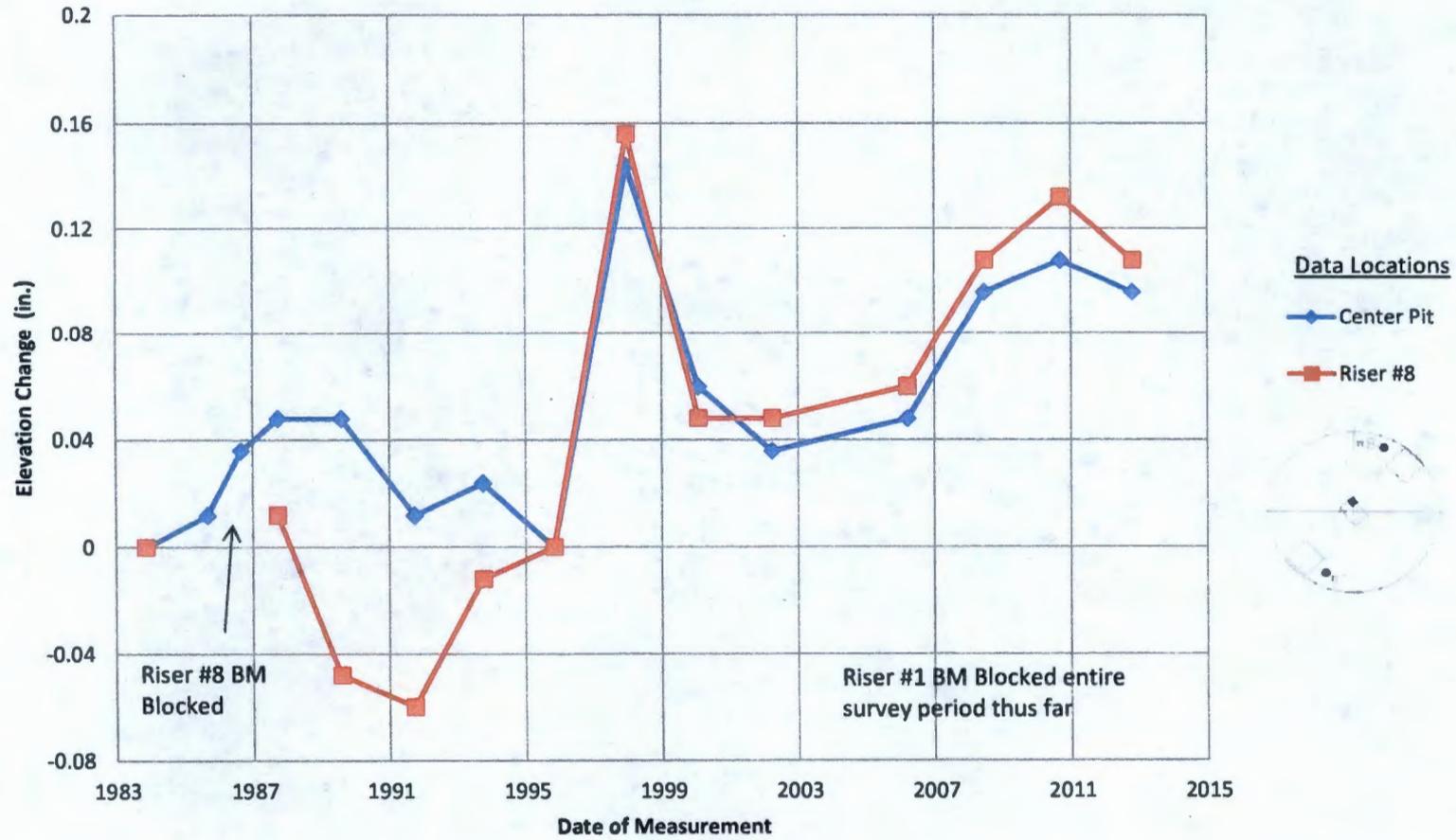


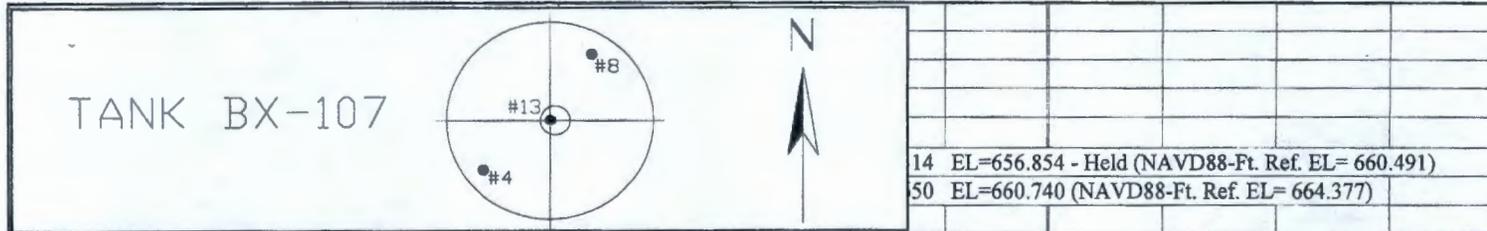
* Riser #1 BM measured with tape; unable to plumb invar rod

TANK BX-106									
				1) N45300 W53314 EL=656.854 - Held (NAVD88-Ft. Ref. EL= 660.491) 2) N45300 W53650 EL=660.740 (NAVD88-Ft. Ref. EL= 664.377)					
DATE	NORTH COR CENTER PIT			RISER #1			RISER #8		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
11/17/1983	654.859	0	0	Blocked by Temp Probe			654.916	0	0
9/4/1985	654.860	0.001	0.001	Blocked by Temp Probe			Blocked		
8/28/1986	654.862	0.002	0.003	Blocked by Temp Probe			Blocked		
9/25/1987	654.863	0.001	0.004	Blocked by Temp Probe			654.917	0.001	0.001
8/4/1989	654.863	0	0.004	Blocked by Temp Probe			654.912	-0.005	-0.004
9/26/1991	654.860	-0.003	0.001	Blocked by Temp Probe			654.911	-0.001	-0.005
9/30/1993	654.861	0.001	0.002	Blocked by Temp Probe			654.915	0.004	-0.001
10/31/1995	654.859	-0.002	0	Blocked by Temp Probe			654.916	0.001	0
12/22/1997	654.871	0.012	-0.012	Respir. Area & Blocked by Temp Probe			654.929	0.013	0.013
1/26/2000	654.864	-0.007	0.005	Respir. Area & Blocked by Temp Probe			654.920	-0.009	0.004
3/26/2002	654.862	-0.002	0.003	Respir. Area & Blocked by Temp Probe			654.920	0.000	0.004
3/15/2006	654.863	0.001	0.004	Blocked by Bracket			654.921	0.001	0.005
6/17/2008	654.867	0.004	0.008	Blocked by Bracket			654.925	0.004	0.009
9/10/2010	654.868	0.001	0.009	Blocked by Bracket			654.927	0.002	0.011
10/22/2012	654.867	-0.001	0.008	Blocked by Bracket			654.925	-0.002	0.009

BX-11

Tank 241-BX-106 Dome Benchmark Elevation Change

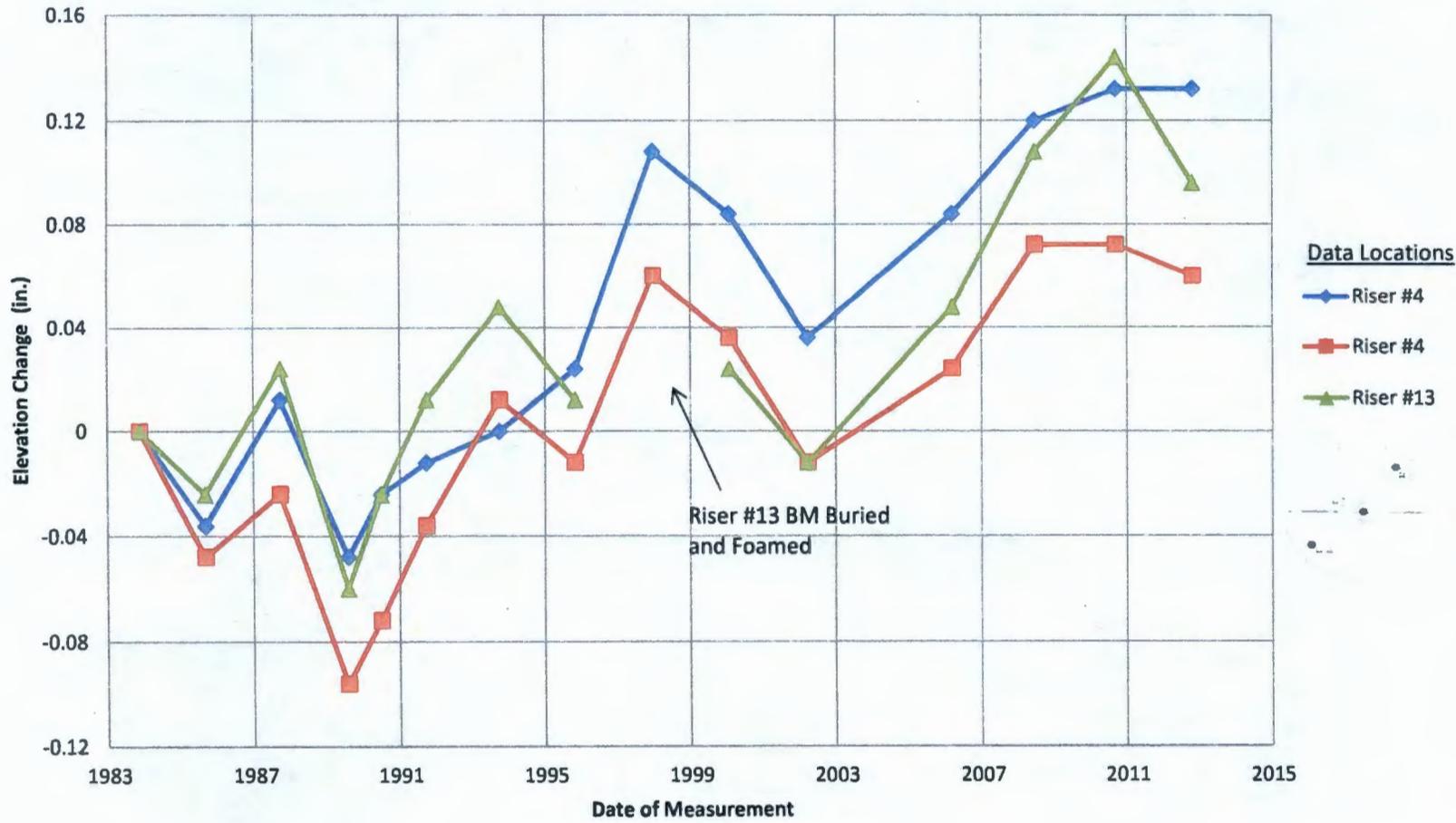




DATE	RISER #4			RISER #8			RISER #13		
	Current Elev.	Delta From Prev.	Total Delta Orig.	Current Elev.	Delta From Prev.	Total Delta Orig.	Current Elev.	Delta From Prev.	Total Delta Orig.
11/17/1983	657.403	0	0	657.074	0	0	656.924	0	0
9/4/1985	657.400	-0.003	-0.003	657.070	-0.004	-0.004	656.922	-0.002	-0.002
9/25/1987	657.404	0.004	0.001	657.072	0.002	-0.002	656.926	0.004	0.002
8/4/1989	657.399	-0.005	-0.004	657.066	-0.006	-0.008	656.919	-0.007	-0.005
7/2/1990	657.401	0.002	-0.002	657.068	0.002	-0.006	656.922	0.003	-0.002
9/26/1991	657.402	0.001	-0.001	657.071	0.003	-0.003	656.925	0.003	0.001
9/30/1993	657.403	0.001	0	657.075	0.004	0.001	656.928	0.003	0.004
10/31/1995	657.405	0.002	0.002	657.073	-0.002	-0.001	656.925	-0.003	0.001
12/22/1997	657.412	0.007	0.009	657.079	0.006	0.005	Buried & Foamed		
1/26/2000	657.410	-0.002	0.007	657.077	-0.002	0.003	656.926	0.001	0.002
3/26/2002	657.406	-0.004	0.003	657.073	-0.004	-0.001	656.923	-0.003	-0.001
3/15/2006	657.410	0.004	0.007	657.076	0.003	0.002	656.928	0.005	0.004
6/17/2008	657.413	0.003	0.010	657.080	0.004	0.006	656.933	0.005	0.009
9/10/2010	657.414	0.001	0.011	657.080	0	0.006	656.936	0.003	0.012
10/22/2012	657.414	0	0.011	657.079	-0.001	0.005	656.932	-0.004	0.008

BX-13

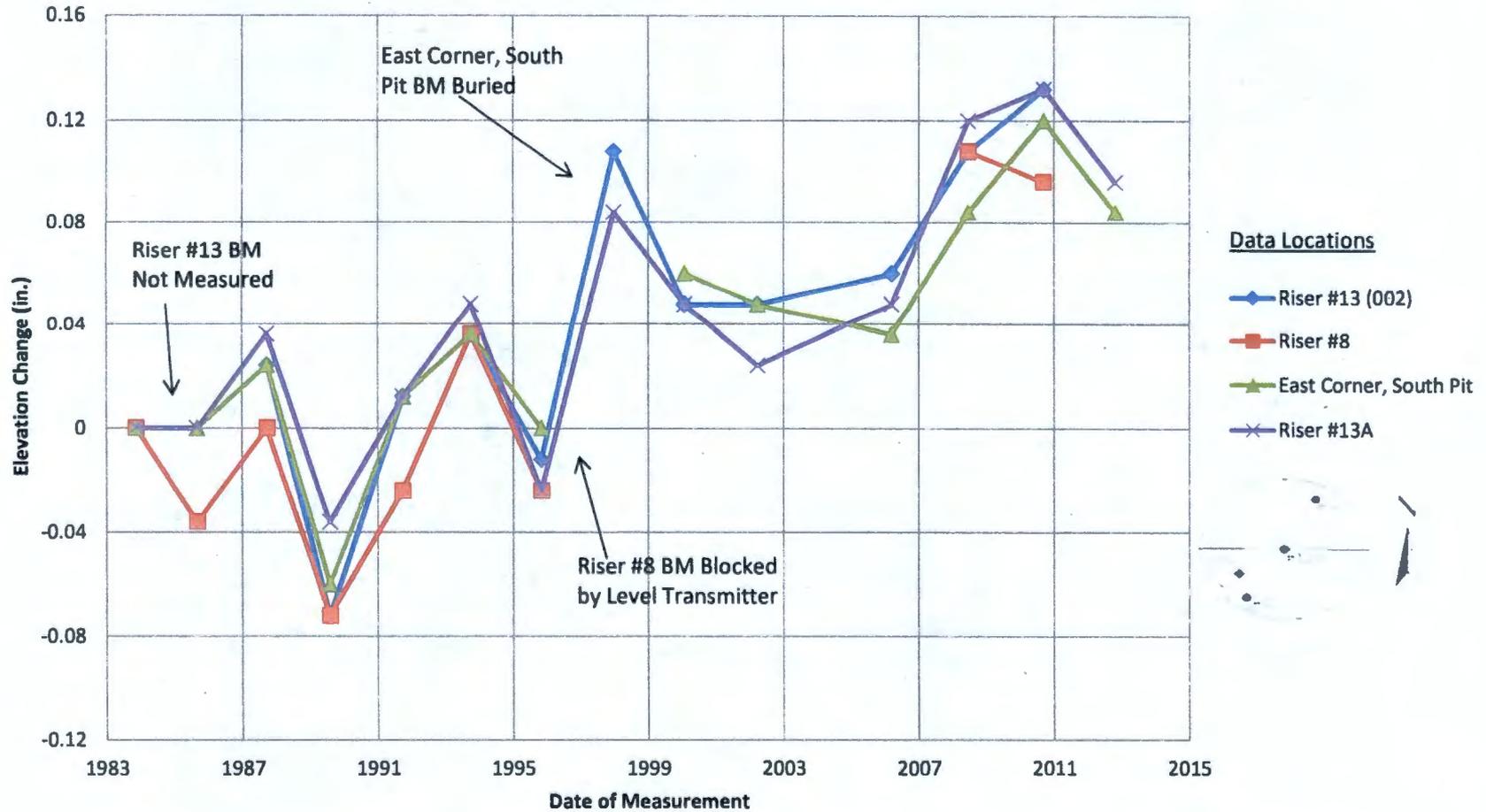
Tank 241-BX-107 Dome Benchmark Elevation Change

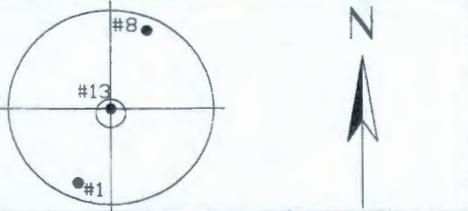


TANK BX-108												
										T:\excel\fs-bx.xls		
W53314 EL=656.854 - Held (NAVD88-Ft. Ref. EL= 660.491)												
W53650 EL=660.740 (NAVD88-Ft. Ref. EL= 664.377)												
	RISER-002			RISER #8			EAST COR SOUTH PIT			RISER #13A		
DATE	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
11/17/1983	656.540	0	0	656.081	0	0	655.589	0	0	656.533	0	0
9/4/1985		Not Measured		656.078	-0.003	-0.003	655.589	0	0	656.533	0	0
9/25/1987	656.542	0.002	0.002	656.081	0.003	0	655.591	0.002	0.002	656.536	0.003	0.003
8/4/1989	656.534	-0.008	-0.006	656.075	-0.006	-0.006	655.584	-0.007	-0.005	656.530	-0.006	-0.003
9/26/1991	656.541	0.007	0.001	656.079	0.004	-0.002	655.590	0.006	0.001	656.534	0.004	0.001
9/30/1993	656.543	0.002	0.003	656.084	0.005	0.003	655.592	0.002	0.003	656.537	0.003	0.004
10/31/1995	656.539	-0.004	-0.001	656.079	-0.005	-0.002	655.589	-0.003	0	656.531	-0.006	-0.002
12/22/1997	656.549	0.010	0.009	Blocked by Level Transmitter				Buried		656.540	0.009	0.007
1/26/2000	656.544	-0.005	0.004	Blocked by Level Transmitter			655.594	0.005	0.005	656.537	-0.003	0.004
3/26/2002	656.544	0.000	0.004	Blocked by Level Transmitter			655.593	-0.001	0.004	656.535	-0.002	0.002
3/15/2006	656.545	0.001	0.005	Blocked by Level Transmitter			655.592	-0.001	0.003	656.537	0.002	0.004
6/17/2008	656.549	0.004	0.009	656.090	0.011	0.009	655.596	0.004	0.007	656.543	0.006	0.010
9/10/2010	656.551	0.002	0.011	656.089	-0.001	0.008	655.599	0.003	0.010	656.544	0.001	0.011
10/22/2012	656.549	-0.002	0.009	Blocked by Enraf Equip			655.596	-0.003	0.007	656.541	-0.003	0.008

BX-15

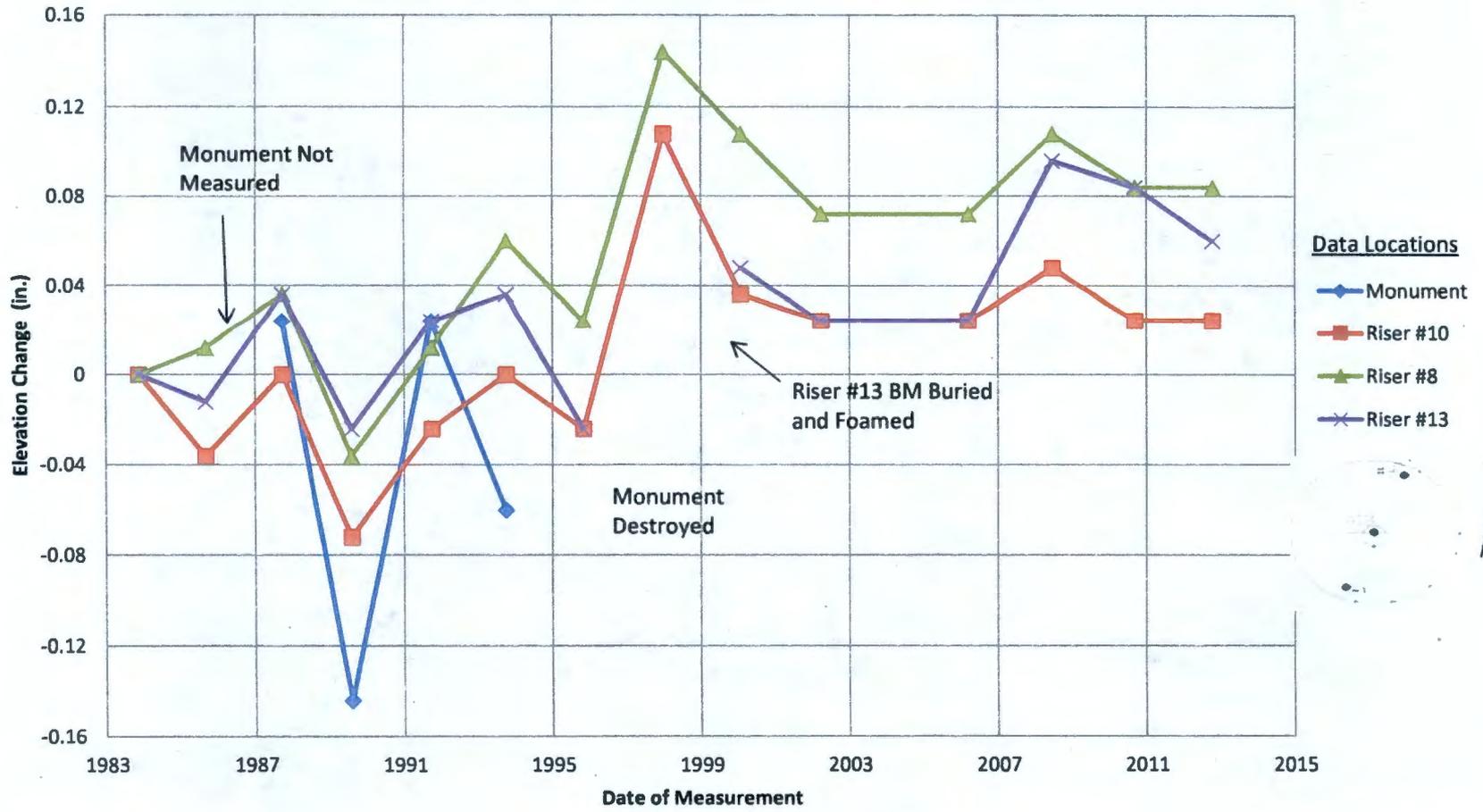
Tank 241-BX-108 Dome Benchmark Elevation Change

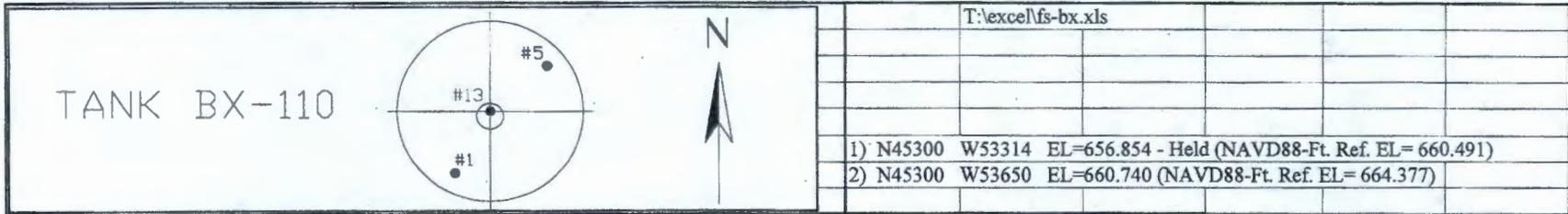


TANK BX-109							T:\excel\fs-bx.xls						
				N45300 W53314 EL=656.854 - Held (NAVD88-Ft. Ref. EL= 660.491)			N45300 W53650 EL=660.740 (NAVD88-Ft. Ref. EL= 664.377)						
DATE	Current Elev.	MON		RISER #1			RISER #8			RISER #13			
		Delta From Prev.	Total Delta Orig.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev.	Total Delta Orig. Elev.	
11/17/1983	654.833	0	0	655.510	0	0	655.048	0	0	655.041	0	0	
9/4/1985	Not Measured			655.507	-0.003	-0.003	655.049	0.001	0.001	655.040	-0.001	-0.001	
9/25/1987	654.835	0.002	0.002	655.510	0.003	0	655.051	0.002	0.003	655.044	0.004	0.003	
8/4/1989	654.821	-0.014	-0.012	655.504	-0.006	-0.006	655.045	-0.006	-0.003	655.039	-0.005	-0.002	
9/26/1991	654.835	0.014	0.002	655.508	0.004	-0.002	655.049	0.004	0.001	655.043	0.004	0.002	
9/30/1993	654.828	-0.007	-0.005	655.510	0.002	0	655.053	0.004	0.005	655.044	0.001	0.003	
10/31/1995	Destroyed			655.508	-0.002	-0.002	655.050	-0.003	0.002	655.039	-0.005	-0.002	
12/22/1997				655.519	0.011	0.009	655.060	0.010	0.012	Buried & Foamed			
1/26/2000				655.513	-0.006	0.003	655.057	-0.003	0.009	655.045	0.006	0.004	
3/26/2002				655.512	-0.001	0.002	655.054	-0.003	0.006	655.043	-0.002	0.002	
3/15/2006				655.512	0	0.002	655.054	0	0.006	655.043	0	0.002	
6/17/2008				655.514	0.002	0.004	655.057	0.003	0.009	655.049	0.006	0.008	
9/10/2010				655.512	-0.002	0.002	655.055	-0.002	0.007	655.048	-0.001	0.007	
10/22/2012				655.512	0	0.002	655.055	0	0.007	655.046	-0.002	0.005	

BX-17

Tank 241-BX-109 Dome Benchmark Elevation Change



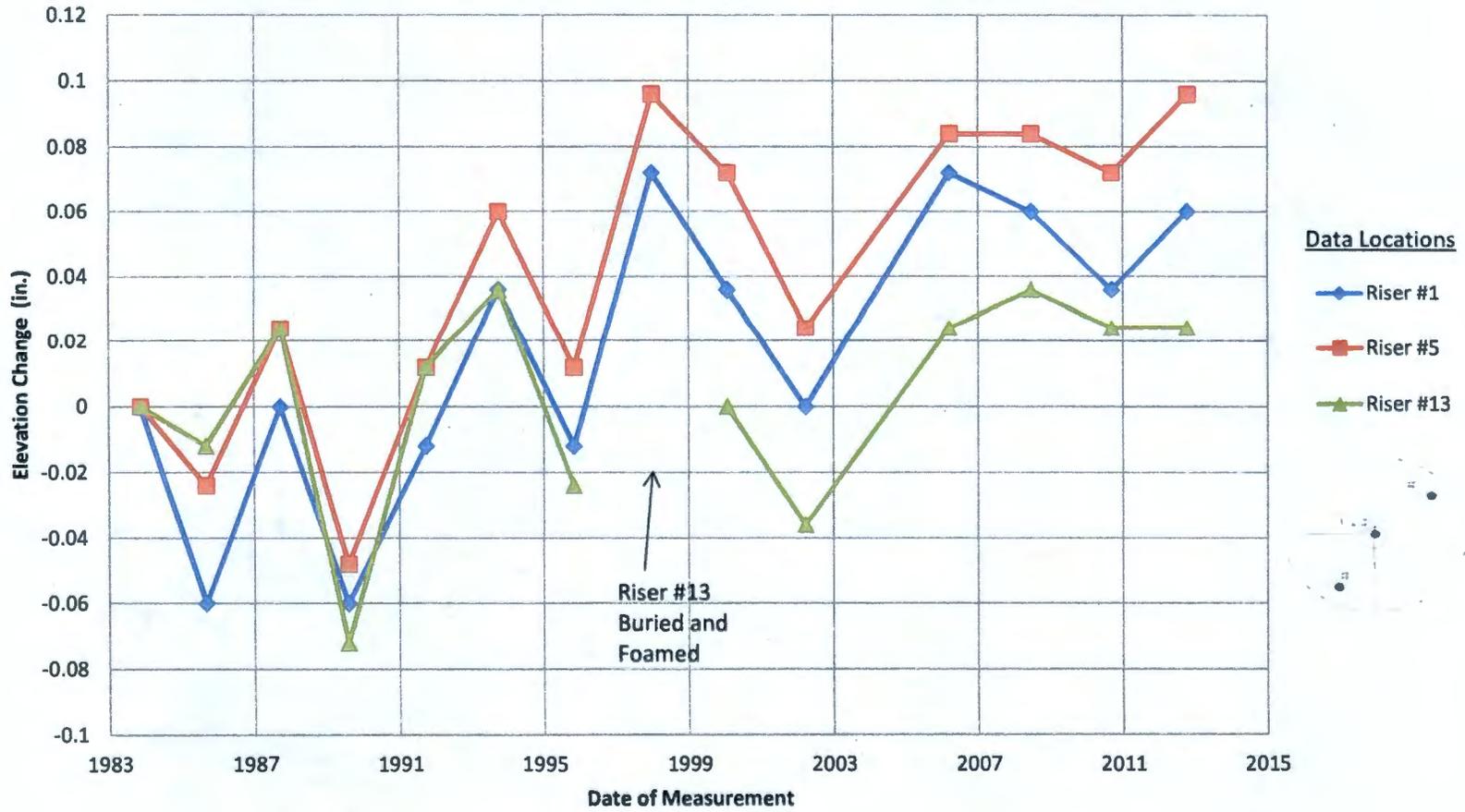


- 1) N45300 W53314 EL=656.854 - Held (NAVD88-Ft. Ref. EL= 660.491)
- 2) N45300 W53650 EL=660.740 (NAVD88-Ft. Ref. EL= 664.377)

DATE	RISER #1			RISER #5			RISER #13		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
11/17/1983	657.495	0	0	657.099	0	0	656.956	0	0
9/4/1985	657.490	-0.005	-0.005	657.097	-0.002	-0.002	656.955	-0.001	-0.001
9/25/1987	657.495	0.005	0	657.101	0.004	0.002	656.958	0.003	0.002
8/4/1989	657.490	-0.005	-0.005	657.095	-0.006	-0.004	656.950	-0.008	-0.006
9/26/1991	657.494	0.004	-0.001	657.100	0.005	0.001	656.957	0.007	0.001
9/30/1993	657.498	0.004	0.003	657.104	0.004	0.005	656.959	0.002	0.003
10/31/1995	657.494	-0.004	-0.001	657.100	-0.004	0.001	656.954	-0.005	-0.002
12/22/1997	657.501	0.007	0.006	657.107	0.007	0.008	Buried & Foamed		
1/26/2000	657.498	-0.003	0.003	657.105	-0.002	0.006	656.956	0.002	0
3/26/2002	657.495	-0.003	0	657.101	-0.004	0.002	656.953	-0.003	-0.003
3/15/2006	657.501	0.006	0.006	657.106	0.005	0.007	656.958	0.005	0.002
6/17/2008	657.500	-0.001	0.005	657.106	0	0.007	656.959	0.001	0.003
9/10/2010	657.498	-0.002	0.003	657.105	-0.001	0.006	656.958	-0.001	0.002
10/22/2012	657.500	0.002	0.005	657.107	0.002	0.008	656.958	0	0.002

BX-19

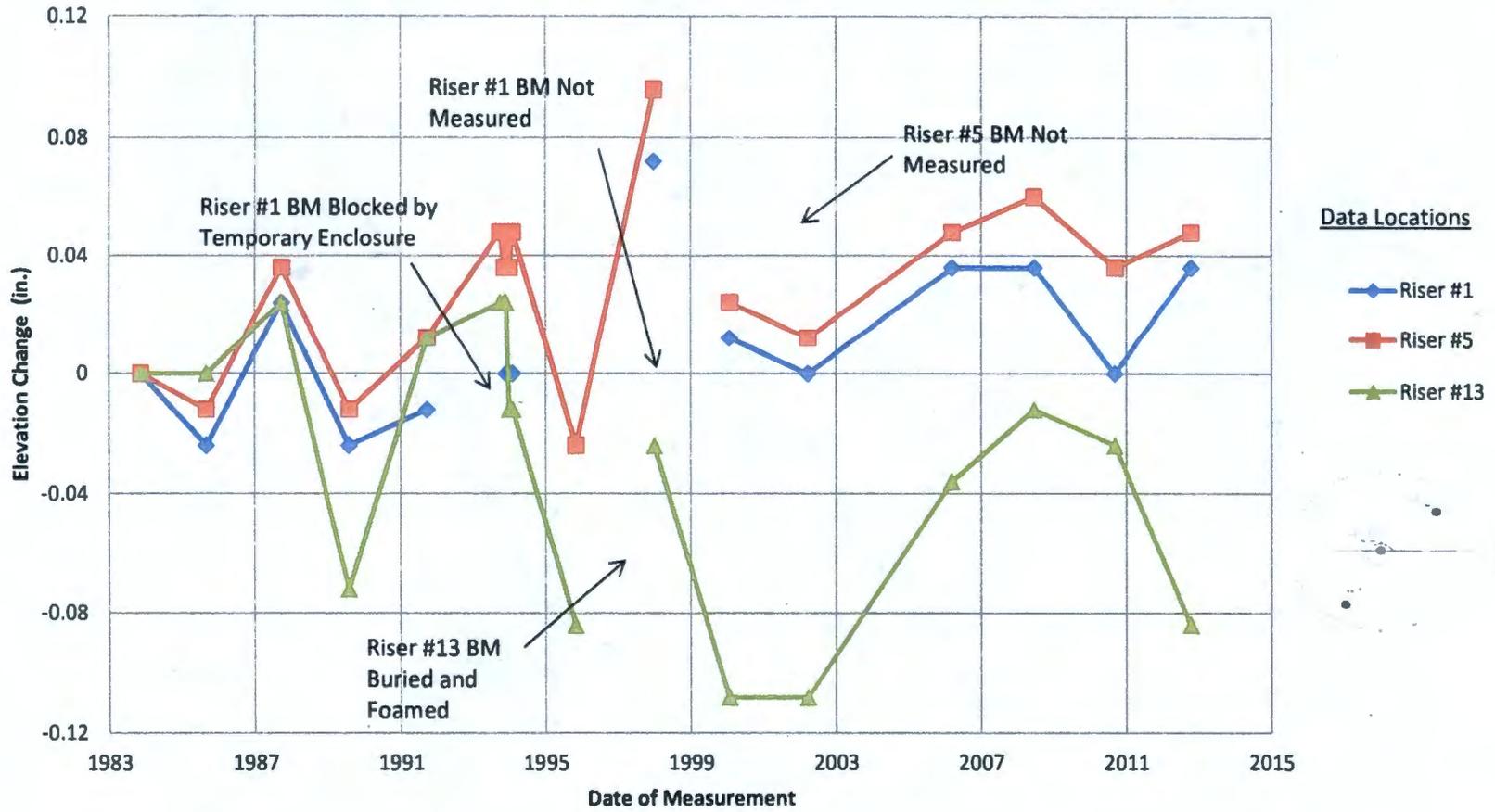
Tank 241-BX-110 Dome Benchmark Elevation Change

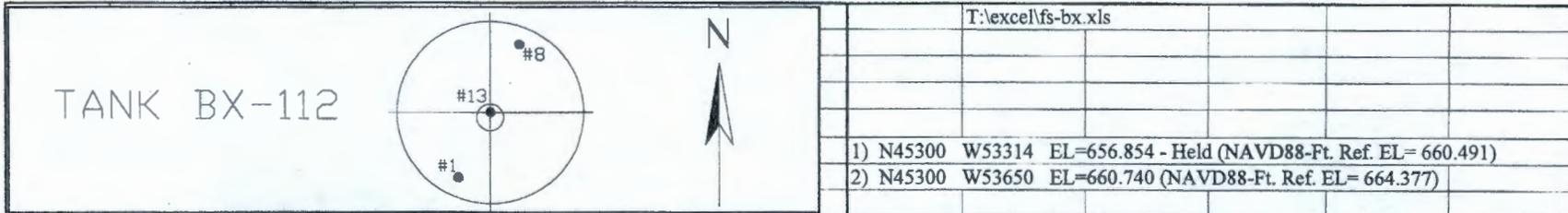


TANK BX-111									
1) N45300 W53314 EL=656.854 - Held (NAVD88-Ft. Ref. EL= 660.491) 2) N45300 W53650 EL=660.740 (NAVD88-Ft. Ref. EL= 664.377)									
DATE	RISER #1			RISER #5			RISER #13		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
11/17/1983	656.554	0	0	656.047	0	0	655.790	0	0
9/4/1985	656.552	-0.002	-0.002	656.046	-0.001	-0.001	655.790	0	0
9/25/1987	656.556	0.004	0.002	656.050	0.004	0.003	655.792	0.002	0.002
8/4/1989	656.552	-0.004	-0.002	656.046	-0.004	-0.001	655.784	-0.008	-0.006
9/26/1991	656.553	0.001	-0.001	656.048	0.002	0.001	655.791	0.007	0.001
9/30/1993	Blocked - Temporary Enclosure			656.051	0.003	0.004	655.792	0.001	0.002
11/12/1993	Blocked - Temporary Enclosure			656.050	-0.001	0.003	655.792	0	0.002
11/30/1993	656.554	0.001	0	656.051	0.001	0.004	655.792	0	0.002
12/28/1993	656.554	0	0	656.050	-0.001	0.003	655.789	-0.003	-0.001
2/2/1994	656.554	0	0	656.051	0.001	0.004	655.789	0	-0.001
10/31/1995		Not Measured		656.045	-0.006	-0.002	655.783	-0.006	-0.007
12/22/1997	656.560	0.006	0.006	656.055	0.010	0.008	Buried & Foamed		
12/31/1997		Not Measured			Not Measured		655.788	0.005	-0.002
1/26/2000	656.555	-0.005	0.001	656.049	-0.006	0.002	655.781	-0.007	-0.009
3/26/2002	656.554	-0.001	0	656.048	-0.001	0.001	655.781	0	-0.009
3/15/2006	656.557	0.003	0.003	656.051	0.003	0.004	655.787	0.006	-0.003
6/17/2008	656.557	0	0.003	656.052	0.001	0.005	655.789	0.002	-0.001
9/10/2010	656.554	-0.003	0	656.050	-0.002	0.003	655.788	-0.001	-0.002
10/22/2012	656.557	0.003	0.003	656.051	0.001	0.004	655.783	-0.005	-0.007

BX-21

Tank 241-BX-111 Dome Benchmark Elevation Change

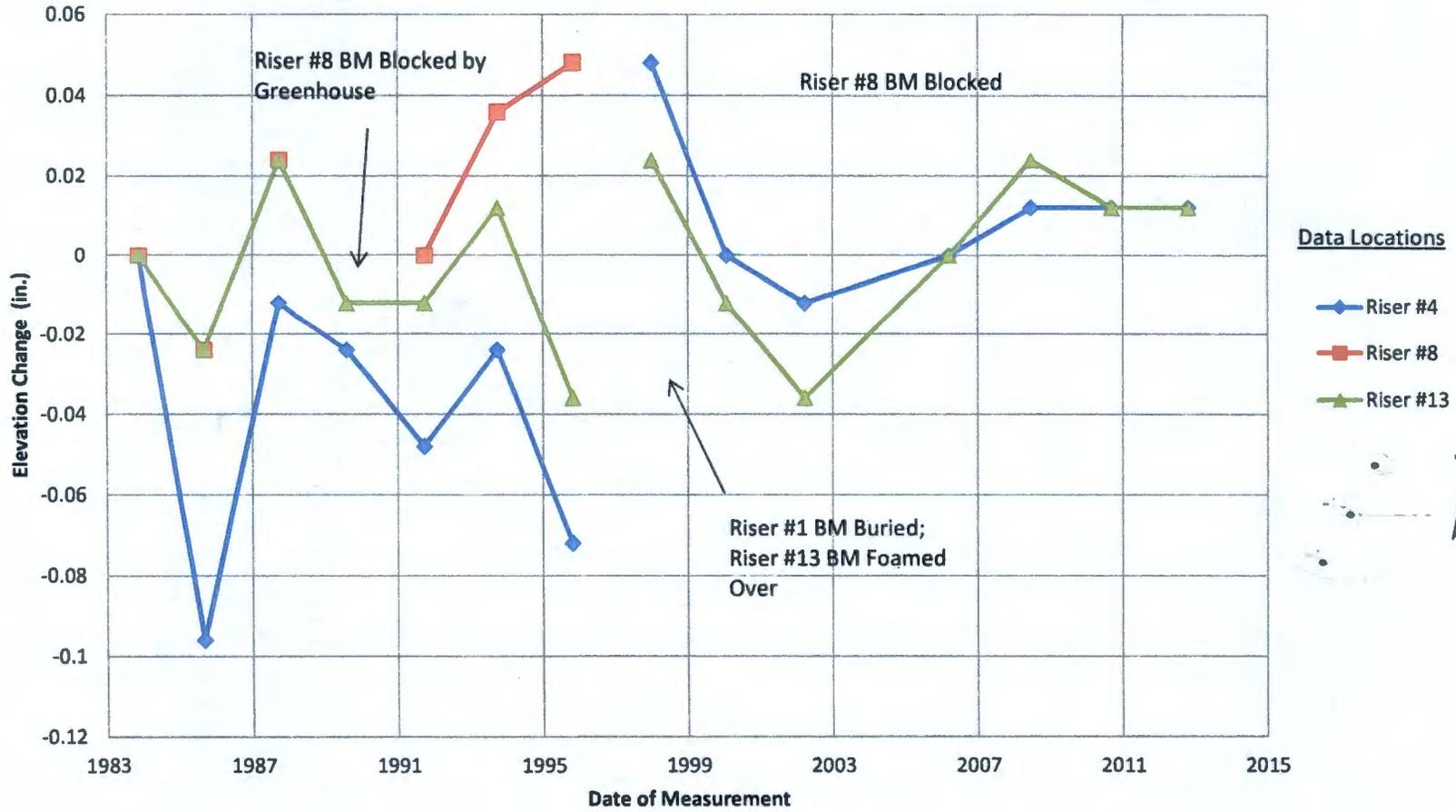




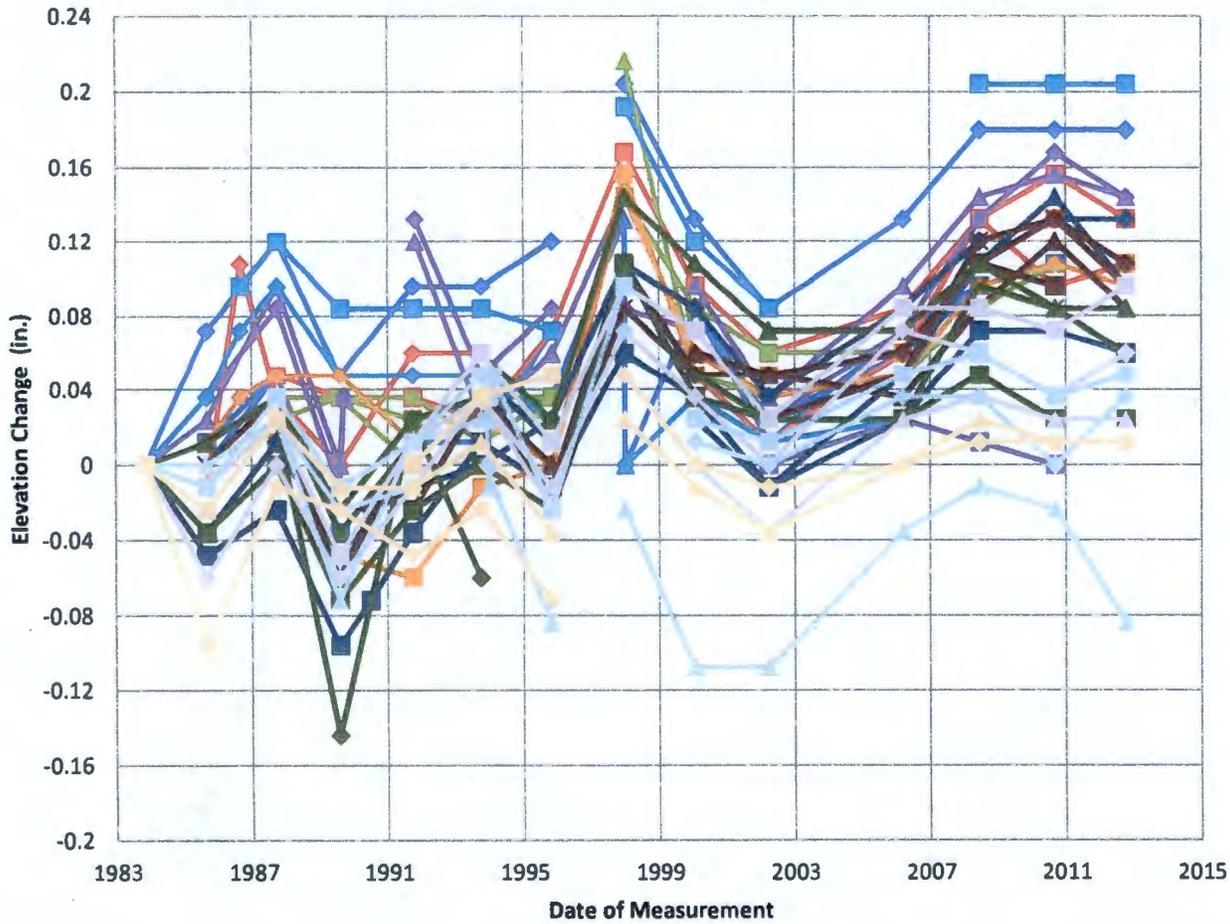
DATE	RISER #1			RISER #8			RISER #13		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
11/17/1983	655.540	0	0	655.095	0	0	655.117	0	0
9/4/1985	655.532	-0.008	-0.008	655.093	-0.002	-0.002	655.115	-0.002	-0.002
9/25/1987	655.539	0.007	-0.001	655.097	0.004	0.002	655.119	0.004	0.002
8/4/1989	655.538	-0.001	-0.002	Blocked by Greenhouse			655.116	-0.003	-0.001
9/26/1991	655.536	-0.002	-0.004	655.095	-0.002	0	655.116	0	-0.001
9/30/1993	655.538	0.002	-0.002	655.098	0.003	0.003	655.118	0.002	0.001
10/31/1995	655.534	-0.004	-0.006	655.099	0.001	0.004	655.114	-0.004	-0.003
12/22/1997		Buried			Blocked			Foamed Over	
12/31/1997	655.544	0.010	0.004		Blocked		655.119	0.005	0.002
1/26/2000	655.540	-0.004	0		Blocked		655.116	-0.003	-0.001
3/26/2002	655.539	-0.001	-0.001		Blocked		655.114	-0.002	-0.003
3/15/2006	655.540	0.001	0		Blocked		655.117	0.003	0
6/17/2008	655.541	0.001	0.001		Blocked		655.119	0.002	0.002
9/10/2010	655.541	0	0.001		Blocked		655.118	-0.001	0.001
10/22/2012	655.541	0	0.001	Blocked By Enraf Equip			655.118	0	0.001

BX-23

Tank 241-BX-112 Dome Benchmark Elevation Change

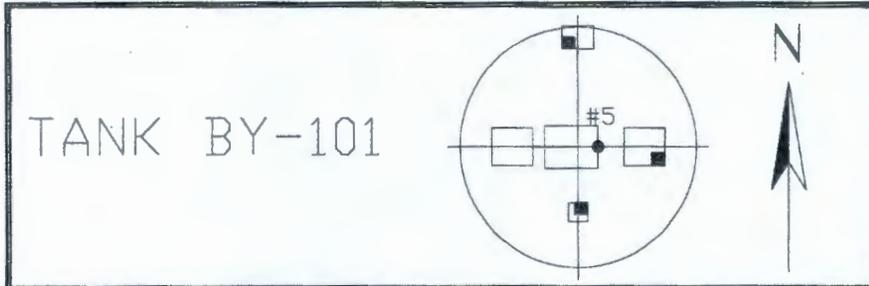


BX Farm Dome Benchmark Elevation Change



- ◆ BX-101 West Corner, Center Pit
- BX-101 North Corner, South Pit
- ▲ BX-101 Riser #8
- ◆ BX-102 West Corner, Center Pit
- BX-102 Riser #1
- ▲ BX-102 Riser #8
- ◆ BX-103 Center Pit
- BX-103 East Corner, South Pit
- ▲ BX-103 Riser #8
- ◆ BX-104 North Corner, Center Pit
- BX-104 Riser #1
- ▲ BX-104 Riser #8
- ◆ BX-105 North Corner, Center Pit
- BX-105 Riser #1
- ▲ BX-106 North Corner, Center Pit
- ◆ BX-106 Riser #8
- BX-107 Riser #4
- ▲ BX-107 Riser #8
- ◆ BX-107 Riser #13
- BX-108 Riser #13 (or 002)
- ▲ BX-108 Riser #8
- ◆ BX-108 East Corner of Center Pit
- BX-108 Riser #13A
- ▲ BX-109 Monument
- ◆ BX-109 Riser #1
- BX-109 Riser #8
- ▲ BX-109 Riser #13
- ◆ BX-110 Riser #1
- BX-110 Riser #5
- ▲ BX-110 Riser #13
- ◆ BX-111 Riser #1
- BX-111 Riser #5
- ▲ BX-111 Riser #13
- ◆ BX-112 Riser #4
- BX-112 Riser #8
- ▲ BX-112 Riser #13

Appendix BY – 241-BY Farm Dome Survey Data and Plots



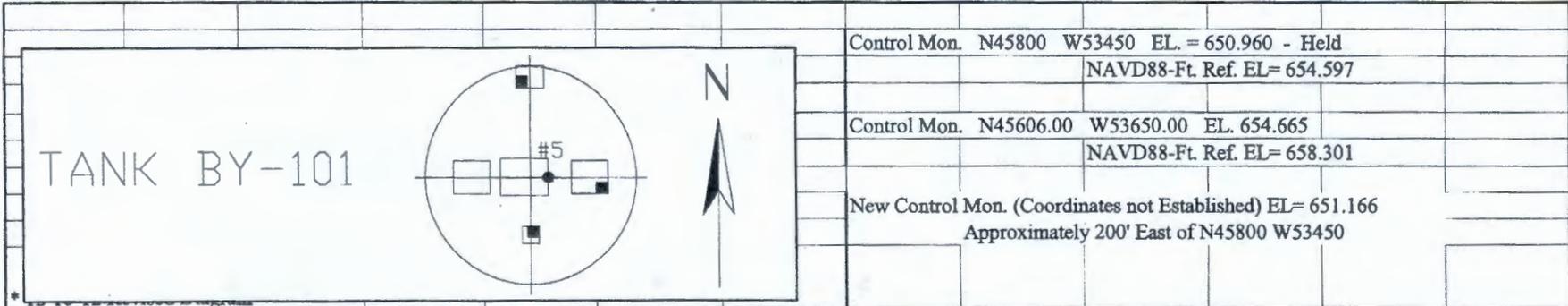
Control Mon. N45800 W53450 EL. = 650.960 - Held
NAVD88-Ft. Ref. EL= 654.597
Control Mon. N45606.00 W53650.00 EL. 654.665
NAVD88-Ft. Ref. EL= 658.301
New Control Mon. (Coordinates not Established) EL= 651.166
Approximately 200' East of N45800 W53450

12-10-12 Revised Diagram

DATE	Current Elev.	RISER 5		RISER EAST PIT			RISER SOUTH PIT			RISER NORTH PIT		
		Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
3/29/83	651.007	0	0	650.483	0	0	650.481	0	0			
3/31/83	651.009	0.002	0.002	650.485	0.002	0.002	650.483	0.002	0.002			
4/13/83	651.006	-0.003	-0.001	650.482	-0.003	-0.001	650.479	-0.004	-0.002			
6/15/83	651.009	0.003	0.002	650.484	0.002	0.001	650.482	0.003	0.001			
6/30/83	651.015	0.006	0.008	650.488	0.004	0.005	650.487	0.005	0.006			
7/23/83	651.007	-0.008	0	650.480	-0.008	-0.003	650.479	-0.008	-0.002			
8/5/83	651.005	-0.002	-0.002	650.480	0	-0.003	650.477	-0.002	-0.004			
8/17/83	651.001	-0.004	-0.006	650.477	-0.003	-0.006	650.476	-0.001	-0.005			
9/2/83	651.013	0.012	0.006	650.485	0.008	0.002	650.484	0.008	0.003			
9/23/83	651.015	0.002	0.008	650.490	0.005	0.007	650.489	0.005	0.008			
11/17/83	651.009	-0.006	0.002	650.482	-0.008	-0.001	651.481	-0.008	0			
5/30/84	651.005	-0.004	-0.002	650.475	-0.005	-0.008	650.473	-0.008	-0.008			
9/4/85	651.011	0.006	0.004	650.482	0.007	-0.001	651.480	0.007	-0.001			
9/17/87	651.017	0.006	0.010	650.488	0.006	0.005	650.486	0.006	0.005			
1/18/87	651.010	-0.007	0.003	650.482	-0.006	-0.001	650.480	-0.006	-0.001			
8/4/89	651.017	0.007	0.010	650.488	0.006	0.005	650.487	0.007	0.006			
5/18/90	651.011	-0.006	0.004	650.481	-0.007	-0.002	650.479	-0.008	-0.002			
5/17/91	651.007	-0.004	0	650.476	-0.005	-0.007	Unable to Access (Covered)					
6/27/91				Note Requested This Survey								
4/25/92	651.010	0.003	0.003	650.481	0.005	-0.002	Unable to Access (Covered)					
3/20/93	651.007	-0.003	-0 -	650.476	-0.005	-0.007	Unable to Access (Covered)					
2/28/94	Blocked by Control Box			650.483	0.007	-0 -	Unable to Access (Covered)					
4/13/94	651.011	0.004	0.004									

BY-1

RPP-RPT-55202, Rev. 0



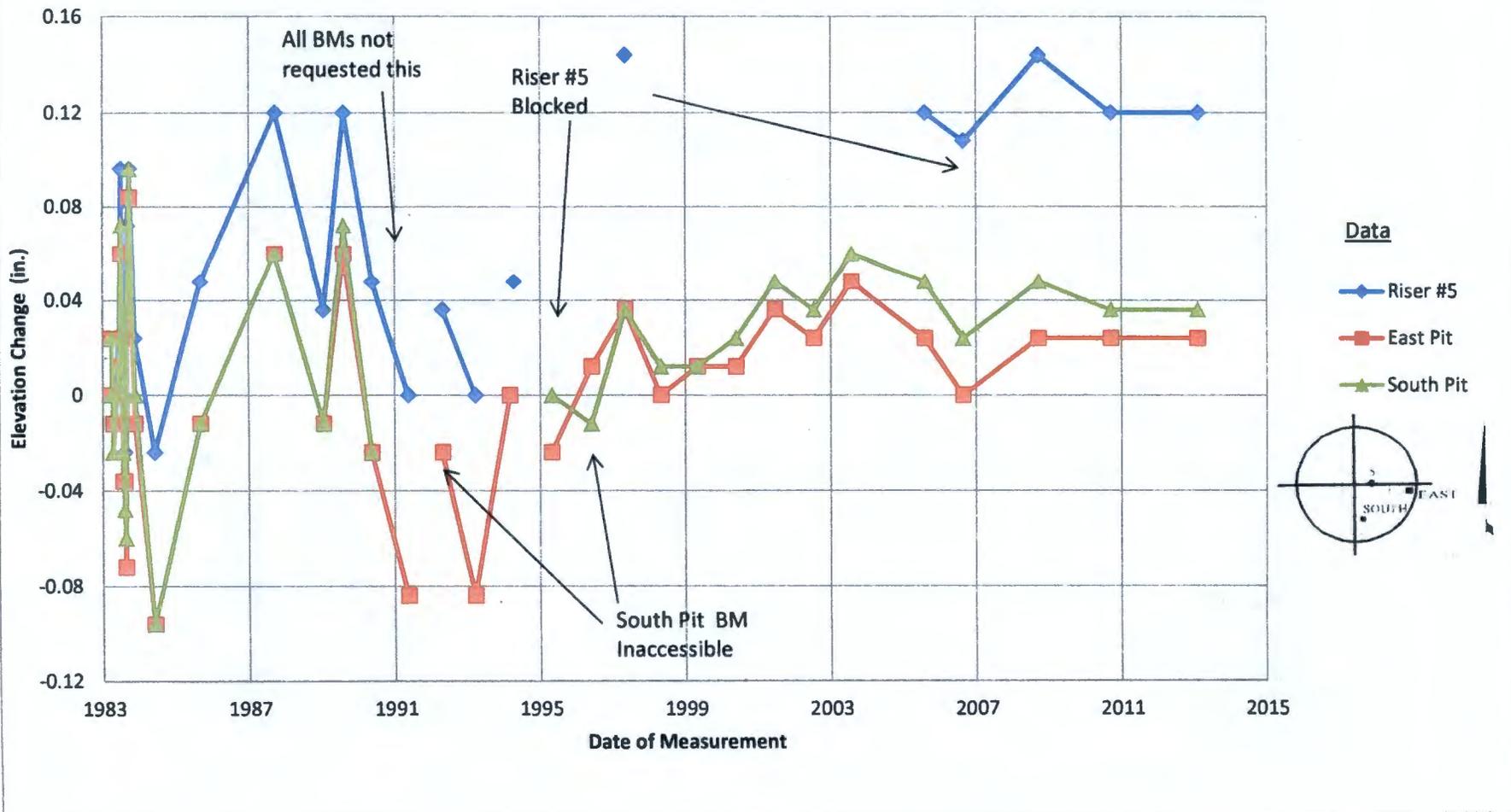
DATE	RISER 5			RISER EAST PIT			RISER SOUTH PIT			RISER NORTH PIT		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
4/26/95	Blocked By Equipment			650.481	-0.002	-0.002	650.481	0.002	- 0 -			
5/31/96	Blocked By Equipment			650.484	0.003	0.001	650.480	-0.001	-0.001			
5/8/97	651.019	0.008	0.012	650.486	0.002	0.003	650.484	0.004	0.003			
4/28/98		BLOCKED		650.483	-0.003	0	650.482	-0.002	0.001			
4/29/99		BLOCKED		650.484	0.001	0.001	650.482	0	0.001			
5/23/00		BLOCKED		650.484	0	0.001	650.483	0.001	0.002			
6/18/01		BLOCKED		650.486	0.002	0.003	650.485	0.002	0.004			
7/17/02		BLOCKED		650.485	-0.001	0.002	650.484	-0.001	0.003			
7/25/03		BLOCKED		650.487	0.002	0.004	650.486	0.002	0.005			
8/5/05	651.017	-0.002	0.010	650.485	-0.002	0.002	650.485	-0.001	0.004			
8/23/06	651.016	-0.001	0.009	650.483	-0.002	0	650.483	-0.002	0.002			
9/17/08	651.019	0.003	0.012	650.485	0.002	0.002	650.485	0.002	0.004			
9/15/10	651.017	-0.002	0.010	650.485	0	0.002	650.484	-0.001	0.003			
2/6/13	651.017	0	0.010	650.485	0	0.002	650.484	0	0.003	650.662	NEW	NEW

BY-2

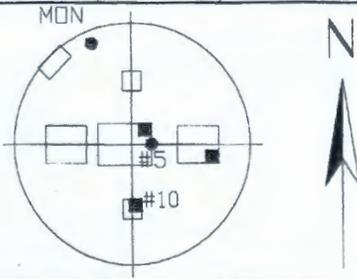
RPP-RPT-55202, Rev. 0

BY-3

Tank 241-BY-101 Dome Benchmark Elevation Change

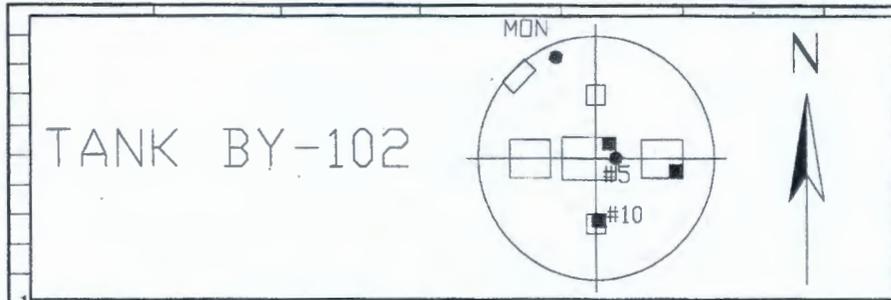


TANK BY-102



BY-4

DATE	RISER 5			RISER 10			RISER EAST			MONUMENT		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
3/29/83	650.082	0	0	649.554	0	0	649.405	0	0			
3/31/83	650.081	-0.001	-0.001	649.554	0	0	649.404	-0.001	-0.001			
4/13/83	650.083	0.002	0.001	649.555	0.001	0.001	649.404	0	-0.001			
6/15/83				Not Requested this Survey								
6/30/83				Not Requested this Survey								
7/21/83				Not Requested this Survey								
8/5/83				Not Requested this Survey								
8/17/83				Not Requested this Survey								
9/2/83				Not Requested this Survey								
9/4/85	650.085	0.002	0.003	649.556	0.001	0.002						
9/17/87	650.087	0.002	0.005	649.558	0.002	0.004	649.407	0.003	0.002			
8/4/89	650.090	0.003	0.008	649.561	0.003	0.007	649.412	0.005	0.007			
5/18/90	650.084	-0.006	0.002	649.555	-0.006	0.001	649.405	-0.007	0			
5/17/91	650.081	-0.003	-0.001	649.551	-0.004	-0.003	649.402	-0.003	-0.003			
6/27/91	650.087	0.006	0.005	649.556	0.005	0.002	649.408	0.006	0.003			
7/6/91	650.086	-0.001	0.004	649.556	0	0.002	649.406	-0.002	0.001			
7/10/91	650.085	-0.001	0.003	649.556	0	0.002	649.406	0	0.001			
7/17/91	650.087	0.002	0.005	649.559	0.003	0.005	649.408	0.002	0.003			
11/11/91	650.082	-0.005	0	649.554	-0.005	0	649.406	-0.002	0.001			
4/25/92	650.082	0	0	649.554	0	0	649.406	0	0.001			
3/20/93	650.080	-0.002	-0.002	649.551	-0.003	-0.003	649.400	-0.006	-0.005			
2/28/94	650.083	0.003	0.001	649.556	0.005	0.002	649.407	0.007	0.002			
4/26/95	650.087	0.004	0.005	Blocked by Greenhouse			649.406	-0.001	0.001			



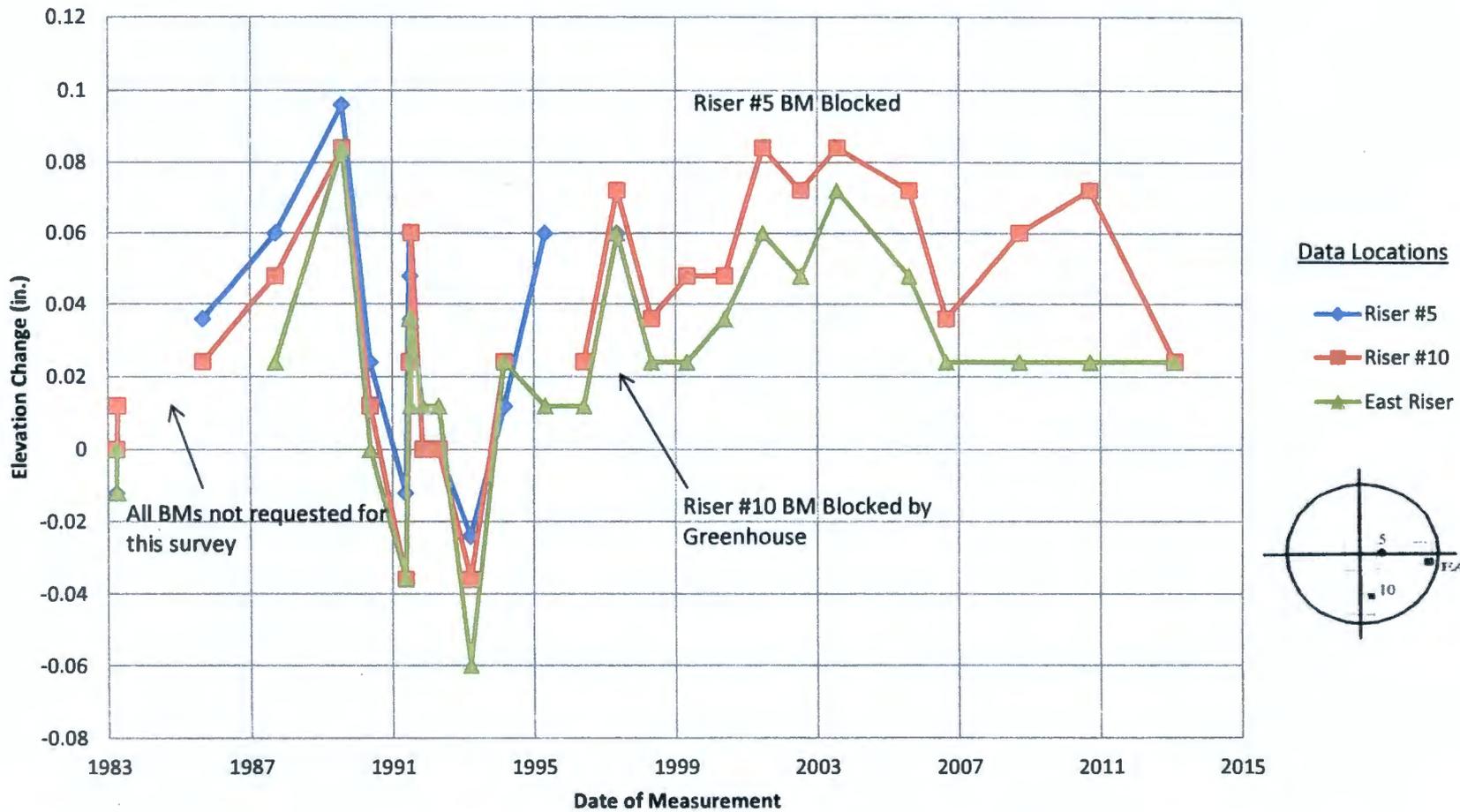
-12 Revised Diagram

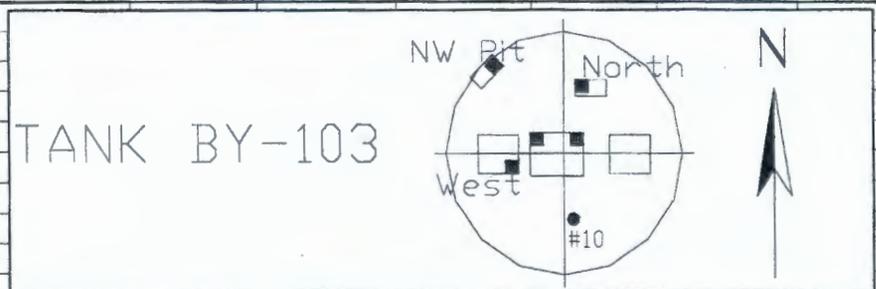
DATE	Current Elev.	RISER 5		RISER 10			RISER EAST			NE COR CENTER PIT		
		Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
5/31/96		BLOCKED		649.556	0	0.002	649.406	0	0.001			
5/8/97	650.087	0	0.005	649.560	0.004	0.006	649.410	0.004	0.005			
4/28/98		BLOCKED		649.557	-0.003	0.003	649.407	-0.003	0.002			
4/29/99		BLOCKED		649.558	0.001	0.004	649.407	0	0.002			
5/23/00		BLOCKED		649.558	0	0.004	649.408	0.001	0.003			
6/18/01		BLOCKED		649.561	0.003	0.007	649.410	0.002	0.005			
7/17/02		BLOCKED		649.560	-0.001	0.006	649.409	-0.001	0.004			
7/25/03		BLOCKED		649.561	0.001	0.007	649.411	0.002	0.006			
8/5/05		BLOCKED		649.560	-0.001	0.006	649.409	-0.002	0.004			
8/23/06		BLOCKED		649.557	-0.003	0.003	649.407	-0.002	0.002			
9/17/08		BLOCKED		649.559	0.002	0.005	649.407	0	0.002			
9/15/10		BLOCKED		654.560	0.001	0.006	649.407	0	0.002	*TYPO S/B 649.560		
2/6/13		BLOCKED		649.556	-0.004	0.002	649.407	0	0.002	649.943	NEW	NEW

BY-5

BY-7

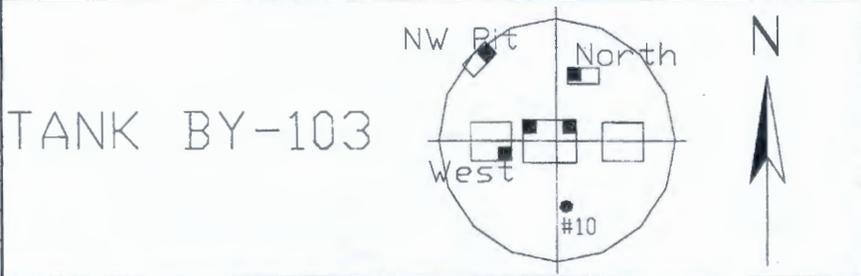
Tank 241-BY-102 Dome Benchmark Elevation Change





BY-8

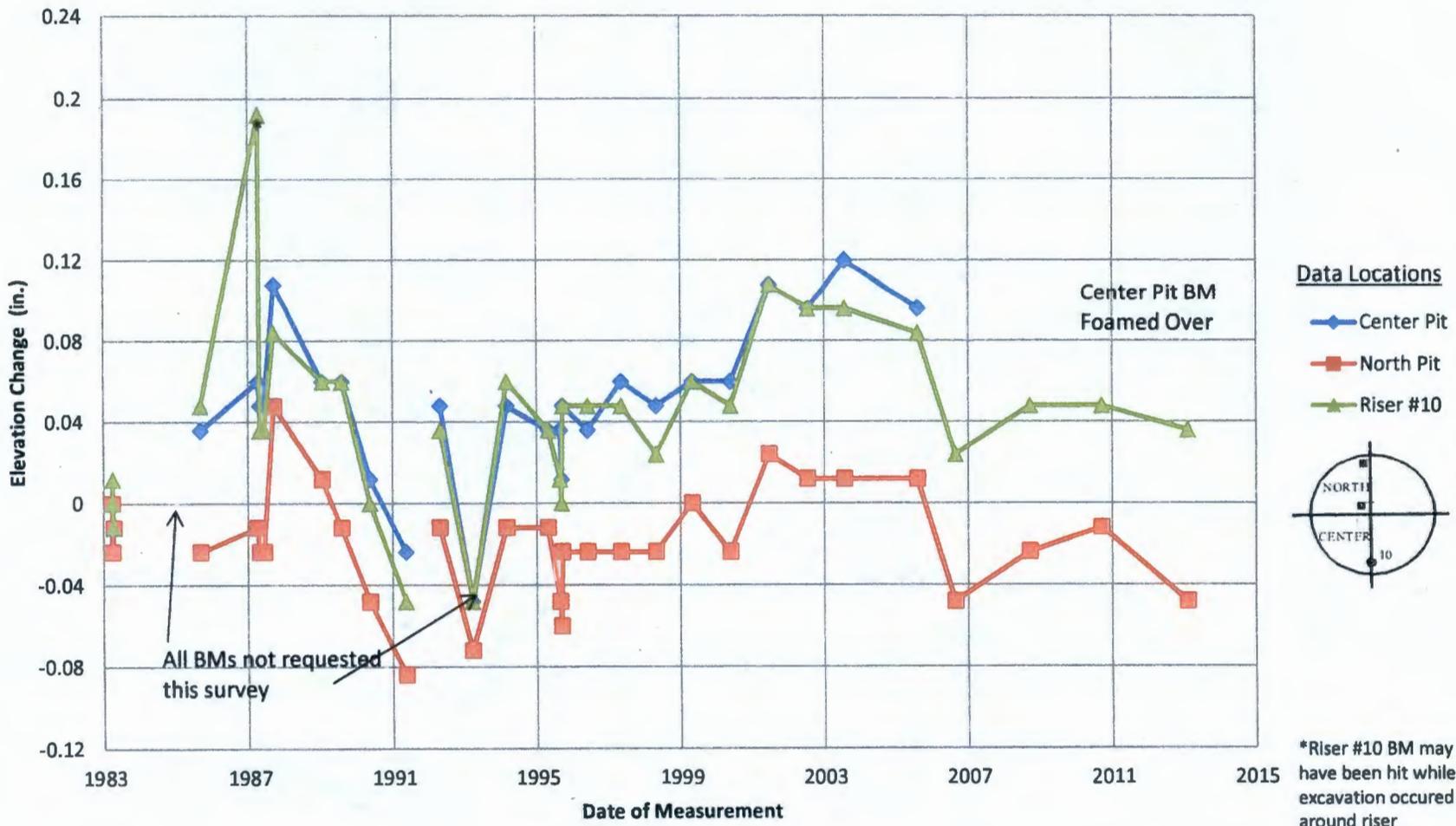
DATE	CENTER PIT, WEST CORNER			NORTH PIT			RISER 10			CENTER PIT, EAST CORNER		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
3/29/83	648.508	0	0	648.651	0	0	648.339	0	0			
3/31/83	648.506	-0.002	-0.002	648.649	-0.002	-0.002	648.340	0.001	-0.001			
4/13/83	648.507	0.001	-0.001	648.650	0.001	-0.001	648.338	-0.002	-0.001			
6/15/83				Not Requested This Survey								
6/30/83				Not Requested This Survey								
7/21/83				Not Requested This Survey								
8/5/83				Not Requested This Survey								
8/17/83				Not Requested This Survey								
9/2/83				Not Requested This Survey								
9/4/85	648.511	0.004	0.003	648.649	-0.001	-0.002	648.343	0.005	0.004			
4/9/87	648.513	0.002	0.005	648.650	0.001	0.001	*648.355	0.012	0.016			
4/27/87	648.512	-0.001	0.004	648.649	-0.001	-0.002	648.342	-0.013	0.003			
6/11/87	648.512	0	0.004	648.649	0	-0.002	648.342	0	0.003			
9/17/87	648.517	0.005	0.009	648.655	0.006	0.004	648.346	0.004	0.007			
1/18/89	648.513	-0.004	0.005	648.652	-0.003	0.001	648.344	-0.002	0.005			
8/4/89	648.513	0	0.005	648.650	-0.002	-0.001	648.344	0	0.005			
5/18/90	648.509	-0.004	0.001	648.647	-0.003	-0.004	648.339	-0.005	0			
5/17/91	648.506	-0.003	-0.002	648.644	-0.003	-0.007	648.335	-0.004	-0.004			
6/27/91				Not Requested This Survey								
4/25/92	648.512	0.006	0.004	648.65	0.006	-0.001	648.342	0.007	0.003			
3/20/93	648.504	-0.008	-0.004	648.645	-0.005	-0.006	648.335	-0.007	-0.004			
2/28/94	648.512	0.008	0.004	648.650	-0.005	-0.001	648.344	0.009	0.005			
4/26/95	648.511	-0.001	0.003	648.650	0	-0.001	648.342	-0.002	0.003			
8/25/95	648.511	0	0.003	648.647	-0.003	-0.004	648.340	-0.002	0.001			



DATE	CENTER PIT, WEST CORNER			NORTH PIT			RISER 10			CENTER PIT, NE CORNER		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
9/11/95	648.509	-0.002	0.001	648.646	-0.001	-0.005	648.339	-0.001	0			
9/19/95	648.512	0.003	0.004	648.649	0.003	-0.002	648.343	0.004	0.004			
5/31/96	648.511	-0.001	0.003	648.649	0	-0.002	648.343	0	0.004			
5/8/97	648.513	0.002	0.005	648.649	0	-0.002	648.343	0	0.004			
4/28/98	648.512	-0.001	0.004	648.649	0	-0.002	648.341	-0.002	0.002			
4/29/99	648.513	0.001	0.005	648.651	0.002	0	648.344	0.003	0.005			
5/23/00	648.513	0	0.005	648.649	-0.002	-0.002	648.343	-0.001	0.004			
6/18/01	648.517	0.004	0.009	648.653	0.004	0.002	648.348	0.005	0.009			
7/17/02	648.516	-0.001	0.008	648.652	-0.001	0.001	648.347	-0.001	0.008			
7/25/03	648.518	0.002	0.010	648.652	0	0.001	648.347	0	0.008			
8/5/05	648.516	-0.002	0.008	648.652	0	0.001	648.346	-0.001	0.007			
8/23/06	FOAMED OVER			648.647	-0.005	-0.004	648.341	-0.005	0.002			
9/17/08	FOAMED OVER			648.649	0.002	-0.002	648.343	0.002	0.004			
9/15/10	FOAMED OVER			648.650	0.001	-0.001	648.343	0.000	0.004			
2/6/13	FOAMED OVER			648.647	-0.003	-0.004	648.342	-0.001	0.003	648.911	NEW	NEW

BY-9

Tank 241-BY-103 Dome Benchmark Elevation Change



Data Locations

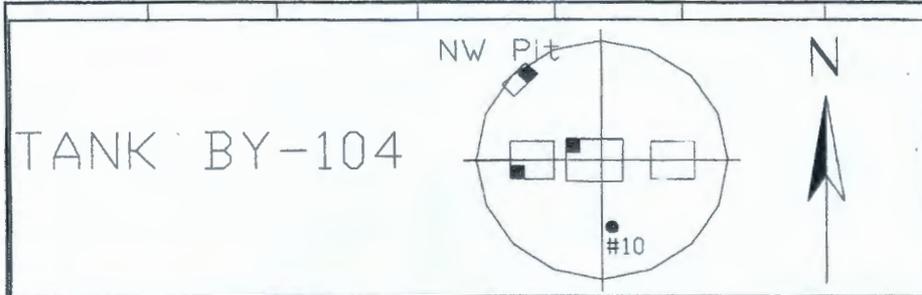
- Center Pit
- North Pit
- Riser #10

A north arrow is located to the right of the legend. Below it is a circular diagram representing the dome structure, with a vertical line through the center. The top of the line is labeled 'NORTH', the bottom is labeled 'CENTER', and a small circle at the very bottom is labeled '10', representing Riser #10.

All BMs not requested this survey

Center Pit BM Foamed Over

*Riser #10 BM may have been hit while excavation occurred around riser

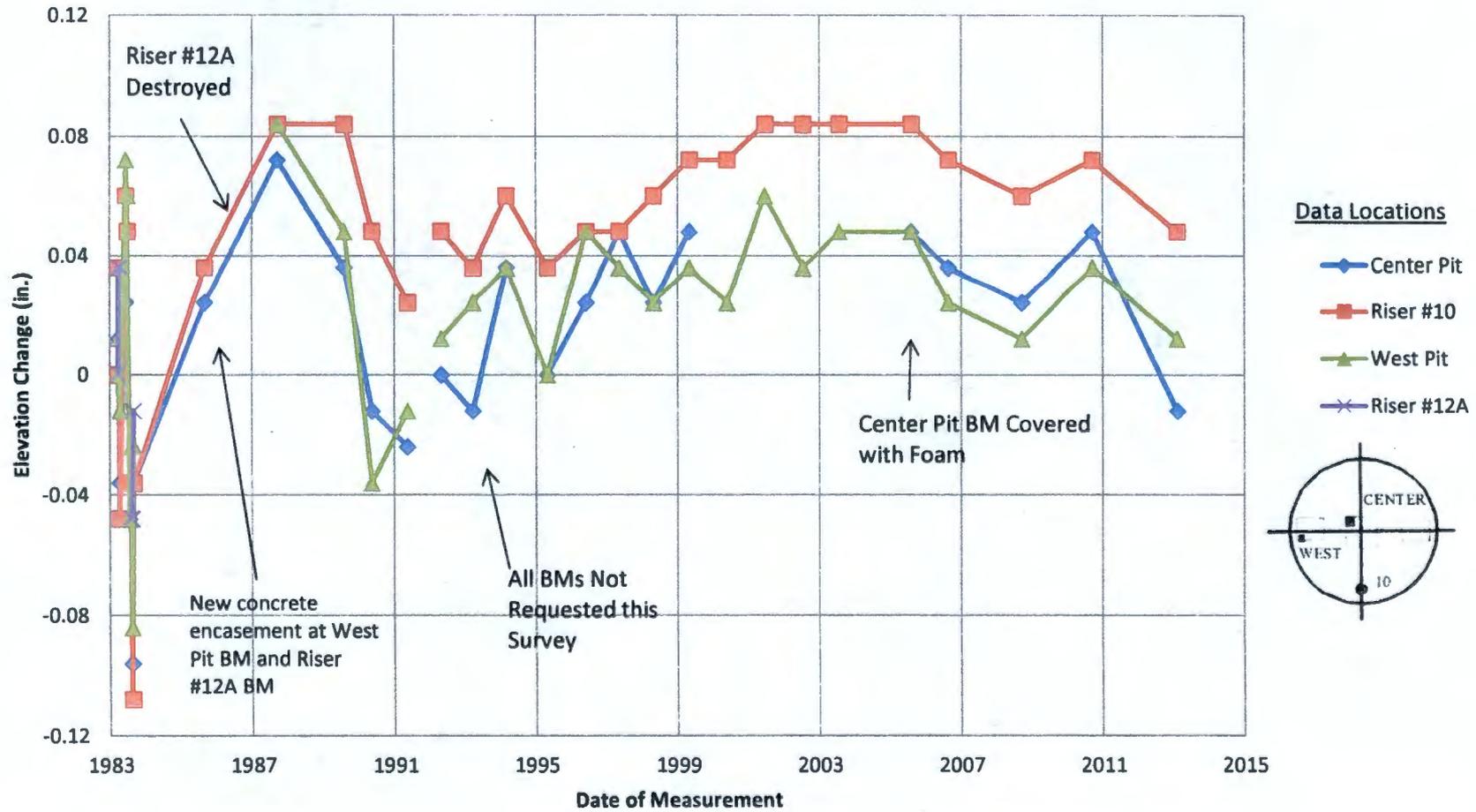


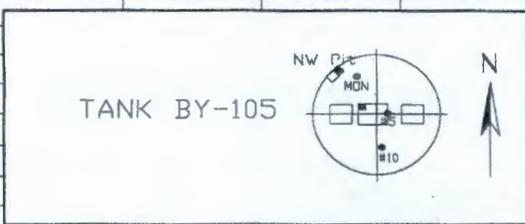
12-10-12 Revised Diagram												
DATE	CENTER PIT			RISER 10			WEST PIT			RISER 12A		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
3/29/1983	650.564	0	0	650.320	0	0	650.530	0	0	650.350	0	0
3/31/1983	650.565	0.001	0.001	650.323	0.003	0.003	650.531	0.001	0.001	650.353	0.003	0.003
4/13/1983	650.561	-0.004	-0.003	650.316	-0.007	-0.004	650.529	-0.002	-0.001	650.353	0	0.003
6/15/1983	650.566	0.005	0.002	650.325	0.009	0.005	650.536	0.007	0.006	--	--	--
6/30/1983	650.568	0.002	0.004	650.324	-0.001	0.004	650.535	-0.001	0.005	--	--	--
7/21/1983	650.560	-0.008	-0.004	650.317	-0.007	-0.003	650.526	-0.009	-0.004	--	--	--
8/5/1983	650.561	0.001	-0.003	650.317	0	-0.003	650.528	0.002	-0.002	650.346	-0.007	-0.004
8/17/1983	650.556	-0.005	-0.008	650.311	-0.006	-0.009	650.523	-0.005	-0.007	650.346	0	-0.004
9/2/1983	650.561	0.005	-0.003	650.317	0.006	-0.003	650.528	0.005	-0.002	650.349	0.003	-0.001
9/4/1985	650.566	0.005	0.002	650.323	0.006	0.003	New Concrete Encasement					
9/17/1987	650.570	0.004	0.006	650.327	0.004	0.007	650.537	0.009	0.007		Destroyed	
8/4/1989	650.567	-0.003	0.003	650.327	0	0.007	650.534	-0.003	0.004		Destroyed	
5/18/1990	650.563	-0.002	-0.001	650.324	-0.003	0.004	650.527	-0.007	-0.003		Destroyed	
5/17/1991	650.562	-0.001	-0.002	650.322	-0.002	0.002	650.529	0.002	-0.001		Destroyed	
6/27/1991					Not Requested This Survey							
4/25/1992	650.564	0.002	0	650.324	0.002	0.004	650.531	0.002	0.001		Destroyed	
3/20/1993	650.563	-0.001	-0.001	650.323	-0.001	0.003	650.532	0.001	0.002		Destroyed	
2/28/1994	650.567	0.004	0.003	650.325	0.002	0.005	650.533	0.001	0.003		Destroyed	
4/26/1995	650.564	-0.003	0	650.323	-0.002	0.003	650.530	-0.003	0		Destroyed	
5/31/1996	650.566	0.002	0.002	650.324	0.001	0.004	650.534	0.004	0.004		Destroyed	
5/8/1997	650.568	0.002	0.004	650.324	0	0.004	650.533	-0.001	0.003		Destroyed	
4/28/1998	650.566	-0.002	0.002	650.325	0.001	0.005	650.532	-0.001	0.002		Destroyed	
4/29/1999	650.568	0.002	0.004	650.326	0.001	0.006	650.533	0.001	0.003	No Longer Recorded		

BY-12

BY-14

Tank 241-BY-104 Dome Benchmark Elevation Change

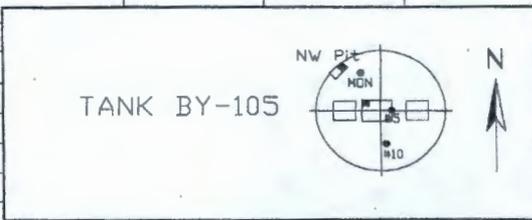




12-10-12 Revised Diagram

DATE	RISER NORTH			CENTER PIT, WEST SIDE			RISER 10			RISER 5		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
3/29/83	649.244	0	0	649.567	0	0	649.425	0	0	650.199	0	0
3/31/83	649.246	0.002	0.002	649.566	-0.001	-0.001	649.424	-0.001	-0.001	650.198	-0.001	-0.001
4/13/83	649.247	0.001	0.003	649.568	0.002	0.001	649.426	0.002	0.001	650.199	0.001	0
6/15/83				Not Requested This Survey								
6/30/83				Not Requested This Survey								
7/21/83				Not Requested This Survey								
8/5/83				Not Requested This Survey								
8/17/83				Not Requested This Survey								
9/2/83				Not Requested This Survey								
9/4/85	---	---	---	649.572	0.004	0.005	649.429	0.003	0.004	650.204	0.005	0.005
9/17/87		Destroyed		649.573	0.001	0.006	649.431	0.002	0.006	650.206	0.002	0.007
1/18/89		Destroyed		649.569	-0.004	0.002	649.428	-0.003	0.003	650.200	-0.006	0.001
8/4/89		Destroyed		649.576	0.007	0.009	649.436	0.008	0.011	650.209	0.009	0.010
5/18/90		Destroyed		649.568	-0.008	0.001	649.427	-0.009	0.002	650.202	-0.007	0.003
5/17/91		Destroyed		649.565	-0.003	-0.002	649.426	-0.001	0.001	650.199	-0.003	0
6/27/91				Not Requested This Survey								
4/25/92		Destroyed		649.566	0.001	-0.001	649.428	0.002	0.003	650.201	0.002	0.002
3/20/93		Destroyed		649.565	-0.001	-0.002	649.422	-0.006	-0.003	650.197	-0.004	-0.002
2/28/94		Destroyed		649.573	0.008	0.006	649.429	0.007	0.004	650.204	0.007	0.005
4/26/95		Destroyed		649.569	-0.004	0.002	649.428	-0.001	0.003	650.202	-0.002	0.003
5/31/96		Destroyed		649.572	0.003	0.005	649.431	0.003	0.006	650.205	0.003	0.006
5/8/97		Destroyed		649.573	0.001	0.006	649.431	0	0.006	650.206	0.001	0.007

BY-15

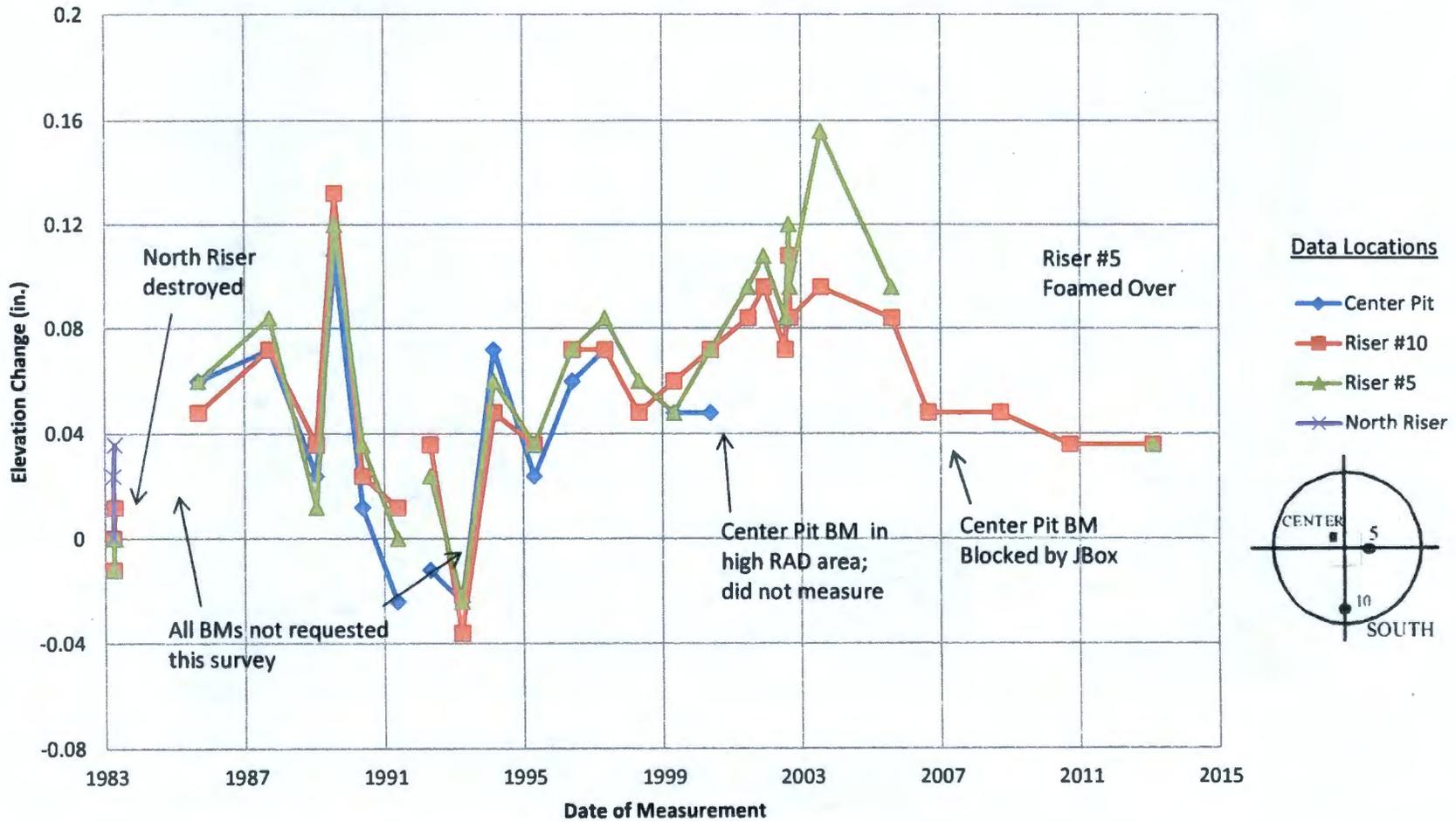


DATE	Current Elev.	NW PIT		CENTER PIT, WEST SIDE			RISER 10			RISER 5		
		Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
4/28/98		Destroyed		High RAD Area - Did not get			649.429	-0.002	0.004	650.204	-0.002	0.005
4/29/99		Destroyed		649.571	-0.002	0.004	649.430	0.001	0.005	650.203	-0.001	0.004
5/23/00		Destroyed		649.571	0	0.004	649.431	0.001	0.006	650.205	0.002	0.006
6/18/01		Destroyed		BLOCKED BY JBOX			649.432	0.001	0.007	650.207	0.002	0.008
12/4/01		Destroyed		BLOCKED BY JBOX			649.433	0.001	0.008	650.208	0.001	0.009
7/17/02		Destroyed		BLOCKED BY JBOX			649.431	-0.002	0.006	650.206	-0.002	0.007
8/23/02		Destroyed		BLOCKED BY JBOX			649.434	0.003	0.009	650.209	0.003	0.010
8/29/02		Destroyed		BLOCKED BY JBOX			649.434	0.000	0.009	650.209	0.000	0.010
9/5/02		Destroyed		BLOCKED BY JBOX			649.432	-0.002	0.007	650.207	-0.002	0.008
7/25/03		Destroyed		BLOCKED BY JBOX			649.433	0.001	0.008	650.212	0.005	0.013
8/5/05		Destroyed		BLOCKED BY JBOX			649.432	-0.001	0.007	650.207	-0.005	0.008
8/23/06		Destroyed		BLOCKED BY JBOX			649.429	-0.003	0.004	FOAMED OVER		
9/17/08		Destroyed		BLOCKED BY JBOX			649.429	0	0.004	FOAMED OVER		
9/15/10		Destroyed		BLOCKED BY JBOX			649.428	-0.001	0.003	FOAMED OVER		
2/6/13		Destroyed		BLOCKED BY JBOX			649.428	0	0.003	650.202	-0.005	0.003

BY-16

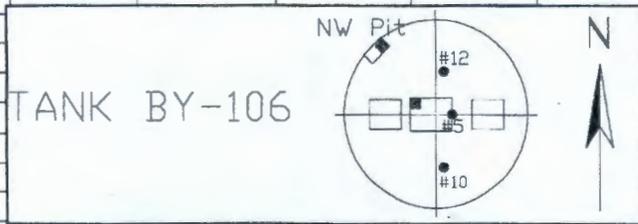
BY-18

Tank 241-BY-105 Dome Benchmark Elevation Change



Fluor Government Group

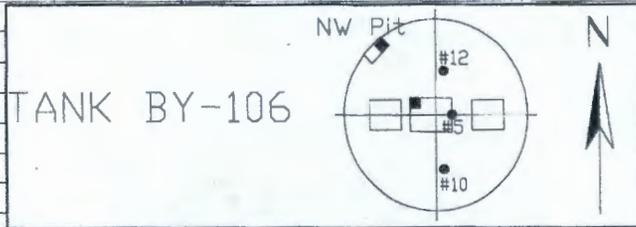
Tank 106-BY Dome Settlement Study



12-10-12 Revised Diagram

DATE	CENTER PIT, WEST SIDE			RISER 5			RISER 10			RISER 12		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
3/29/83	648.524	- 0 -	- 0 -	649.117	- 0 -	- 0 -	648.351	- 0 -	- 0 -	648.248	- 0 -	- 0 -
3/31/83	648.526	0.002	0.002	649.115	-0.002	-0.002	648.353	0.002	0.002	648.247	-0.001	-0.001
4/13/83	648.524	-0.002	- 0 -	649.116	0.001	-0.001	648.352	-0.001	0.001	648.249	0.002	0.001
6/15/83				Not Requested this Survey								
6/30/83				Not Requested this Survey								
7/21/83				Not Requested this Survey								
8/3/83				Not Requested this Survey								
8/17/83				Not Requested this Survey								
9/2/83				Not Requested this Survey								
9/4/85	648.527	0.003	0.003	649.120	0.004	0.003	648.355	0.003	0.004	648.252	0.003	0.004
9/17/87	648.530	0.003	0.006	649.123	0.003	0.006	648.357	0.002	0.006	648.253	0.001	0.005
1/18/89	648.528	-0.002	0.004	649.120	-0.003	0.003	Not Accessable			648.255	0.002	0.007
8/4/89	648.531	0.003	0.007	649.126	0.006	0.009	648.363	0.006	0.012	648.256	0.001	0.008
5/18/90	648.525	-0.006	0.001	649.118	-0.008	0.001	648.354	-0.009	0.003	648.251	-0.005	0.003
5/17/91	648.521	-0.004	-0.003	649.114	-0.004	-0.003	648.349	-0.005	-0.002	648.247	-0.004	-0.001
6/27/91				Not Requested this Survey								
4/25/92	648.527	0.006	0.003	649.118	0.004	0.001	648.352	0.003	0.001	648.251	0.004	0.003
3/20/93	648.518	-0.009	-0.006	649.113	-0.005	-0.004	648.349	-0.003	-0.002	648.249	-0.002	0.001
2/28/94	648.528	0.010	0.004	649.122	0.009	0.005	648.357	0.008	0.006	648.256	0.007	0.008
4/26/95	648.527	-0.001	0.003	649.119	-0.003	0.002	648.357	- 0 -	0.006	648.256	- 0 -	0.008
8/25/95	648.523	-0.004	-0.001	649.118	-0.001	0.001	648.352	-0.005	0.001	648.249	-0.007	0.001
9/11/95	648.523	0	-0.001	649.118	- 0 -	0.001	648.353	0.001	0.002	648.249	- 0 -	0.001
9/19/95	648.527	0.004	0.003	649.121	0.003	0.004	648.355	0.002	0.004	648.248	-0.001	- 0 -

BY-19

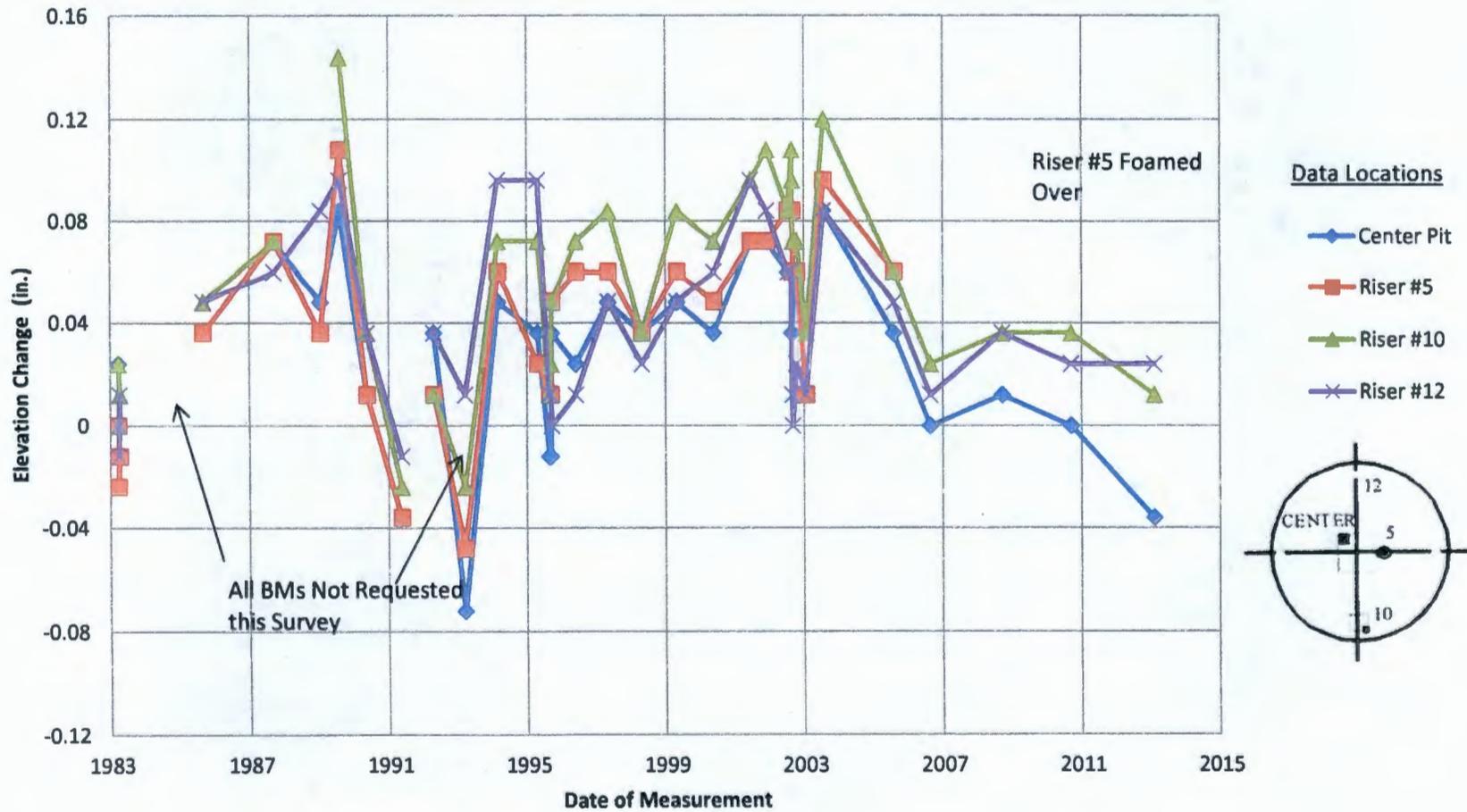


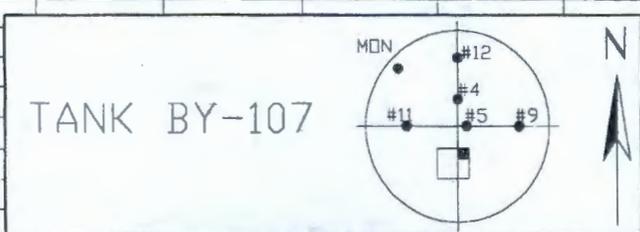
12-10-12 Revised Diagram

BY-20

DATE	CENTER PIT, WEST SIDE			RISER 5			RISER 10			RISER 12		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
5/31/96	648.526	-0.001	0.002	649.122	0.001	0.005	648.357	0.002	0.006	648.249	0.001	0.001
5/8/97	648.528	0.002	0.004	649.122	0	0.005	648.358	0.001	0.007	648.252	0.003	0.004
4/28/98	648.527	-0.001	0.003	649.120	-0.002	0.003	648.354	-0.004	0.003	648.250	-0.002	0.002
4/29/99	648.528	0.001	0.004	649.122	0.002	0.005	648.358	0.004	0.007	648.252	0.002	0.004
5/23/00	648.527	-0.001	0.003	649.121	-0.001	0.004	648.357	-0.001	0.006	648.253	0.001	0.005
6/18/01	648.530	0.003	0.006	649.123	0.002	0.006	648.359	0.002	0.008	648.256	0.003	0.008
12/4/01	648.530	0	0.006	649.123	0	0.006	648.360	0.001	0.009	648.255	-0.001	0.007
7/17/02	648.529	-0.001	0.005	649.124	0.001	0.007	648.358	-0.002	0.007	648.253	-0.002	0.005
8/23/02	648.529	0	0.005	649.124	0	0.007	648.360	0.002	0.009	648.253	0	0.005
8/29/02	648.527	-0.002	0.003	649.124	0	0.007	648.359	-0.001	0.008	648.249	-0.004	0.001
9/5/02	648.527	0.000	0.003	649.122	-0.002	0.005	648.357	-0.002	0.006	648.248	-0.001	0
10/15/02	648.529	0.002	0.005	649.122	0.000	0.005	648.357	0	0.006	648.250	0.002	0.002
1/24/03	648.525	-0.004	0.001	649.118	-0.004	0.001	648.354	-0.003	0.003	648.249	-0.001	0.001
7/25/03	648.531	0.006	0.007	649.125	0.007	0.008	648.361	0.007	0.010	648.255	0.006	0.007
8/5/05	648.527	-0.004	0.003	649.122	-0.003	0.005	648.356	-0.005	0.005	648.252	-0.003	0.004
8/23/06	648.524	-0.003	0	FOAMED OVER			648.353	-0.003	0.002	648.249	-0.003	0.001
9/17/08	648.525	0.001	0.001	FOAMED OVER			648.354	0.001	0.003	648.251	0.002	0.003
9/15/10	648.524	-0.001	0.000	FOAMED OVER			648.354	0	0.003	648.250	-0.001	0.002
2/6/13	648.521	-0.003	-0.003	649.116	-0.006	-0.001	648.352	-0.002	0.001	648.250	0	0.002

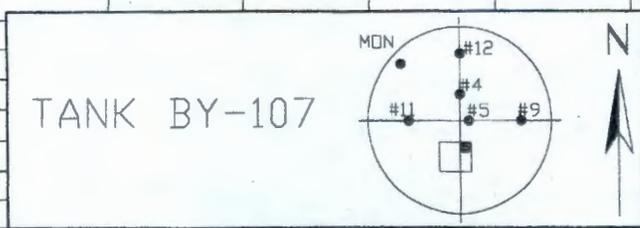
Tank 241-BY-106 Dome Benchmark Elevation Change





DATE	NE COR CENTER PIT			RISER #9			RISER #11			RISER #12		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
8/31/83	650.330	0	0	647.970	0	0	647.936	0	0	647.706	0	0
9/2/83	650.327	-0.003	-0.003	647.972	0.002	0.002	647.937	0.001	0.001	647.707	0.001	0.001
9/4/85		BLOCKED		647.971	-0.001	0.001	---	---	---	647.685	-0.022	-0.021
9/25/85				Resurvey on Riser # 12						647.710	0.003	0.004
9/17/87		Foamed Over		647.977	0.006	0.007	647.940	0.003	0.004	647.717	0.007	0.011
1/18/89		Foamed Over		647.976	-0.001	0.006	647.943	0.003	0.007	647.715	-0.002	0.009
8/4/89		Foamed Over		647.974	-0.002	0.004	647.940	-0.003	0.004	647.712	-0.003	0.006
5/18/90		Foamed Over		647.967	-0.007	-0.003	647.933	-0.007	-0.003	647.707	-0.005	0.001
5/17/91		Foamed Over		647.968	0.001	-0.002	647.934	0.001	-0.002	647.707	0	0.001
6/27/91				Not Requested this Survey								
4/25/92		Foamed Over		647.969	0.001	-0.001	647.935	0.001	-0.001	647.708	0.001	0.002
3/20/93		Foamed Over		647.971	0.002	0.001	647.938	0.003	0.002	647.708	0	0.002
2/28/94		Foamed Over		647.974	0.003	0.004	647.938	0	0.002	647.708	0	0.002
4/26/95		Foamed Over		647.970	-0.004	0	647.938	0	0.002	647.711	0.003	0.005
5/31/96		Foamed Over		647.976	0.006	0.006	647.943	0.005	0.007	647.715	0.004	0.009
5/8/97		Foamed Over		647.972	-0.004	0.002	Blocked or Destroyed			647.711	-0.004	0.005
4/28/98		Foamed Over		647.974	0.002	0.004	Destroyed			647.712	0.001	0.006
4/29/99		Foamed Over		647.971	-0.003	0.001				647.708	-0.004	0.002
5/23/00		Foamed Over		647.974	0.003	0.004				647.714	0.006	0.008
6/18/01		Foamed Over		647.974	0	0.004				647.715	0.001	0.009
7/17/02		Foamed Over		647.973	-0.001	0.003				647.713	-0.002	0.007
7/25/03		Foamed Over		647.978	0.005	0.008				647.716	0.003	0.010

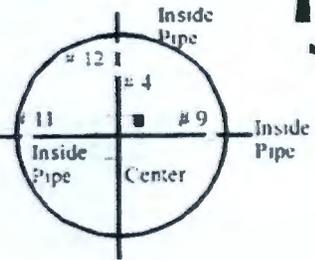
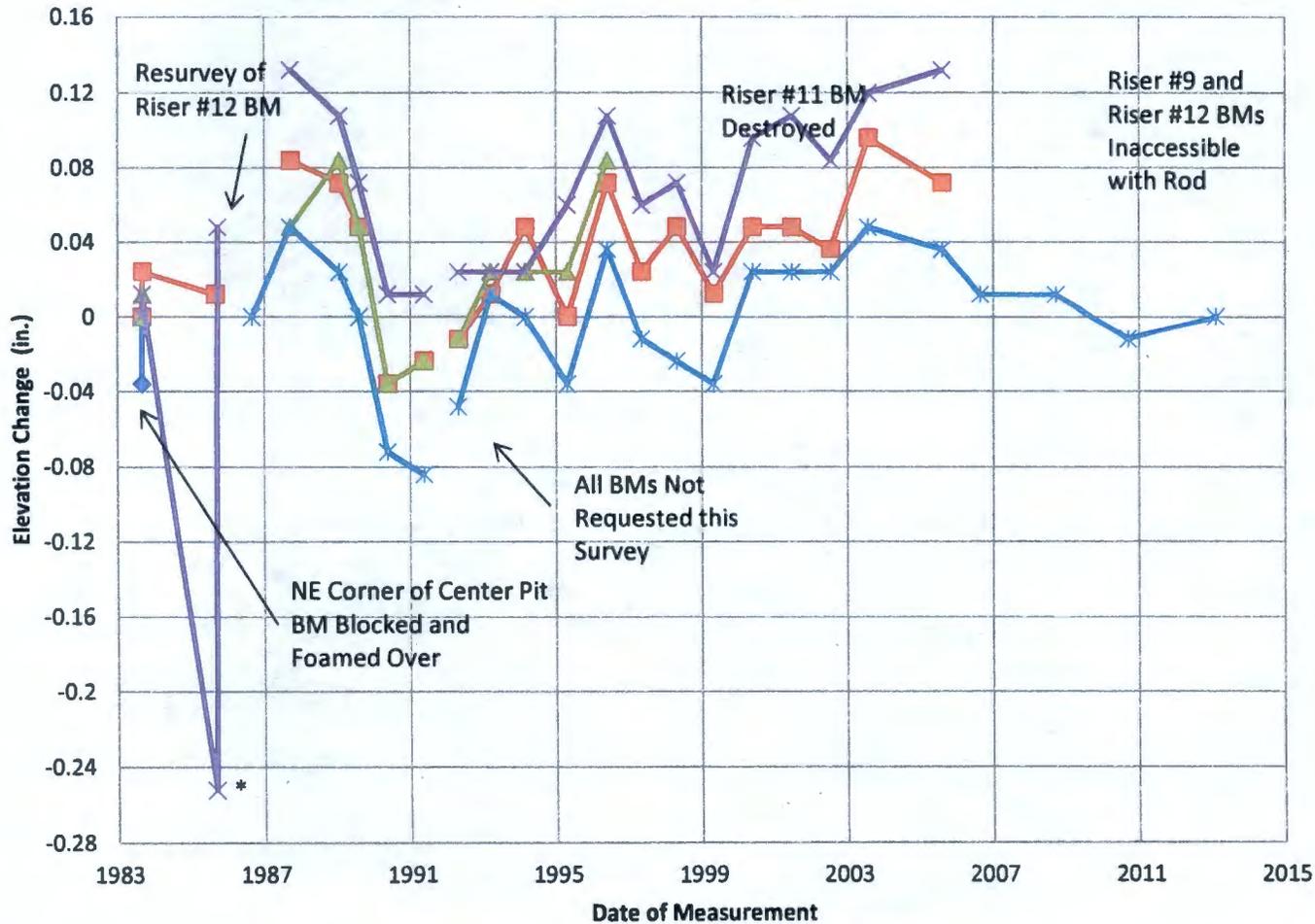
BY-23



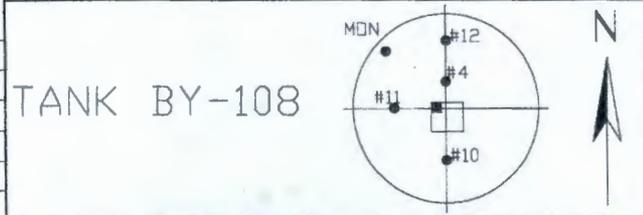
DATE	RISER #4			Current Elev.	Delta From	Total Delta Orig.	Current Elev.	Delta From	Total Delta Orig.	Current Elev.	Delta From	Total Delta Orig.
	Current Elev.	Delta From	Total Delta Orig.									
8/28/86	650.116	0	0									
9/17/87	650.120	0.004	0.004									
1/18/89	650.118	-0.002	0.002									
8/4/89	650.116	-0.002	0									
5/18/90	650.110	-0.006	-0.006									
5/17/91	650.109	-0.001	-0.007									
6/27/91	Not Requested this Survey											
4/25/92	650.112	0.003	-0.004									
3/20/93	650.117	0.005	0.001									
2/28/94	650.116	-0.001	0									
4/26/95	650.113	-0.003	-0.003									
5/31/96	650.119	0.006	0.003									
5/8/97	650.115	-0.004	-0.001									
4/28/98	650.114	-0.001	-0.002									
4/29/99	650.113	-0.001	-0.003									
5/23/00	650.118	0.005	0.002									
6/18/01	650.118	0	0.002									
7/17/02	650.118	0	0.002									
7/25/03	650.120	0.002	0.004									

BY-24

Tank 241-BY-107 Dome Benchmark Elevation Change



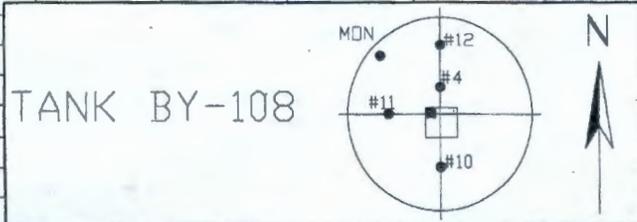
* Resurvey of Riser #12 was taken 21 days later



12-10-12 Revised Diagram

DATE	RISER CENTER			RISER #4			RISER #10			RISER #11		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
*8-31-83	649.635	0	0	648.850	0	0	649.354	0	0	646.998	0	0
*9-2-83	649.634	-0.001	-0.001	648.852	0.002	0.002	649.354	0	0	646.998	0	0
*5-30-84	649.633	-0.001	-0.002	648.848	-0.004	-0.002	649.351	-0.003	-0.003	646.993	-0.005	-0.005
*9-4-84	649.637	0.004	0.002	648.854	0.006	0.004	649.358	0.007	0.004	646.997	0.004	-0.001
9/17/87	649.639	0.002	0.004	648.855	0.001	0.005	649.360	0.002	0.006	647.003	0.006	0.005
1/18/89	649.633	-0.006	-0.002	648.850	-0.005	0	649.356	-0.004	0.002	646.999	-0.004	0.001
8/4/89	649.635	0.002	0.000	648.852	0.002	0.002	649.356	0	0.002	646.998	-0.001	0
5/18/90	649.629	-0.006	-0.006	648.847	-0.005	-0.003	649.351	-0.005	-0.003	646.993	-0.005	-0.005
5/17/91	649.628	-0.001	-0.007	648.846	-0.001	-0.004	649.351	0	-0.003	646.994	0.001	-0.004
6/27/91				Not Requested This Survey								
4/25/92	649.630	0.002	-0.005	648.848	0.002	-0.002	649.354	0.003	0	646.997	0.003	-0.001
3/20/93	649.628	-0.002	-0.007	648.848	0	-0.002	649.356	0.002	0.002	646.995	-0.002	-0.003
2/28/94	649.634	0.006	-0.001	648.850	0.002	0	649.356	0	0.002	647.000	0.005	0.002
4/26/95	649.632	-0.002	-0.003	648.849	-0.001	-0.001	649.354	-0.002	0	646.999	-0.001	-0.001
5/31/96	649.637	0.005	0.002	648.853	0.004	0.003	649.359	0.005	0.005	647.003	0.004	0.005
5/8/97	649.632	-0.005	-0.003	648.849	-0.004	-0.001	649.356	-0.003	0.002	646.998	-0.005	0
4/28/98	649.634	0.002	-0.001	648.851	0.002	0.001	649.355	-0.001	0.001	646.999	0.001	0.001
4/29/99	649.630	-0.004	-0.005	648.851	0	0.001	649.353	-0.002	-0.001	646.998	-0.001	0
5/23/00	649.636	0.006	0.001	648.854	0.003	0.004	649.358	0.005	0.004	647.002	0.004	0.004
6/18/01	649.635	-0.001	0	648.850	-0.004	0	649.356	-0.002	0.002	646.997	-0.005	-0.001
7/17/02	649.635	0	0	648.852	0.002	0.002	649.355	-0.001	0.001	646.998	0.001	0
7/25/03	649.639	0.004	0.004	648.855	0.003	0.005	649.360	0.005	0.006	647.001	0.003	0.003
8/5/05	649.637	-0.002	0.002	648.853	-0.002	0.003	649.358	-0.002	0.004	Inside Pipe-Did Not Measure		
8/23/06	649.634	-0.003	-0.001	648.849	-0.004	-0.001	649.354	-0.004	0	Inside Pipe-Did Not Measure		

BY-28

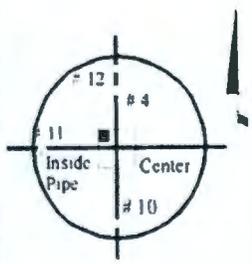
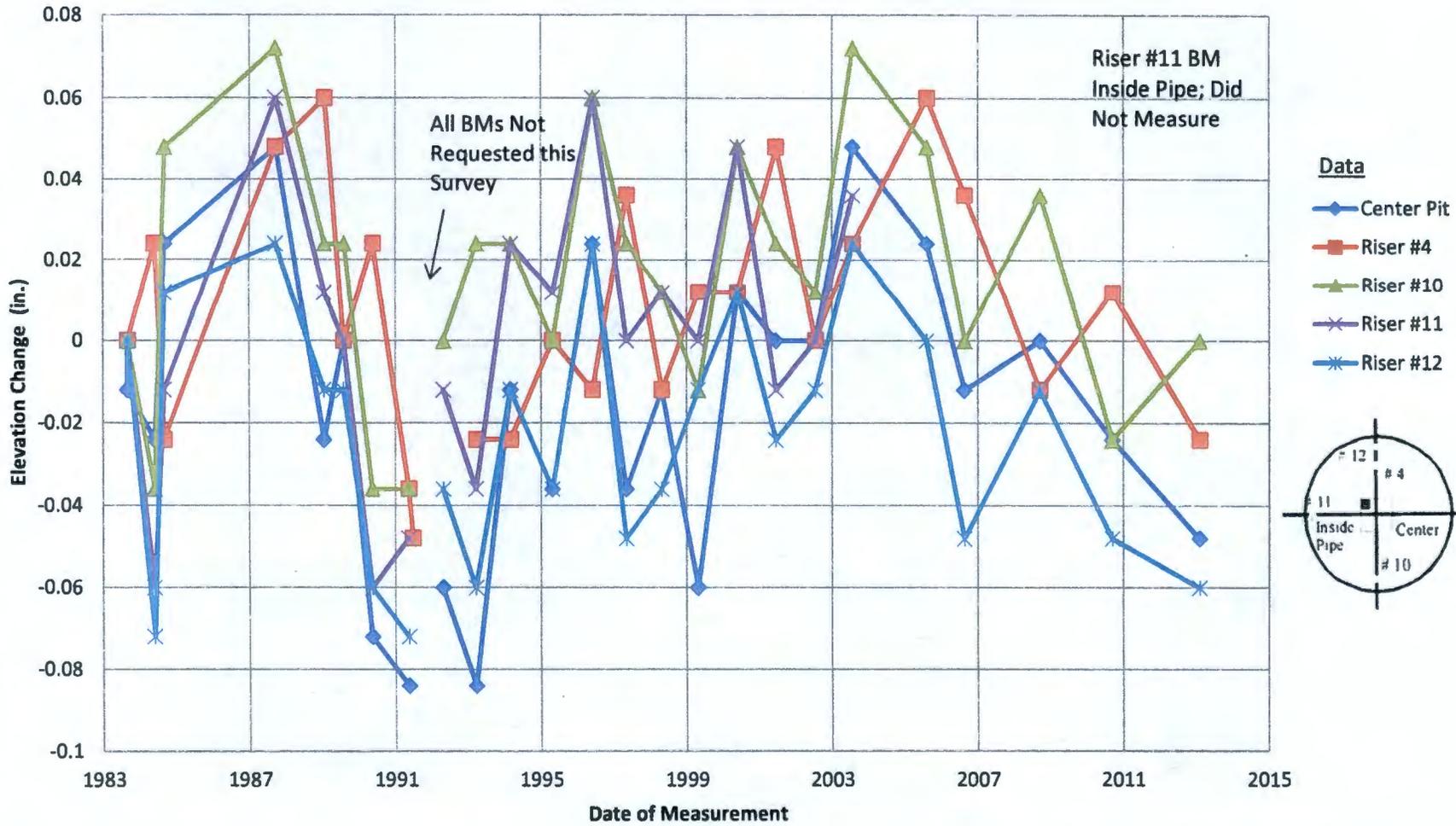


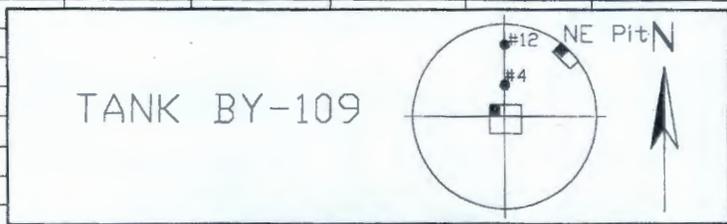
DATE	Current Elev.	RISER #12		Current Elev.	RISER		
		Delta From Prev. Elev.	Total Delta Orig. Elev.		Delta From Prev. Elev.	Total Delta Orig. Elev.	
8/31/83	648.935	0	0				
9/2/83	648.935	0	0				
5/30/84	648.929	-0.006	-0.006				
9/4/84	648.936	0.007	0.001				
9/17/87	648.937	0.001	0.002				
1/18/89	648.934	-0.003	-0.001				
8/4/89	648.934	0	-0.001				
5/18/90	648.930	-0.004	-0.005				
5/17/91	648.929	-0.001	-0.006				
6/27/91	Not Requested This Survey						
4/25/92	648.932	0.003	-0.003				
3/20/93	648.930	-0.002	-0.005				
2/28/94	648.934	0.004	-0.001				
4/26/95	648.932	-0.002	-0.003				
5/31/96	648.937	0.005	0.002				
5/8/97	648.931	-0.006	-0.004				
4/28/98	648.932	0.001	-0.003				
4/29/99	648.934	0.002	-0.001				
5/23/00	648.936	0.002	0.001				
6/18/01	648.933	-0.003	-0.002				
7/17/02	648.934	0.001	-0.001				
7/25/03	648.937	0.003	0.002				
8/5/05	648.935	-0.002	0				
8/23/06	648.931	-0.004	-0.004				

BY-29

BY-32

Tank 241-BY-108 Dome Benchmark Elevation Change

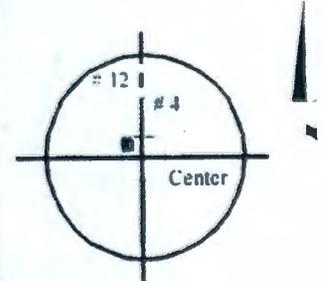
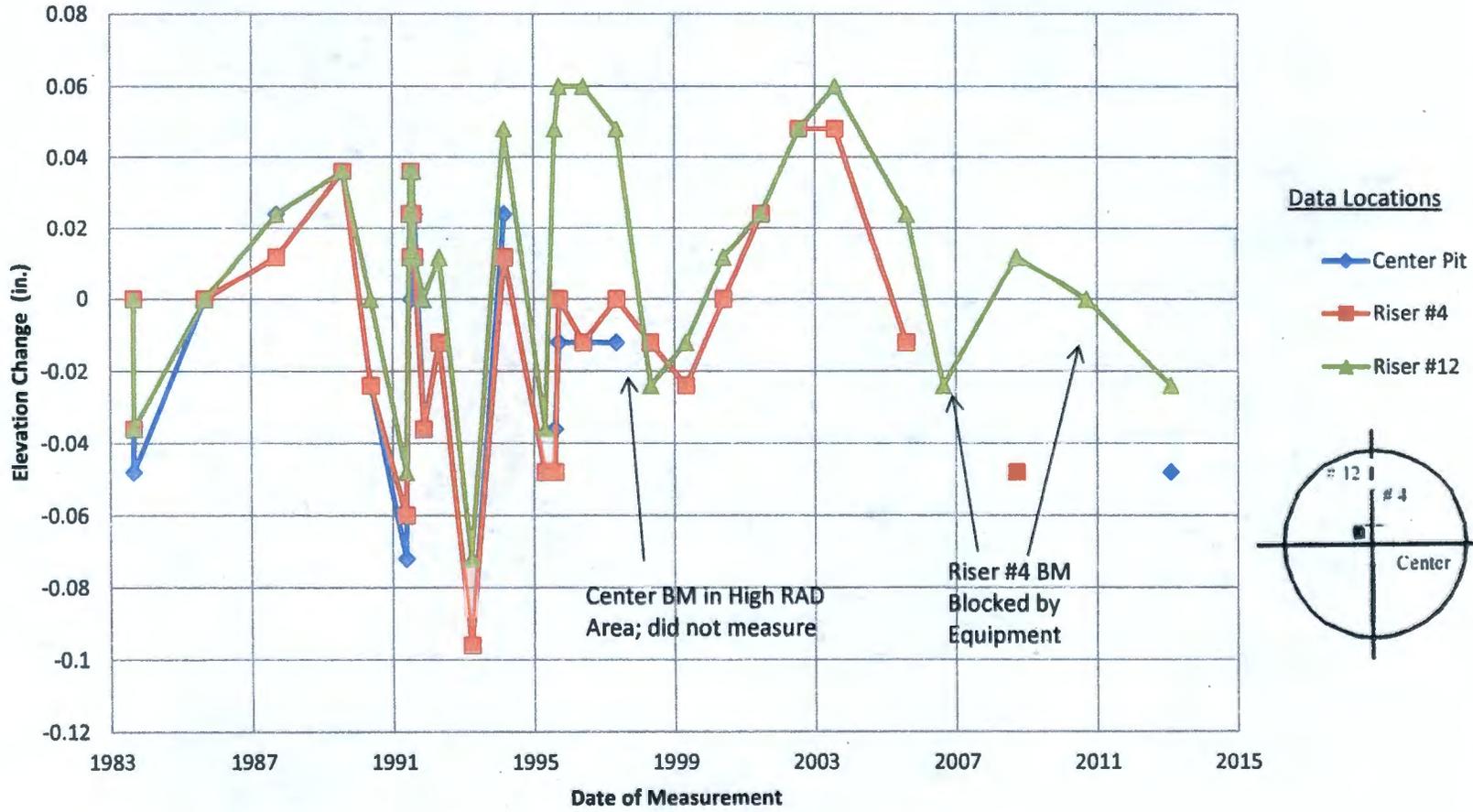


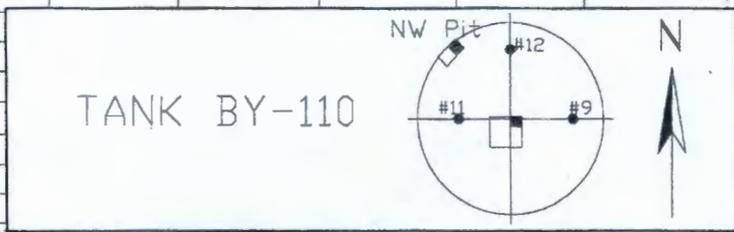


DATE	RISER CENTER PIT			RISER #4			RISER #12			RISER		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
8/31/83	647.411	0	0	647.835	0	0	648.048	-0-	0			
9/2/83	647.407	-0.004	-0.004	647.832	-0.003	-0.003	648.045	-0.003	-0.003			
9/6/85	647.411	0.004	0	647.835	0.003	0	648.048	0.003	0			
9/17/87	647.413	0.002	0.002	647.836	0.001	0.001	648.050	0.002	0.002			
8/4/89	647.414	0.001	0.003	647.838	0.002	0.003	648.051	0.001	0.003			
5/18/90	647.409	-0.005	-0.002	647.833	-0.005	-0.002	648.048	-0.003	0			
5/17/91	647.405	-0.004	-0.006	647.830	-0.003	-0.005	648.044	-0.004	-0.004			
6/27/91	647.413	0.008	0.002	647.837	0.007	0.002	648.051	0.007	0.003			
7/6/91	647.412	-0.001	0.001	647.836	-0.001	0.001	648.050	-0.001	0.002			
7/10/91	647.411	-0.001	0	647.838	0.002	0.003	648.049	-0.001	0.001			
7/30/91	647.412	0.001	0.001	647.837	-0.001	0.002	648.051	0.002	0.003			
8/13/91	647.413	0.001	0.002	647.836	-0.001	0.001	648.049	-0.002	0.001			
11/11/91	647.408	-0.005	-0.003	647.832	-0.004	-0.003	648.048	-0.001	0			
4/25/92	647.410	0.002	-0.001	647.834	0.002	-0.001	648.049	0.001	0.001			
3/23/93	647.403	-0.007	-0.008	647.827	-0.007	-0.008	648.042	-0.007	-0.006			
2/28/94	647.413	0.010	0.002	647.836	0.009	0.001	648.052	0.010	0.004			
4/26/95	Blocked "High RAD Area"			647.831	-0.005	-0.004	648.045	-0.007	-0.003			
8/7/95	647.408	-0.005	-0.003	647.831	0	-0.004	648.052	0.007	0.004			
9/19/95	647.410	0.002	-0.001	647.835	0.004	0	648.053	0.001	0.005			
5/31/96	647.410	0	-0.001	647.834	-0.001	-0.001	648.053	0	0.005			
5/8/97	647.410	0	-0.001	647.835	0.001	0	648.052	-0.001	0.004			
4/28/98	High RAD Area - Did not measure			647.834	-0.001	-0.001	648.046	-0.006	-0.002			
4/29/99	High RAD Area - Did not measure			647.833	-0.001	-0.002	648.047	0.001	-0.001			
5/23/00	High RAD Area - Did not measure			647.835	0.002	0	648.049	0.002	0.001			

BY-33

Tank 241-BY-109 Dome Benchmark Elevation Change



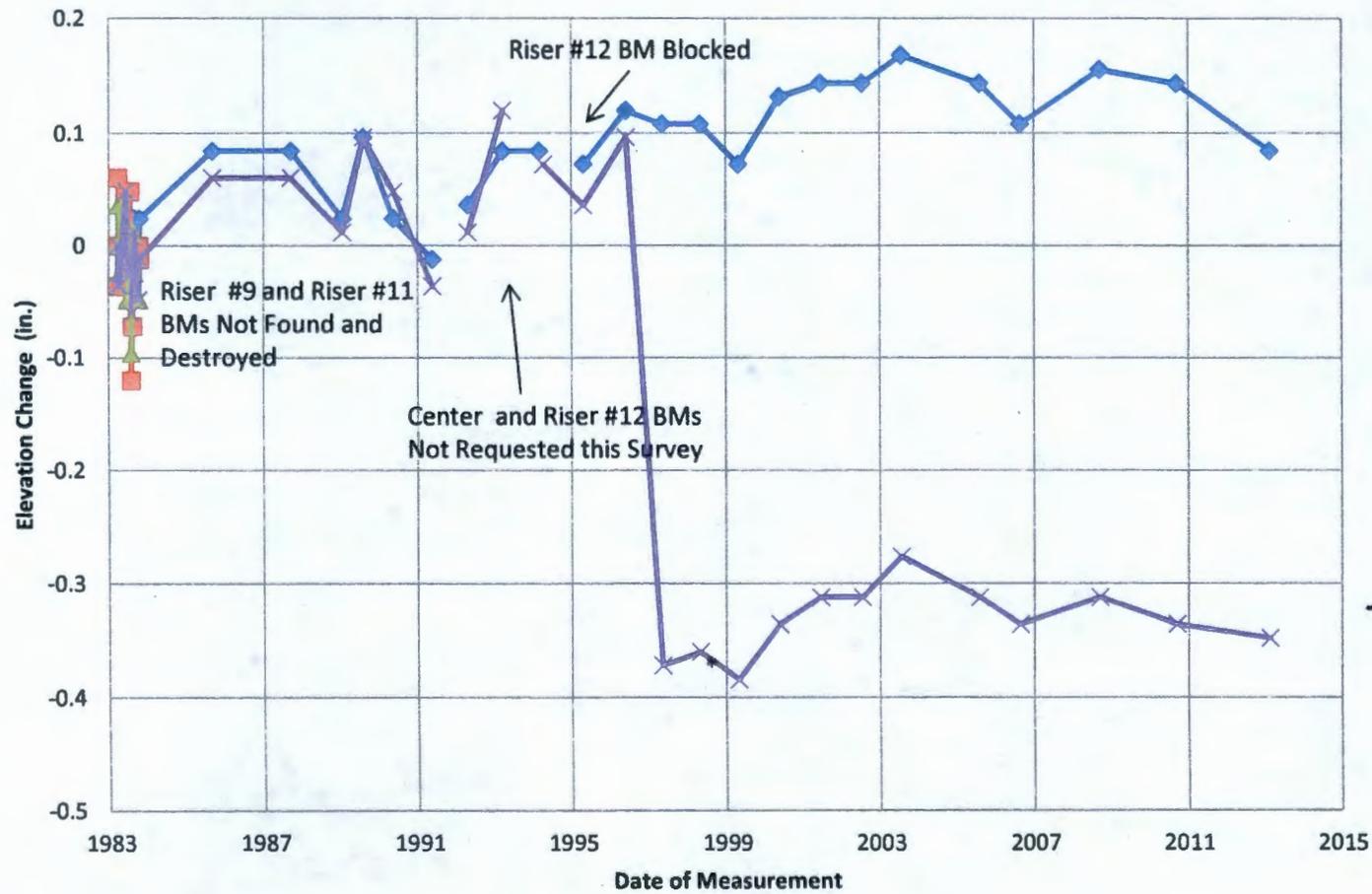


12-10-12 Revised Diagram

DATE	RISER CENTER			RISER (9)			RISER (11)			RISER 12		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
3/29/83	651.632	- 0 -	- 0 -	647.951	- 0 -	- 0 -	647.944	- 0 -	- 0 -	650.026	- 0 -	- 0 -
3/31/83	651.637	0.005	0.005	647.956	0.005	0.005	647.947	0.003	0.003	650.023	-0.003	-0.003
4/13/83	651.632	-0.005	- 0 -	647.948	-0.008	-0.003	647.942	-0.005	-0.002	650.023	- 0 -	-0.003
6/15/83	651.634	0.002	0.002	Operations Would Not Uncover # 9 & # 11						650.030	0.007	0.004
6/30/83	651.632	-0.002	- 0 -	647.949	0.001	-0.002	647.940	-0.002	-0.004	650.024	-0.006	-0.002
7/21/83	651.634	0.002	0.002	647.955	0.006	0.004	647.941	0.001	-0.003			
8/5/83	651.628	-0.006	-0.004	647.941	-0.014	-0.010	647.936	-0.005	-0.008	650.021	-0.003	-0.005
8/17/83	651.633	0.005	0.001	647.945	0.004	-0.006	647.945	-0.009	0.001	650.024	0.003	-0.002
9/2/83	651.634	0.001	0.002	647.951	0.006	- 0 -	647.942	-0.003	-0.002	650.027	0.003	0.001
10/13/83	651.632	-0.002	- 0 -	647.951	- 0 -	- 0 -	647.940	-0.002	-0.004	650.022	-0.005	-0.004
10/18/83	651.634	0.002	0.002	647.950	-0.001	-0.001	647.940	- 0 -	-0.004	650.025	0.003	-0.001
9/4/85	651.639	0.005	0.007		Not Found			Not Found		650.031	0.006	0.005
9/17/87	651.639	- 0 -	0.007		Destroyed			Destroyed		650.031	- 0 -	0.005
1/18/89	651.634	-0.005	0.002		Destroyed			Destroyed		650.027	-0.004	0.001
8/4/89	651.640	0.006	0.008		Destroyed			Destroyed		650.034	0.007	0.008
5/18/90	651.634	-0.006	0.002		Destroyed			Destroyed		650.030	-0.004	0.004
5/17/91	651.631	-0.003	-0.001		Destroyed			Destroyed		650.023	-0.007	-0.003
6/27/91				Not Requested This Survey								
4/25/92	651.635	0.004	0.003		Destroyed			Destroyed		650.027	0.004	0.001
3/20/93	651.639	0.004	0.007		Destroyed			Destroyed		650.036	0.009	0.010
2/28/94	651.639	- 0 -	0.007		Destroyed			Destroyed			BLOCKED	
4/13/94					Destroyed			Destroyed		650.032	-0.004	0.006
4/26/95	651.638	-0.001	0.006		Destroyed			Destroyed		650.029	-0.003	0.003

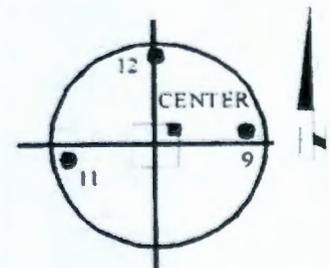
BY-36

Tank 241-BY-110 Dome Benchmark Elevation Change

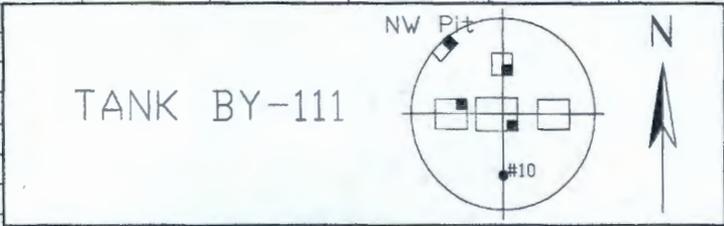


Data Locations

- Center Pit
- Riser #9
- Riser #11
- Riser #12



* Riser #12 was bumped from previous elevation

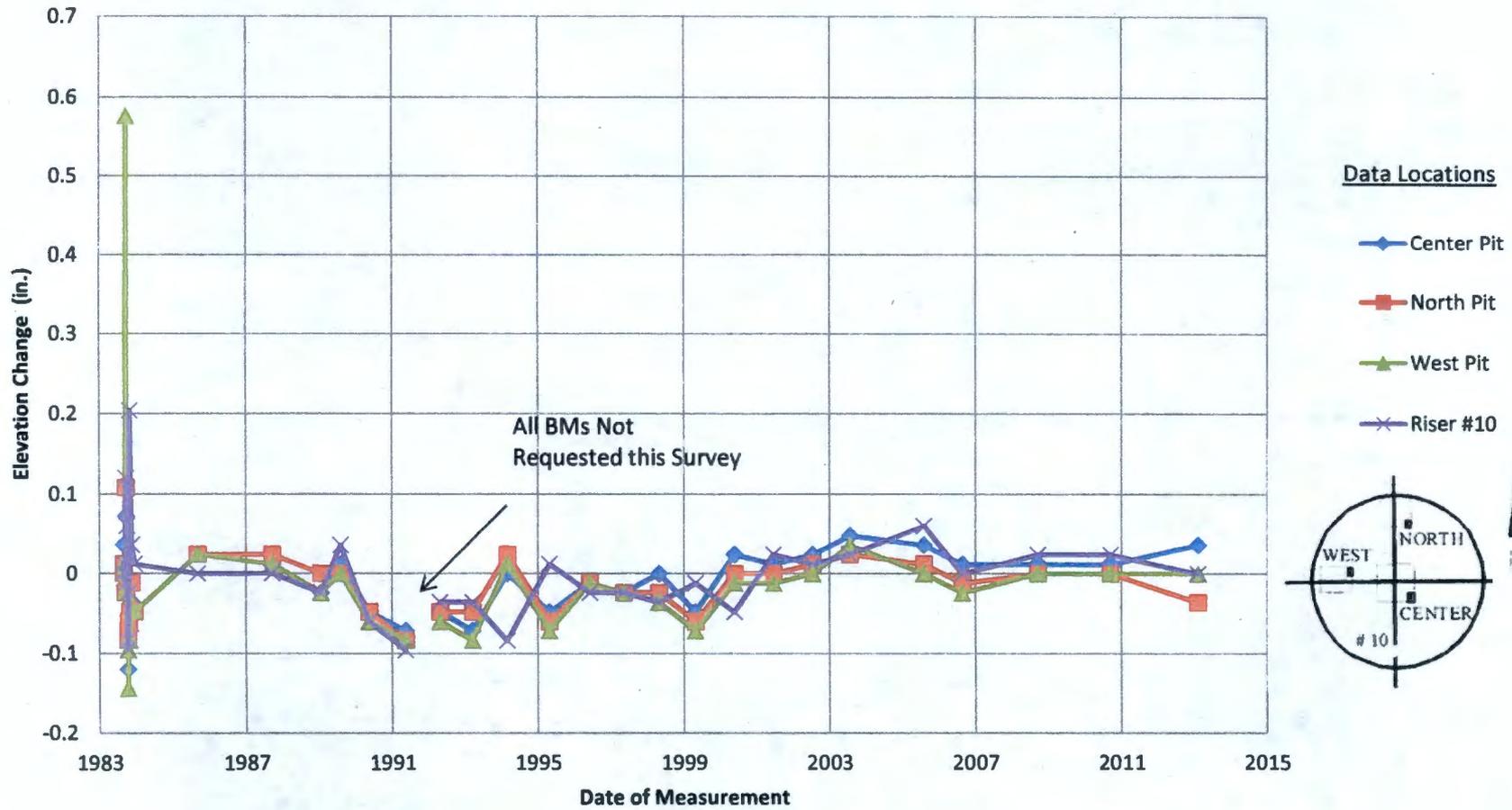


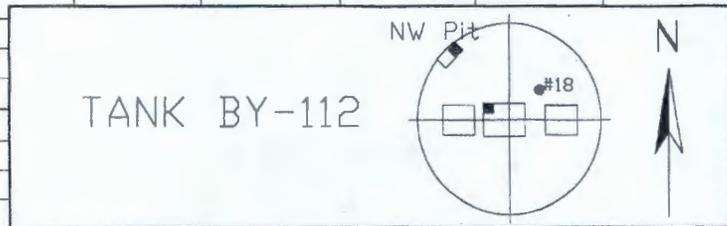
12-10-12 Revised Diagram

BY-40

DATE	CENTER PIT			NORTH PIT			WEST PIT			RISER #10		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
8/31/83	649.584	0	0	649.459	0	0	649.534	0	0	649.332	0	0
9/2/83	649.587	0.003	0.003	649.460	0.001	0.001	649.535	0.001	0.001	649.333	0.001	0.001
9/16/83	649.582	-0.005	-0.002	649.457	-0.003	-0.002	649.532	-0.003	-0.002	649.331	-0.002	-0.001
9/23/83	649.590	0.008	0.006	649.468	0.011	0.009	649.582	0.050	0.048	649.342	0.011	0.01
10/3/83	649.583	-0.007	-0.001	649.458	-0.010	-0.001	649.532	-0.050	-0.002	649.337	-0.005	0.005
10/12/83	649.577	-0.006	-0.007	649.453	-0.005	-0.006	649.526	-0.006	-0.008	649.325	-0.012	-0.007
10/13/83	649.574	-0.003	-0.010	649.452	-0.001	-0.007	649.522	-0.004	-0.012	649.324	-0.001	-0.008
10/18/83	649.578	0.004	-0.006	649.454	0.002	-0.005	649.527	0.005	-0.007	649.330	0.006	-0.002
10/31/83	649.578	0	-0.006	649.455	0.001	-0.004	649.527	0	-0.007	649.349	0.019	0.017
11/17/83	649.581	0.003	-0.003	649.458	0.003	-0.001	649.530	0.003	-0.004	649.335	-0.014	0.003
12/16/83	649.580	-0.001	-0.004	649.455	-0.003	-0.004	649.530	0	-0.004	649.333	-0.002	0.001
9/4/85	649.586	0.006	0.002	649.461	0.006	0.002	649.536	0.006	0.002	649.332	-0.001	0
9/17/87	649.585	-0.001	0.001	649.461	0	0.002	649.535	-0.001	0.001	649.332	0	0
1/18/89	649.582	-0.003	-0.002	649.459	-0.002	0	649.532	-0.003	-0.002	649.330	-0.002	-0.002
8/4/89	649.585	0.003	0.001	649.459	0	0	649.534	0.002	0	649.335	0.005	0.003
5/18/90	649.580	-0.005	-0.004	649.455	-0.004	-0.004	649.529	-0.005	-0.005	649.327	-0.008	-0.005
5/17/91	649.578	-0.002	-0.006	649.452	-0.003	-0.007	649.527	-0.002	-0.007	649.324	-0.003	-0.008
6/27/91					Not Requested This Survey							
4/25/92	649.58	0.002	-0.004	649.455	0.003	-0.004	649.529	0.002	-0.005	649.329	0.005	-0.003
3/20/93	649.578	-0.002	-0.006	649.455	0	-0.004	649.527	-0.002	-0.007	649.325	-0.004	-0.007
2/28/94	649.584	0.006	0	649.461	0.006	0.002	649.535	0.008	0.001	649.333	0.008	0.001
4/26/95	649.580	-0.004	-0.004	649.454	-0.007	-0.005	649.528	-0.007	-0.006	649.330	-0.003	-0.002
5/31/96	649.583	0.003	-0.001	649.458	0.004	-0.001	649.533	0.005	-0.001	649.330	0	-0.002

Tank 241-BY-111 Dome Benchmark Elevation Change

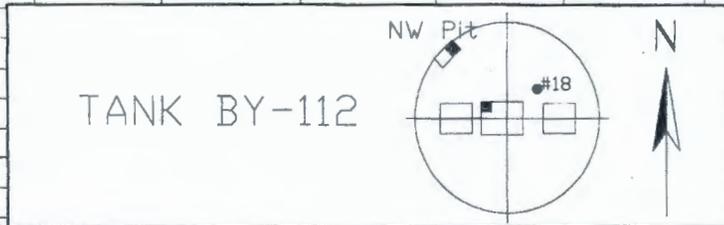




12-10-12 Revised Diagram

DATE	RISER CENTER			RISER #14			RISER #18			RISER		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
8/31/83	648.502	- 0 -	- 0 -	649.112	- 0 -	- 0 -	649.394	- 0 -	- 0 -			
9/2/83	648.501	-0.001	-0.001	649.113	0.001	0.001	649.395	0.001	0.001			
10/3/83	648.498	-0.003	-0.004	649.109	-0.004	-0.003	649.390	-0.005	-0.004			
10/12/83	648.492	-0.006	-0.010	649.109	- 0 -	-0.003	649.390	- 0 -	-0.004			
10/13/83	648.492	- 0 -	-0.010	649.107	-0.002	-0.005	649.391	0.001	-0.003			
10/18/83	648.496	0.004	-0.006	649.108	0.001	-0.004	649.388	-0.003	-0.006			
10/31/83	648.494	-0.002	-0.008	649.110	0.002	-0.002	649.390	0.002	-0.004			
11/17/83	648.497	0.003	-0.005	649.112	0.002	- 0 -	649.394	0.004	- 0 -			
5/30/84	648.494	-0.003	-0.008	649.107	-0.005	-0.005	649.391	-0.003	-0.003			
9/4/85	648.496	0.002	-0.006	FD Broken Off			649.394	0.003	- 0 -			
9/17/87	648.497	0.001	-0.005	Destroyed			649.394	- 0 -	- 0 -			
8/4/89	648.496	-0.001	-0.006	Destroyed			649.393	-0.001	-0.001			
5/18/90	648.492	-0.004	-0.010	Destroyed			649.388	-0.005	-0.006			
5/17/91	648.488	-0.004	-0.014	Destroyed			649.384	-0.004	-0.01			
6/27/91				Not Requested This Survey								
4/25/92	648.493	0.005	-0.009	Destroyed			649.389	0.005	-0.005			
3/20/93	648.489	-0.004	-0.013	Destroyed			649.387	-0.002	-0.007			
2/28/94	648.496	0.007	-0.006	Destroyed			649.394	0.007	- 0 -			
4/26/95	648.490	-0.006	-0.012	Destroyed			649.387	-0.007	-0.007			
5/31/96	648.494	0.004	-0.008	Destroyed			649.389	0.002	-0.005			
5/8/97	648.491	-0.003	-0.011	Destroyed			649.389	0	-0.005			
4/28/98	648.492	0.001	-0.010	Destroyed			649.388	-0.001	-0.006			
4/29/99	648.491	-0.001	-0.011	Destroyed			649.387	-0.001	-0.007			

BY-44

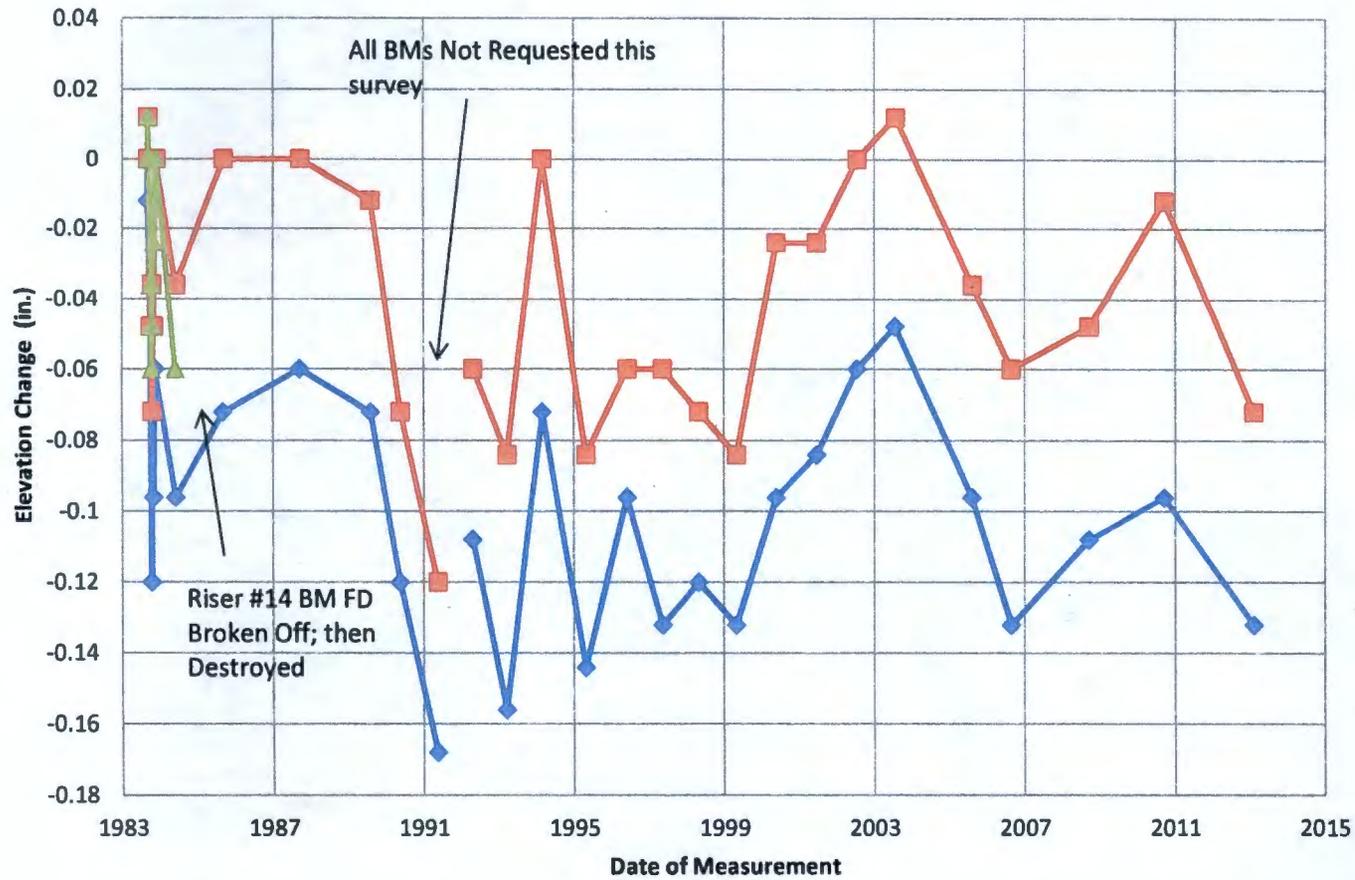


12-10-12 Revised Diagram

BY-45

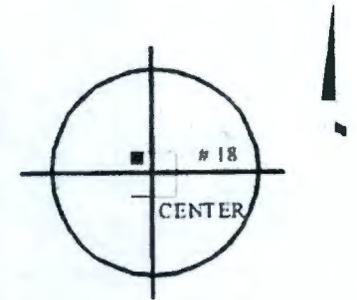
DATE	RISER CENTER			RISER #14			RISER #18			NW PIT N. CORNER		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
5/23/00	648.494	0.003	-0.008		Destroyed		649.392	0.005	-0.002			
6/18/01	648.495	0.001	-0.007		Destroyed		649.392	0	-0.002			
7/17/02	648.497	0.002	-0.005		Destroyed		649.394	0.002	0			
7/25/03	648.498	0.001	-0.004		Destroyed		649.395	0.001	0.001			
8/5/05	648.494	-0.004	-0.008		Destroyed		649.391	-0.004	-0.003			
8/23/06	648.491	-0.003	-0.011		Destroyed		649.389	-0.002	-0.005			
9/17/08	648.493	0.002	-0.009		Destroyed		649.390	0.001	-0.004			
9/15/10	648.494	0.001	-0.008		Destroyed		649.393	0.003	-0.001			
2/6/13	648.491	-0.003	-0.011		Destroyed		649.388	-0.005	-0.006	648.000	NEW	NEW

Tank 241-BY-112 Dome Benchmark Elevation Change



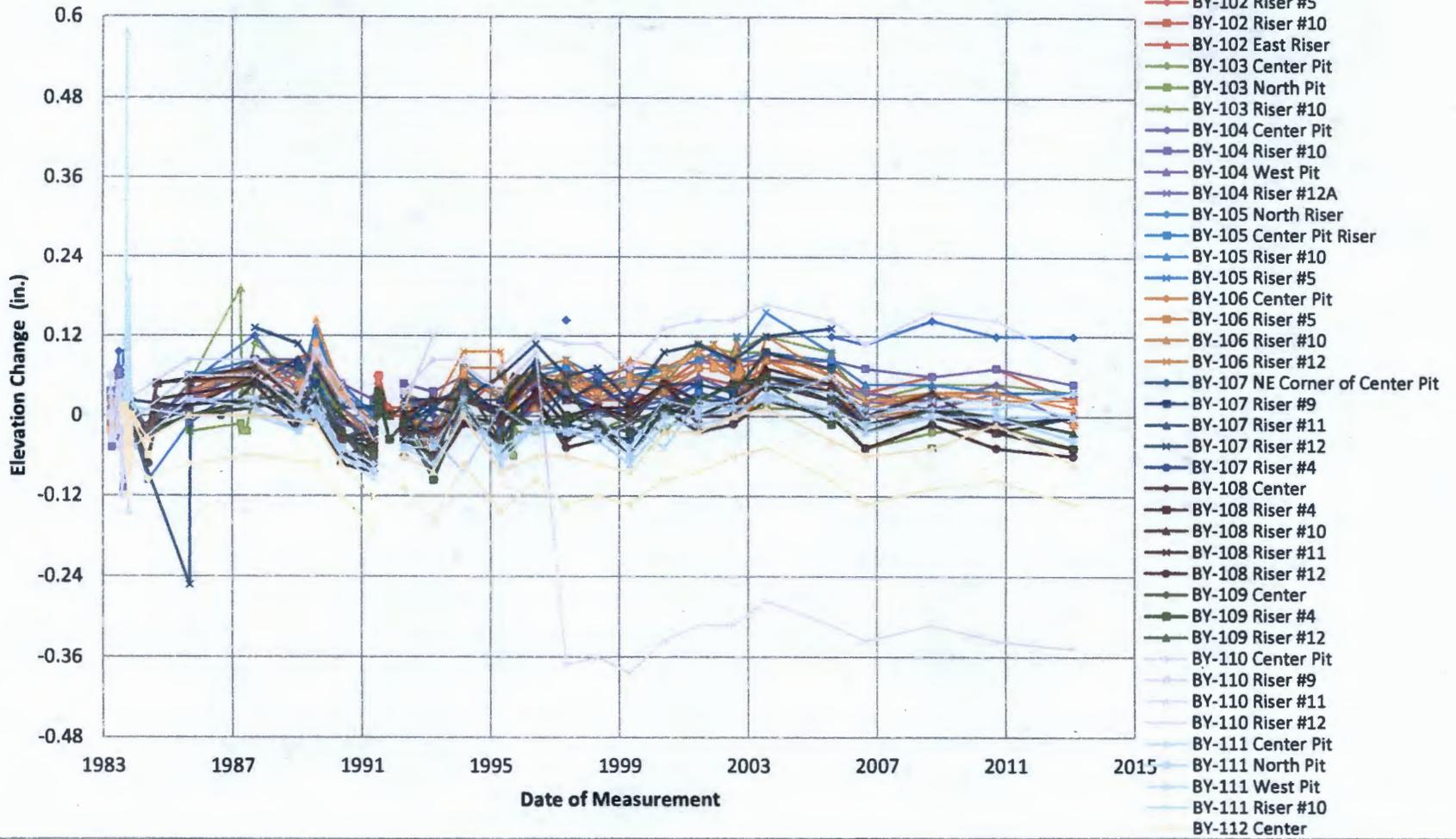
Data Locations

- Center Pit
- Riser #18
- Riser #14



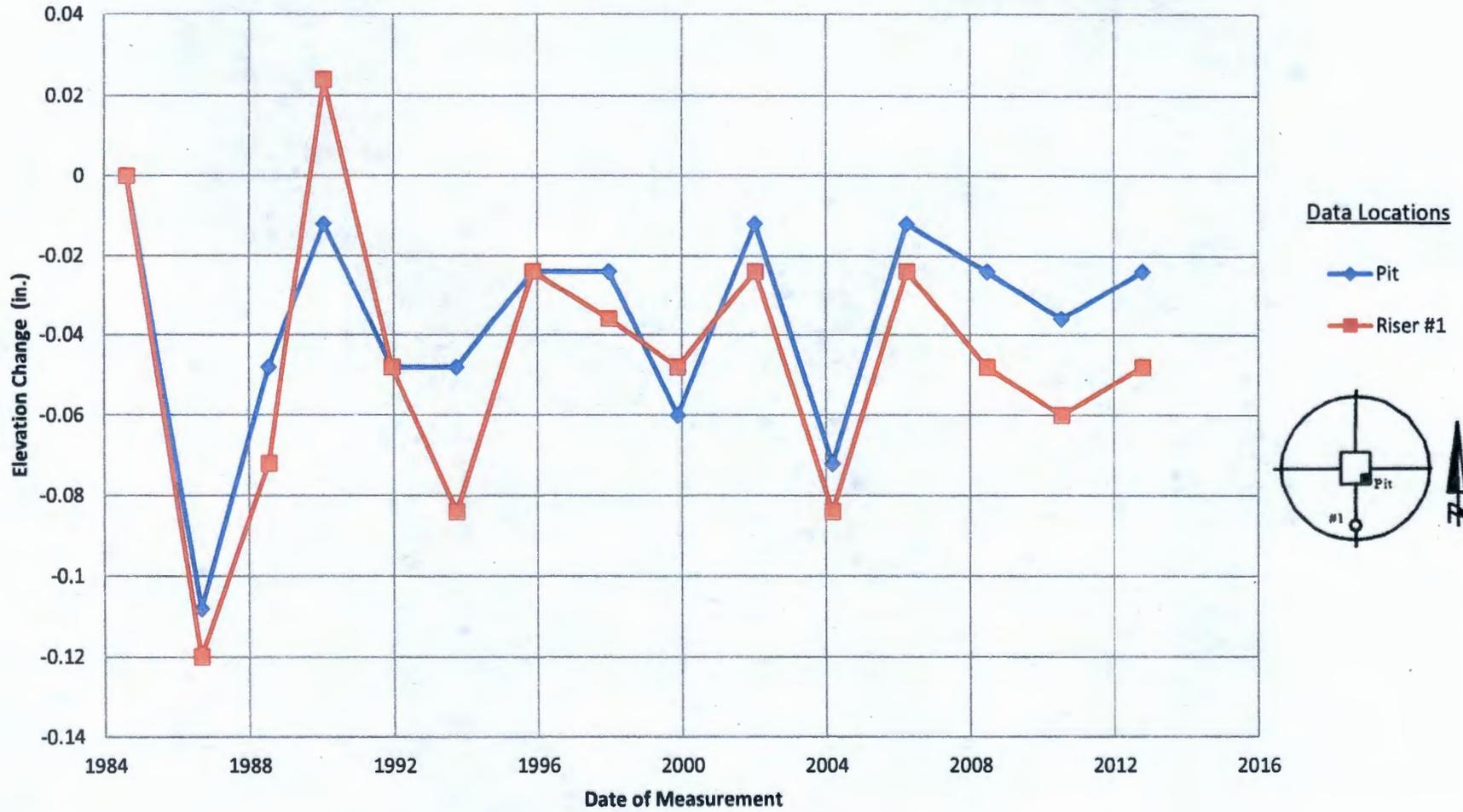
BY-47

BY Farm Dome Benchmark Elevation Change



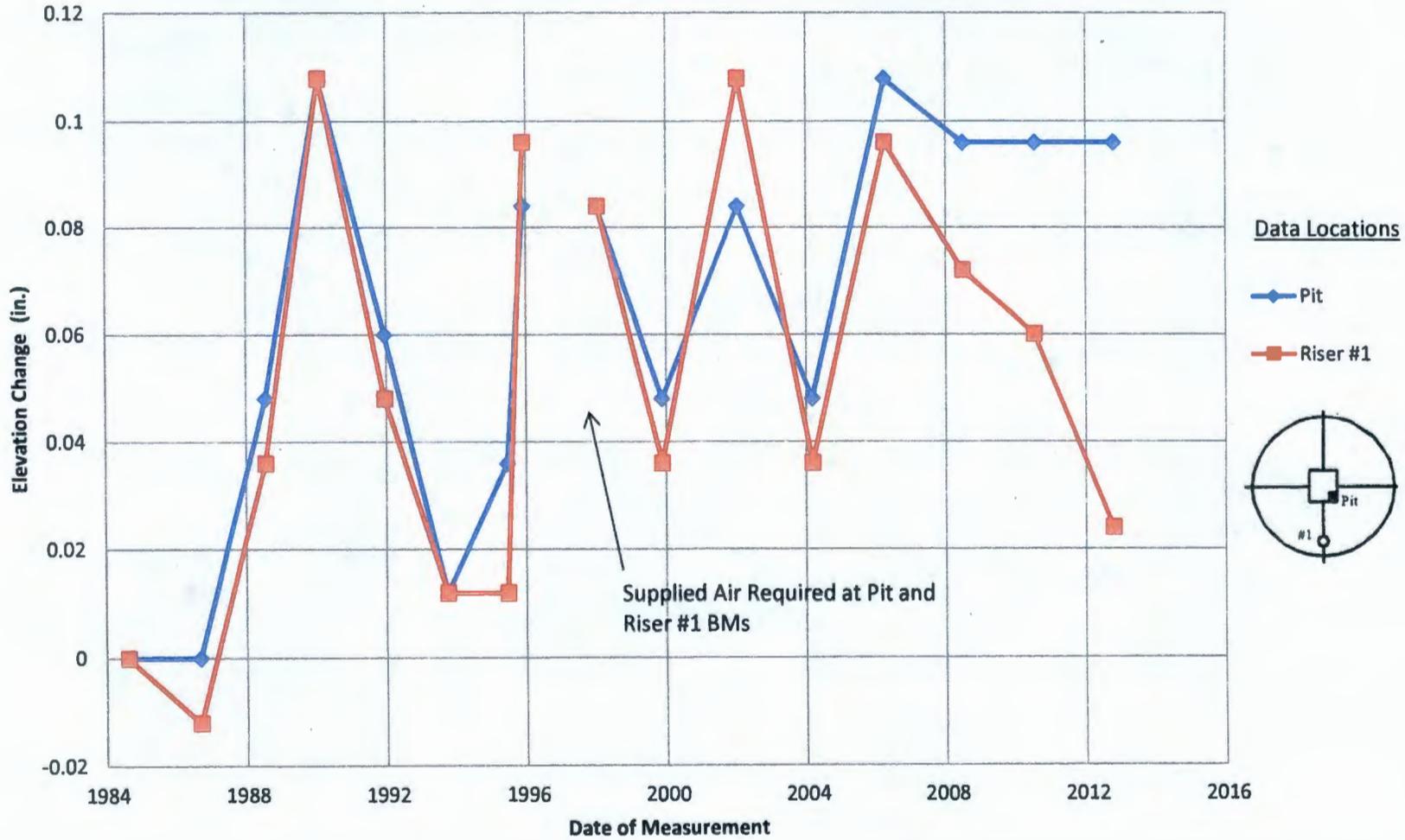
Appendix C – 241-C Farm Dome Survey Data and Plots

Tank 241-C-101 Dome Benchmark Elevation Change

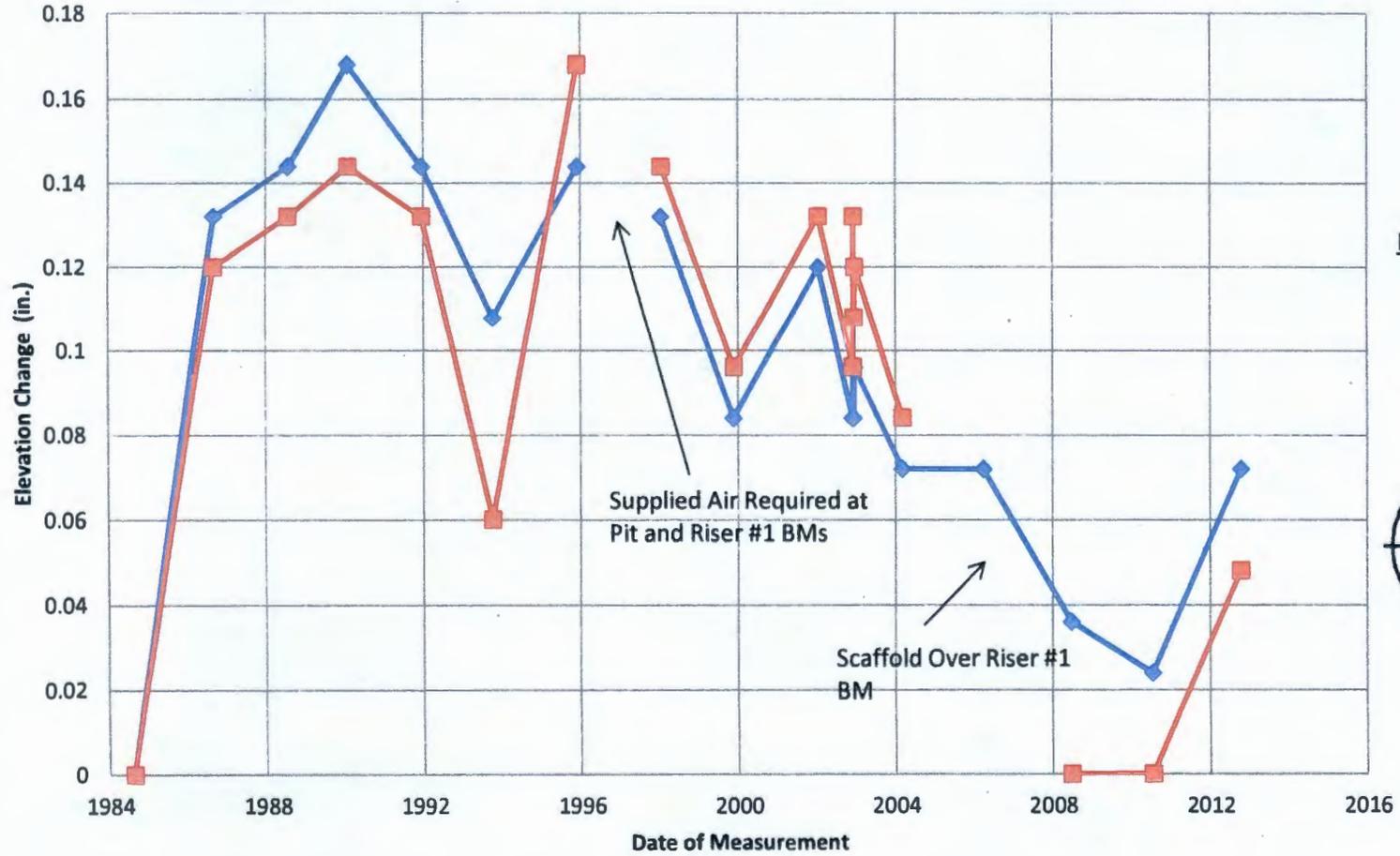


C-4

Tank 241-C-102 Dome Benchmark Elevation Change

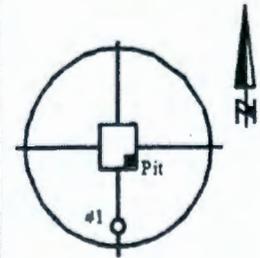


Tank 241-C-103 Dome Benchmark Elevation Change

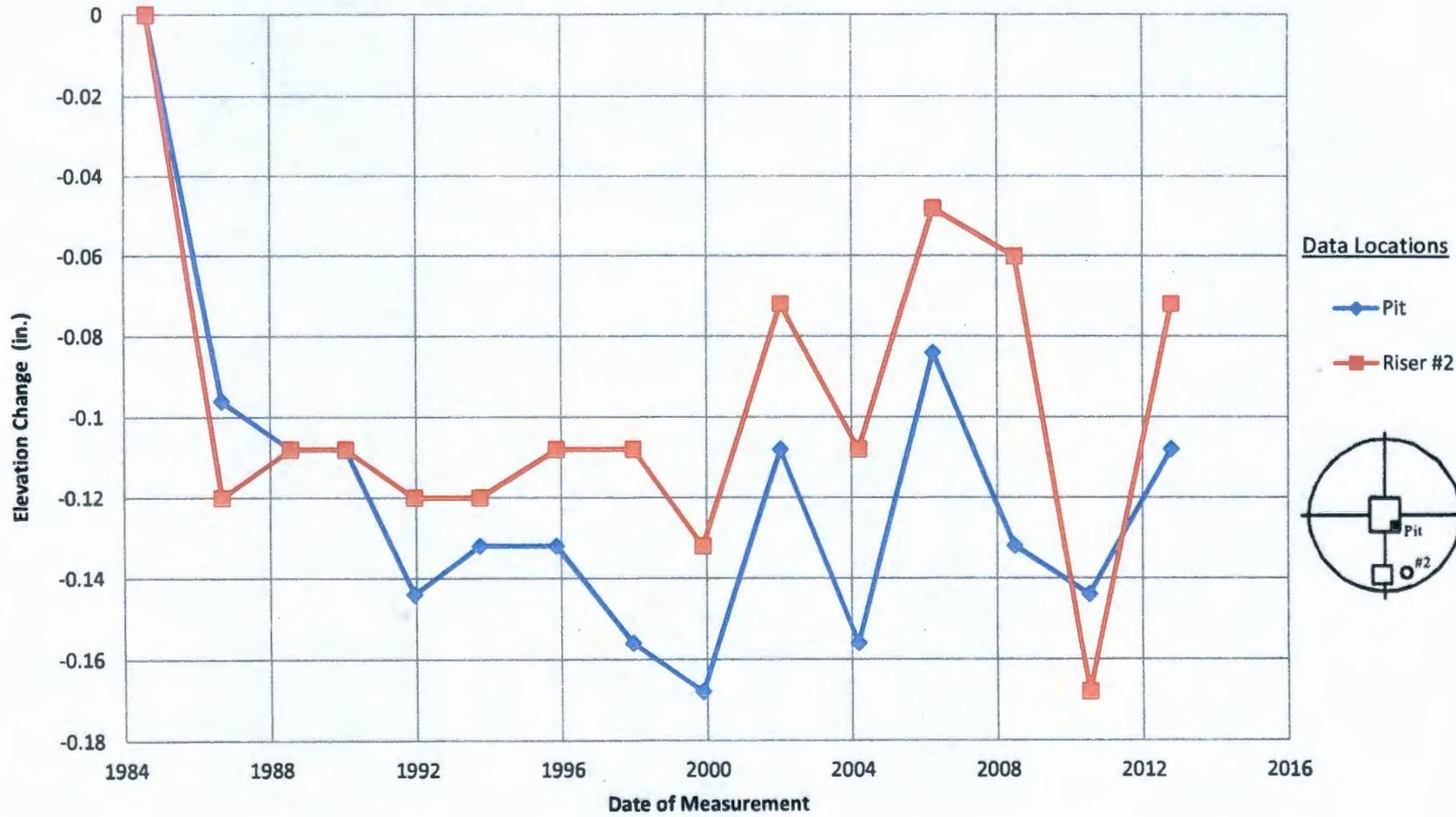


Data Locations

- ◆ Pit
- Riser #1

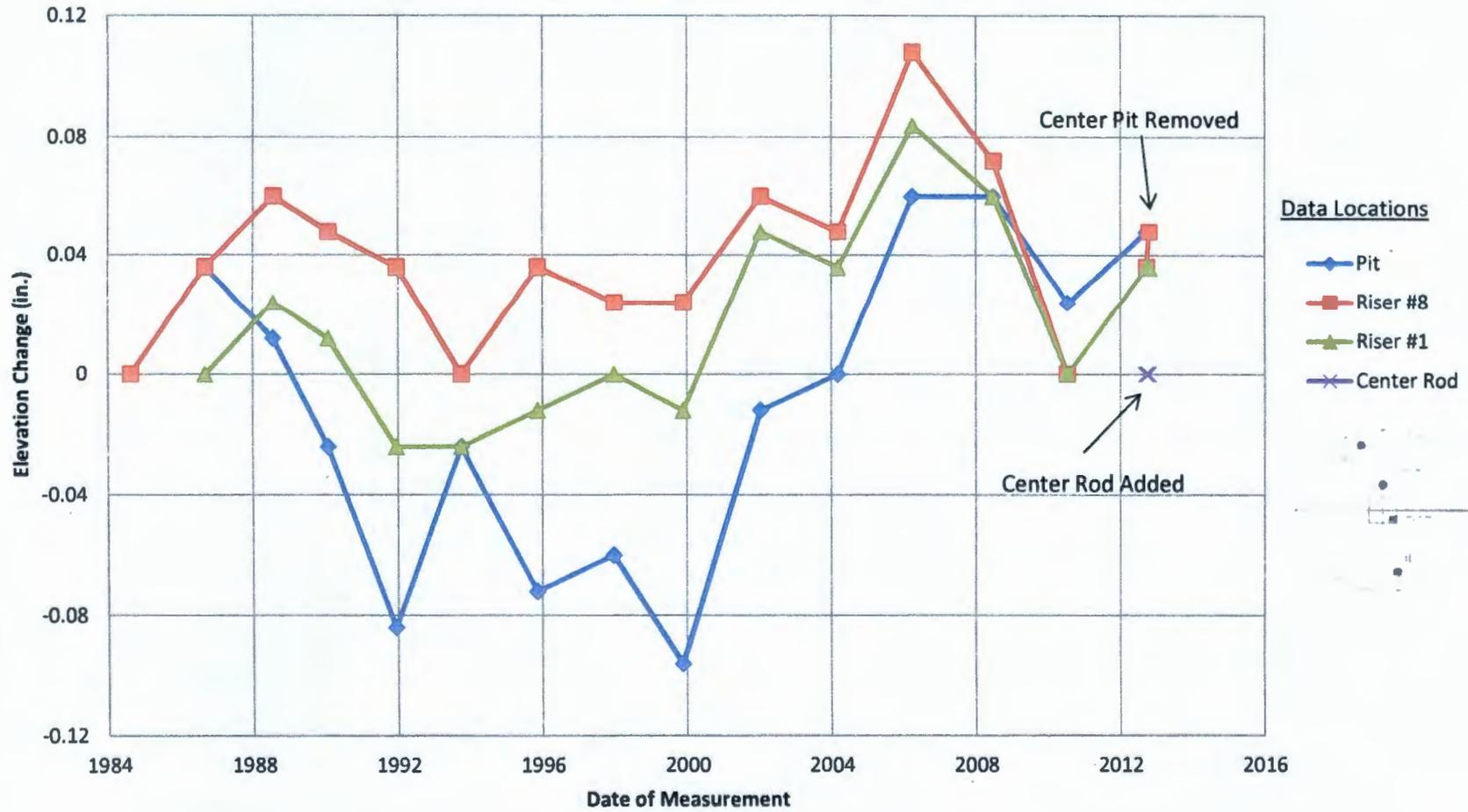


Tank 241-C-104 Dome Benchmark Elevation Change



C-10

Tank 241-C-105 Dome Benchmark Elevation Change

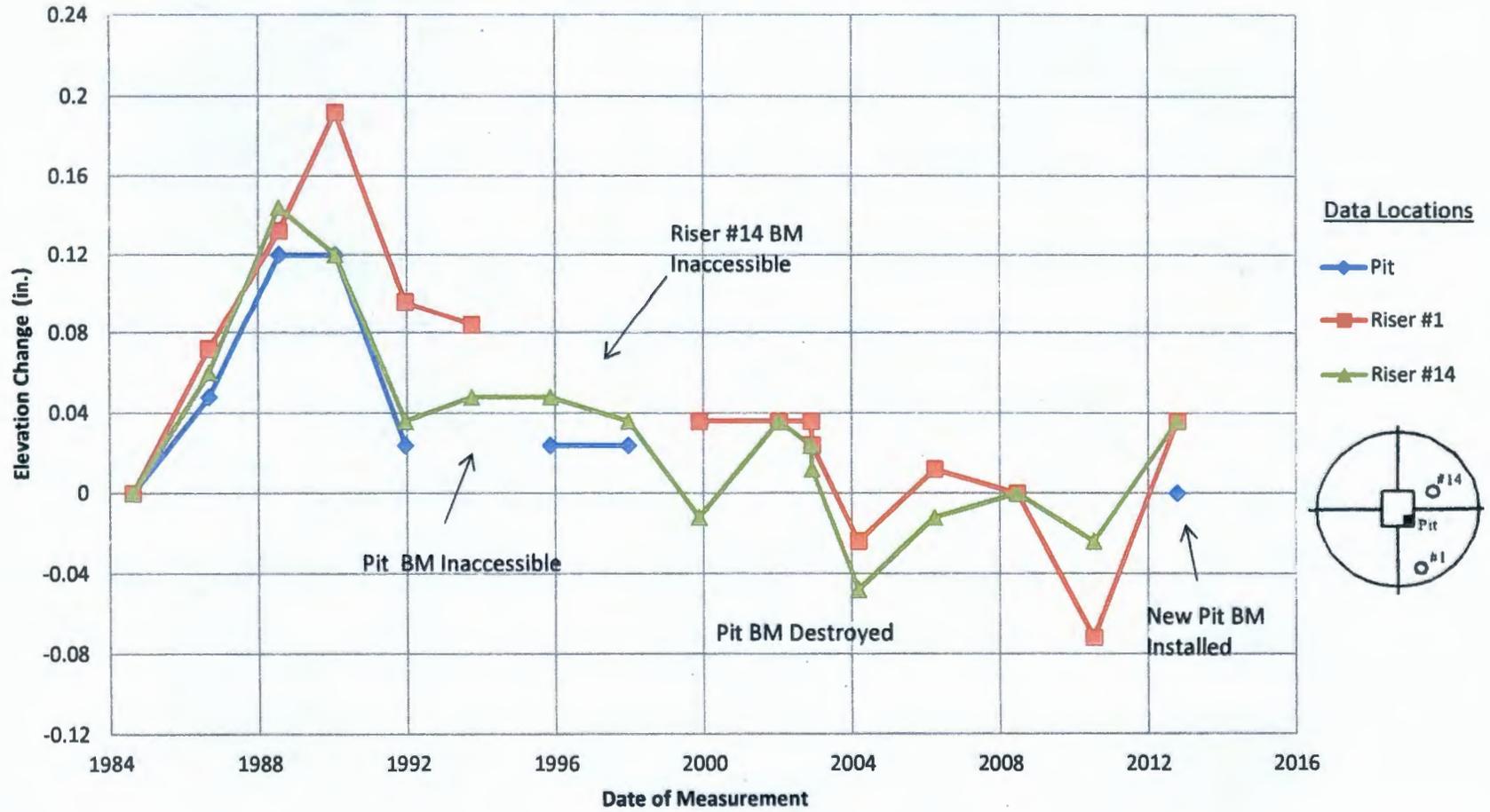


Data Locations

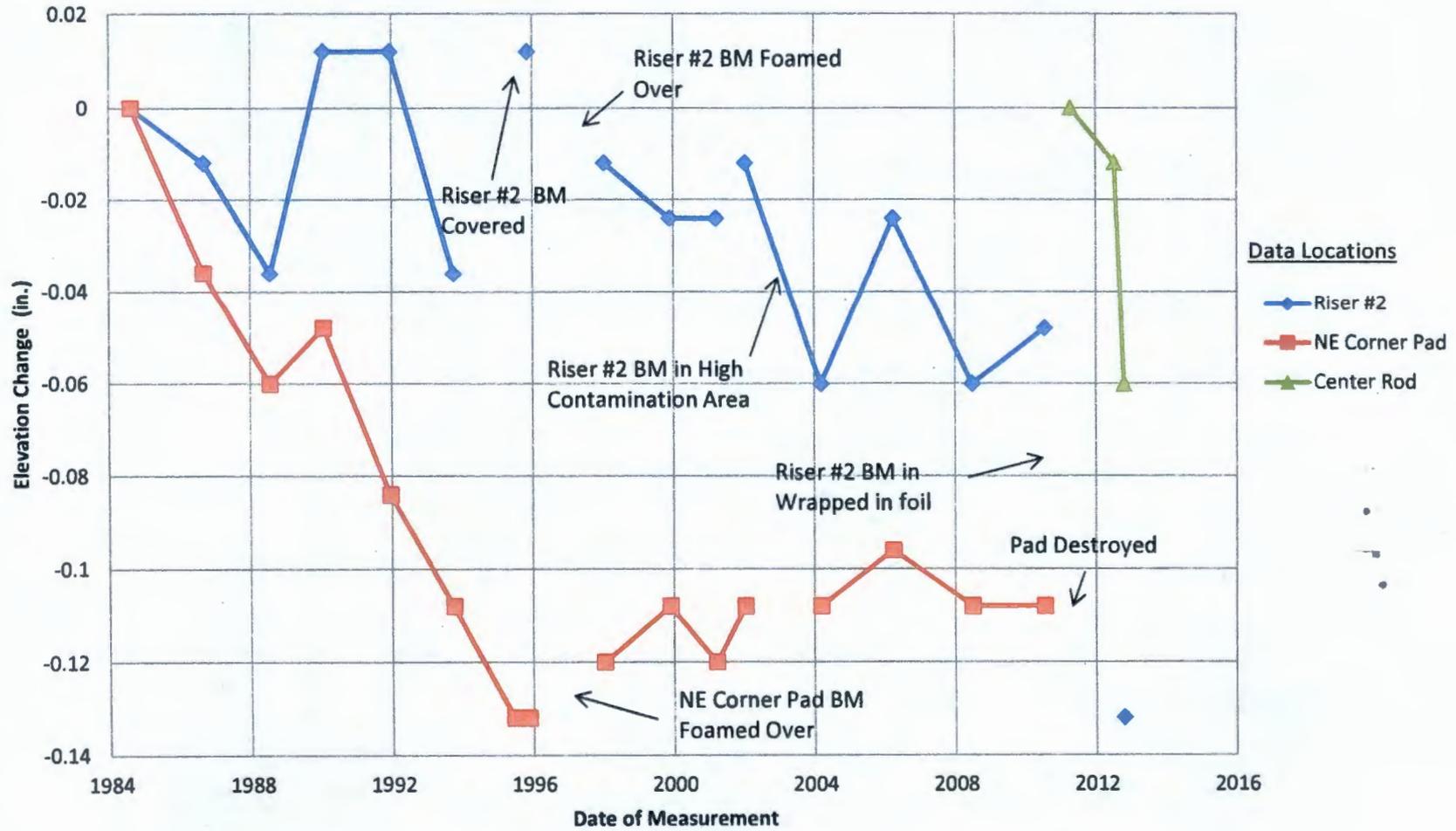
- Pit
- Riser #8
- Riser #1
- Center Rod



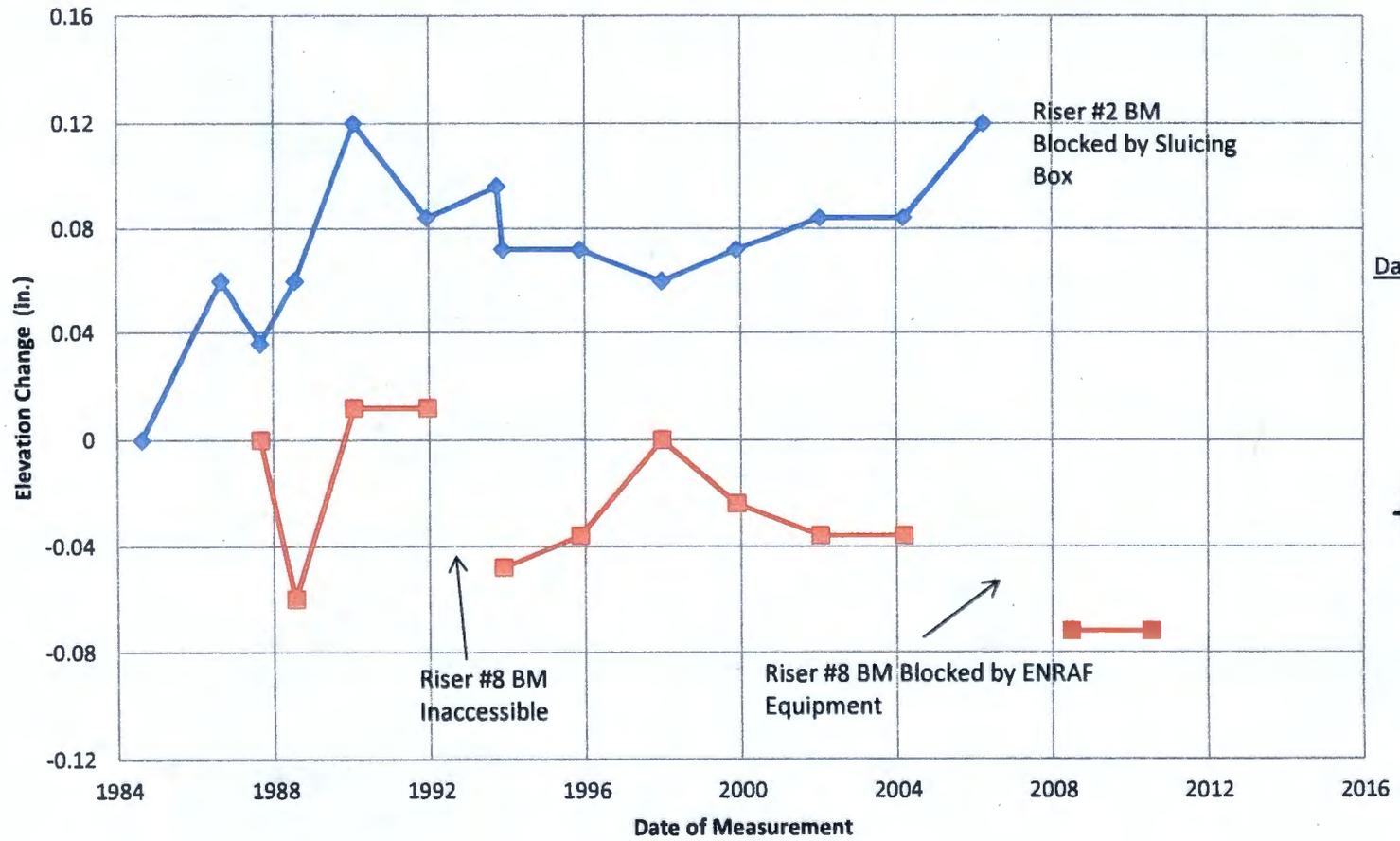
Tank 241-C-106 Dome Benchmark Elevation Change



Tank 241-C-107 Dome Benchmark Elevation Change

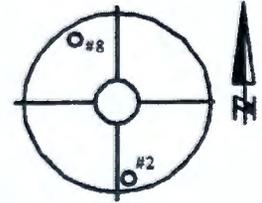


Tank 241-C-108 Dome Benchmark Elevation Change

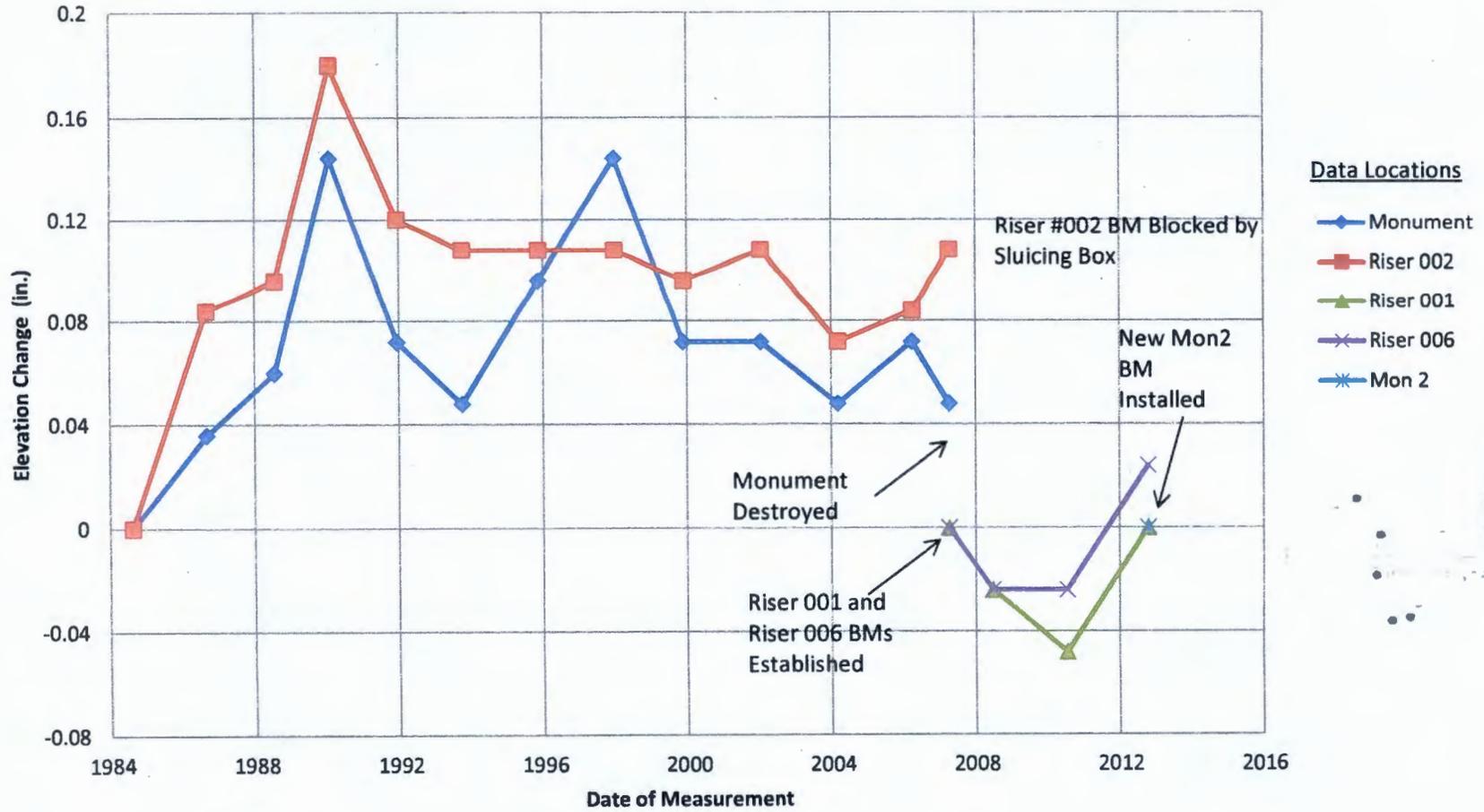


Data Locations

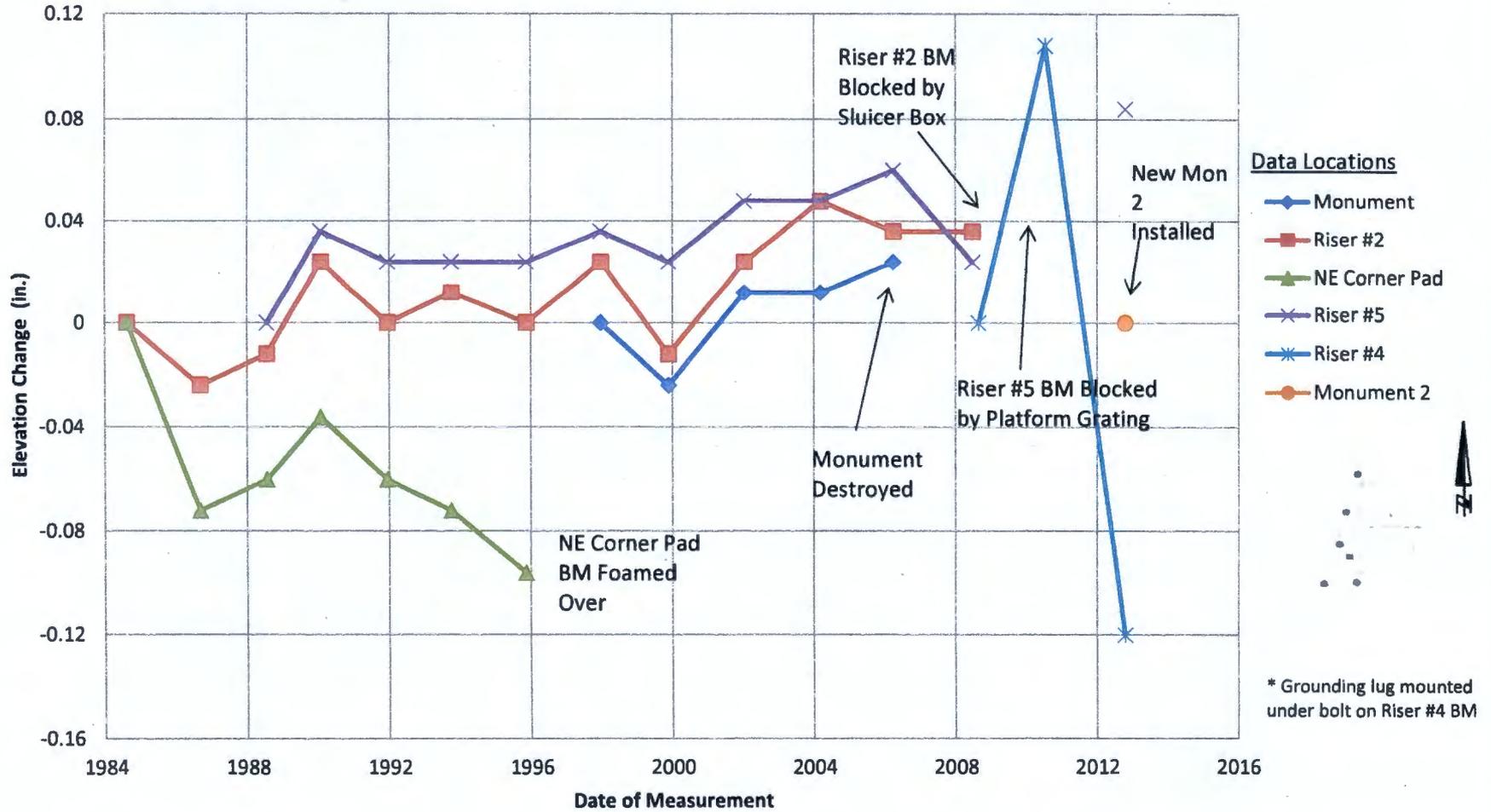
- ◆— Riser #2
- Riser #8



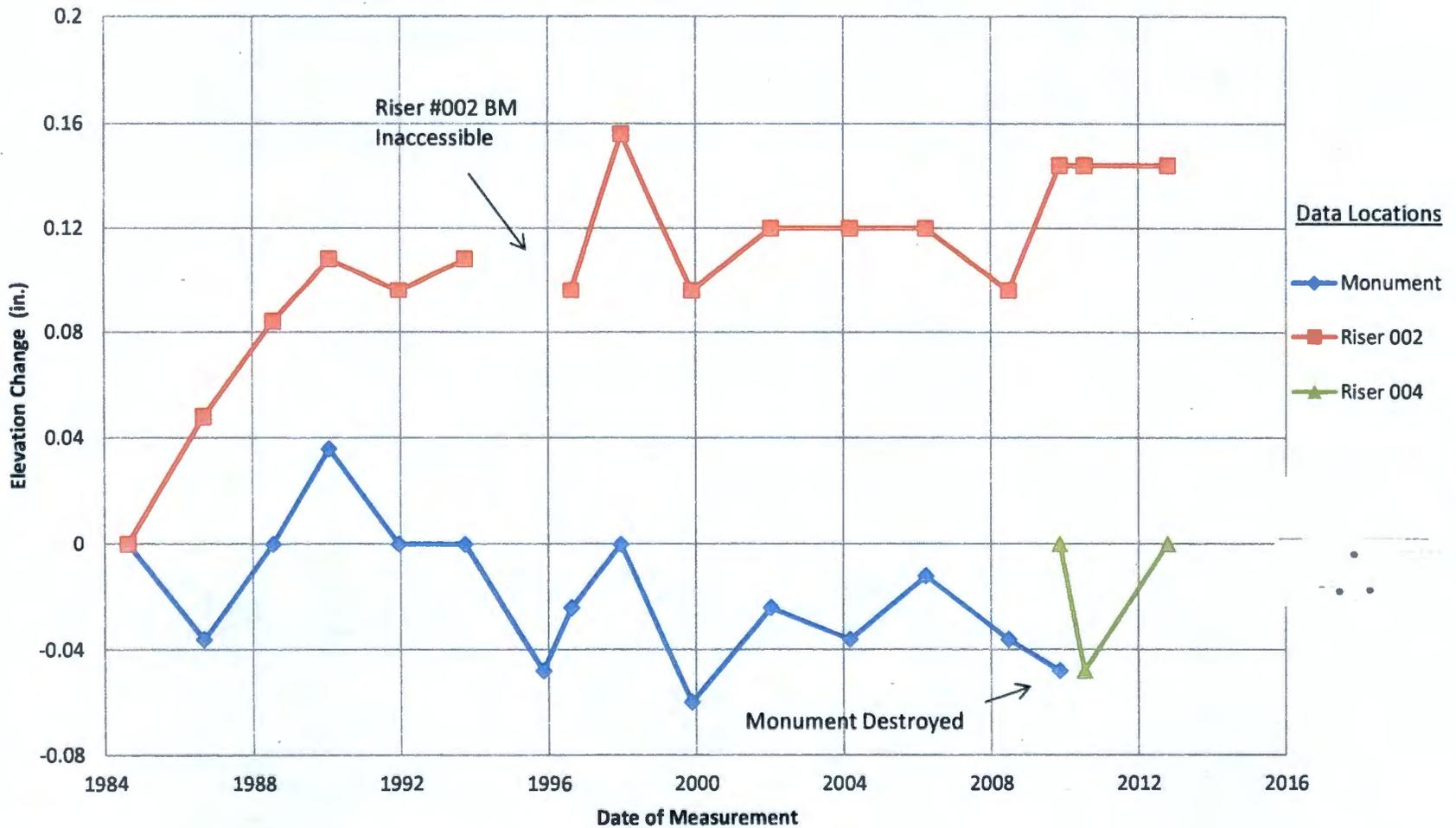
Tank 241-C-109 Dome Benchmark Elevation Change



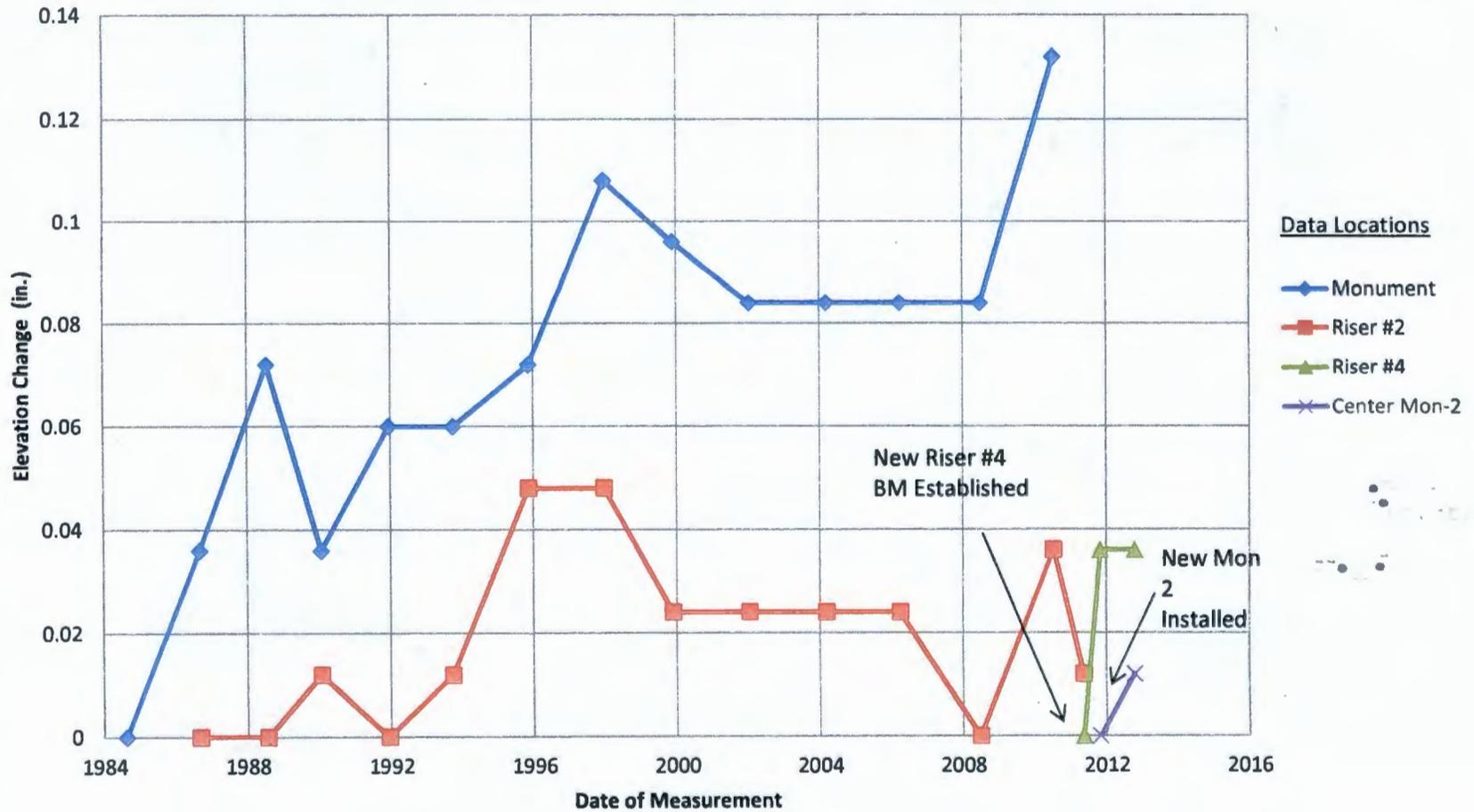
Tank 241-C-110 Dome Benchmark Elevation Change



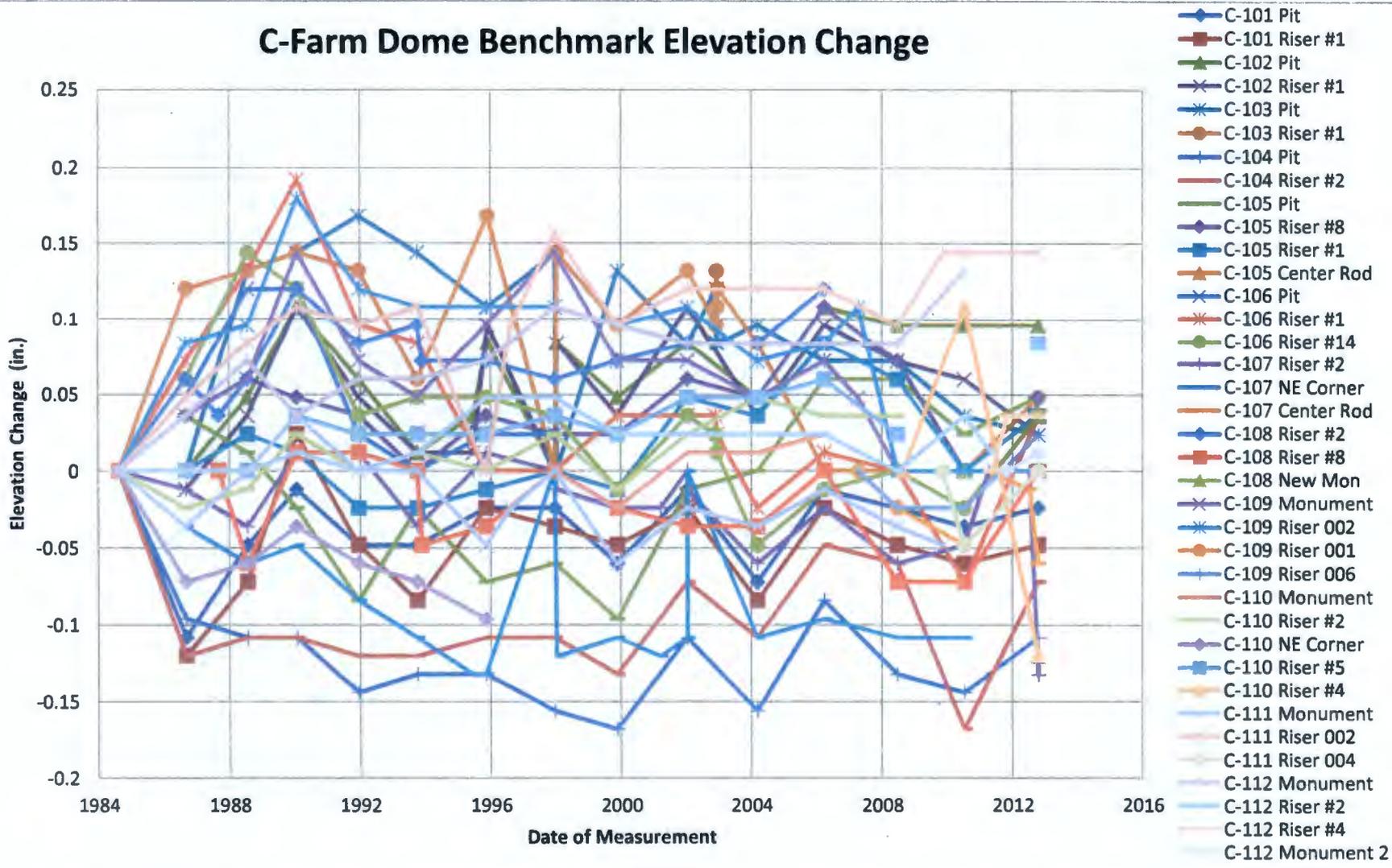
Tank 241-C-111 Dome Benchmark Elevation Change



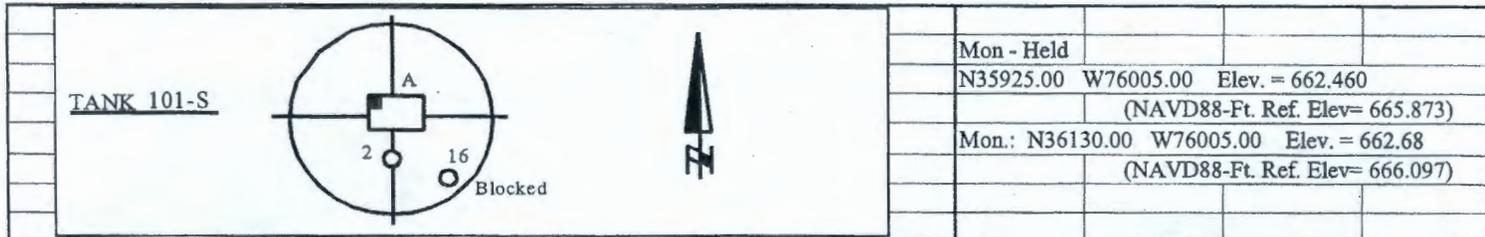
Tank 241-C-112 Dome Benchmark Elevation Change



C-Farm Dome Benchmark Elevation Change



Appendix S – 241-S Farm Dome Survey Data and Plots



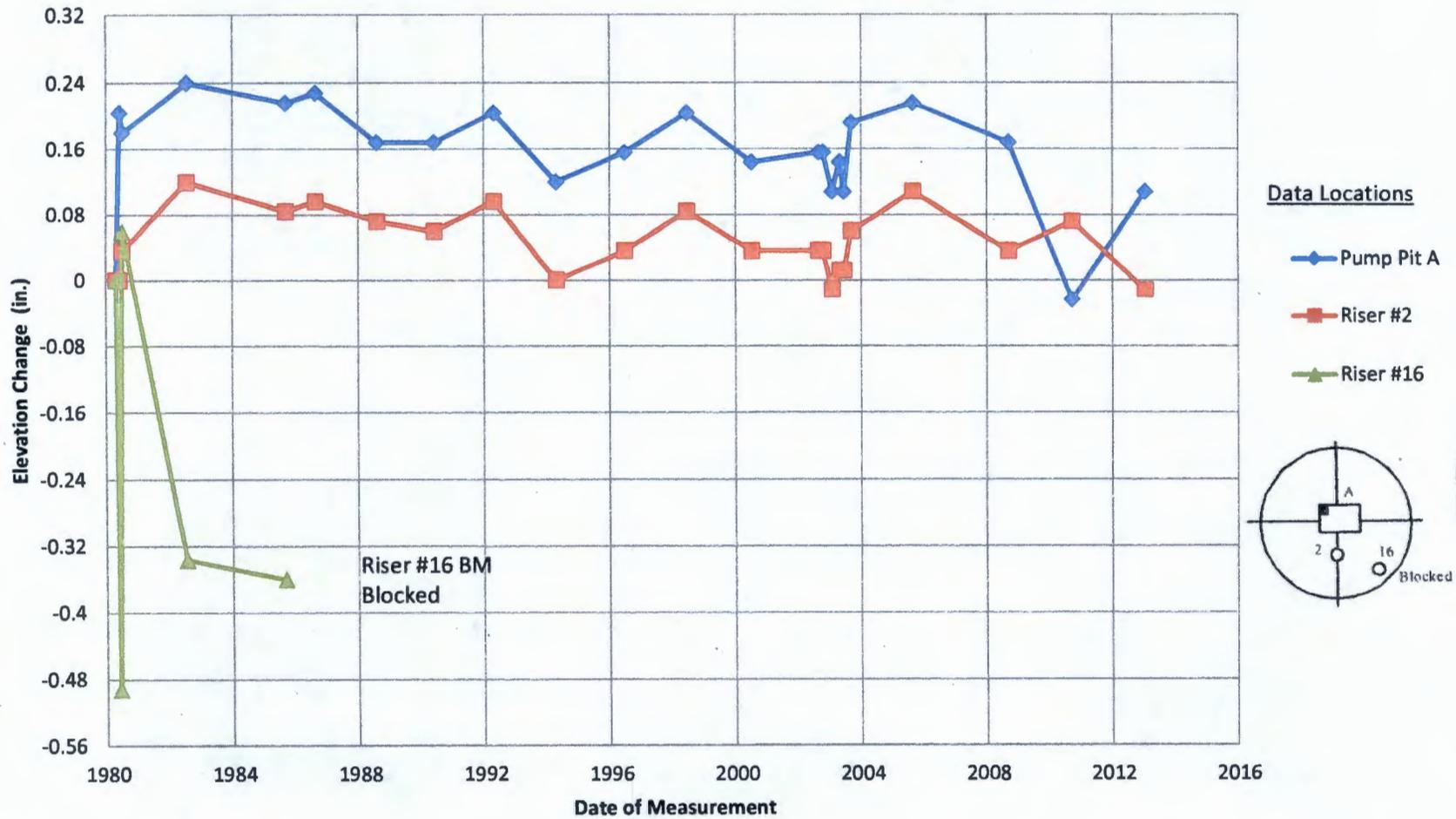
Mon - Held			
N35925.00	W76005.00	Elev. = 662.460	
(NAVD88-Ft. Ref. Elev= 665.873)			
Mon.: N36130.00	W76005.00	Elev. = 662.68	
(NAVD88-Ft. Ref. Elev= 666.097)			

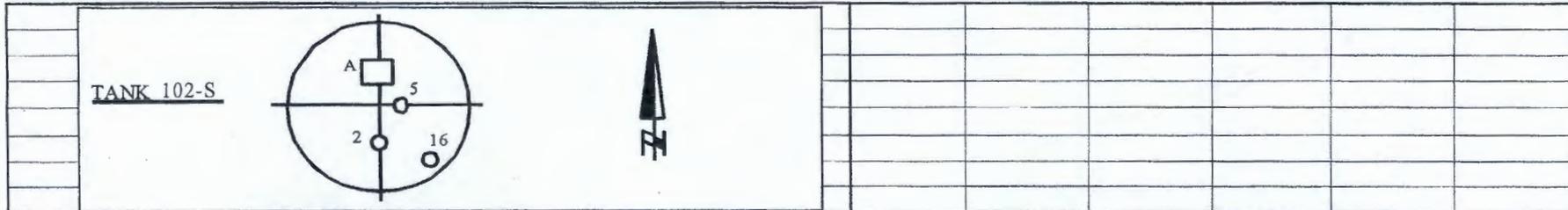
DATE	PUMP PIT A			RISER 2			RISER 16		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
4/29/80	665.385	0	0	665.913	0	0	666.271	0	0
6/4/80	665.402	0.017	0.017	665.913	0	0	666.230	-0.041	-0.041
7/9/80	665.400	-0.002	0.015	665.916	0.003	0.003	666.276	0.046	0.005
7/20/82	665.405	0.005	0.020	665.923	0.007	0.010	666.243	-0.033	-0.028
9/6/85	665.403	-0.002	0.018	665.920	-0.003	0.007	666.241	-0.002	-0.030
8/20/86	665.404	0.001	0.019	665.921	0.001	0.008	0	0	0
8/5/88	665.399	-0.005	0.014	665.919	-0.002	0.006		BLOCKED	
5/30/90	665.399	0	0.014	665.918	-0.001	0.005		BLOCKED	
4/25/92	665.402	0.003	0.017	665.921	0.003	0.008		BLOCKED	
4/20/94	665.395	-0.007	0.010	665.913	-0.008	0		BLOCKED	
6/24/96	665.398	0.003	0.013	665.916	0.003	0.003		BLOCKED	
6/16/98	665.402	0.004	0.017	665.920	0.004	0.007		BLOCKED	
7/10/00	665.397	-0.005	0.012	665.916	-0.004	0.003		BLOCKED	
8/28/02	665.398	0.001	0.013	665.916	0	0.003		BLOCKED	
10/17/02	665.398	0	0.013	665.916	0	0.003		BLOCKED	
1/29/03	665.394	-0.004	0.009	665.912	-0.004	-0.001		BLOCKED	
4/28/03	665.397	0.003	0.012	665.914	0.002	0.001		BLOCKED	
6/17/03	665.394	-0.003	0.009	665.914	0	0.001		BLOCKED	
9/8/03	665.401	0.007	0.016	665.918	0.004	0.005		BLOCKED	
8/25/05	665.403	0.002	0.018	665.922	0.004	0.009		BLOCKED	
9/9/08	665.399	-0.004	0.014	665.916	-0.006	0.003		BLOCKED	
9/22/10	665.383	-0.016	-0.002	665.919	0.003	0.006		BLOCKED	
1/17/13	665.394	0.011	0.009	665.912	-0.007	-0.001		BLOCKED	

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RPP-RPT-55202, Rev. 0

Tank 241-S-101 Dome Benchmark Elevation Change

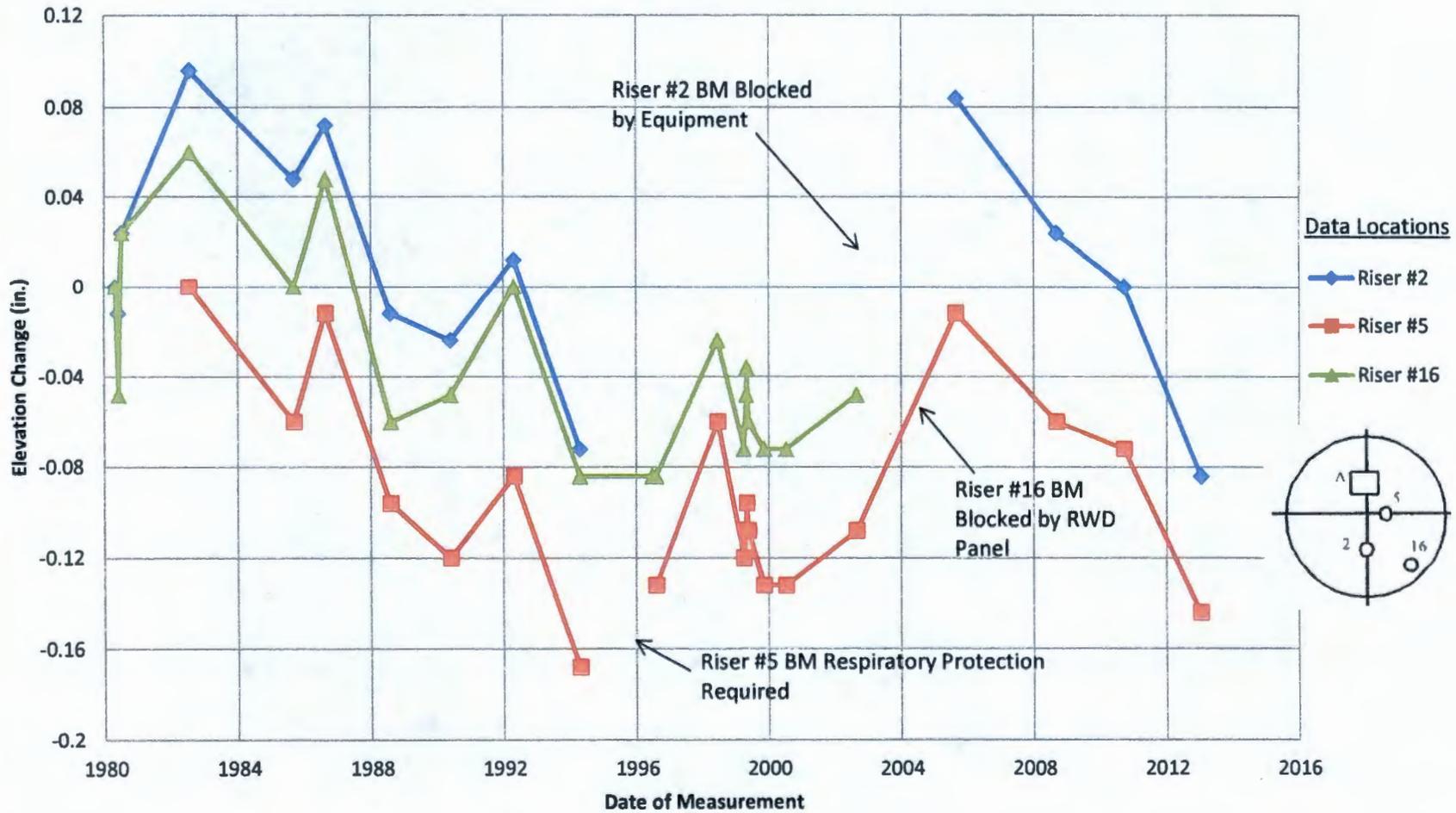




DATE	PUMP PIT A			RISER 2			RISER 5			RISER 16		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
04/29/80				665.018	0	0				664.650	0	0
06/04/80				665.017	-0.001	-0.001				664.646	-0.004	-0.004
07/09/80				665.020	0.003	0.002				664.652	0.006	0.002
07/20/82				665.026	0.006	0.008	665.038	0	0	664.655	0.003	0.005
09/06/85				665.022	-0.004	0.004	665.033	-0.005	-0.005	664.650	-0.005	0
08/20/86				665.024	0.002	0.006	665.037	0.004	-0.001	664.654	0.004	0.004
08/05/88				665.017	-0.007	-0.001	665.030	-0.007	-0.008	664.645	-0.009	-0.005
05/30/90				665.016	-0.001	-0.002	665.028	-0.002	-0.010	664.646	0.001	-0.004
04/25/92				665.019	0.003	0.001	665.031	0.003	-0.007	664.650	0.004	0
04/20/94				665.012	-0.007	-0.006	665.024	-0.007	-0.014	664.643	-0.007	-0.007
06/24/96				Blocked by New Equipment			Respiratory Protection Required			664.643	0	-0.007
08/07/96				Blocked by Equipment			665.027	0.003	-0.011	664.643	0	-0.007
06/16/98				Blocked by Equipment			665.033	0.006	-0.005	664.648	0.005	-0.002
04/01/99				Blocked by Equipment			665.028	-0.005	-0.010	664.644	-0.004	-0.006
04/28/99				Blocked by Equipment			665.029	0.001	-0.009	664.646	0.002	-0.004
05/05/99				Blocked by Equipment			665.030	0.001	-0.008	664.647	0.001	-0.003
05/20/99				Blocked by Equipment			665.029	-0.001	-0.009	664.645	-0.002	-0.005
11/11/99				Blocked by Equipment			665.027	-0.002	-0.011	664.644	-0.001	-0.006
07/10/00				Blocked by Equipment			665.027	0	-0.011	664.644	0	-0.006
08/28/02				Blocked by Equipment			665.029	0.002	-0.009	664.646	0.002	-0.004
08/25/05				665.025	0.013	0.007	665.037	0.008	-0.001	Blocked by RWD Panel		
09/09/08				665.020	-0.005	0.002	665.033	-0.004	-0.005	Blocked by RWD Panel		
09/22/10				665.018	-0.002	0.000	665.032	-0.001	-0.006	Blocked by RWD Panel		
01/17/13	NEVER SET			665.011	-0.007	-0.007	665.026	-0.006	-0.012	Blocked by RWD Panel		

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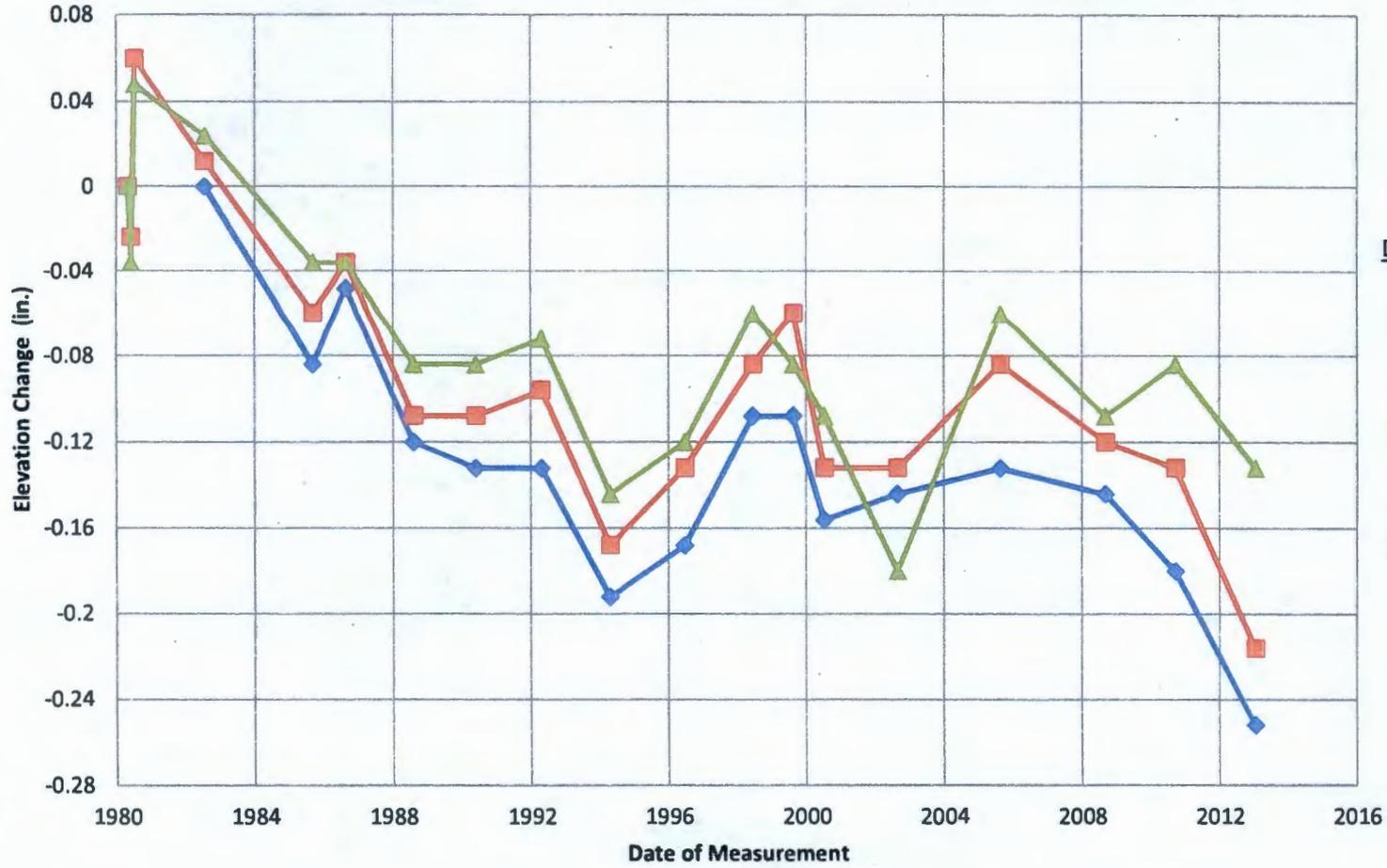
Tank 241-S-102 Dome Benchmark Elevation Change



FIELD SKETCH									
DATE	PUMP PIT A			RISER 2			RISER 16		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
4/29/80				664.066	0	0	663.784	0	0
6/4/80				664.064	-0.002	-0.002	663.781	-0.003	-0.003
7/9/80				664.071	0.007	0.005	663.788	0.007	0.004
7/20/82	663.437	0	0	664.067	-0.004	0.001	663.786	-0.002	0.002
9/6/85	663.430	-0.007	-0.007	664.061	-0.006	-0.005	663.781	-0.005	-0.003
8/20/86	663.433	0.003	-0.004	664.063	0.002	-0.003	663.781	0	-0.003
8/5/88	663.427	-0.006	-0.010	664.057	-0.006	-0.009	663.777	-0.004	-0.007
5/30/90	663.426	-0.001	-0.011	664.057	0	-0.009	663.777	0	-0.007
4/25/92	663.426	0	-0.011	664.058	0.001	-0.008	663.778	0.001	-0.006
4/20/94	663.421	-0.005	-0.016	664.052	-0.006	-0.014	663.772	-0.006	-0.012
6/24/96	663.423	0.002	-0.014	664.055	0.003	-0.011	663.774	0.002	-0.010
6/16/98	663.428	0.005	-0.009	664.059	0.004	-0.007	663.779	0.005	-0.005
8/17/99	663.428	0	-0.009	664.061	0.002	-0.005	663.777	-0.002	-0.007
7/10/00	663.424	-0.004	-0.013	664.055	-0.006	-0.011	663.775	-0.002	-0.009
8/28/02	663.425	0.001	-0.012	664.055	0.000	-0.011	663.769	-0.006	-0.015
8/25/05	663.426	0.001	-0.011	664.059	0.004	-0.007	663.779	0.010	-0.005
9/9/08	663.425	-0.001	-0.012	664.056	-0.003	-0.010	663.775	-0.004	-0.009
9/22/10	663.422	-0.003	-0.015	664.055	-0.001	-0.011	663.777	0.002	-0.007
1/17/13	663.416	-0.006	-0.021	664.048	-0.007	-0.018	663.773	-0.004	-0.011

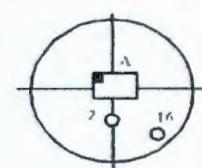
S-5

Tank 241-S-103 Dome Benchmark Elevation Change



Data Locations

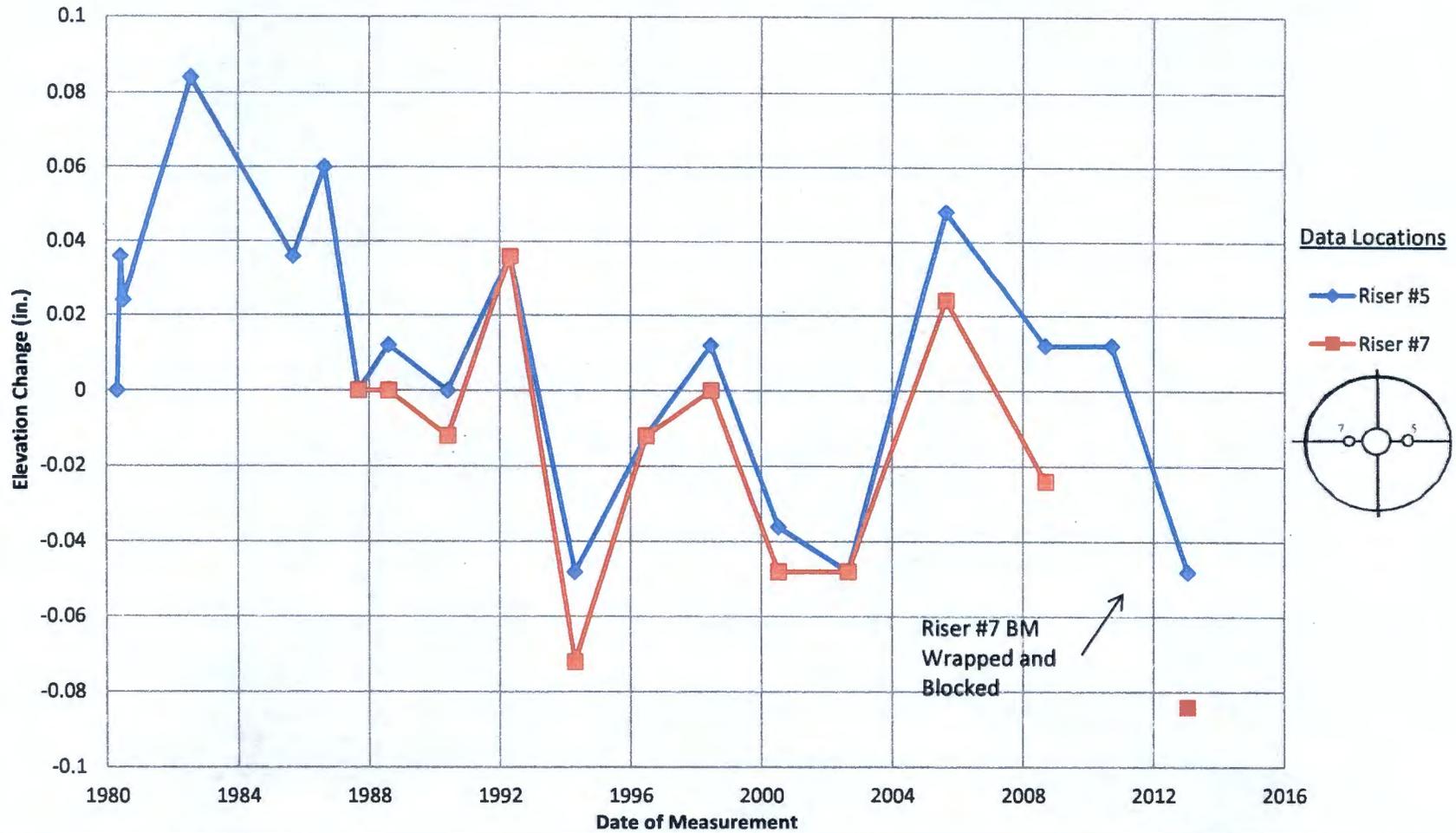
- ◆ Pump Pit A
- Riser #2
- ▲ Riser #16



FIELD SKETCH									
DATE	PUMP PIT A			RISER 5			RISER 7		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
4/29/80				665.897	0	0			
6/4/80				665.900	0.003	0.003			
7/9/80				665.899	-0.001	0.002			
7/20/82				665.904	0.005	0.007			
9/5/85				665.900	-0.004	0.003			
8/20/86				665.902	0.002	0.005			
9/3/87				665.897	-0.005	0	665.969	0	0
8/5/88				665.898	0.001	0.001	665.969	0	0
5/30/90				665.897	-0.001	0	665.968	-0.001	-0.001
4/25/92				665.900	0.003	0.003	665.972	0.004	0.003
4/20/94				665.893	-0.007	-0.004	665.963	-0.009	-0.006
6/24/96				665.896	0.003	-0.001	665.968	0.005	-0.001
6/16/98				665.898	0.002	0.001	665.969	0.001	0.000
7/10/00				665.894	-0.004	-0.003	665.965	-0.004	-0.004
8/28/02				665.893	-0.001	-0.004	665.965	0	-0.004
8/25/05				665.901	0.008	0.004	665.971	0.006	0.002
9/9/08				665.898	-0.003	0.001	665.967	-0.004	-0.002
9/22/10				665.898	0	0.001	Blocked-Wrapped		
1/17/13		NEVER SET		665.893	-0.005	-0.004	665.962	-0.005	-0.007

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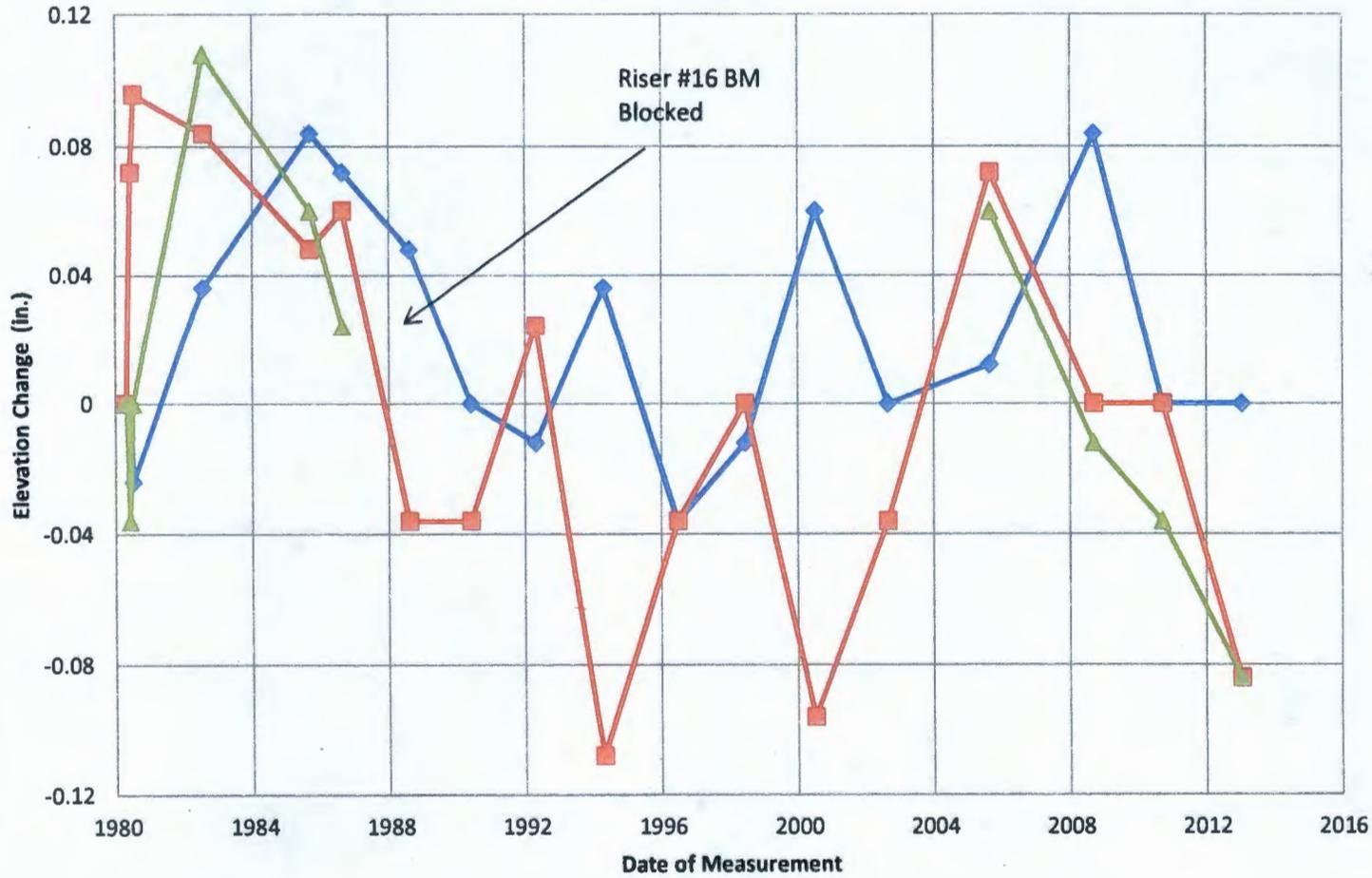
Tank 241-S-104 Dome Benchmark Elevation Change



FIELD SKETCH									
DATE	PUMP PIT A			RISER 2			RISER 16		
DATE	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
4/29/80	664.420	0	0	665.100	0	0	665.028	0	0
6/4/80	664.418	-0.002	-0.002	665.106	0.006	0.006	665.025	-0.003	-0.003
7/9/80	664.423	0.005	0.003	665.108	0.002	0.008	665.028	0.003	0
7/20/82	664.427	0.004	0.007	665.107	-0.001	0.007	665.037	0.009	0.009
9/5/85	664.426	-0.001	0.006	665.104	-0.003	0.004	665.033	-0.004	0.005
8/20/86	664.424	-0.002	0.004	665.105	0.001	0.005	665.030	-0.003	0.002
8/5/88	664.420	-0.004	0	665.097	-0.008	-0.003		BLOCKED	
5/30/90	664.419	-0.001	-0.001	665.097	0	-0.003		BLOCKED	
4/25/92	664.423	0.004	0.003	665.102	0.005	0.002		BLOCKED	
4/20/94	664.417	-0.006	-0.003	665.091	-0.011	-0.009		BLOCKED	
6/24/96	664.419	0.002	-0.001	665.097	0.006	-0.003		BLOCKED	
6/16/98	664.425	0.006	0.005	665.100	0.003	0.000		BLOCKED	
7/10/00	664.420	-0.005	0	665.092	-0.008	-0.008		BLOCKED	
8/28/02	664.421	0.001	0.001	665.097	0.005	-0.003		BLOCKED	
8/25/05	664.427	0.006	0.007	665.106	0.009	0.006	665.033	0.003	0.005
9/9/08	664.420	-0.007	0	665.100	-0.006	0	665.027	-0.006	-0.001
9/22/10	664.420	0	0	665.100	0	0	665.025	-0.002	-0.003
1/17/13	664.414	-0.006	-0.006	665.093	-0.007	-0.007	665.021	-0.004	-0.007

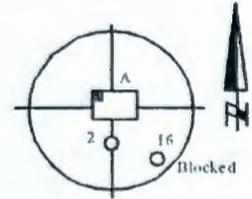
S-9

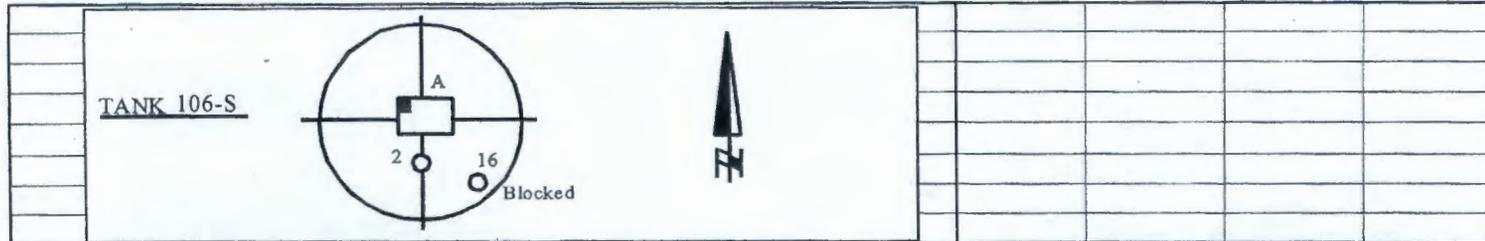
Tank 241-S-105 Dome Benchmark Elevation Change



Data Locations

- Pump Pit A
- Riser #2
- ▲— Riser #16

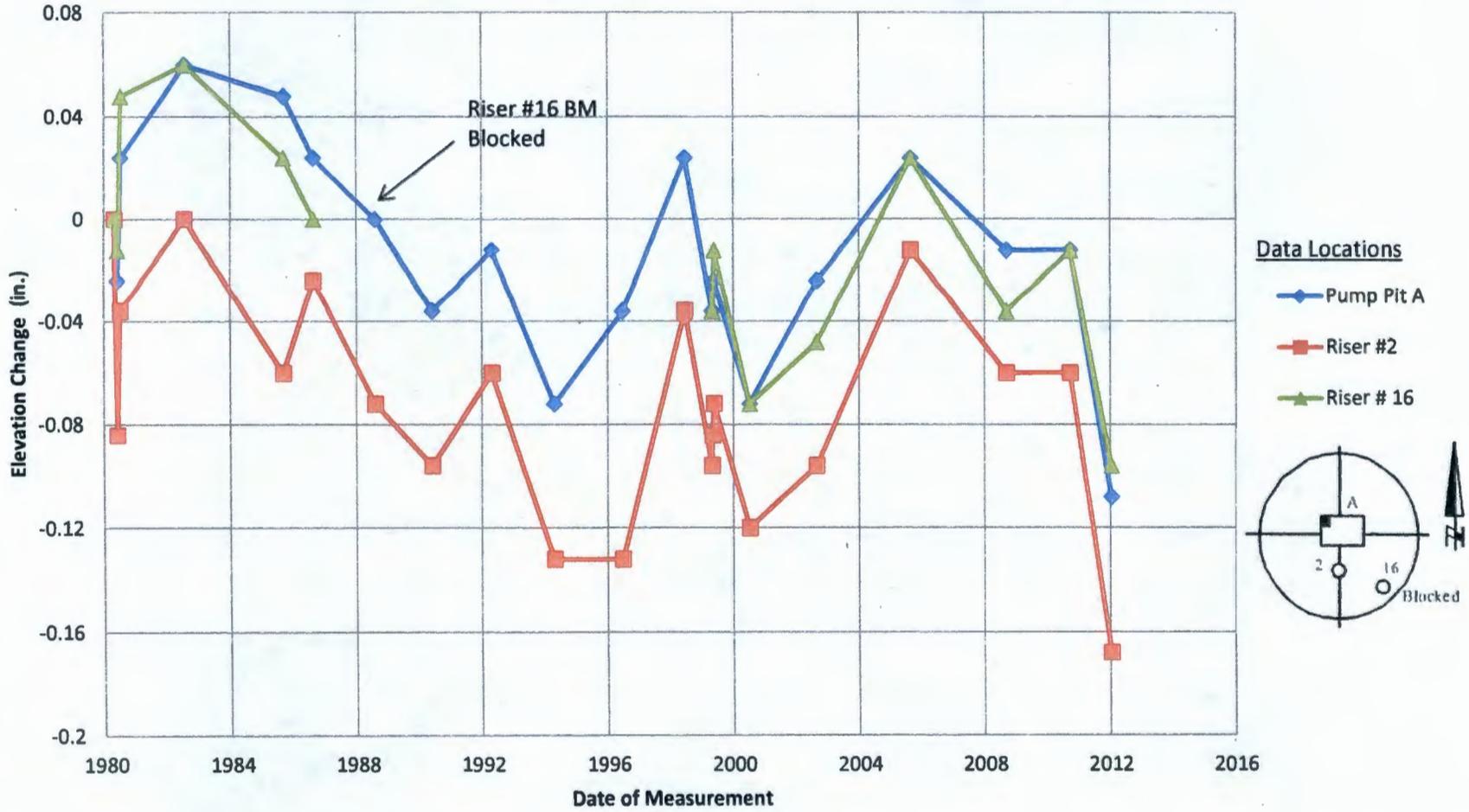


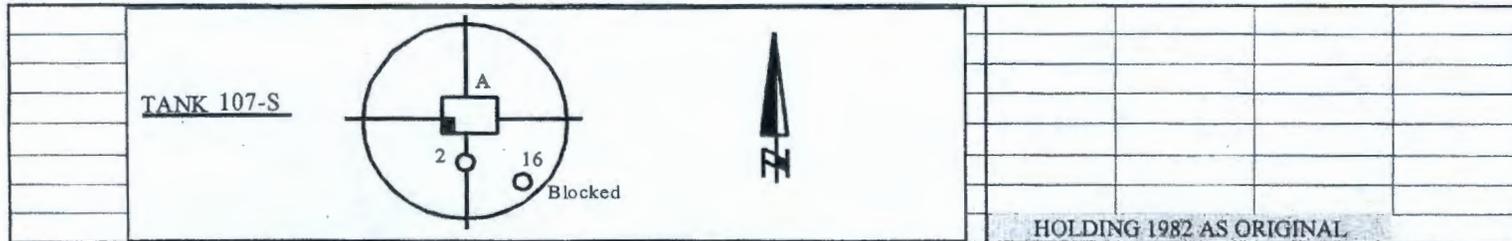


DATE	PUMP PIT A			RISER 2			RISER 16		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
4/29/80	663.421	0	0	664.031	0	0	664.022	0	0
6/4/80	663.419	-0.002	-0.002	664.024	-0.007	-0.007	664.021	-0.001	-0.001
7/9/80	663.423	0.004	0.002	664.028	0.004	-0.003	664.026	0.005	0.004
7/20/82	663.426	0.003	0.005	664.031	0.003	0.000	664.027	0.001	0.005
9/5/85	663.425	-0.001	0.004	664.026	-0.005	-0.005	664.024	-0.003	0.002
8/20/86	663.423	-0.002	0.002	664.029	0.003	-0.002	664.022	-0.002	0
8/5/88	663.421	-0.002	0	664.025	-0.004	-0.006		BLOCKED	
5/30/90	663.418	-0.003	-0.003	664.023	-0.002	-0.008		BLOCKED	
4/25/92	663.420	0.002	-0.001	664.026	0.003	-0.005		BLOCKED	
4/20/94	663.415	-0.005	-0.006	664.020	-0.006	-0.011		BLOCKED	
6/24/96	663.418	0.003	-0.003	664.020	0	-0.011		BLOCKED	
6/16/98	663.423	0.005	0.002	664.028	0.008	-0.003		BLOCKED	
4/28/99	663.418	-0.005	-0.003	664.023	-0.005	-0.008	664.019	-0.003	-0.003
5/5/99	663.418	0	-0.003	664.024	0.001	-0.007	664.019	0	-0.003
5/20/99	663.419	0.001	-0.002	664.025	0.001	-0.006	664.021	0.002	-0.001
7/10/00	663.415	-0.004	-0.006	664.021	-0.004	-0.010	664.016	-0.005	-0.006
8/28/02	663.419	0.004	-0.002	664.023	0.002	-0.008	664.018	0.002	-0.004
8/25/05	663.423	0.004	0.002	664.030	0.007	-0.001	664.024	0.006	0.002
9/9/08	663.420	-0.003	-0.001	664.026	-0.004	-0.005	664.019	-0.005	-0.003
9/22/10	663.420	0	-0.001	664.026	0.000	-0.005	664.021	0.002	-0.001
1/17/13	663.412	-0.008	-0.009	664.017	-0.009	-0.014	664.014	-0.007	-0.008

S-11

Tank 241-S-106 Dome Benchmark Elevation Change



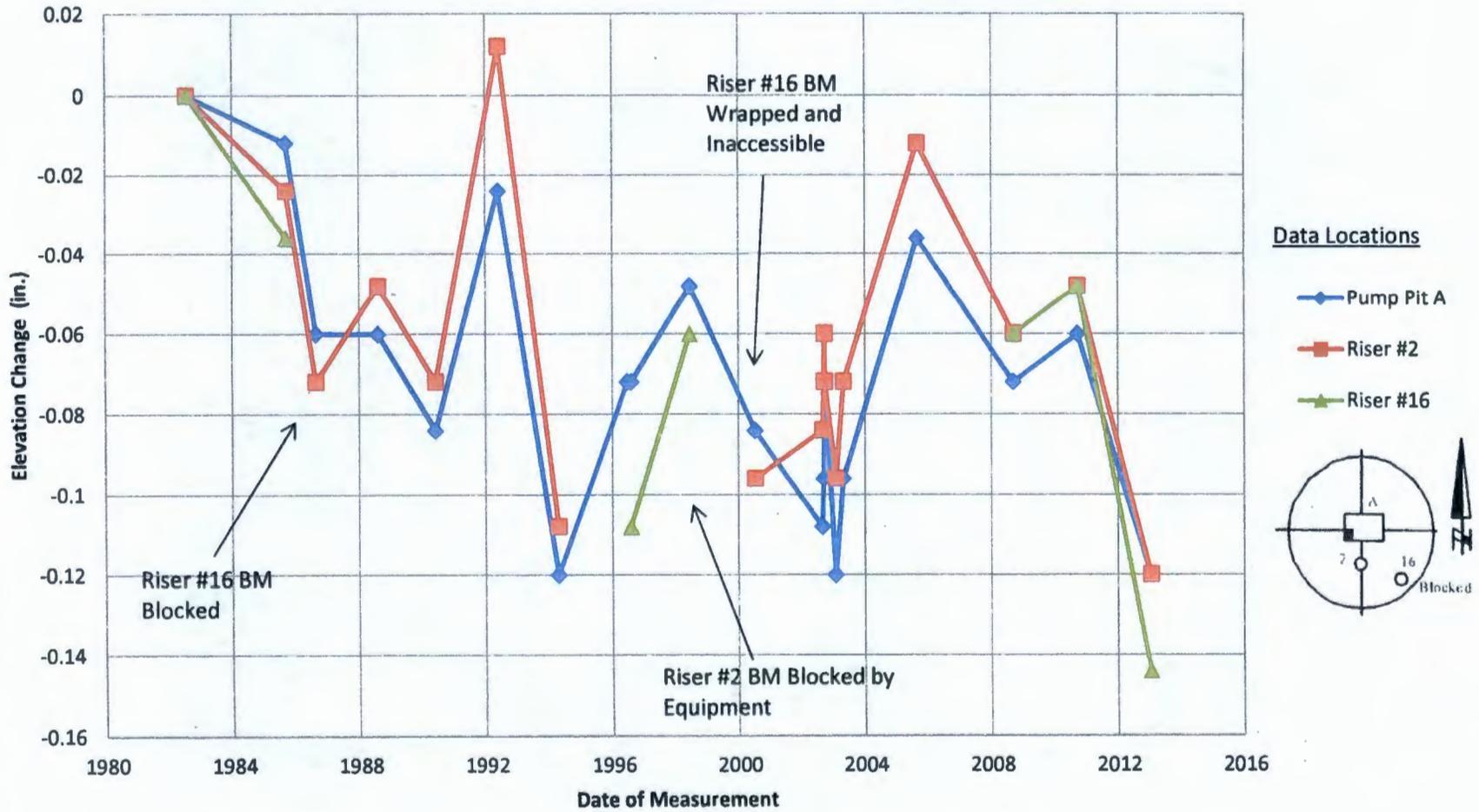


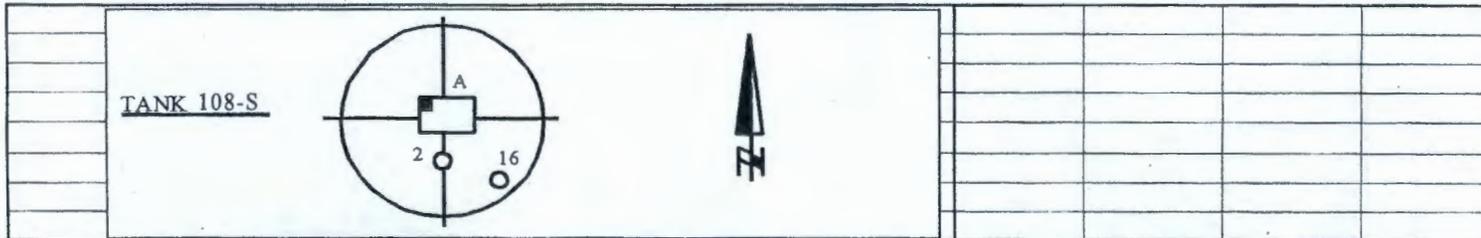
HOLDING 1982 AS ORIGINAL

DATE	PUMP PIT A			RISER 2			RISER 16		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
4/29/80	664.623	0	0	665.118	0	0	DESTROYED		
6/4/80	665.492	0.869	0.869	665.991	0.873	0.873			
7/9/80	665.498	0.006	0.875	665.998	0.007	0.880			
7/20/82	665.410	0	0	665.998	0	0	666.044	0	0
9/5/85	665.409	-0.001	-0.001	665.996	-0.002	-0.002	666.041	-0.003	-0.003
8/20/86	665.405	-0.004	-0.005	665.992	-0.004	-0.006		BLOCKED	
8/5/88	665.405	0	-0.005	665.994	0.002	-0.004		BLOCKED	
5/30/90	665.403	-0.002	-0.007	665.992	-0.002	-0.006		BLOCKED	
5/25/92	665.408	0.005	-0.002	665.999	0.007	0.001		BLOCKED	
4/20/94	665.400	-0.008	-0.010	665.989	-0.010	-0.009		BLOCKED	
6/24/96	665.404	0.004	-0.006	Blocked by Equipment				BLOCKED	
8/7/96	665.404	0	-0.006	Blocked by Equipment			666.035	-0.006	-0.009
6/16/98	665.406	0.002	-0.004	Blocked by Equipment			666.039	0.004	-0.005
7/10/00	665.403	-0.003	-0.007	665.990	0.001	-0.008	Wrapped - Inaccessible		
8/28/02	665.401	-0.002	-0.009	665.991	0.001	-0.007	Wrapped - Inaccessible		
9/12/02	665.402	0.001	-0.008	665.992	0.001	-0.006	Wrapped - Inaccessible		
9/20/02	665.404	0.002	-0.006	665.993	0.001	-0.005	Wrapped - Inaccessible		
9/26/02	665.404	0.000	-0.006	665.992	-0.001	-0.006	Wrapped - Inaccessible		
1/29/03	665.400	-0.004	-0.010	665.990	-0.002	-0.008	Wrapped - Inaccessible		
4/28/03	665.402	0.002	-0.008	665.992	0.002	-0.006	Wrapped - Inaccessible		
8/25/05	665.407	0.005	-0.003	665.997	0.005	-0.001	Wrapped - Inaccessible		
9/9/08	665.404	-0.003	-0.006	665.993	-0.004	-0.005	666.039	0	-0.005
9/22/10	665.405	0.001	-0.005	665.994	0.001	-0.004	666.040	0.001	-0.004
1/17/13	665.400	-0.005	-0.010	665.988	-0.006	-0.010	666.032	-0.008	-0.012

S-13

Tank 241-S-107 Dome Benchmark Elevation Change (excluding outliers)

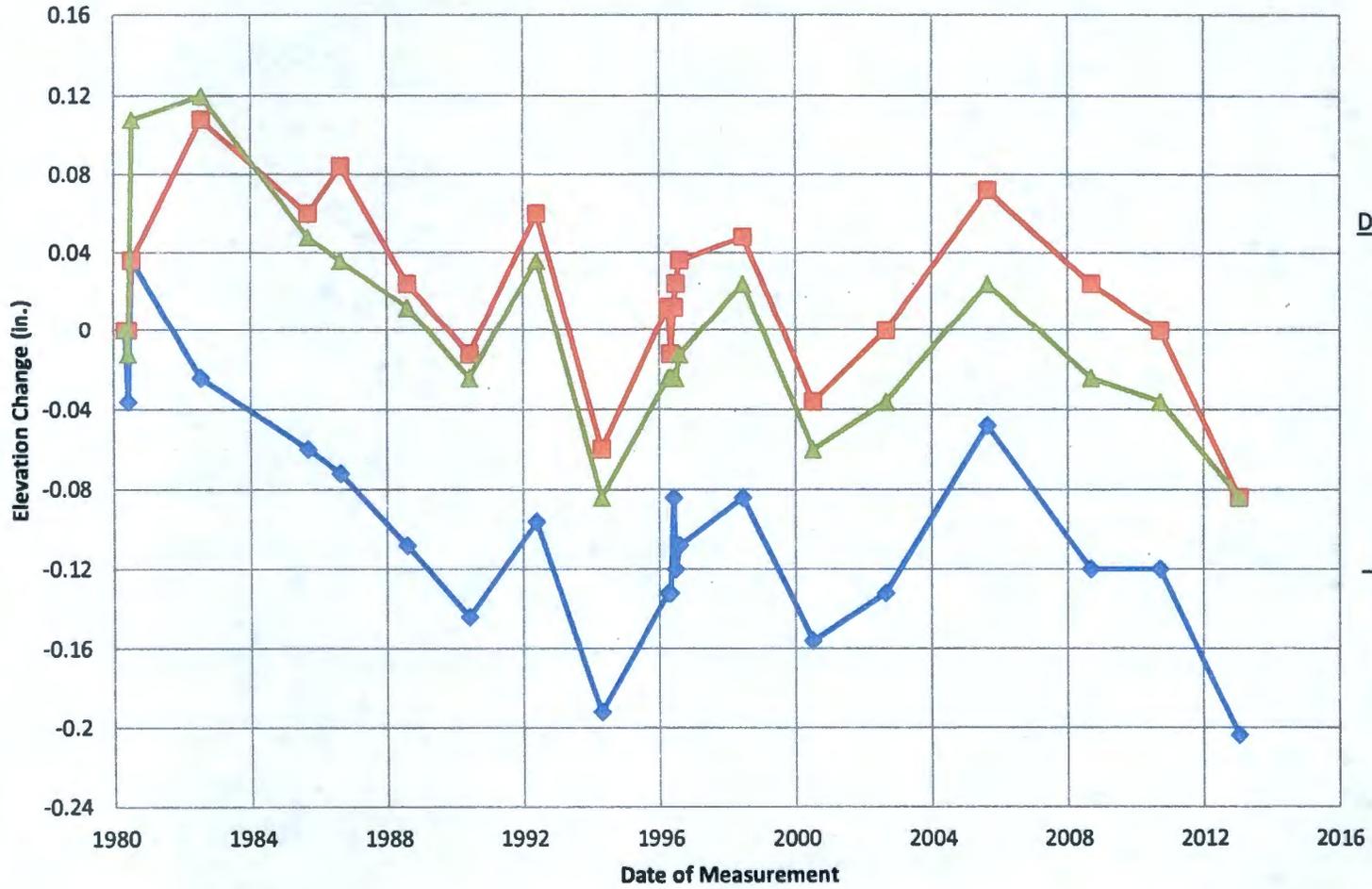




DATE	PUMP PIT A			RISER 2			RISER 16		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
4/29/80	664.460	0	0	665.067	0	0	665.077	0	0
6/4/80	664.457	-0.003	-0.003	665.067	0	0	665.076	-0.001	-0.001
7/9/80	664.463	0.006	0.003	665.070	0.003	0.003	665.086	0.010	0.009
7/20/82	664.458	-0.005	-0.002	665.076	0.006	0.009	665.087	0.001	0.010
9/5/85	664.455	-0.003	-0.005	665.072	-0.004	0.005	665.081	-0.006	0.004
8/20/86	664.454	-0.001	-0.006	665.074	0.002	0.007	665.080	-0.001	0.003
8/5/88	664.451	-0.003	-0.009	665.069	-0.005	0.002	665.078	-0.002	0.001
5/30/90	664.448	-0.003	-0.012	665.066	-0.003	-0.001	665.075	-0.003	-0.002
5/25/92	664.452	0.004	-0.008	665.072	0.006	0.005	665.080	0.005	0.003
4/20/94	664.444	-0.008	-0.016	665.062	-0.010	-0.005	665.070	-0.010	-0.007
4/4/96	664.449	0.005	-0.011	665.068	0.006	0.001	665.075	0.005	-0.002
5/1/96	664.449	0	-0.011	665.066	-0.002	-0.001	665.075	0	-0.002
6/4/96	664.453	0.004	-0.007	665.068	0.002	0.001	665.075	0	-0.002
6/24/96	664.450	-0.003	-0.010	665.069	0.001	0.002	665.075	0	-0.002
8/7/96	664.451	0.001	-0.009	665.070	0.001	0.003	665.076	0.001	-0.001
6/16/98	664.453	0.002	-0.007	665.071	0.001	0.004	665.079	0.003	0.002
7/10/00	664.447	-0.006	-0.013	665.064	-0.007	-0.003	665.072	-0.007	-0.005
8/28/02	664.449	0.002	-0.011	665.067	0.003	0	665.074	0.002	-0.003
8/25/05	664.456	0.007	-0.004	665.073	0.006	0.006	665.079	0.005	0.002
9/9/08	664.450	-0.006	-0.010	665.069	-0.004	0.002	665.075	-0.004	-0.002
9/22/10	664.450	0	-0.010	665.067	-0.002	0	665.074	-0.001	-0.003
1/17/13	664.443	-0.007	-0.017	665.060	-0.007	-0.007	665.070	-0.004	-0.007

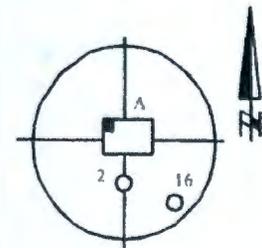
S-15

Tank 241-S-108 Dome Benchmark Elevation Change



Data Locations

- Pump Pit A
- Riser #2
- ▲— Riser #16

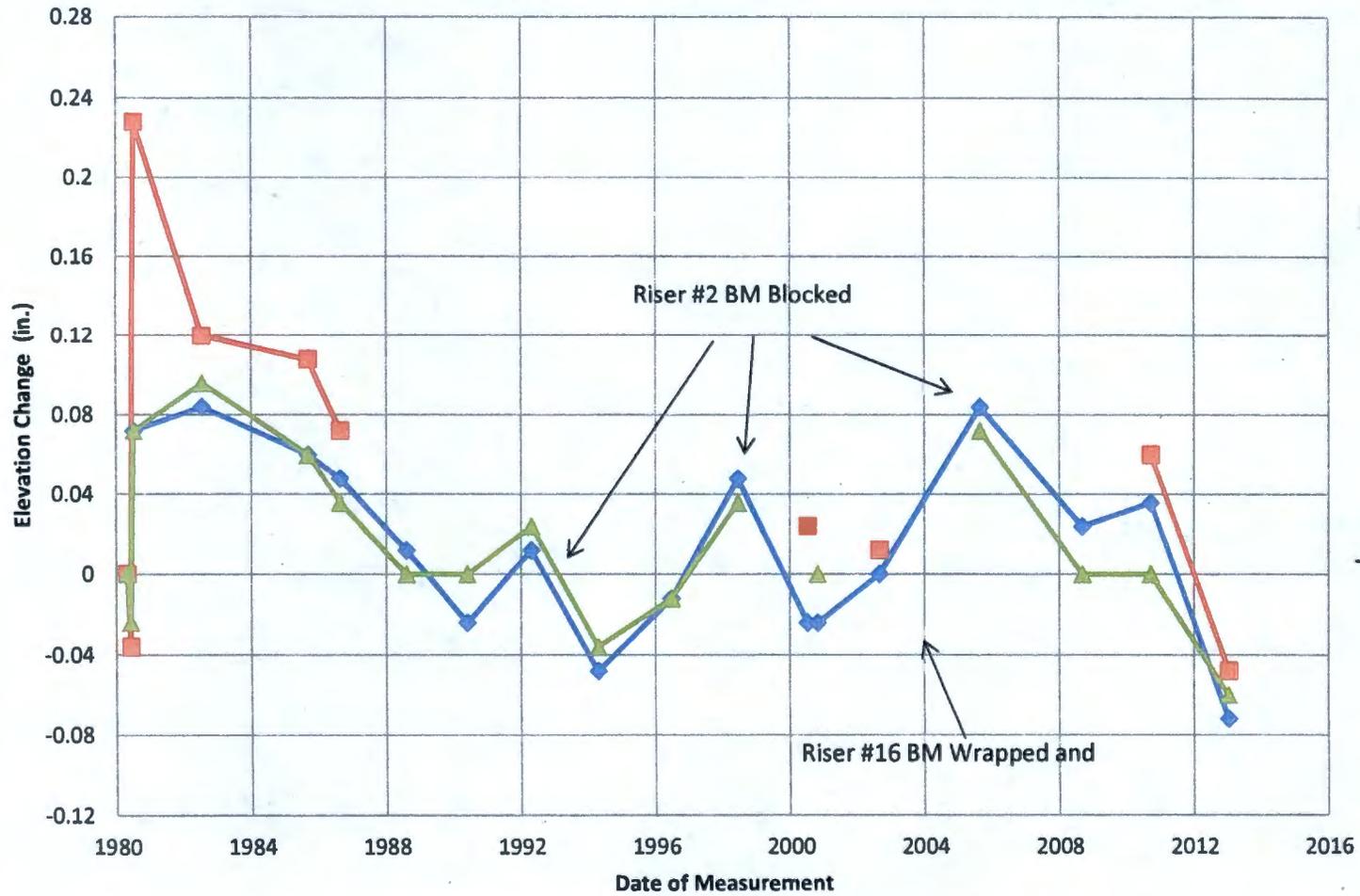


FIELD SKETCH									
DATE	PUMP PIT A			RISER 2			RISER 16		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
4/29/80	663.455	0	0	663.945	0	0	664.073	0	0
6/4/80	663.452	-0.003	-0.003	663.942	-0.003	-0.003	664.071	-0.002	-0.002
7/9/80	663.461	0.009	0.006	663.964	0.022	0.019	664.079	0.008	0.006
7/20/82	663.462	0.001	0.007	663.955	-0.009	0.010	664.081	0.002	0.008
9/5/85	663.460	-0.002	0.005	663.954	-0.001	0.009	664.078	-0.003	0.005
8/20/86	663.459	-0.001	0.004	663.951	-0.003	0.006	664.076	-0.002	0.003
8/5/88	663.456	-0.003	0.001		BLOCKED		664.073	-0.003	0
5/30/90	663.453	-0.003	-0.002		BLOCKED		664.073	0	0
4/25/92	663.456	0.003	0.001		BLOCKED		664.075	0.002	0.002
4/20/94	663.451	-0.005	-0.004		BLOCKED		664.070	-0.005	-0.003
6/24/96	663.454	0.003	-0.001		BLOCKED		664.072	0.002	-0.001
6/16/98	663.459	0.005	0.004		BLOCKED		664.076	0.004	0.003
7/10/00	663.453	-0.006	-0.002	663.947	-0.004	0.002	Wrapped - Inaccessible		
10/26/00	663.453	0	-0.002		BLOCKED		664.073	-0.003	0
8/28/02	663.455	0.002	0.000	663.946	-0.001	0.001	Wrapped - Inaccessible		
8/25/05	663.462	0.007	0.007	Blocked By Breather Filter			664.079	0.006	0.006
9/9/08	663.457	-0.005	0.002	Blocked By Breather Filter			664.073	-0.006	0
9/22/10	663.458	0.001	0.003	663.950	0.004	0.005	664.073	0	0
1/17/13	663.449	-0.009	-0.006	663.941	-0.009	-0.004	664.068	-0.005	-0.005

S-17

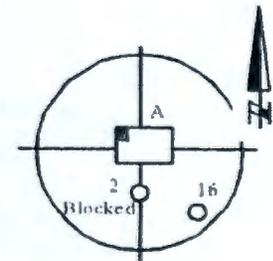
RPP-RPT-55202, Rev. 0

Tank 241-S-109 Dome Benchmark Elevation Change



Data Locations

- ◆ Pump Pit A
- Riser #2
- ▲ Riser #16

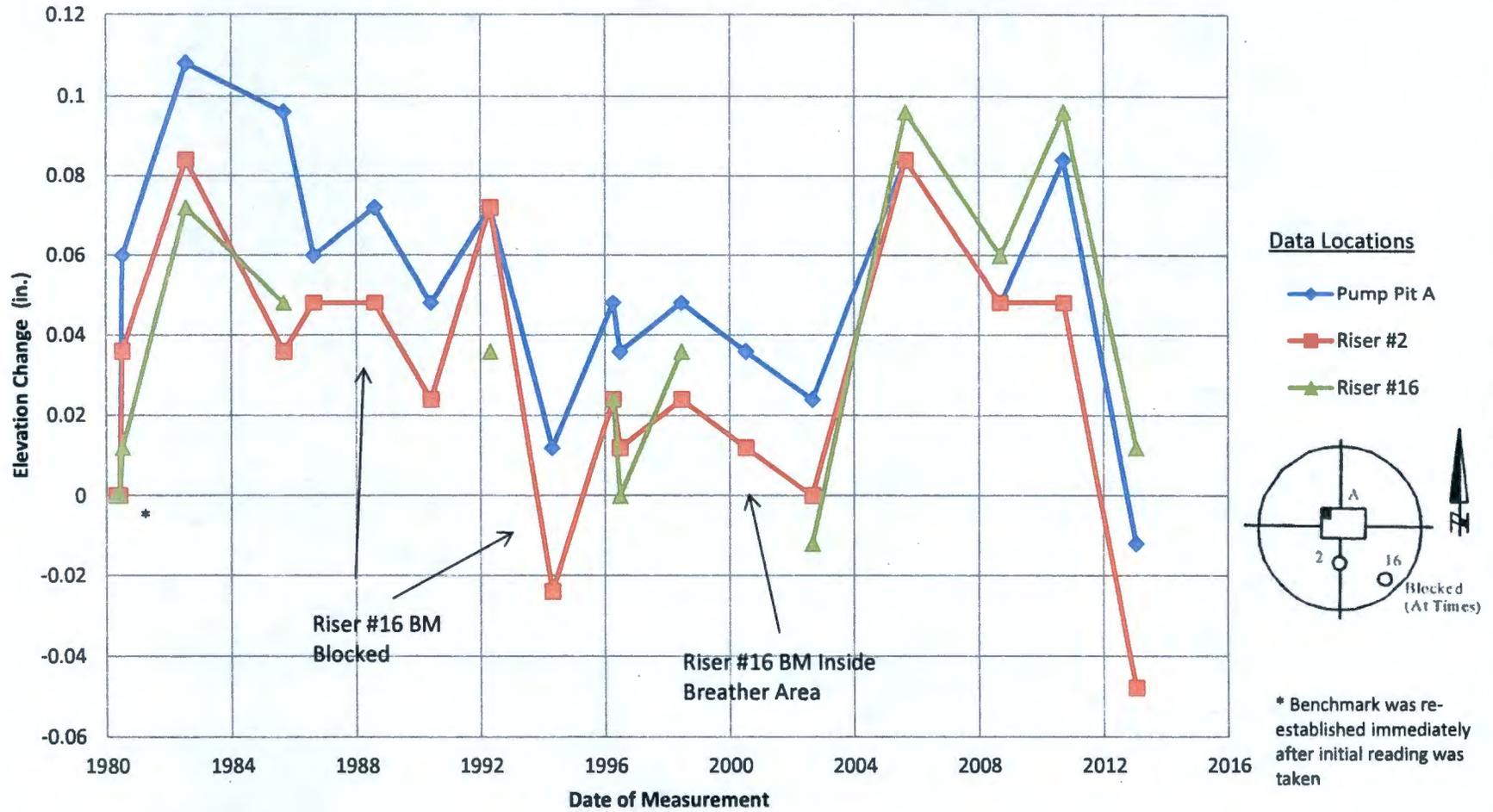


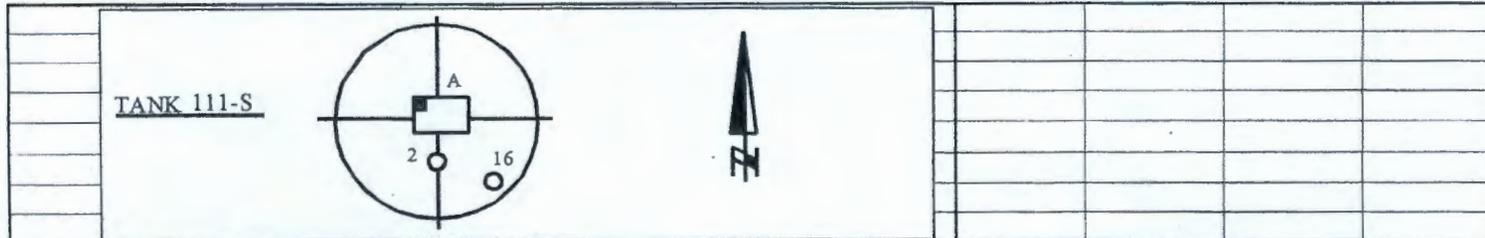


DATE	PUMP PIT A			RISER 2			RISER 16		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
4/29/80	664.523	0	0	665.453	0	0	665.183	0	0
6/4/80	665.395	0	0	666.325	0	0	666.057	0	0
7/9/80	665.400	0.005	0.005	666.328	0.003	0.003	666.058	0.001	0.001
7/20/82	665.404	0.004	0.009	666.332	0.004	0.007	666.063	0.005	0.006
9/5/85	665.403	-0.001	0.008	666.328	-0.004	0.003	666.061	-0.002	0.004
8/20/86	665.400	-0.003	0.005	666.329	0.001	0.004		BLOCKED	
8/5/88	665.401	0.001	0.006	666.329	0	0.004		BLOCKED	
5/30/90	665.399	-0.002	0.004	666.327	-0.002	0.002		BLOCKED	
4/25/92	665.401	0.002	0.006	666.331	0.004	0.006	666.060	-0.001	0.003
4/20/94	665.396	-0.005	0.001	666.323	-0.008	-0.002		BLOCKED	
4/4/96	665.399	0.003	0.004	666.327	0.004	0.002	666.059	-0.001	0.002
6/24/96	665.398	-0.001	0.003	666.326	-0.001	0.001	666.057	-0.002	0
6/16/98	665.399	0.001	0.004	666.327	0.001	0.002	666.060	0.003	0.003
7/10/00	665.398	-0.001	0.003	666.326	-0.001	0.001	inside breather area		
8/28/02	665.397	-0.001	0.002	666.325	-0.001	0	666.056	-0.004	-0.001
8/25/05	665.402	0.005	0.007	666.332	0.007	0.007	666.065	0.009	0.008
9/9/08	665.399	-0.003	0.004	666.329	-0.003	0.004	666.062	-0.003	0.005
9/22/10	665.402	0.003	0.007	666.329	0	0.004	666.065	0.003	0.008
1/17/13	665.394	-0.008	-0.001	666.321	-0.008	-0.004	666.058	-0.007	0.001

S-19

Tank 241-S-110 Dome Benchmark Elevation Change

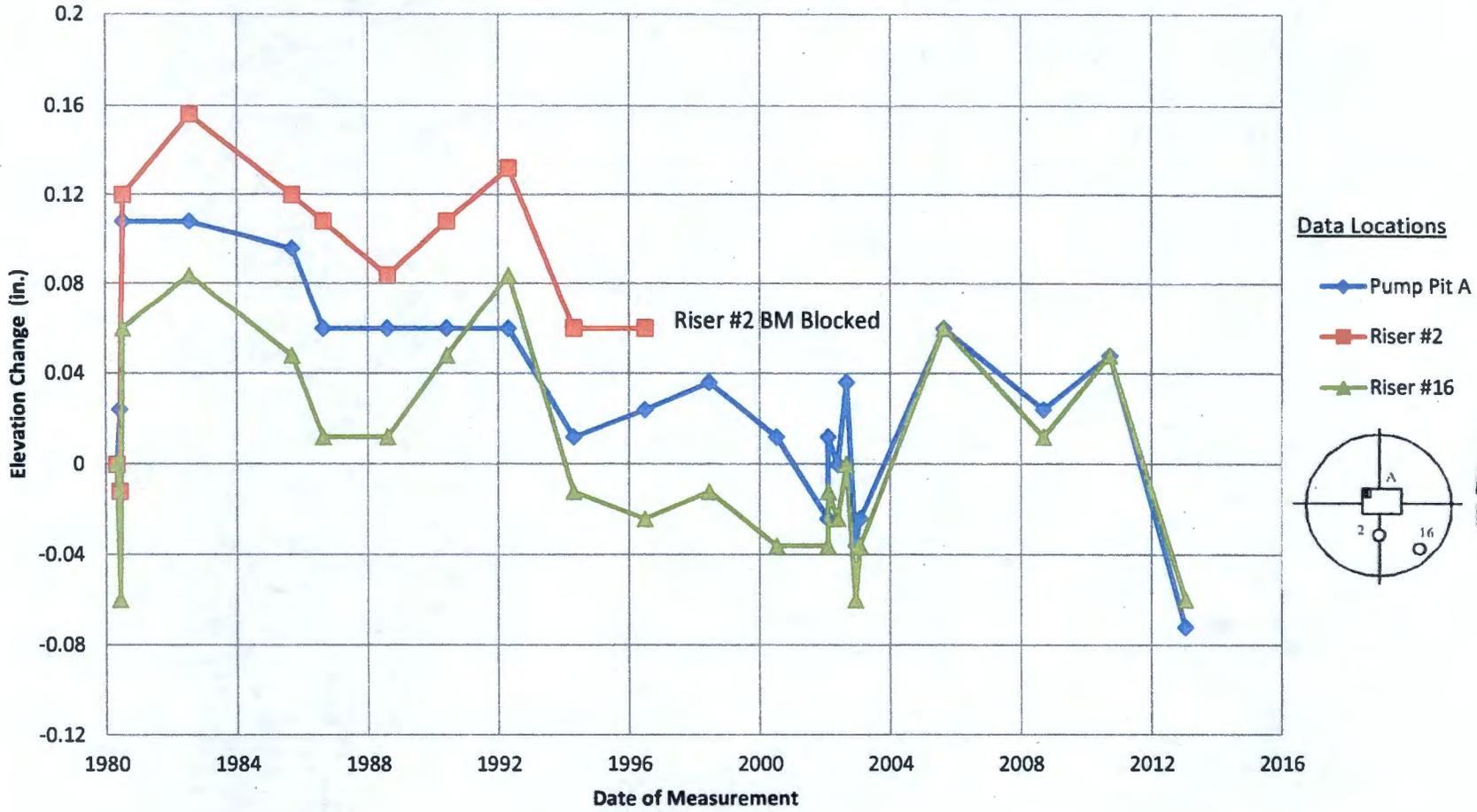


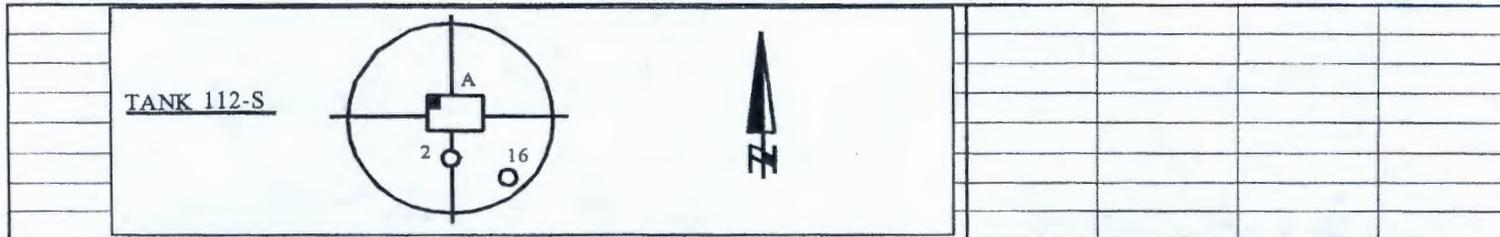


DATE	PUMP PIT A			RISER 2			RISER 16		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
4/29/80	664.429	0	0	665.121	0	0	665.101	0	0
6/4/80	664.431	0.002	0.002	665.120	-0.001	-0.001	665.096	-0.005	-0.005
7/9/80	664.438	0.007	0.009	665.131	0.011	0.010	665.106	0.010	0.005
7/20/82	664.438	0	0.009	665.134	0.003	0.013	665.108	0.002	0.007
9/5/85	664.437	-0.001	0.008	665.131	-0.003	0.010	665.105	-0.003	0.004
8/20/86	664.434	-0.003	0.005	665.130	-0.001	0.009	665.102	-0.003	0.001
8/5/88	664.434	0	0.005	665.128	-0.002	0.007	665.102	0	0.001
5/30/90	664.434	0	0.005	665.130	0.002	0.009	665.105	0.003	0.004
4/25/92	664.434	0	0.005	665.132	0.002	0.011	665.108	0.003	0.007
4/20/94	664.430	-0.004	0.001	665.126	-0.006	0.005	665.100	-0.008	-0.001
6/24/96	664.431	0.001	0.002	665.126	0	0.005	665.099	-0.001	-0.002
6/16/98	664.432	0.001	0.003		BLOCKED		665.100	0.001	-0.001
7/10/00	664.430	-0.002	0.001		BLOCKED		665.098	-0.002	-0.003
2/2/02	664.427	-0.003	-0.002		BLOCKED		665.098	0	-0.003
2/6/02	664.430	0.003	0.001		BLOCKED		665.100	0.002	-0.001
5/23/02	664.429	-0.001	0.000		BLOCKED		665.099	-0.001	-0.002
8/28/02	664.432	0.003	0.003		BLOCKED		665.101	0.002	0
12/9/02	664.426	-0.006	-0.003		BLOCKED		665.096	-0.005	-0.005
1/29/03	664.427	0.001	-0.002		BLOCKED		665.098	0.002	-0.003
8/25/05	664.434	0.007	0.005		Blocked-Wrapped		665.106	0.008	0.005
9/9/08	664.431	-0.003	0.002		Blocked-Wrapped		665.102	-0.004	0.001
9/22/10	664.433	0.002	0.004		Blocked-Wrapped		665.105	0.003	0.004
1/17/13	664.423	-0.010	-0.006		Blocked-Wrapped		665.096	-0.009	-0.005

S-21

Tank 241-S-111 Dome Benchmark Elevation Change

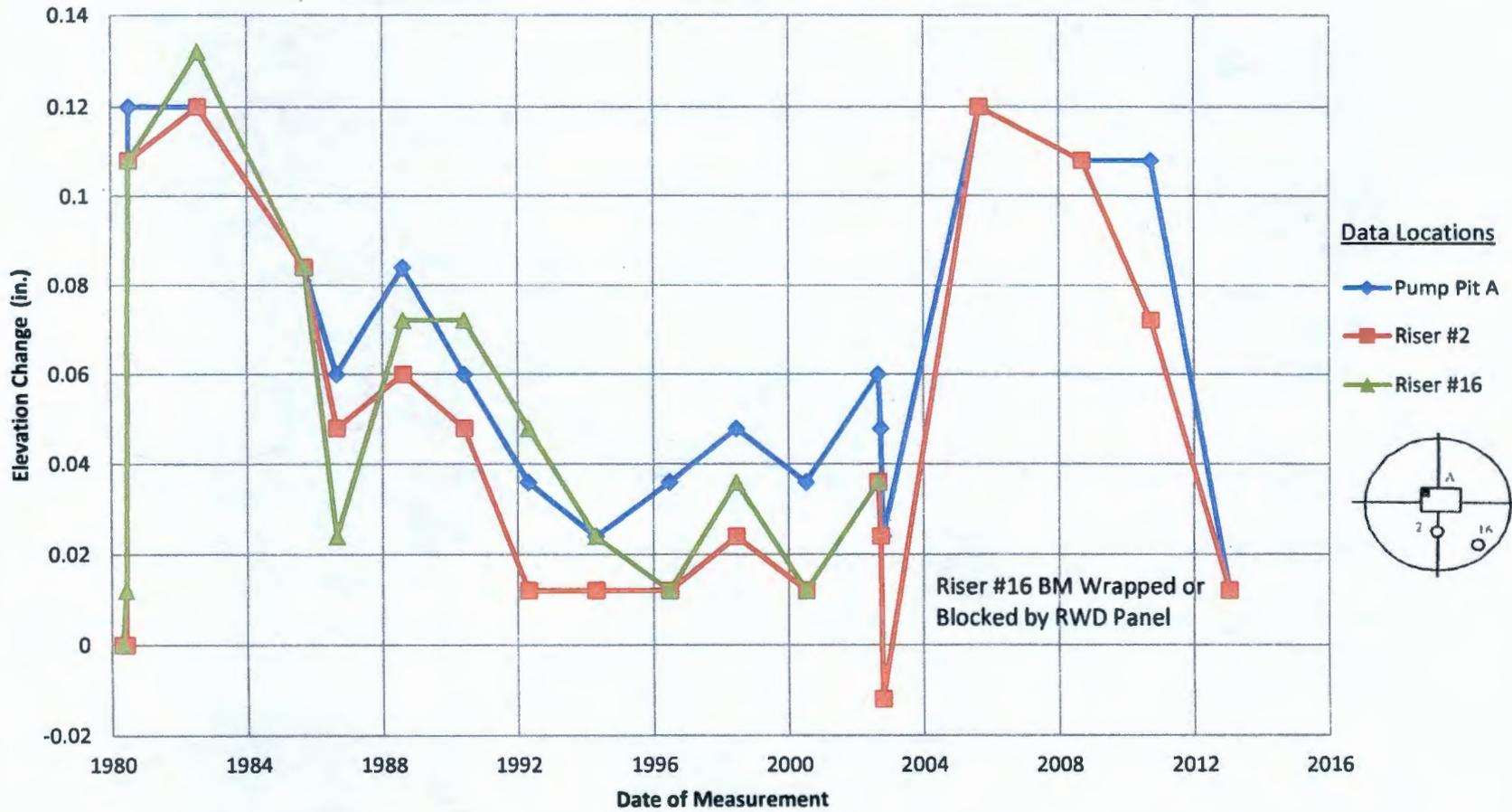




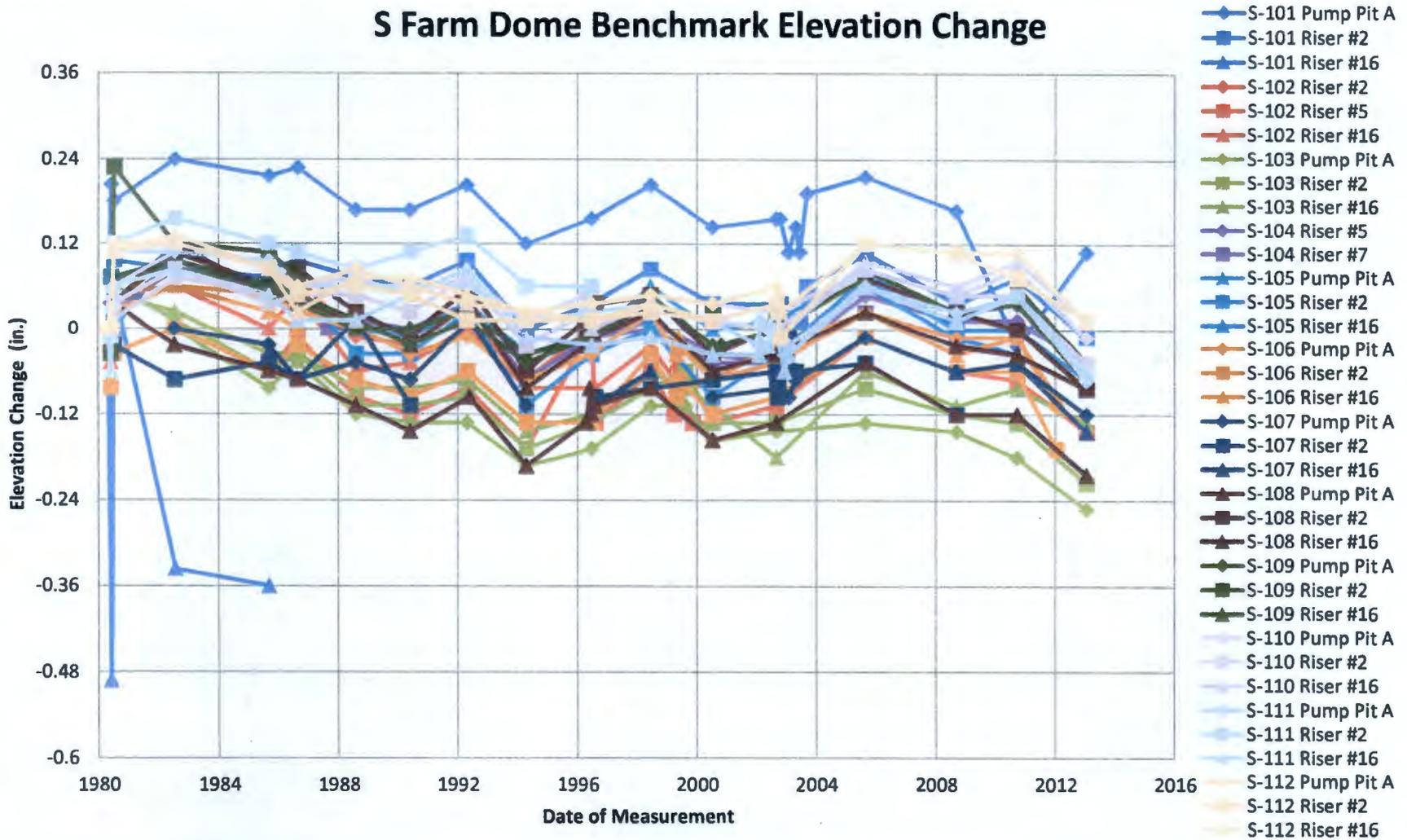
DATE	PUMP PIT A			RISER 2			RISER 16		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
4/29/80	663.427	0	0	663.837	0	0	663.870	0	0
6/4/80	663.427	0	0	663.837	0	0	663.871	0.001	0.001
7/9/80	663.437	0.010	0.010	663.846	0.009	0.009	663.879	0.008	0.009
7/20/82	663.437	0	0.010	663.847	0.001	0.010	663.881	0.002	0.011
9/5/85	663.434	-0.003	0.007	663.844	-0.003	0.007	663.877	-0.004	0.007
8/20/86	663.432	-0.002	0.005	663.841	-0.003	0.004	663.872	-0.005	0.002
8/5/88	663.434	0.002	0.007	663.842	0.001	0.005	663.876	0.004	0.006
5/30/90	663.432	-0.002	0.005	663.841	-0.001	0.004	663.876	0	0.006
4/25/92	663.430	-0.002	0.003	663.838	-0.003	0.001	663.874	-0.002	0.004
4/20/94	663.429	-0.001	0.002	663.838	0	0.001	663.872	-0.002	0.002
6/24/96	663.430	0.001	0.003	663.838	0	0.001	663.871	-0.001	0.001
6/16/98	663.431	0.001	0.004	663.839	0.001	0.002	663.873	0.002	0.003
7/10/00	663.430	-0.001	0.003	663.838	-0.001	0.001	663.871	-0.002	0.001
8/28/02	663.432	0.002	0.005	663.840	0.002	0.003	663.873	0.002	0.003
9/26/02	663.431	-0.001	0.004	663.839	-0.001	0.002	Riser Wrapped at this time		
10/17/02	663.429	-0.002	0.002	663.836	-0.003	-0.001	Riser Wrapped at this time		
8/25/05	663.437	0.008	0.010	663.847	0.011	0.010	Blocked By RWD Panel		
9/9/08	663.436	-0.001	0.009	663.846	-0.001	0.009	Blocked By RWD Panel		
9/22/10	663.436	0	0.009	663.843	-0.003	0.006	Blocked By RWD Panel		
1/17/13	663.428	-0.008	0.001	663.838	-0.005	0.001	Blocked By RWD Panel		

S-23

Tank 241-S-112 Dome Benchmark Elevation Change



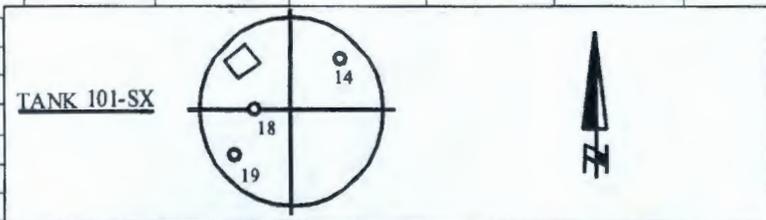
S Farm Dome Benchmark Elevation Change



Appendix SX – 241-SX Farm Dome Survey Data and Plots

Tank 101-SX Dome Settlement Study

FIELD SKETCH



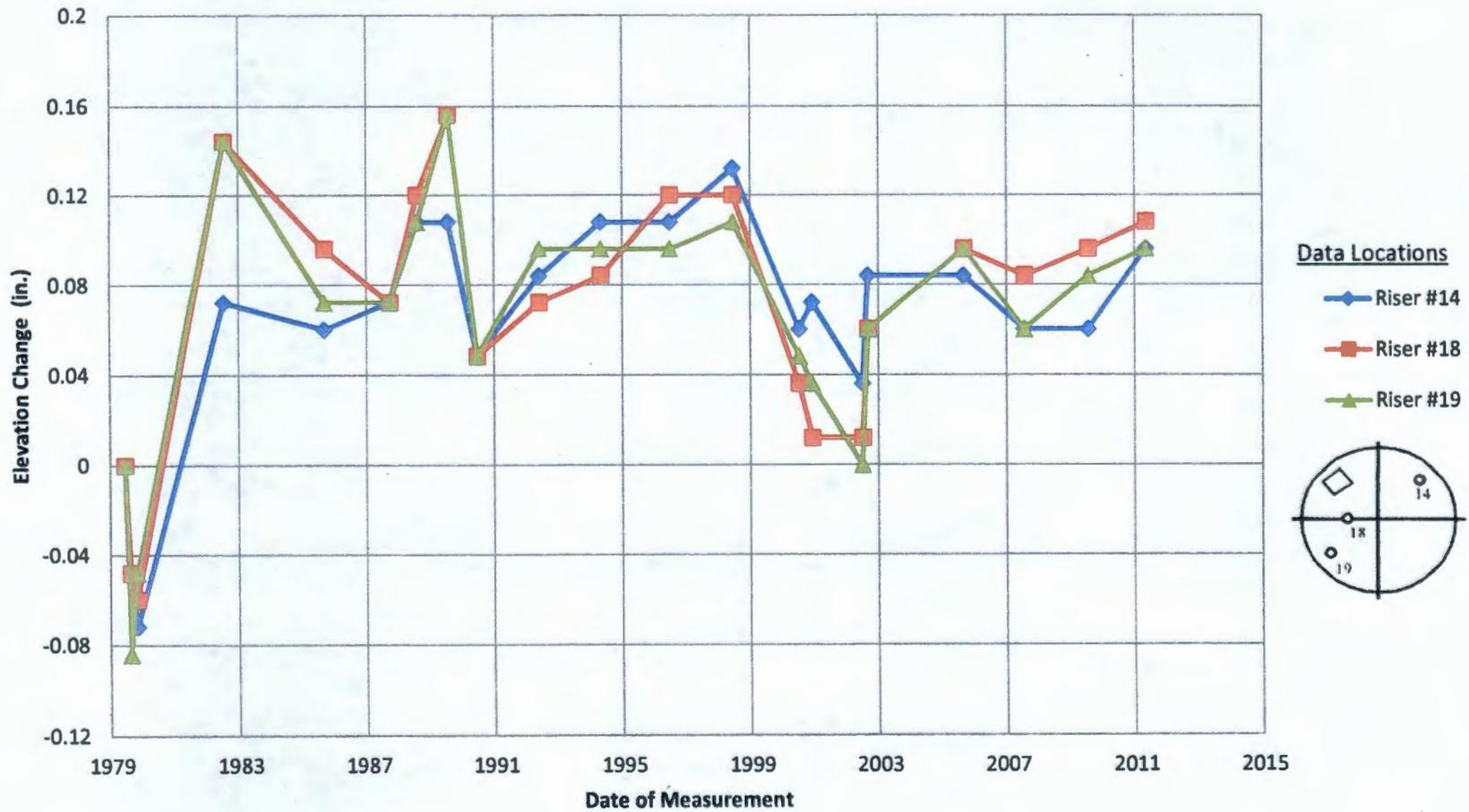
RPP-20451, Rev. 0D
 Mon's Held - N35144.00 W75576.00 EL = 663.416
 (NAVD88-Ft. Ref. Elev= 666.837)
 ATTACH. Survey
 Page: SX-Survey-2 of 16
 SX-Dome.xls
 Mon's - N35552.00 W75576.00 EL = 662.721
 (NAVD88-Ft. Ref. Elev= 666.138)

DATE	RISER 14			RISER 18			RISER 19			RISER		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
6/18/79	663.924	0	0	664.314	0	0	664.347	0	0			
8/20/79	663.920	-0.004	-0.004	664.310	-0.004	-0.004	664.340	-0.007	-0.007			
9/10/79												
11/2/79	663.918	-0.002	-0.006	664.309	-0.001	-0.005	664.343	0.003	-0.004			
7/20/82	663.930	0.012	0.006	664.326	0.017	0.012	664.359	0.016	0.012			
9/6/85	663.929	-0.001	0.005	664.322	-0.004	0.008	664.353	-0.006	0.006			
9/22/87	663.930	0.001	0.006	664.320	-0.002	0.006	664.353	0	0.006			
8/5/88	663.933	0.003	0.009	664.324	0.004	0.01	664.356	0.003	0.009			
7/25/89	663.933	0	0.009	664.327	0.003	0.013	664.360	0.004	0.013			
6/20/90	663.928	-0.005	0.004	664.318	-0.009	0.004	664.351	-0.009	0.004			
5/28/92	663.931	0.003	0.007	664.320	0.002	0.006	664.355	0.004	0.008			
4/28/94	663.933	0.002	0.009	664.321	0.001	0.007	664.355	0	0.008			
6/25/96	663.933	0	0.009	664.324	0.003	0.01	664.355	0	0.008			
6/17/98	663.935	0.002	0.011	664.324	0	0.010	664.356	0.001	0.009			
7/12/00	663.929	-0.006	0.005	664.317	-0.007	0.003	664.351	-0.005	0.004			
12/7/00	663.930	0.001	0.006	664.315	-0.002	0.001	664.350	-0.001	0.003			
7/3/02	663.927	-0.003	0.003	664.315	0	0.001	664.347	-0.003	0			
9/6/02	663.931	0.004	0.007	664.319	0.004	0.005	664.352	0.005	0.005			
9/2/05	663.931	0	0.007	664.322	0.003	0.008	664.355	0.003	0.008			
7/25/07	663.929	-0.002	0.005	664.321	-0.001	0.007	664.352	-0.003	0.005			
7/22/09	663.929	0	0.005	664.322	0.001	0.008	664.354	0.002	0.007			
5/11/11	663.932	0.003	0.008	664.323	0.001	0.009	664.355	0.001	0.008			

SX-1

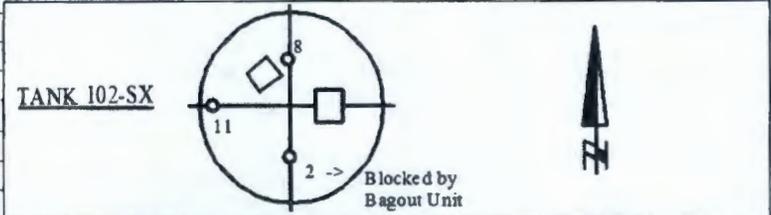
SX-2

Tank 241-SX-101 Dome Benchmark Elevation Change



Tank 102-SX Dome Settlement Study

FIELD SKETCH



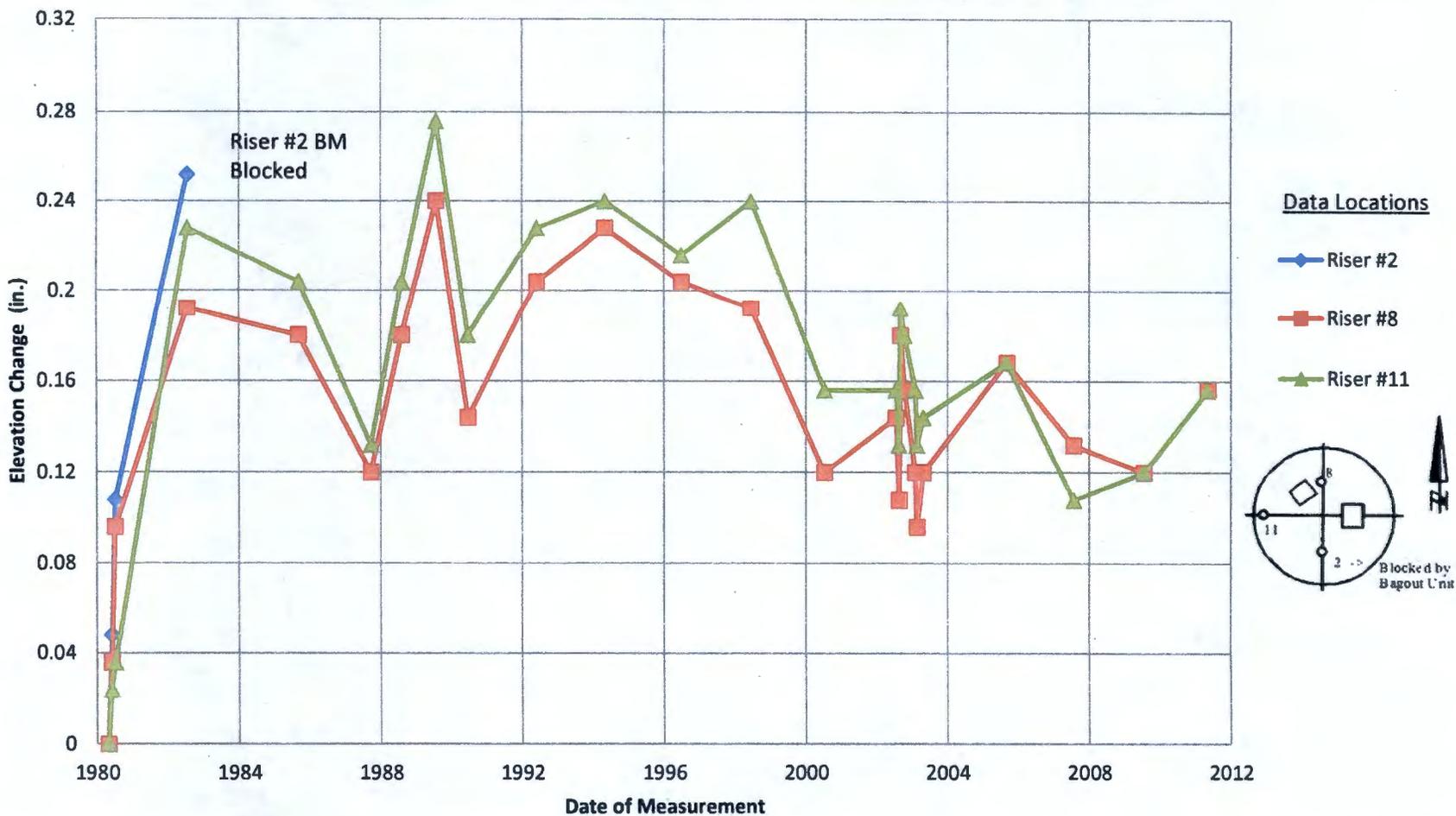
RPP-20451, Rev. 0D
 ATTACH. Survey
 Page: SX-Survey-3 of 16
 SX-Dome.xls

DATE	RISER 2			RISER 8			RISER 11			RISER		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
4/29/80	662.424	0	0	662.358	0	0	662.500	0	0			
6/4/80	662.428			662.361	0.003	0.003	662.502	0.002	0.002			
7/9/80	662.433	-0.001	-0.004	662.366	0.005	0.008	662.503	0.001	0.003			
7/20/82	662.445	0.012	0.008	662.374	0.008	0.016	662.519	0.016	0.019			
9/6/85				662.373	-0.001	0.015	662.517	-0.002	0.017			
9/22/87		BLOCKED		662.368	-0.005	0.010	662.511	-0.006	0.011			
8/3/88		BLOCKED		662.373	0.005	0.015	662.517	0.006	0.017			
7/25/89		BLOCKED		662.378	0.005	0.020	662.523	0.006	0.023			
6/20/90		BLOCKED		662.370	-0.008	0.012	662.515	-0.008	0.015			
5/28/92		BLOCKED		662.375	0.005	0.017	662.519	0.004	0.019			
4/28/94		BLOCKED		662.377	0.002	0.019	662.520	0.001	0.020			
6/25/96		BLOCKED		662.375	-0.002	0.017	662.518	-0.002	0.018			
6/17/98		BLOCKED		662.374	-0.001	0.016	662.520	0.002	0.020			
7/12/00		BLOCKED		662.368	-0.006	0.010	662.513	-0.007	0.013			
7/22/02		BLOCKED		662.370	0.002	0.012	662.513	0	0.013			
8/23/02		BLOCKED		662.367	-0.003	0.009	662.511	-0.002	0.011			
9/6/02		BLOCKED		662.373	0.006	0.015	662.516	0.005	0.016			
10/17/02		BLOCKED		662.371	-0.002	0.013	662.515	-0.001	0.015			
2/5/03		BLOCKED		662.368	-0.003	0.010	662.513	-0.002	0.013			
2/20/03		BLOCKED		662.366	-0.002	0.008	662.511	-0.002	0.011			
4/28/03		BLOCKED		662.368	0.002	0.010	662.512	0.001	0.012			
9/2/05		BLOCKED		662.372	0.004	0.014	662.514	0.002	0.014			
7/25/07		BLOCKED		662.369	-0.003	0.011	662.509	-0.005	0.009			
7/22/09		BLOCKED		662.368	-0.001	0.010	662.510	0.001	0.010			
5/11/11		BLOCKED		662.371	0.003	0.013	662.513	0.003	0.013			

SX-3

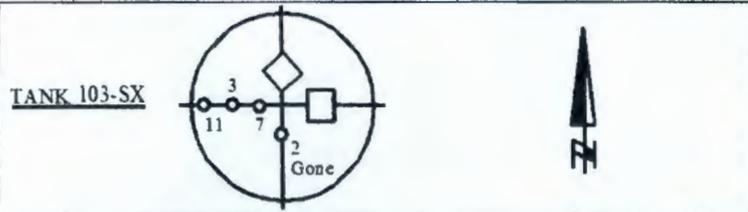
SX-4

Tank 241-SX-102 Dome Benchmark Elevation Change



Tank 103-SX Dome Settlement Study

FIELD SKETCH



RPP-20451, Rev. 0D
 ATTACH. Survey
 Page: SX-Survey-4 of 16
 SX-Dome.xls

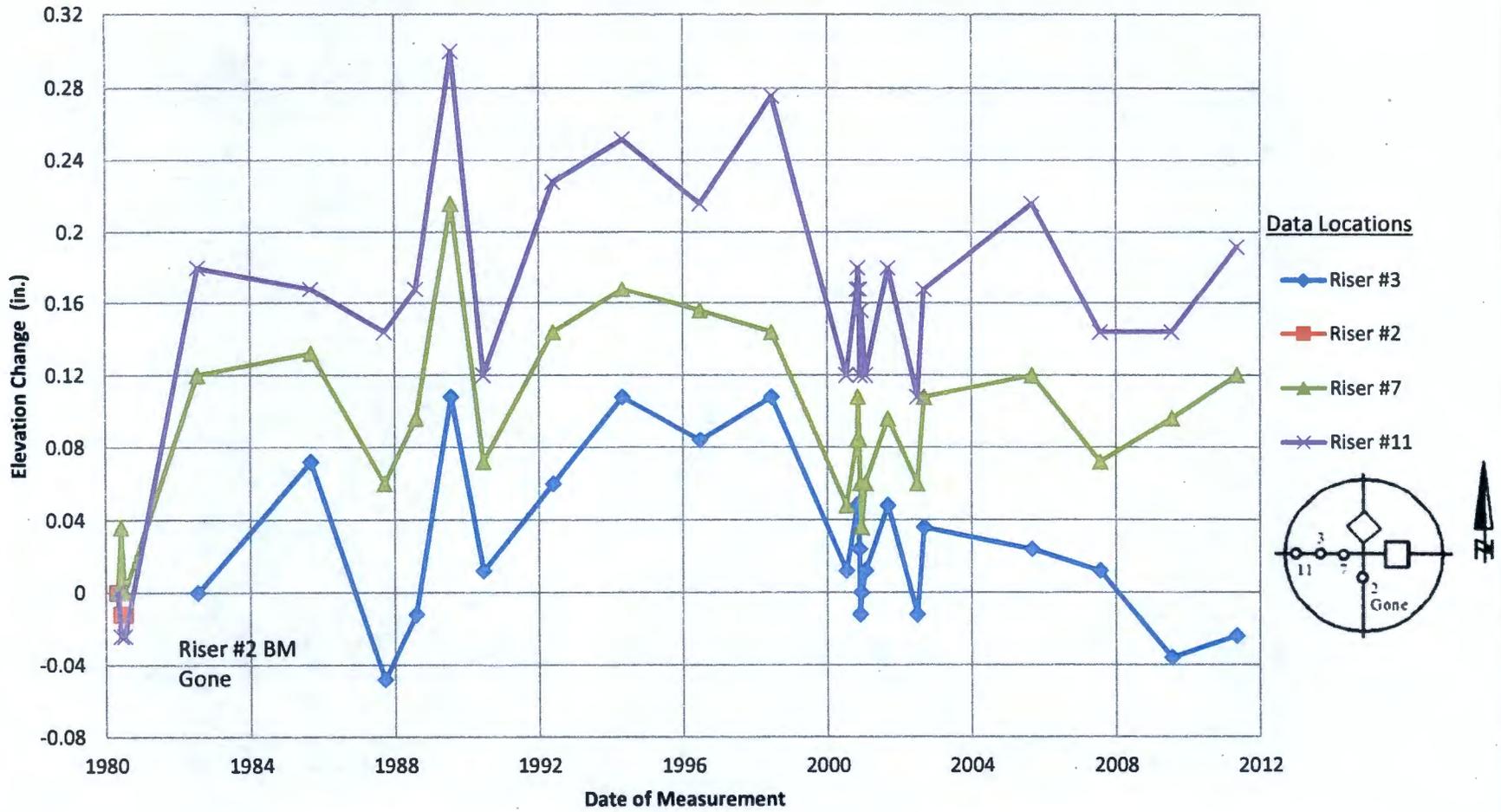
* 9/22/87 Revised Diagram

DATE	RISER 3			RISER 2			RISER 7			RISER 11		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
4/29/80				661.380	0	0	661.380	0	0	661.910	0	0
6/4/80				661.379	-0.001	-0.001	661.383	0.003	0.003	661.908	-0.002	-0.002
7/9/80				661.379	0	-0.001	661.380	-0.003	0	661.908	0	-0.002
7/20/82	661.393	0	0				661.390	0.010	0.010	661.925	0.017	0.015
9/6/85	661.399	0.006	0.006				661.391	0.001	0.011	661.924	-0.001	0.014
9/22/87	661.389	-0.010	-0.004		GONE		661.385	-0.006	0.005	661.922	-0.002	0.012
8/3/88	661.392	0.003	-0.001		GONE		661.388	0.003	0.008	661.924	0.002	0.014
7/25/89	661.402	0.010	0.009		GONE		661.398	0.010	0.018	661.935	0.011	0.025
6/20/90	661.394	-0.008	0.001		GONE		661.386	-0.012	0.006	661.920	-0.015	0.010
5/28/92	661.398	0.004	0.005		GONE		661.392	0.006	0.012	661.929	0.009	0.019
4/28/94	661.402	0.004	0.009		GONE		661.394	0.002	0.014	661.931	0.002	0.021
6/25/96	661.400	-0.002	0.007		GONE		661.393	-0.001	0.013	661.928	-0.003	0.018
6/17/98	661.402	0.002	0.009		GONE		661.392	-0.001	0.012	661.933	0.005	0.023
7/12/00	661.394	-0.008	0.001				661.384	-0.008	0.004	661.920	-0.013	0.010
10/30/00	661.397	0.003	0.004				661.387	0.003	0.007	661.924	0.004	0.014
11/6/00	661.397	0	0.004				661.389	0.002	0.009	661.925	0.001	0.015
11/21/00	661.395	-0.002	0.002				661.387	-0.002	0.007	661.924	-0.001	0.014
11/29/00	661.392	-0.003	-0.001				661.385	-0.002	0.005	661.920	-0.004	0.010
12/11/00	661.393	0.001	0				661.383	-0.002	0.003	661.923	0.003	0.013
1/22/01	661.394	0.001	0.001				661.385	0.002	0.005	661.920	-0.003	0.010
9/4/01	661.397	0.003	0.004				661.388	0.003	0.008	661.925	0.005	0.015
7/3/02	661.392	-0.005	-0.001				661.385	-0.003	0.005	661.919	-0.006	0.009
9/6/02	661.396	0.004	0.003				661.389	0.004	0.009	661.924	0.005	0.014
9/2/05	661.395	-0.001	0.002				661.390	0.001	0.010	661.928	0.004	0.018
7/25/07	661.394	-0.001	0.001				661.386	-0.004	0.006	661.922	-0.006	0.012
7/22/09	661.390	-0.004	-0.003		GONE		661.388	0.002	0.008	661.922	0	0.012
5/11/11	661.391	0.001	-0.002		GONE		661.390	0.002	0.010	661.926	0.004	0.016

SX-5

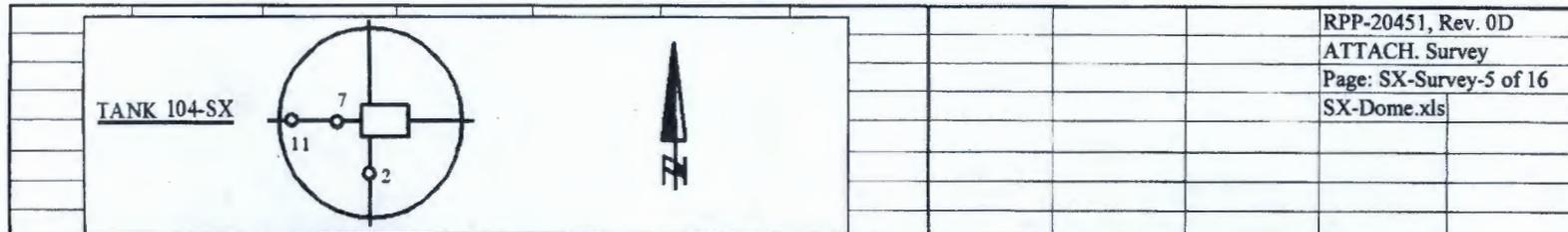
RPP-RPT-55202, Rev. 0

Tank 241-SX-103 Dome Benchmark Elevation Change



Tank 104-SX Dome Settlement Study

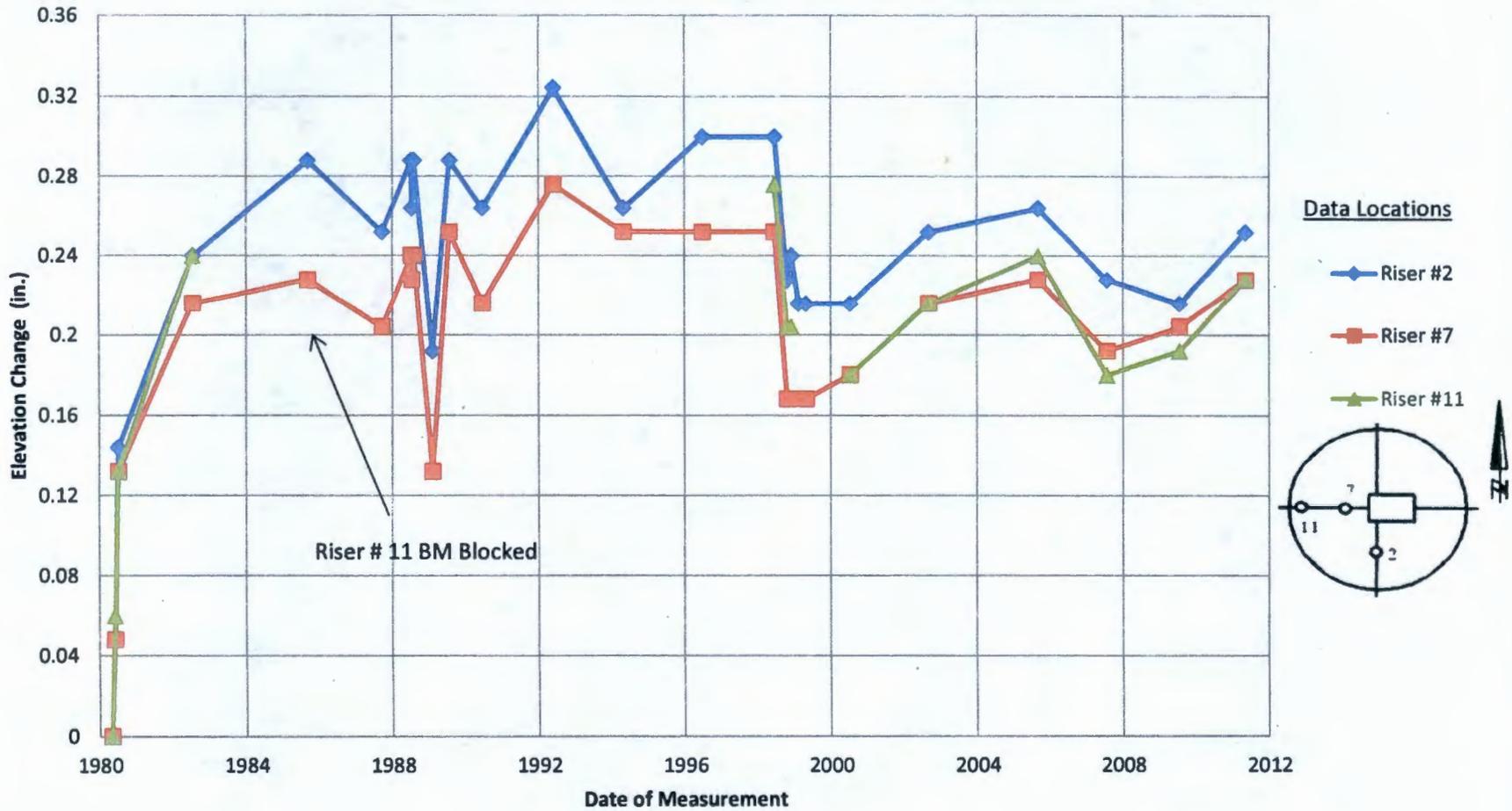
FIELD SKETCH



DATE	RISER 2			RISER 7			RISER 11		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
4/29/80	663.413	0	0	663.317	0	0	663.394	0	0
6/4/80	663.417	0.004	0.004	663.321	0.004	0.004	663.399	0.005	0.005
7/9/80	663.425	0.008	0.012	663.328	0.007	0.011	663.405	0.006	0.011
7/20/82	663.433	0.008	0.020	663.335	0.007	0.018	663.414	0.009	0.020
9/6/85	663.437	0.004	0.024	663.336	0.001	0.019			
9/22/87	663.434	-0.003	0.021	663.334	-0.002	0.017		BLOCKED	
7/6/88	663.437	0.003	0.024	663.337	0.003	0.02		BLOCKED	
7/15/88	663.435	-0.002	0.022	663.336	-0.001	0.019		BLOCKED	
8/3/88	663.437	0.002	0.024	663.337	0.001	0.02		BLOCKED	
2/7/89	663.429	-0.008	0.016	663.328	-0.009	0.011		BLOCKED	
7/25/89	663.437	0.008	0.024	663.338	0.010	0.021		BLOCKED	
6/20/90	663.435	-0.002	0.022	663.335	-0.003	0.018		BLOCKED	
5/28/92	663.440	0.005	0.027	663.340	0.005	0.023		BLOCKED	
4/28/94	663.435	-0.005	0.022	663.338	-0.002	0.021		BLOCKED	
6/25/96	663.438	0.003	0.025	663.338	0	0.021		BLOCKED	
6/17/98	663.438	0	0.025	663.338	0	0.021	663.417	0.003	0.023
10/22/98	663.432	-0.006	0.019	663.331	-0.007	0.014	663.411	-0.006	0.017
12/4/98	663.433	0.001	0.020	663.331	0	0.014	663.411	0.000	0.017
2/16/99	663.431	-0.002	0.018	663.331	0	0.014		BLOCKED	
4/28/99	663.431	0	0.018	663.331	0	0.014		BLOCKED	
7/12/00	663.431	0	0.018	663.332	0.001	0.015	663.409	-0.002	0.015
9/6/02	663.434	0.003	0.021	663.335	0.003	0.018	663.412	0.003	0.018
9/2/05	663.435	0.001	0.022	663.336	0.001	0.019	663.414	0.002	0.020
7/25/07	663.432	-0.003	0.019	663.333	-0.003	0.016	663.409	-0.005	0.015
7/22/09	663.431	-0.001	0.018	663.334	0.001	0.017	663.410	0.001	0.016
5/11/11	663.434	0.003	0.021	663.336	0.002	0.019	663.413	0.003	0.019

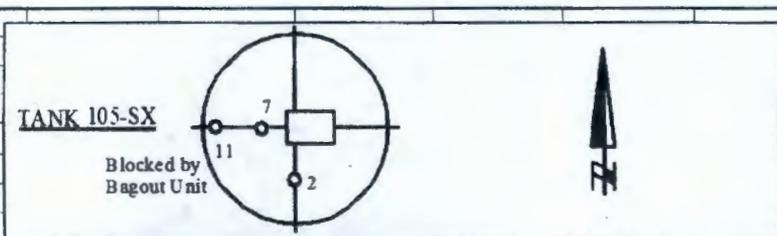
SX-7

Tank 241-SX-104 Dome Benchmark Elevation Change



Tank 105-SX Dome Settlement Study

FIELD SKETCH



RPP-20451, Rev. 0D
 ATTACH. Survey
 Page: SX-Survey-6 of 16
 SX-Dome.xls

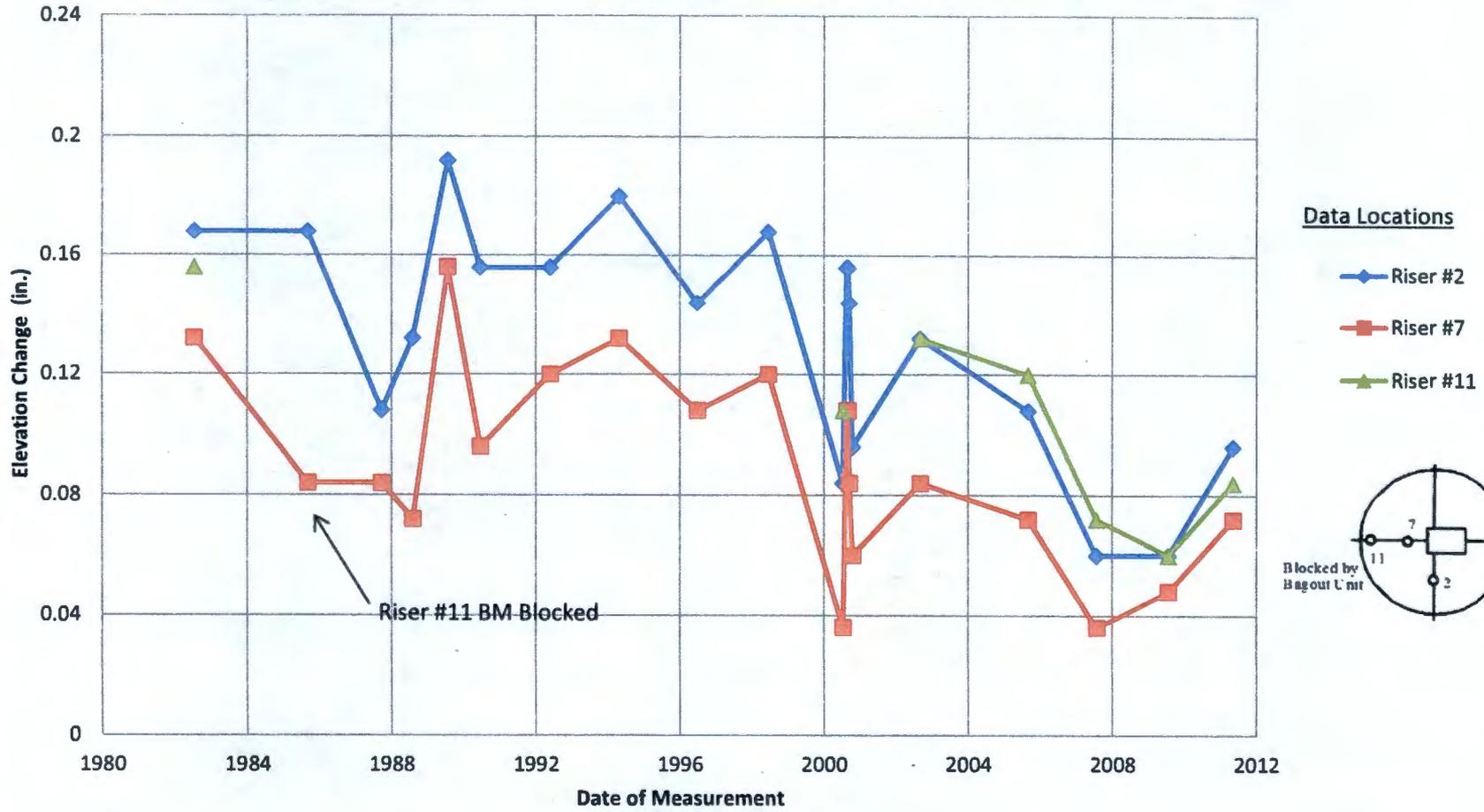
DATE	RISER 2			RISER 7			RISER 11			RISER		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
4/29/80	662.415	0	0	662.397	0	0	662.589	0	0			
6/4/80	663.414	0.999	0.999	663.395	0.998	0.998	662.589	0	0			
7/9/80	663.422	0.008	1.007	663.401	0.006	1.004	662.596	0.007	0.007			
7/20/82	662.429	-0.993	0.014	662.408	-0.993	0.011	662.602	0.006	0.013			
9/6/85	662.429	0	0.014	662.404	-0.004	0.007						
9/22/87	662.424	-0.005	0.009	662.404	0	0.007		BLOCKED				
8/3/88	662.426	0.002	0.011	662.403	-0.001	0.006		BLOCKED				
7/25/89	662.431	0.005	0.016	662.410	0.007	0.013		BLOCKED				
6/20/90	662.428	-0.003	0.013	662.405	-0.005	0.008		BLOCKED				
5/28/92	662.428	0	0.013	662.407	0.002	0.010		BLOCKED				
4/28/94	662.430	0.002	0.015	662.408	0.001	0.011		BLOCKED				
6/25/96	662.427	-0.003	0.012	662.406	-0.002	0.009		BLOCKED				
6/17/98	662.429	0.002	0.014	662.407	0.001	0.010		BLOCKED				
7/12/00	662.422	-0.007	0.007	662.400	-0.007	0.003	662.598	-0.004	0.009			
8/21/00	662.428	0.006	0.013	662.406	0.006	0.009		BLOCKED				
8/30/00	662.428	0	0.013	662.406	0	0.009		BLOCKED				
9/13/00	662.427	-0.001	0.012	662.404	-0.002	0.007		BLOCKED				
10/16/00	662.423	-0.004	0.008	662.402	-0.002	0.005		BLOCKED				
9/6/02	662.426	0.003	0.011	662.404	0.002	0.007	662.600	0.002	0.011			
9/2/05	662.424	-0.002	0.009	662.403	-0.001	0.006	662.599	-0.001	0.010			
7/25/07	662.420	-0.004	0.005	662.400	-0.003	0.003	662.595	-0.004	0.006			
7/22/09	662.420	0.000	0.005	662.401	0.001	0.004	662.594	-0.001	0.005			
5/11/11	662.423	0.003	0.008	662.403	0.002	0.006	662.596	0.002	0.007			

SX-6

RPP-RPT-55202, Rev. 0

SX-10

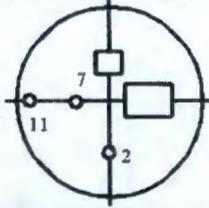
Tank 241-SX-105 Dome Benchmark Elevation Change (excluding outliers)



Tank 106-SX Dome Settlement Study

FIELD SKETCH

TANK 106-SX

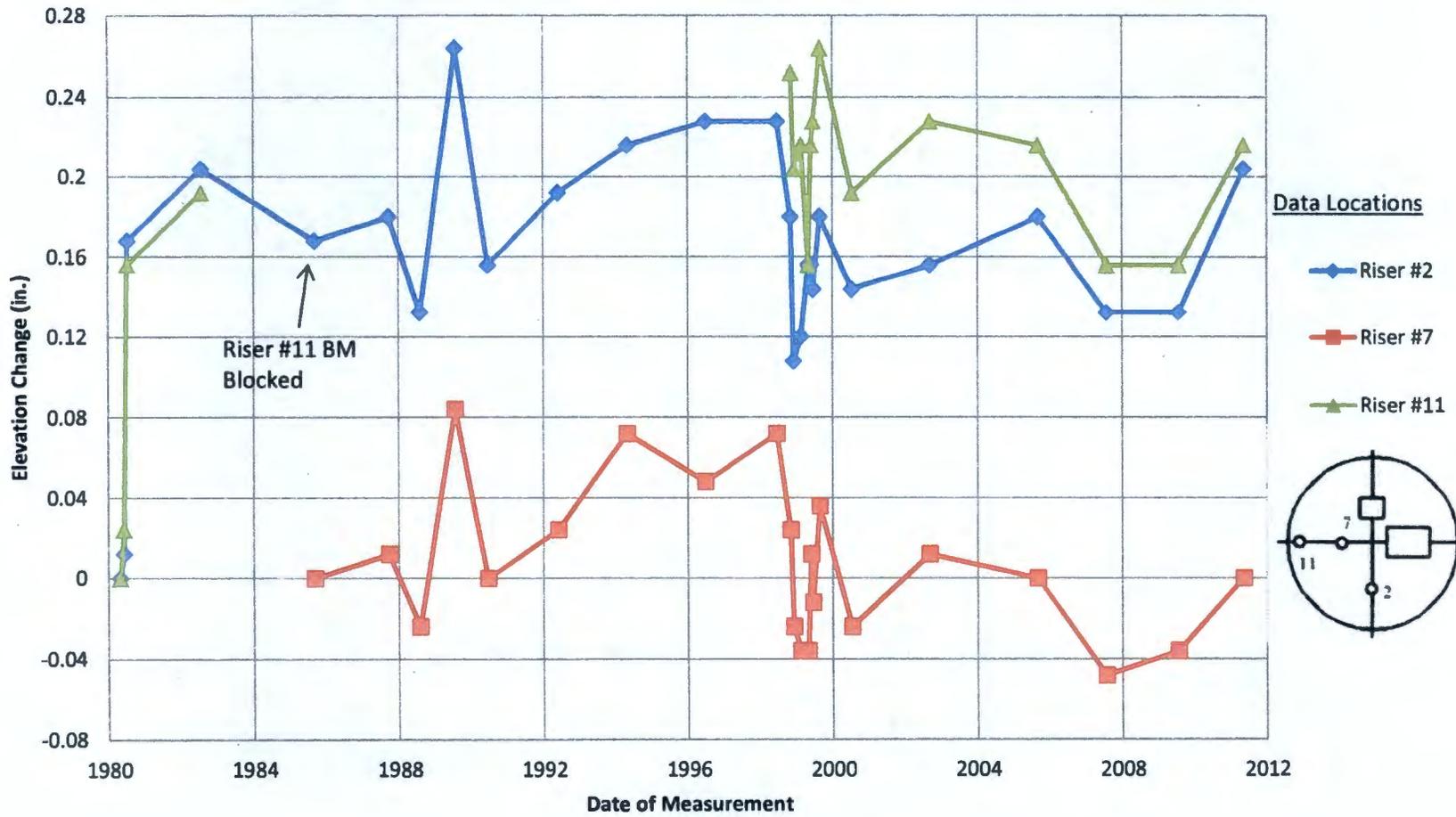


RPP-20451, Rev. 0D
 ATTACH. Survey
 Page: SX-Survey-7 of 16
 SX-Dome.xls

DATE	RISER 2			RISER 7			RISER 11			RISER		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
4/29/80	661.391	0	0				661.690	0	0			
6/4/80	661.392	0.001	0.001				661.692	0.002	0.002			
7/9/80	661.405	0.013	0.014				661.703	0.011	0.013			
7/20/82	661.408	0.003	0.017				661.706	0.003	0.016			
9/6/85	661.405	-0.003	0.014	661.412	0	0						
9/22/87	661.406	0.001	0.015	661.413	0.001	0.001		BLOCKED				
8/3/88	661.402	-0.004	0.011	661.410	-0.003	-0.002		BLOCKED				
7/25/89	661.413	0.011	0.022	661.419	0.009	0.007		BLOCKED				
6/20/90	661.404	-0.009	0.013	661.412	-0.007	0		BLOCKED				
5/28/92	661.407	0.003	0.016	661.414	0.002	0.002		BLOCKED				
4/28/94	661.409	0.002	0.018	661.418	0.004	0.006		BLOCKED				
6/25/96	661.410	0.001	0.019	661.416	-0.002	0.004		BLOCKED				
6/17/98	661.410	0	0.019	661.418	0.002	0.006		BLOCKED				
11/3/98	661.406	-0.004	0.015	661.414	-0.004	0.002	661.711	0.005	0.021			
12/4/98	661.400	-0.006	0.009	661.410	-0.004	-0.002	661.707	-0.004	0.017			
2/16/99	661.401	0.001	0.010	661.409	-0.001	-0.003	661.708	0.001	0.018			
4/28/99	661.404	0.003	0.013	661.409	0	-0.003	661.703	-0.005	0.013			
5/27/99	661.404	0	0.013	661.413	0.004	0.001	661.708	0.005	0.018			
6/16/99	661.403	-0.001	0.012	661.411	-0.002	-0.001	661.709	0.001	0.019			
8/23/99	661.406	0.003	0.015	661.415	0.004	0.003	661.712	0.003	0.022			
7/12/00	661.403	-0.003	0.012	661.410	-0.005	-0.002	661.706	-0.006	0.016			
9/6/02	661.404	0.001	0.013	661.413	0.003	0.001	661.709	0.003	0.019			
9/2/05	661.406	0.002	0.015	661.412	-0.001	0	661.708	-0.001	0.018			
7/25/07	661.402	-0.004	0.011	661.408	-0.004	-0.004	661.703	-0.005	0.013			
7/22/09	661.402	0	0.011	661.409	0.001	-0.003	661.703	0	0.013			
5/11/11	661.408	0.006	0.017	661.412	0.003	0	661.708	0.005	0.018			

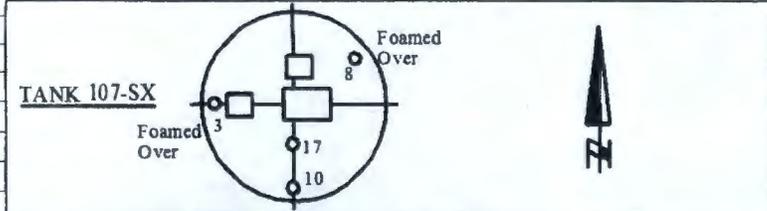
SX-11

Tank 241-SX-106 Dome Benchmark Elevation Change



Tank 107-SX Dome Settlement Study

FIELD SKETCH



RPP-20451, Rev. 0D
 ATTACH. Survey
 Page: SX-Survey-8 of 16
 SX-Dome.xls

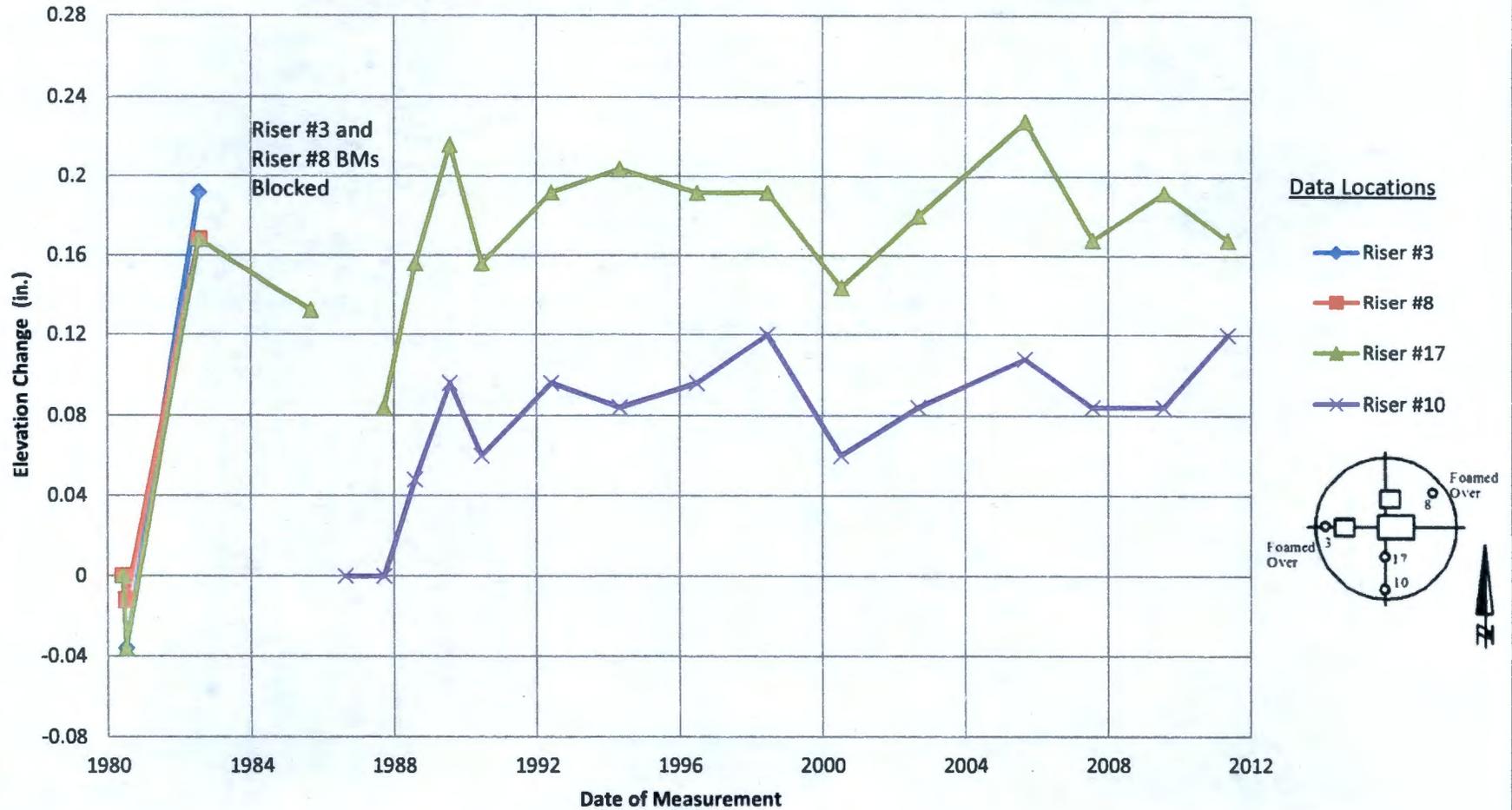
* 9/22/87 Revised Diagram

DATE	RISER 3			RISER 8			RISER 17			RISER 10		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
6/4/80	664.501	0	0	664.369	0	0	664.056	0	0			
7/9/80	664.498	-0.003	-0.003	664.368	-0.001	-0.001	664.053	-0.003	-0.003			
7/20/82	664.517	0.019	0.016	664.383	0.015	0.014	664.070	0.017	0.014			
9/6/85							664.067	-0.003	0.011			
8/25/86										664.685	0	0
9/22/87		BLOCKED			BLOCKED		664.063	-0.004	0.007	664.685	0	0
8/3/88		BLOCKED			BLOCKED		664.069	0.006	0.013	664.689	0.004	0.004
7/25/89		BLOCKED			BLOCKED		664.074	0.005	0.018	664.693	0.004	0.008
6/20/90		BLOCKED			BLOCKED		664.069	-0.005	0.013	664.690	-0.003	0.005
5/28/92		BLOCKED			BLOCKED		664.072	0.003	0.016	664.693	0.003	0.008
4/28/94		BLOCKED			BLOCKED		664.073	0.001	0.017	664.692	-0.001	0.007
6/25/96		BLOCKED			BLOCKED		664.072	-0.001	0.016	664.693	0.001	0.008
6/17/98		BLOCKED			BLOCKED		664.072	0	0.016	664.695	0.002	0.010
7/12/00		BLOCKED			BLOCKED		664.068	-0.004	0.012	664.690	-0.005	0.005
9/6/02		BLOCKED			BLOCKED		664.071	0.003	0.015	664.692	0.002	0.007
9/2/05		BLOCKED			BLOCKED		664.075	0.004	0.019	664.694	0.002	0.009
7/25/07		BLOCKED			BLOCKED		664.070	-0.005	0.014	664.692	-0.002	0.007
7/22/09		BLOCKED			BLOCKED		664.072	0.002	0.016	664.692	0	0.007
5/11/11		BLOCKED			BLOCKED		664.070	-0.002	0.014	664.695	0.003	0.010

SX-13

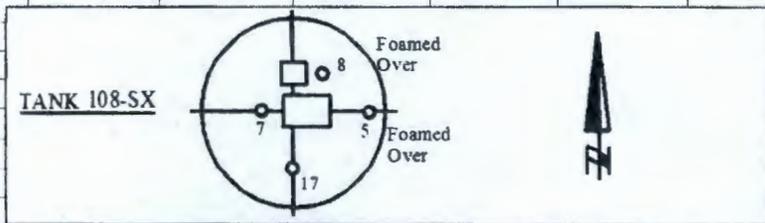
RPP-RPT-55202, Rev. 0

Tank 241-SX-107 Dome Benchmark Elevation Change



Tank 108-SX Dome Settlement Study

FIELD SKETCH



RPP-20451, Rev. 0D
 ATTACH. Survey
 Page: SX-Survey-9 of 16
 SX-Dome.xls

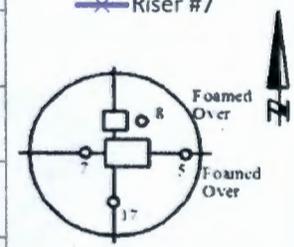
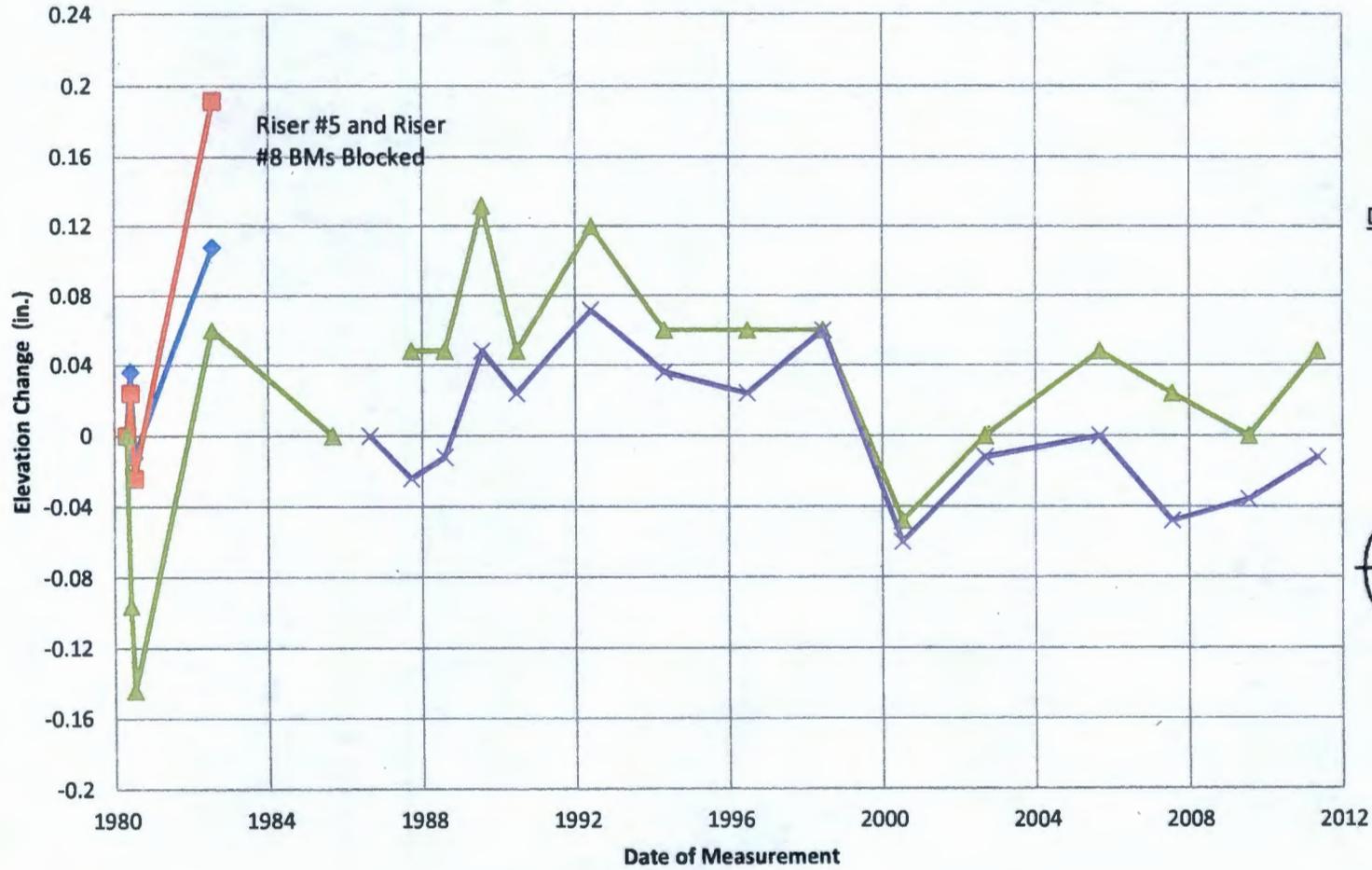
* 9/22/87 Revised Diagram

DATE	RISER 5			RISER 8			RISER 17			RISER 7		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
4/29/80	663.422	0	0	663.443	0	0	664.297	0	0			
6/4/80	663.425	0.003	0.003	663.445	0.002	0.002	664.289	-0.008	-0.008			
7/9/80	663.421	-0.004	-0.001	663.441	-0.004	-0.002	664.285	-0.004	-0.012			
7/20/82	663.431	0.010	0.009	663.459	0.018	0.016	664.302	0.017	0.005			
9/6/85							664.297	-0.005	0			
8/25/86										662.534	0	0
9/22/87		BLOCKED			BLOCKED		664.301	0.004	0.004	662.532	-0.002	-0.002
8/3/88		BLOCKED			BLOCKED		664.301	0	0.004	662.533	0.001	-0.001
7/25/89		BLOCKED			BLOCKED		664.308	0.007	0.011	662.538	0.005	0.004
6/20/90		BLOCKED			BLOCKED		664.301	-0.007	0.004	662.536	-0.002	0.002
5/28/92		BLOCKED			BLOCKED		664.307	0.006	0.010	662.540	0.004	0.006
4/28/94		BLOCKED			BLOCKED		664.302	-0.005	0.005	662.537	-0.003	0.003
6/25/96		BLOCKED			BLOCKED		664.302	0	0.005	662.536	-0.001	0.002
6/17/98		BLOCKED			BLOCKED		664.302	0	0.005	662.539	0.003	0.005
7/12/00		BLOCKED			BLOCKED		664.293	-0.009	-0.004	662.529	-0.010	-0.005
9/6/02		BLOCKED			BLOCKED		664.297	0.004	0	662.533	0.004	-0.001
9/2/05		BLOCKED			BLOCKED		664.301	0.004	0.004	662.534	0.001	0
7/25/07		BLOCKED			BLOCKED		664.299	-0.002	0.002	662.530	-0.004	-0.004
7/22/09		BLOCKED			BLOCKED		664.297	-0.002	0	662.531	0.001	-0.003
5/11/11		BLOCKED			BLOCKED		664.301	0.004	0.004	662.533	0.002	-0.001

SX-15

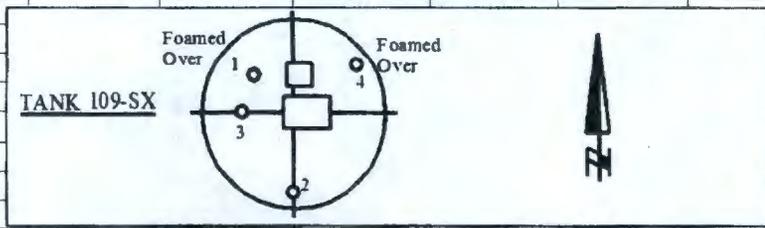
9I-XS

Tank 241-SX-108 Dome Benchmark Elevation Change



Tank 109-SX Dome Settlement Study

FIELD SKETCH



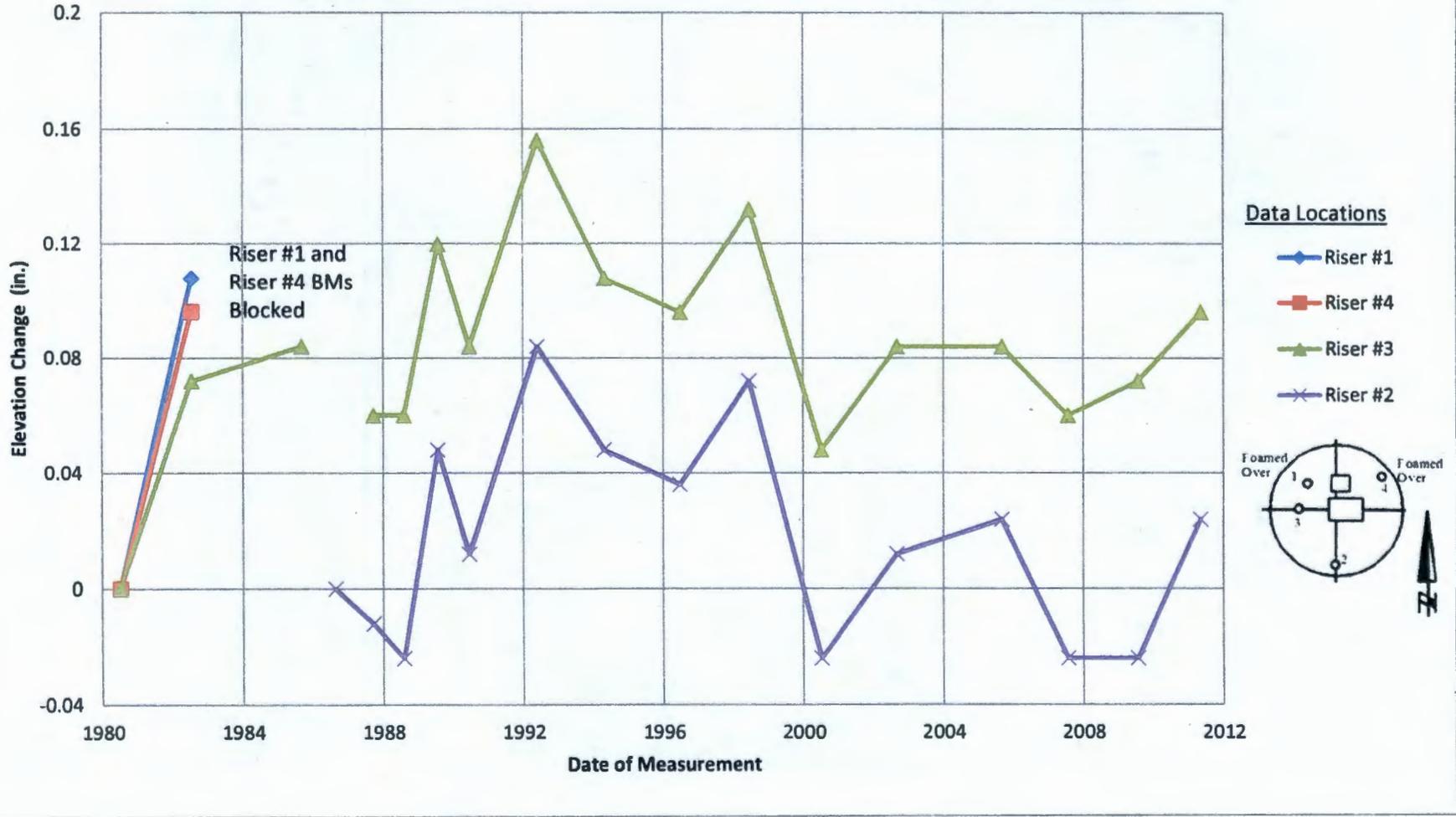
RPP-20451, Rev. 0D
 ATTACH. Survey
 Page: SX-Survey-10 of 16
 SX-Dome.xls

* 9/22/87 Revised Diagram

DATE	RISER 1			RISER 4			RISER 3			RISER 2		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
7/9/80	662.239	0	0	662.25	0	0	661.364	0	0			
7/20/82	662.248	0.009	0.009	662.258	0.008	0.008	661.370	0.006	0.006			
9/6/85							661.371	0.001	0.007			
8/25/86										661.393	0	0
9/22/87		BLOCKED			BLOCKED		661.369	-0.002	0.005	661.392	-0.001	-0.001
8/3/88		BLOCKED			BLOCKED		661.369	0	0.005	661.391	-0.001	-0.002
7/25/89		BLOCKED			BLOCKED		661.374	0.005	0.010	661.397	0.006	0.004
6/20/90		BLOCKED			BLOCKED		661.371	-0.003	0.007	661.394	-0.003	0.001
5/28/92		BLOCKED			BLOCKED		661.377	0.006	0.013	661.400	0.006	0.007
4/28/94		BLOCKED			BLOCKED		661.373	-0.004	0.009	661.397	-0.003	0.004
6/25/96		BLOCKED			BLOCKED		661.372	-0.001	0.008	661.396	-0.001	0.003
6/17/98		BLOCKED			BLOCKED		661.375	0.003	0.011	661.399	0.003	0.006
7/12/00		BLOCKED			BLOCKED		661.368	-0.007	0.004	661.391	-0.008	-0.002
9/6/02		BLOCKED			BLOCKED		661.371	0.003	0.007	661.394	0.003	0.001
9/2/05		BLOCKED			BLOCKED		661.371	0	0.007	661.395	0.001	0.002
7/25/07		BLOCKED			BLOCKED		661.369	-0.002	0.005	661.391	-0.004	-0.002
7/22/09		BLOCKED			BLOCKED		661.370	0.001	0.006	661.391	0	-0.002
5/11/11		BLOCKED			BLOCKED		661.372	0.002	0.008	661.395	0.004	0.002

SX-17

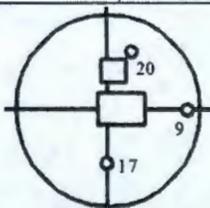
Tank 241-SX-109 Dome Benchmark Elevation Change



Tank 110-SX Dome Settlement Study

FIELD SKETCH

TANK 110-SX



RPP-20451, Rev. 0D
 ATTACH. Survey
 Page: SX-Survey-11 of 16
 SX-Dome.xls

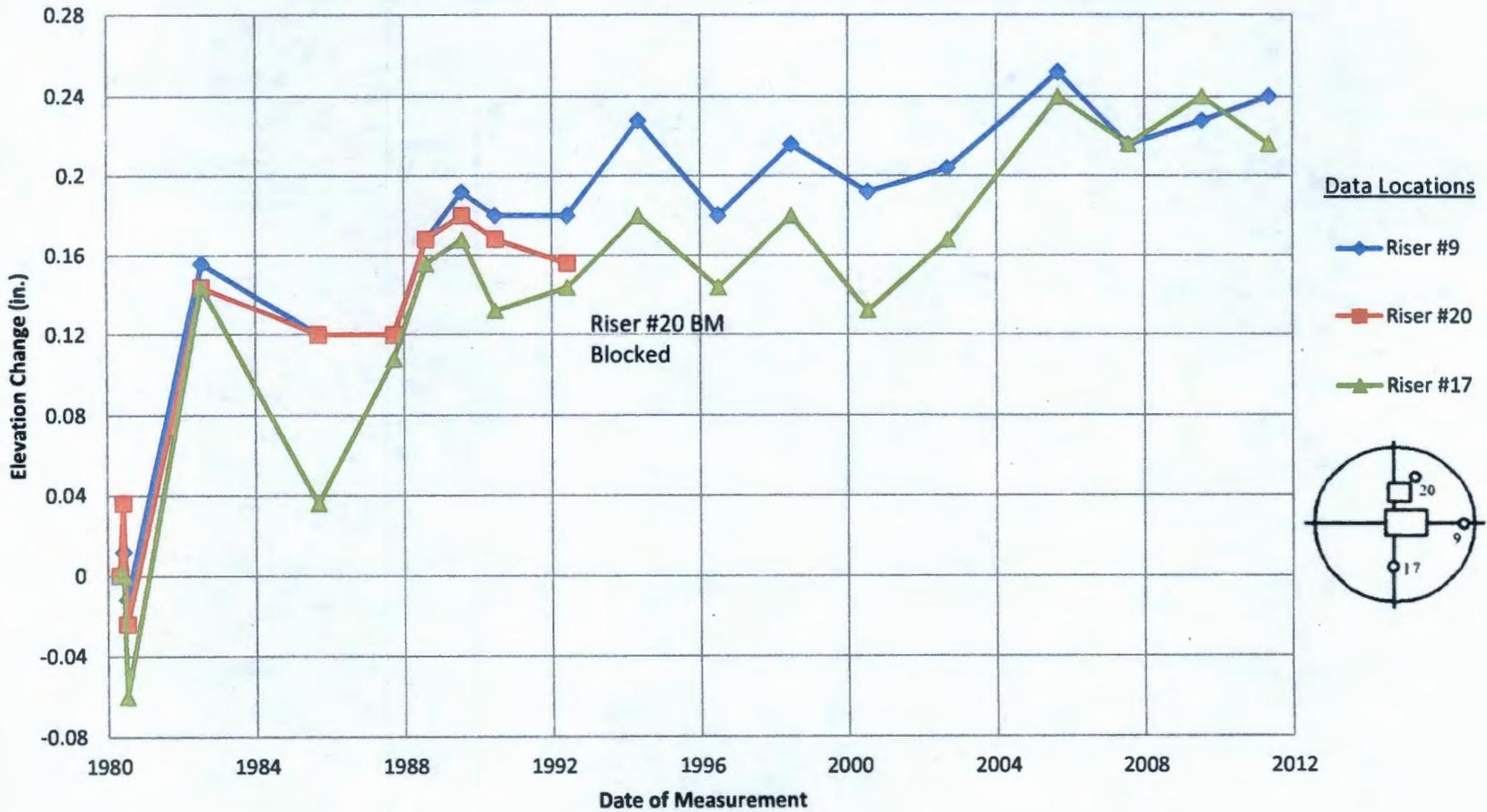
DATE	RISER 9			RISER 20			RISER 17			RISER		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
4/29/80	664.922	0	0	664.416	0	0	664.483	0	0			
6/4/80	664.923	0.001	0.001	664.419	0.003	0.003	664.483	0	0			
7/9/80	664.921	-0.002	-0.001	664.414	-0.005	-0.002	664.478	-0.005	-0.005			
7/20/82	664.935	0.014	0.013	664.428	0.014	0.012	664.495	0.017	0.012			
9/6/85	664.932	-0.003	0.01	664.426	-0.002	0.01	664.486	-0.009	0.003			
9/22/87	664.932	0	0.01	664.426	0	0.01	664.492	0.006	0.009			
8/3/88	664.936	0.004	0.014	664.430	0.004	0.014	664.496	0.004	0.013			
7/25/89	664.938	0.002	0.016	664.431	0.001	0.015	664.497	0.001	0.014			
6/20/90	664.937	-0.001	0.015	664.430	-0.001	0.014	664.494	-0.003	0.011			
5/28/92	664.937	0	0.015	664.429	-0.001	0.013	664.495	0.001	0.012			
4/28/94	664.941	0.004	0.019		BLOCKED		664.498	0.003	0.015			
6/25/96	664.937	-0.004	0.015		BLOCKED		664.495	-0.003	0.012			
6/17/98	664.940	0.003	0.018		BLOCKED		664.498	0.003	0.015			
7/12/00	664.938	-0.002	0.016		BLOCKED		664.494	-0.004	0.011			
9/6/02	664.939	0.001	0.017		BLOCKED		664.497	0.003	0.014			
9/2/05	664.943	0.004	0.021		BLOCKED		664.503	0.006	0.020			
7/25/07	664.940	-0.003	0.018		BLOCKED		664.501	-0.002	0.018			
7/22/09	664.941	0.001	0.019		BLOCKED		664.503	0.002	0.020			
5/11/11	664.942	0.001	0.020		BLOCKED		664.501	-0.002	0.018			

SX-19

RPP-RPT-55202, Rev. 0

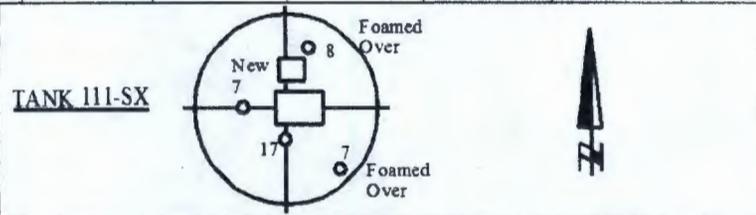
SX-20

Tank 241-SX-110 Dome Benchmark Elevation Change



Tank 111-SX Dome Settlement Study

FIELD SKETCH



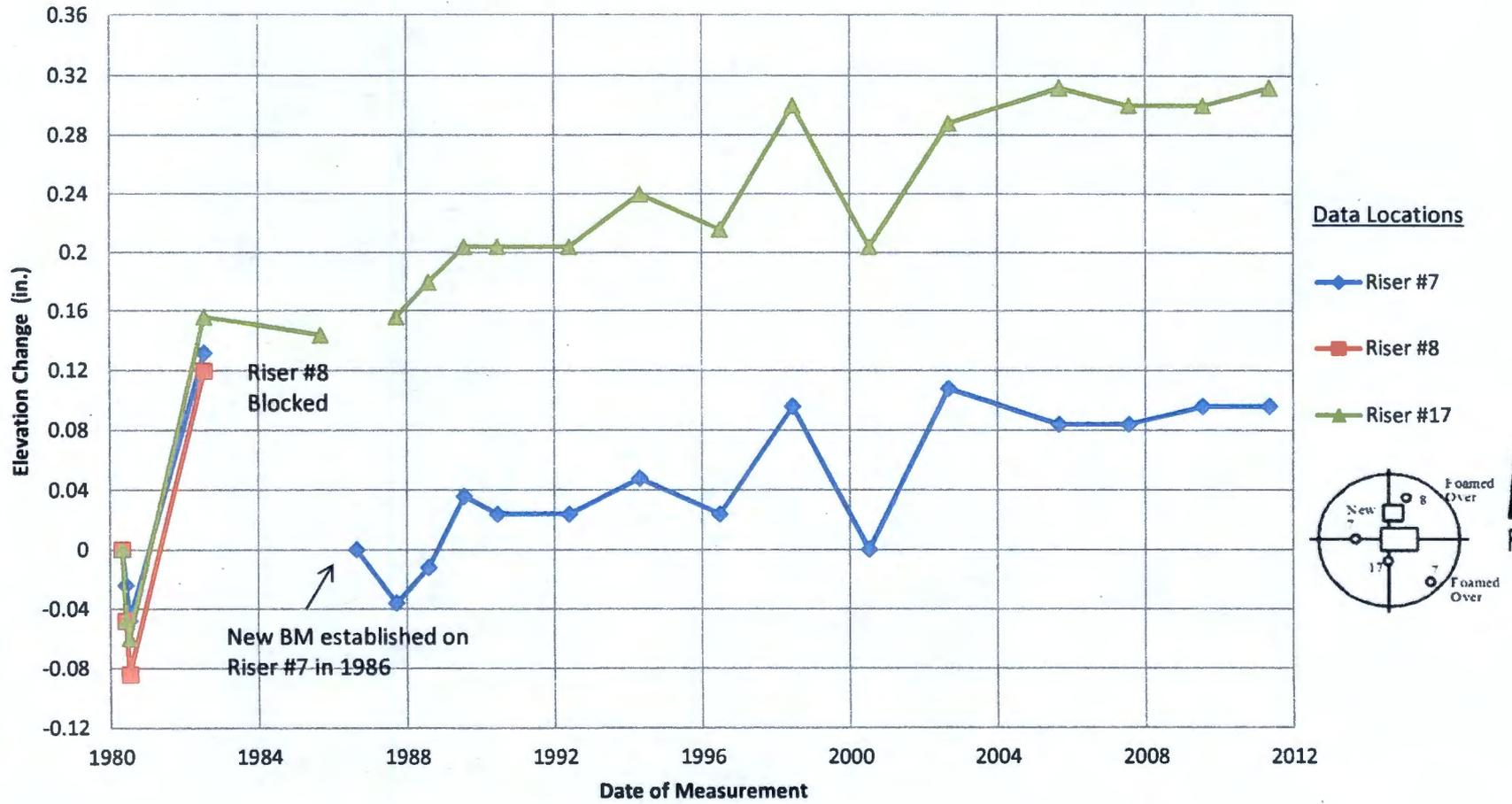
RPP-20451, Rev. 0D
 ATTACH. Survey
 Page: SX-Survey-12 of 16
 SX-Dome.xls

* 9/22/87 Revised Diagram

DATE	RISER 7			RISER 8			RISER 17			RISER		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
4/29/80	664.065	0	0	663.610	0	0	663.727	0	0			
6/4/80	664.063	-0.002	-0.002	663.606	-0.004	-0.004	663.723	-0.004	-0.004			
7/9/80	664.061	-0.002	-0.004	663.603	-0.003	-0.007	663.722	-0.001	-0.005			
7/20/82	664.076	0.015	0.011	663.620	0.017	0.01	663.740	0.018	0.013			
9/6/85							663.739	-0.001	0.012			
	New BM for No. 7											
8/25/86	662.410	0	0									
9/22/87	662.407	-0.003	-0.003		BLOCKED		663.740	0.001	0.013			
8/3/88	662.409	0.002	-0.001		BLOCKED		663.742	0.002	0.015			
7/25/89	662.413	0.004	0.003		BLOCKED		663.744	0.002	0.017			
6/20/90	662.412	-0.001	0.002		BLOCKED		663.744	0	0.017			
5/28/92	662.412	0	0.002		BLOCKED		663.744	0	0.017			
4/28/94	662.414	0.002	0.004		BLOCKED		663.747	0.003	0.020			
6/25/96	662.412	-0.002	0.002		BLOCKED		663.745	-0.002	0.018			
6/17/98	662.418	0.006	0.008		BLOCKED		663.752	0.007	0.025			
7/12/00	662.410	-0.008	0		BLOCKED		663.744	-0.008	0.017			
9/6/02	662.419	0.009	0.009		BLOCKED		663.751	0.007	0.024			
9/2/05	662.417	-0.002	0.007		BLOCKED		663.753	0.002	0.026			
7/25/07	662.417	0	0.007		BLOCKED		663.752	-0.001	0.025			
7/22/09	662.418	0.001	0.008		BLOCKED		663.752	0	0.025			
5/11/11	662.418	0	0.008		BLOCKED		663.753	0.001	0.026			

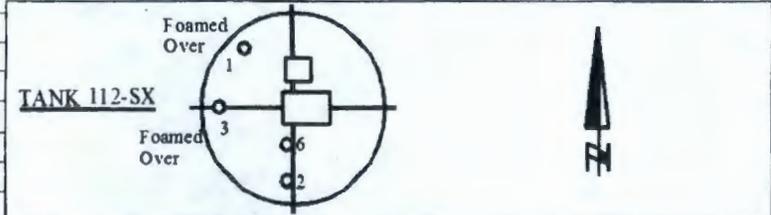
SX-21

Tank 241-SX-111 Dome Benchmark Elevation Change



Tank 112-SX Dome Settlement Study

FIELD SKETCH



* 9/22/87 Revised Diagram

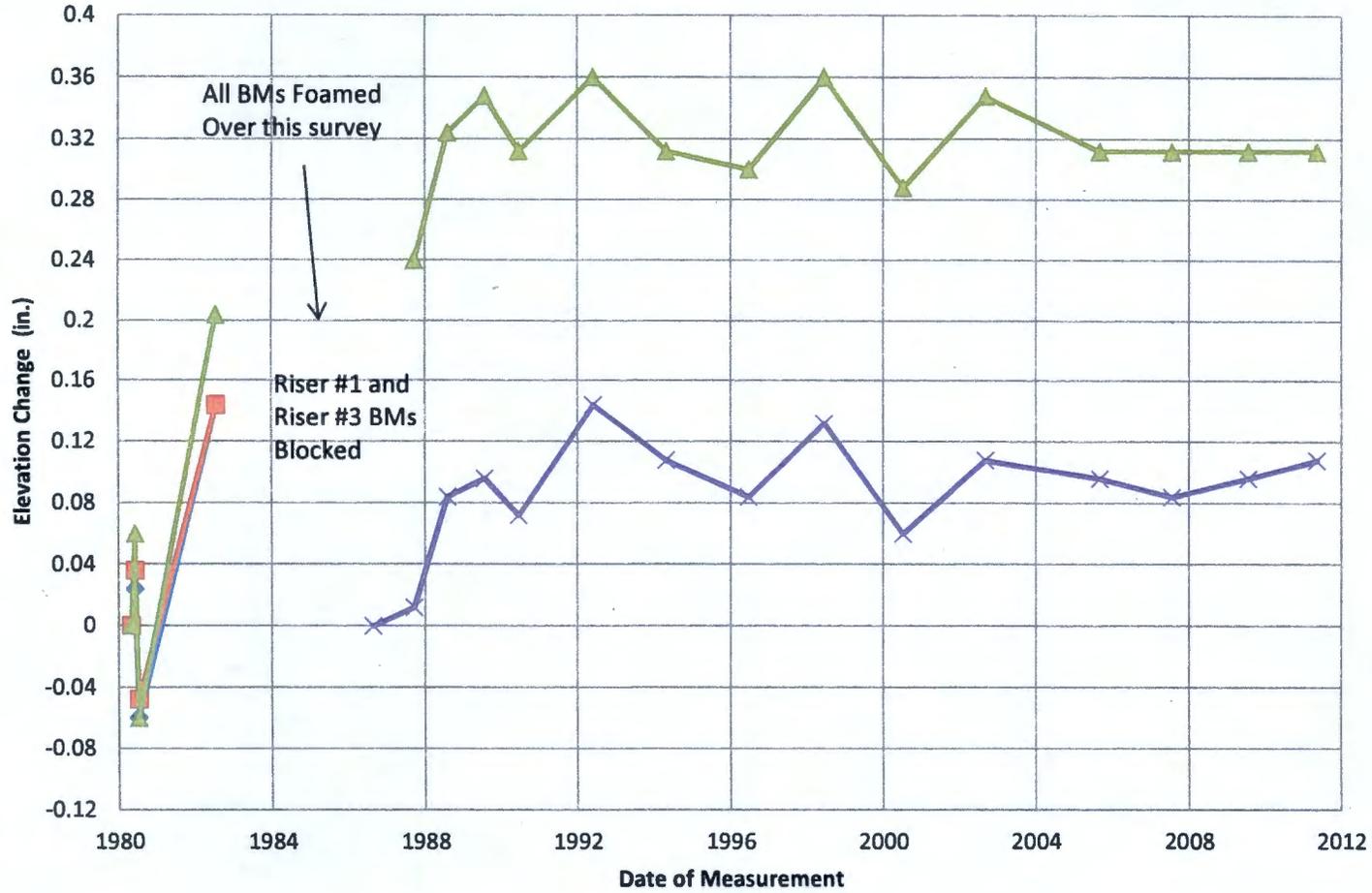
RPP-20451, Rev. 0D
 ATTACH. Survey
 Page: SX-Survey-13 of 16
 SX-Dome.xls

DATE	RISER 1			RISER 3			RISER 6			RISER 2		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
4/29/80	662.289	0	0	662.052	0	0	661.392	0	0			
6/4/80	662.291	0.002	0.002	662.055	0.003	0.003	661.397	0.005	0.005			
7/9/80	662.284	-0.007	-0.005	662.048	-0.007	-0.004	661.387	-0.010	-0.005			
7/20/82	662.301	0.017	0.012	662.064	0.016	0.012	661.409	0.022	0.017			
9/6/85	All BM's Foamed Over This Survey											
8/25/96										661.481	0	0
9/22/87		BLOCKED			BLOCKED		661.412	0.003	0.020	661.482	0.001	0.001
8/3/88		BLOCKED			BLOCKED		661.419	0.007	0.027	661.488	0.006	0.007
7/25/89		BLOCKED			BLOCKED		661.421	0.002	0.029	661.489	0.001	0.008
6/20/90		BLOCKED			BLOCKED		661.418	-0.003	0.026	661.487	-0.002	0.006
5/28/92		BLOCKED			BLOCKED		661.422	0.004	0.030	661.493	0.006	0.012
4/28/94		BLOCKED			BLOCKED		661.418	-0.004	0.026	661.490	-0.003	0.009
6/25/96		BLOCKED			BLOCKED		661.417	-0.001	0.025	661.488	-0.002	0.007
6/17/98		BLOCKED			BLOCKED		661.422	0.005	0.030	661.492	0.004	0.011
7/12/00		BLOCKED			BLOCKED		661.416	-0.006	0.024	661.486	-0.006	0.005
9/6/02		BLOCKED			BLOCKED		661.421	0.005	0.029	661.490	0.004	0.009
9/2/05		BLOCKED			BLOCKED		661.418	-0.003	0.026	661.489	-0.001	0.008
7/25/07		BLOCKED			BLOCKED		661.418	0	0.026	661.488	-0.001	0.007
7/22/09		BLOCKED			BLOCKED		661.418	0	0.026	661.489	0.001	0.008
5/11/11		BLOCKED			BLOCKED		661.418	0	0.026	661.490	0.001	0.009

SX-23

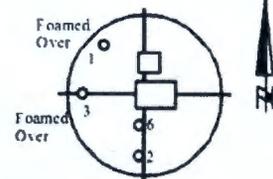
RPP-RPT-55202, Rev. 0

Tank 241-SX-112 Dome Benchmark Elevation Change



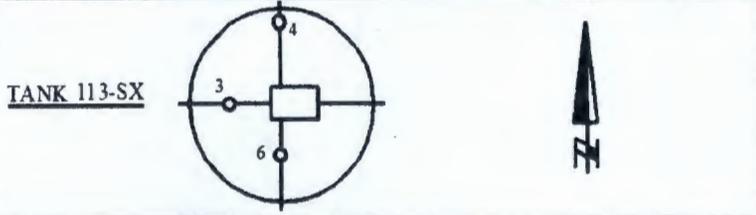
Data Locations

- Riser #1
- Riser #3
- Riser #6
- Riser #2



Tank 113-SX Dome Settlement Study

FIELD SKETCH



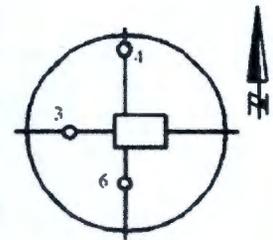
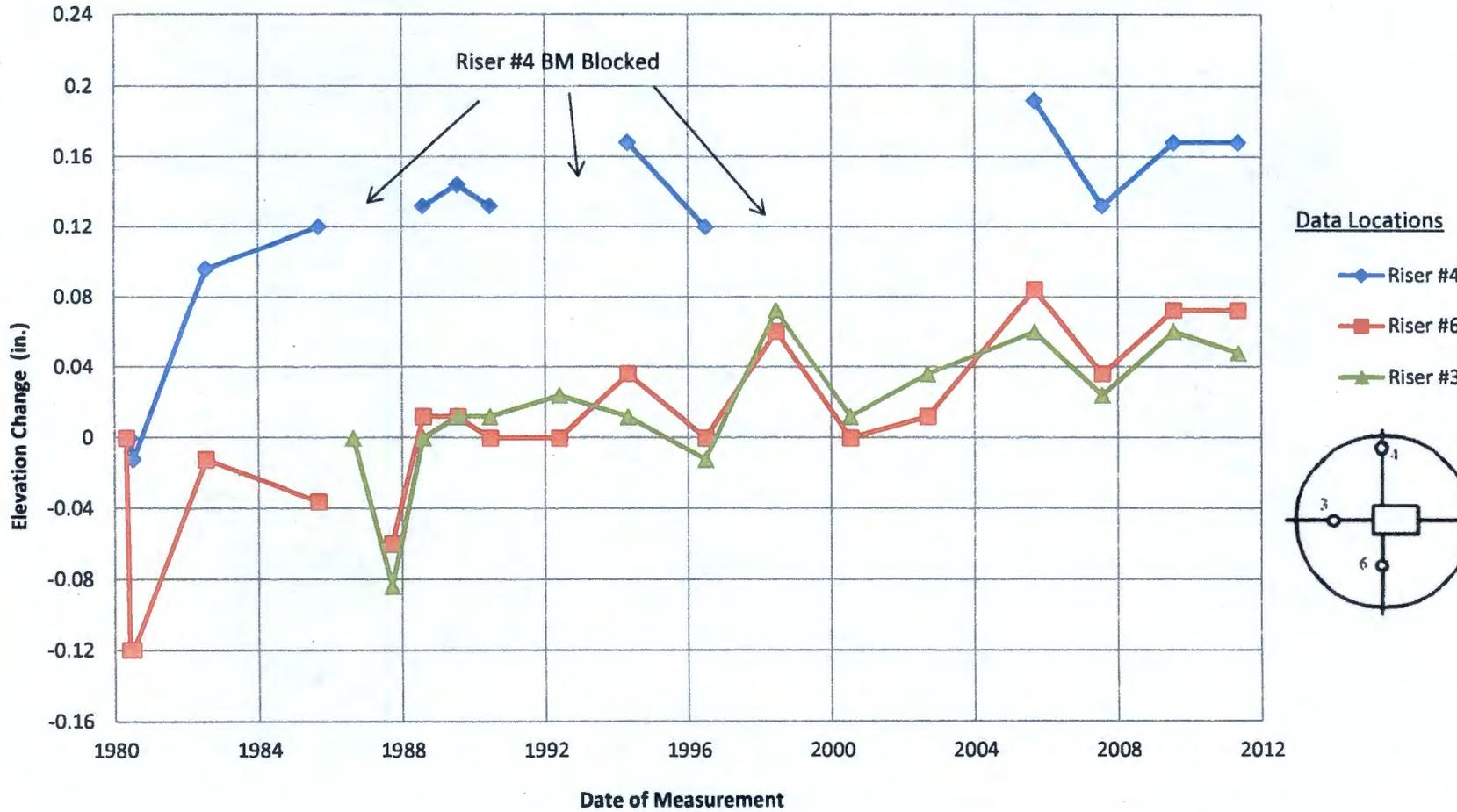
RPP-20451, Rev. 0D
 ATTACH. Survey
 Page: SX-Survey-14 of 16
 SX-Dome.xls

* 9/22/87 Revised Diagram

DATE	RISER 4			RISER 6			RISER 3			RISER		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
4/29/80	663.518	0	0	663.438	0	0						
6/4/80	663.518	0	0	663.428	-0.010	-0.010						
7/9/80	663.517	-0.001	-0.001	663.428	0	-0.010						
7/20/82	663.526	0.009	0.008	663.437	0.009	-0.001						
9/6/85	663.528	0.002	0.010	663.435	-0.002	-0.003						
8/25/86							663.491	0	0			
9/22/87		BLOCKED		663.433	-0.002	-0.005	663.484	-0.007	-0.007			
8/3/88	663.529	0.001	0.011	663.439	0.006	0.001	663.491	0.007	0			
7/25/89	663.530	0.001	0.012	663.439	0	0.001	663.492	0.001	0.001			
6/20/90	663.529	-0.001	0.011	663.438	-0.001	0	663.492	0	0.001			
5/28/92		BLOCKED		663.438	0	0	663.493	0.001	0.002			
4/28/94	663.532	0.003	0.014	663.441	0.003	0.003	663.492	-0.001	0.001			
6/25/96	663.528	-0.004	0.010	663.438	-0.003	0	663.490	-0.002	-0.001			
6/17/98		BLOCKED		663.443	0.005	0.005	663.497	0.007	0.006			
7/12/00		BLOCKED		663.438	-0.005	0	663.492	-0.005	0.001			
9/6/02		BLOCKED		663.439	0.001	0.001	663.494	0.002	0.003			
9/2/05	663.534	0.006	0.016	663.445	0.006	0.007	663.496	0.002	0.005			
7/25/07	663.529	-0.005	0.011	663.441	-0.004	0.003	663.493	-0.003	0.002			
7/22/09	663.532	0.003	0.014	663.444	0.003	0.006	663.496	0.003	0.005			
5/11/11	663.532	0	0.014	663.444	0	0.006	663.495	-0.001	0.004			

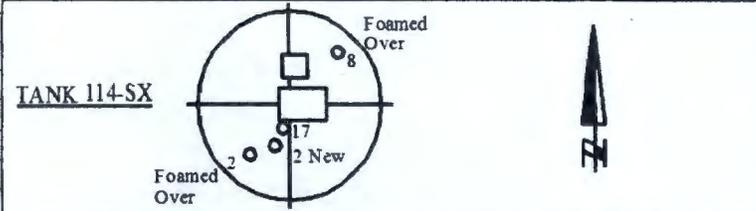
SX-25

Tank 241-SX-113 Dome Benchmark Elevation Change



Tank 114-SX Dome Settlement Study

FIELD SKETCH



RPP-20451, Rev. 0D
 ATTACH. Survey
 Page: SX-Survey-15 of 16
 SX-Dome.xls

* 9/22/87 Revised Diagram

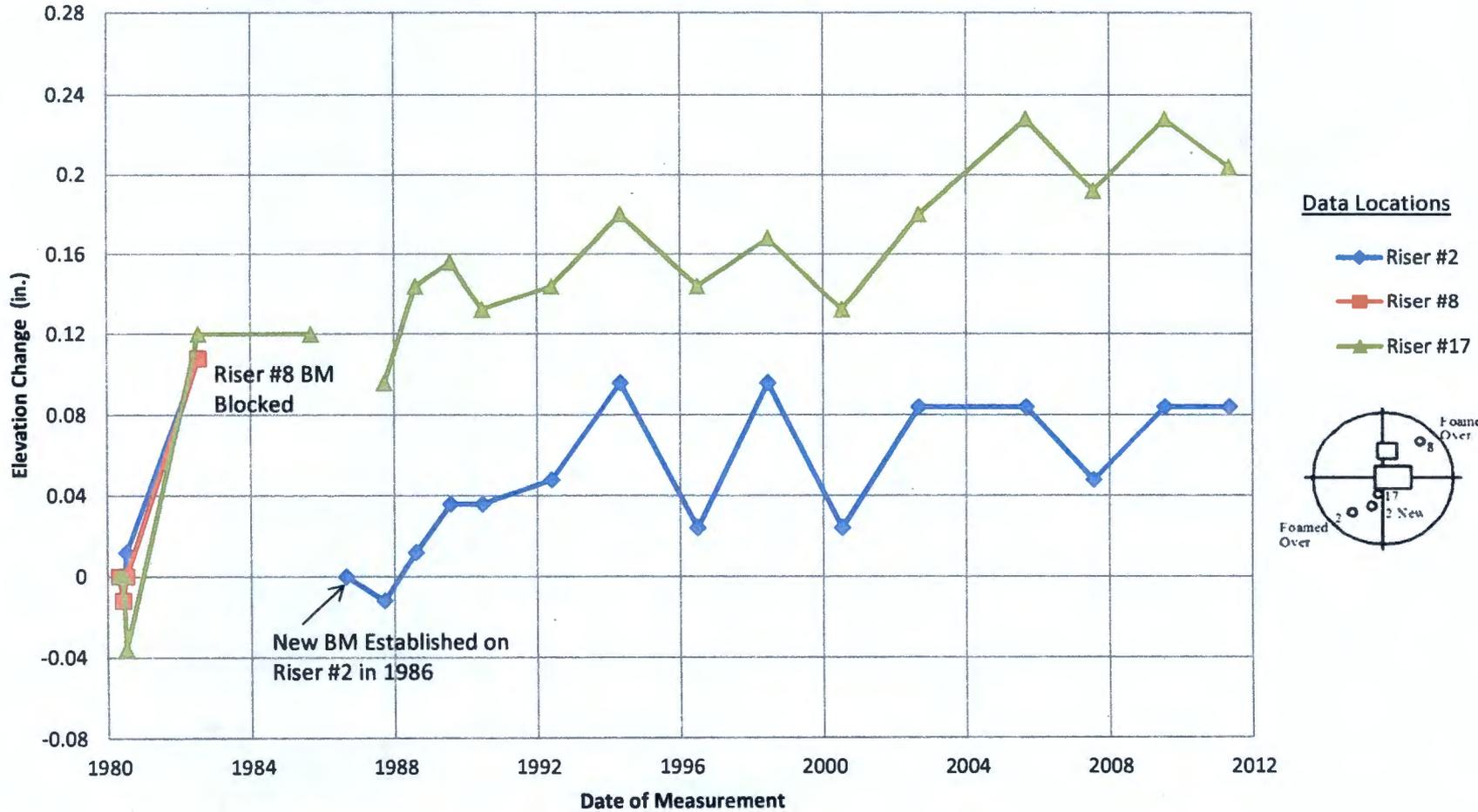
DATE	RISER 2			RISER 8			RISER 17			RISER		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
4/29/80	663.802	0	0	663.758	0	0	663.617	0	0			
6/4/80	663.801	-0.001	-0.001	663.757	-0.001	-0.001	663.617	0	0			
7/9/80	663.803	0.002	0.001	663.758	0.001	0	663.614	-0.003	-0.003			
7/20/82	663.811	0.008	0.009	663.767	0.009	0.009	663.627	0.013	0.010			
9/6/85							663.627	0	0.010			
	New BM for No. 2											
8/25/86	662.367	0	0									
9/22/87	662.366	-0.001	-0.001		BLOCKED		663.625	-0.002	0.008			
8/3/88	662.368	0.002	0.001		BLOCKED		663.629	0.004	0.012			
7/25/89	662.370	0.002	0.003		BLOCKED		663.630	0.001	0.013			
6/20/90	662.370	0	0.003		BLOCKED		663.628	-0.002	0.011			
5/28/92	662.371	0.001	0.004		BLOCKED		663.629	0.001	0.012			
4/28/94	662.375	0.004	0.008		BLOCKED		663.632	0.003	0.015			
6/25/96	662.369	-0.006	0.002		BLOCKED		663.629	-0.003	0.012			
6/17/98	662.375	0.006	0.008		BLOCKED		663.631	0.002	0.014			
7/12/00	662.369	-0.006	0.002		BLOCKED		663.628	-0.003	0.011			
9/6/02	662.374	0.005	0.007		BLOCKED		663.632	0.004	0.015			
9/2/05	662.374	0	0.007		BLOCKED		663.636	0.004	0.019			
7/25/07	662.371	-0.003	0.004		BLOCKED		663.633	-0.003	0.016			
7/22/09	662.374	0.003	0.007		BLOCKED		663.636	0.003	0.019			
5/11/11	662.374	0	0.007		BLOCKED		663.634	-0.002	0.017			

SX-27

RPP-RPT-55202, Rev. 0

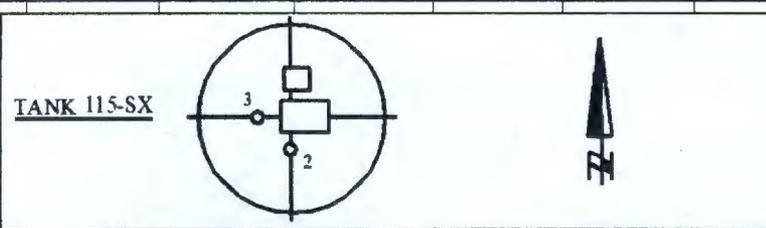
SX-28

Tank 241-SX-114 Dome Benchmark Elevation Change



Tank 115-SX Dome Settlement Study

FIELD SKETCH



RPP-20451, Rev. 0D
 ATTACH. Survey
 Page: SX-Survey-16 of 16
 SX-Dome.xls

DATE	RISER 2			RISER 3			RISER			RISER		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
4/29/80	661.352	0	0	661.363	0	0						
6/4/80	661.352	0	0	661.370	0.007	0.007						
7/9/80	661.367	0.015	0.015	661.372	0.002	0.009						
7/20/82	661.363	-0.004	0.011	661.379	0.007	0.016						
9/6/85	661.369	0.006	0.017	661.381	0.002	0.018						
9/22/87	661.365	-0.004	0.013	661.378	-0.003	0.015						
8/3/88	661.369	0.004	0.017	661.386	0.008	0.023						
7/25/89	661.37	0.001	0.018	661.386	0	0.023						
6/20/90	661.368	-0.002	0.016	661.381	-0.005	0.018						
5/28/92	661.368	0	0.016	661.382	0.001	0.019						
4/28/94	661.368	0	0.016	661.382	0	0.019						
6/25/96	661.368	0	0.016		BLOCKED		BM Tab continues to be blocked by equipment					
8/25/96				661.382	0	0.019	- Non-procedural methods used to obtain elevation.					
6/17/98	661.372	0.004	0.020	661.387	0.005	0.024	- Non-procedural methods used to obtain elevation.					
7/12/00	661.367	-0.005	0.015	661.382	-0.005	0.019						
9/6/02	661.369	0.002	0.017	661.386	0.004	0.023						
9/2/05	661.369	0	0.017	Blocked By Breather Filter								
7/25/07	661.367	-0.002	0.015	Blocked By Breather Filter								
7/22/09	661.369	0.002	0.017	Blocked By Breather Filter								
5/11/11	661.370	0.001	0.018	661.385	-0.001	0.022						

SX-29

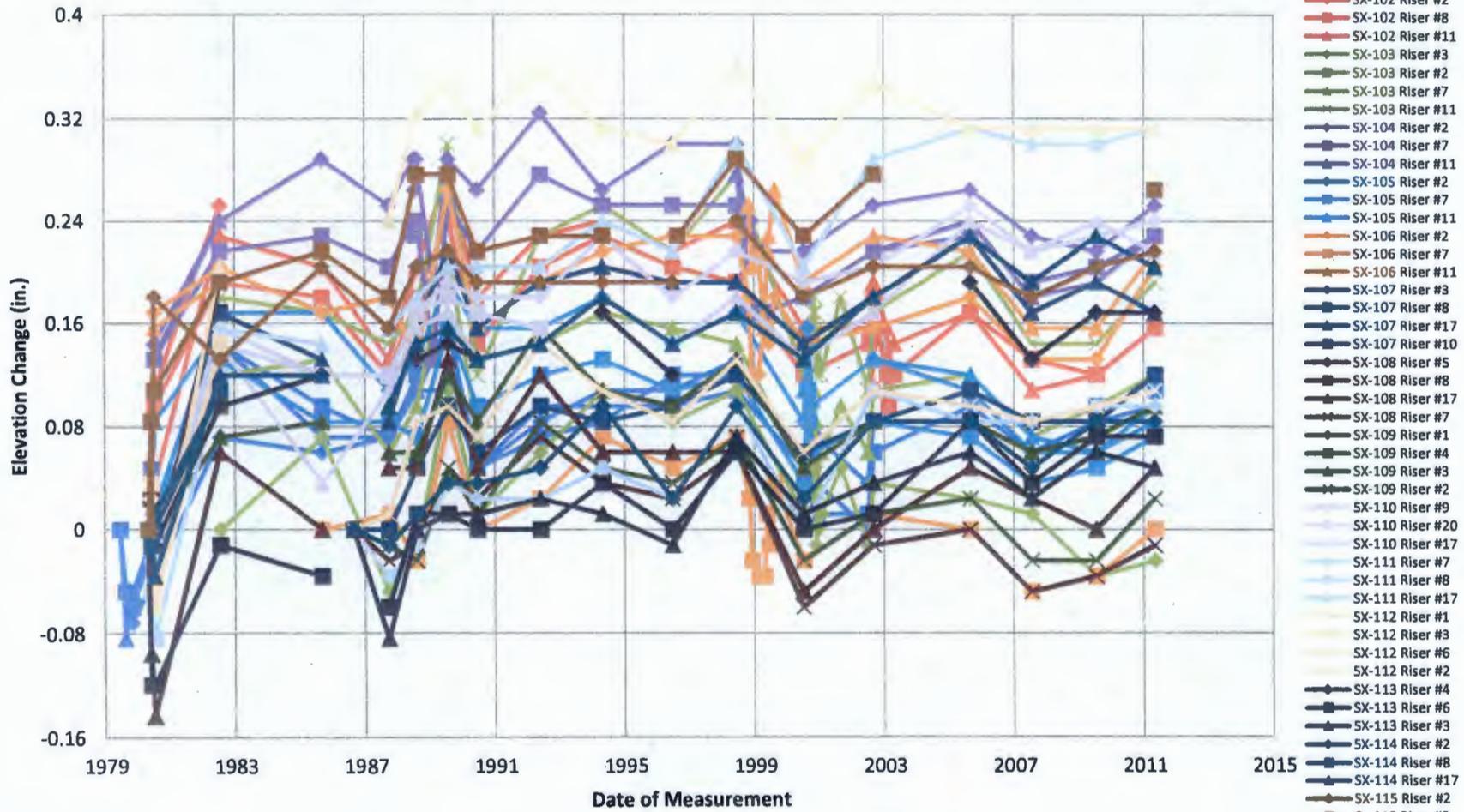
RPP-RPT-55202, Rev. 0

SX-30

Tank 241-SX-115 Dome Benchmark Elevation Change



SX Farm Dome Benchmark Elevation Change



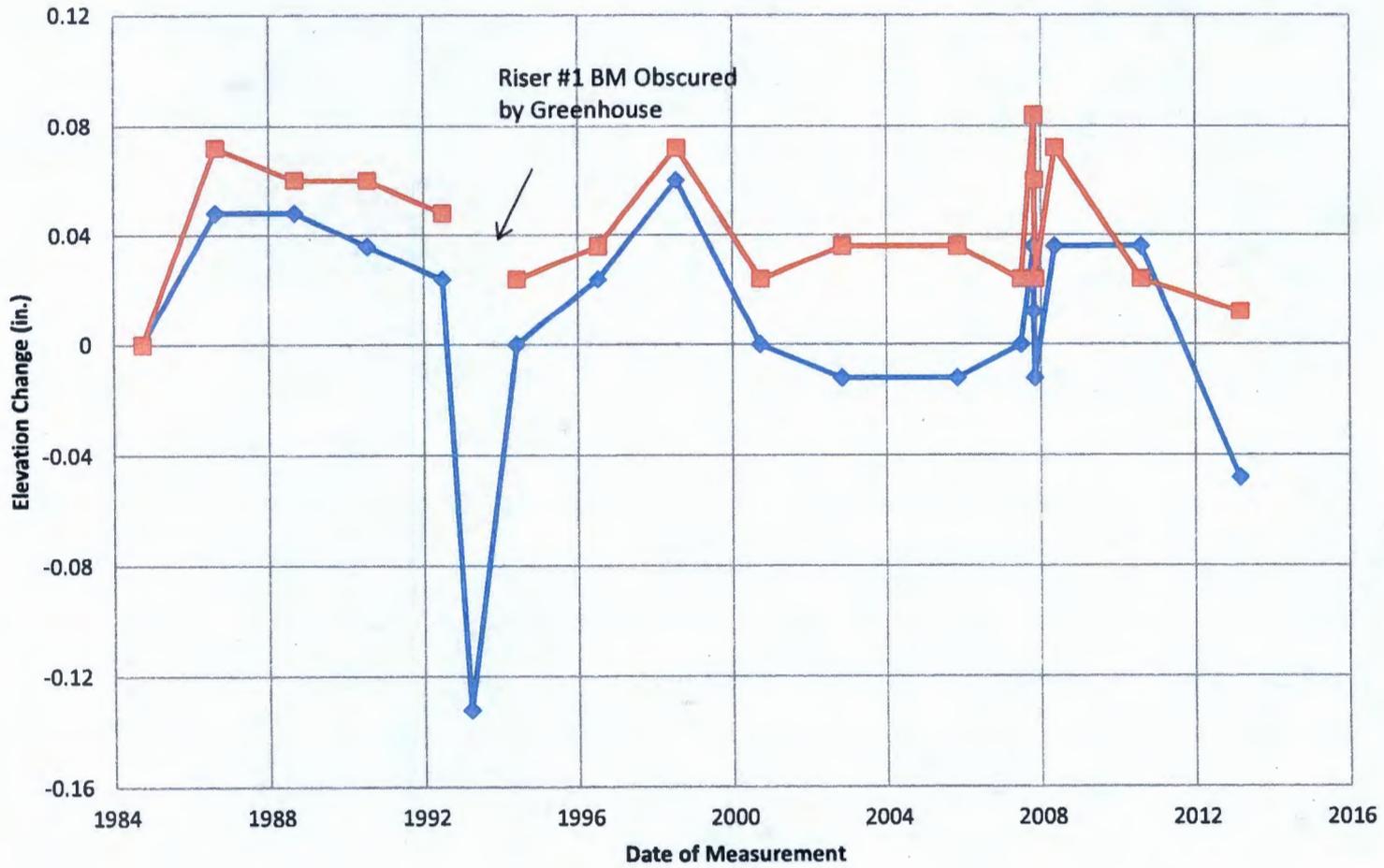
Appendix T – 241-T Farm Dome Survey Data and Plots

RISER - "C" PIT							RISER #1					
DATE	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
9/26/1984	675.197	0	0	673.641	0	0						
8/15/1986	675.201	0.004	0.004	673.647	0.006	0.006						
8/30/1988	675.201	0	0.004	673.646	-0.001	0.005						
7/17/1990	675.200	-0.001	0.003	673.646	0	0.005						
6/26/1992	675.199	-0.001	0.002	673.645	-0.001	0.004						
3/17/1993	675.186	-0.013	-0.011	Obscured by Temporary Greenhouse								
6/1/1994	675.197	0.011	0	673.643	-0.002	0.002						
7/11/1996	675.199	0.002	0.002	673.644	0.001	0.003						
7/22/1998	675.202	0.003	0.005	673.647	0.003	0.006						
9/22/2000	675.197	-0.005	0	673.643	-0.004	0.002						
11/5/2002	675.196	-0.001	-0.001	673.644	0.001	0.003						
11/3/2005	675.196	0	-0.001	673.644	0	0.003						
6/27/2007	675.197	0.001	0	673.643	-0.001	0.002						
10/25/2007	675.200	0.003	0.003	673.648	0.005	0.007						
10/30/2007	675.198	-0.002	0.001	673.646	-0.002	0.005						
11/6/2007	675.196	-0.002	-0.001	673.643	-0.003	0.002						
5/9/2008	675.200	0.004	0.003	673.647	0.004	0.006						
8/3/2010	675.200	0	0.003	673.643	-0.004	0.002						
2/26/2013	675.193	-0.007	-0.004	673.642	-0.001	0.001						

T-1

RPP-RPT-55202, Rev. 0

Tank 241-T-101 Dome Benchmark Elevation Change

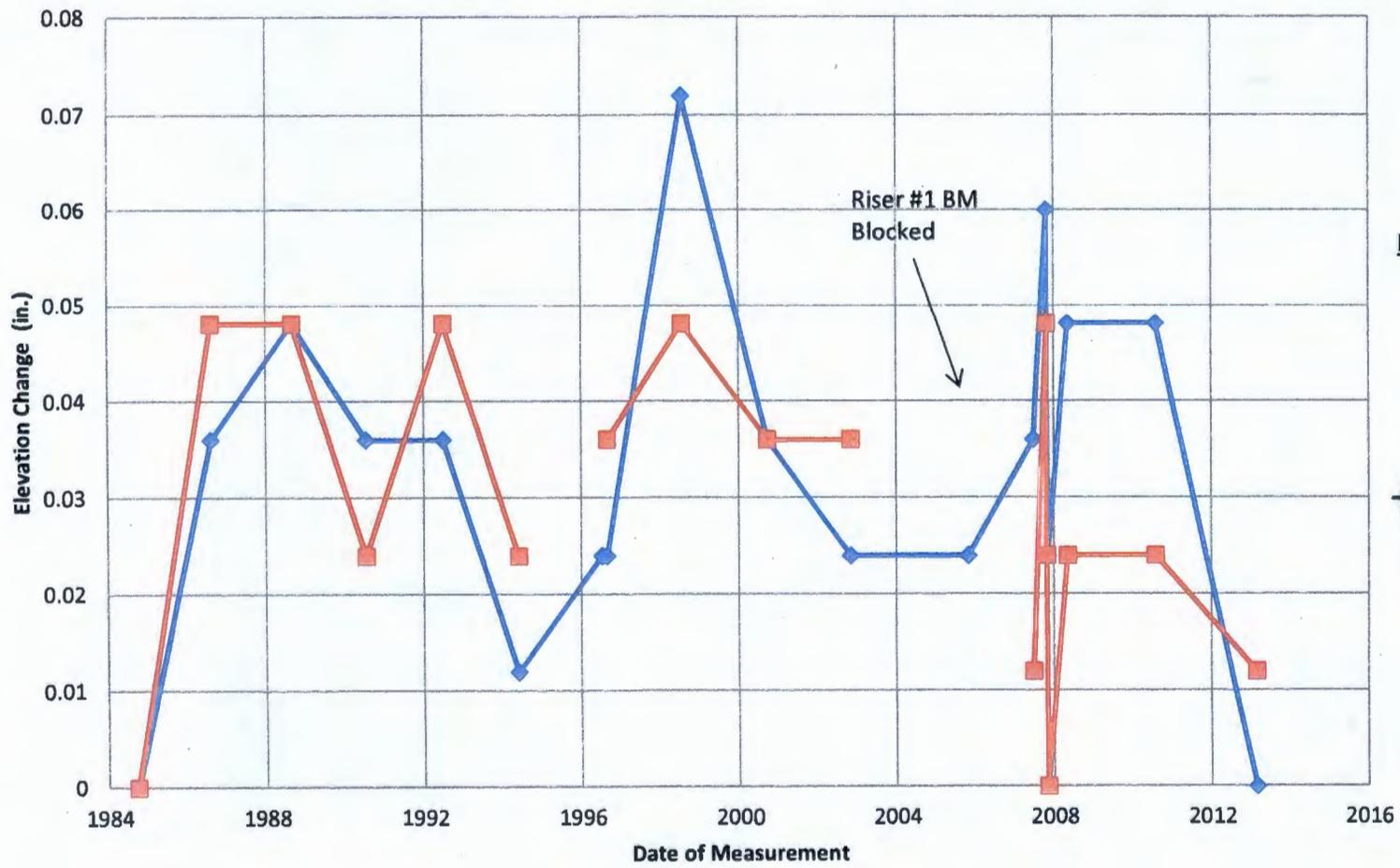


FIELD SKETCH												
DATE	RISER - "C" PIT			RISER #1			RISER			RISER		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
9/26/1984	674.170	0	0	672.764	0	0						
8/15/1986	674.173	0.003	0.003	672.768	0.004	0.004						
8/30/1988	674.174	0.001	0.004	672.768	0	0.004						
7/17/1990	674.173	-0.001	0.003	672.766	-0.002	0.002						
6/26/1992	674.173	0	0.003	672.768	0.002	0.004						
6/1/1994	674.171	-0.002	0.001	672.766	-0.002	0.002						
7/11/1996	674.172	0.001	0.002	Blocked by New Equipment								
8/29/1996	674.172	0	0.002	672.767	0.001	0.003						
7/22/1998	674.176	0.004	0.006	672.768	0.001	0.004						
9/22/2000	674.173	-0.003	0.003	672.767	-0.001	0.003						
11/5/2002	674.172	-0.001	0.002	672.767	0	0.003						
11/3/2005	674.172	0	0.002	Blocked-Unable to plumb rod								
6/27/2007	674.173	0.001	0.003	672.765	-0.002	0.001						
10/25/2007	674.175	0.002	0.005	672.768	0.003	0.004						
10/30/2007	674.174	-0.001	0.004	672.766	-0.002	0.002						
11/6/2007	674.172	-0.002	-0.001	672.764	-0.002	0						
5/9/2008	674.174	0.002	0.004	672.766	0.002	0.002						
8/3/2010	674.174	0	0.004	672.766	0	0.002						
2/26/2013	674.170	-0.004	0.000	672.765	-0.001	0.001						

T-3

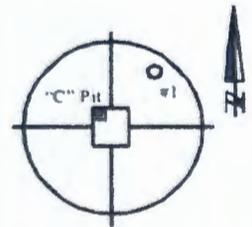
T-4

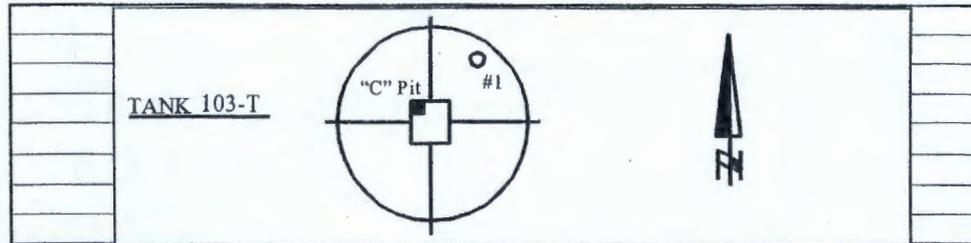
Tank 241-T-102 Dome Benchmark Elevation Change



Data Locations

- ◆ "C" Pit
- Riser #1



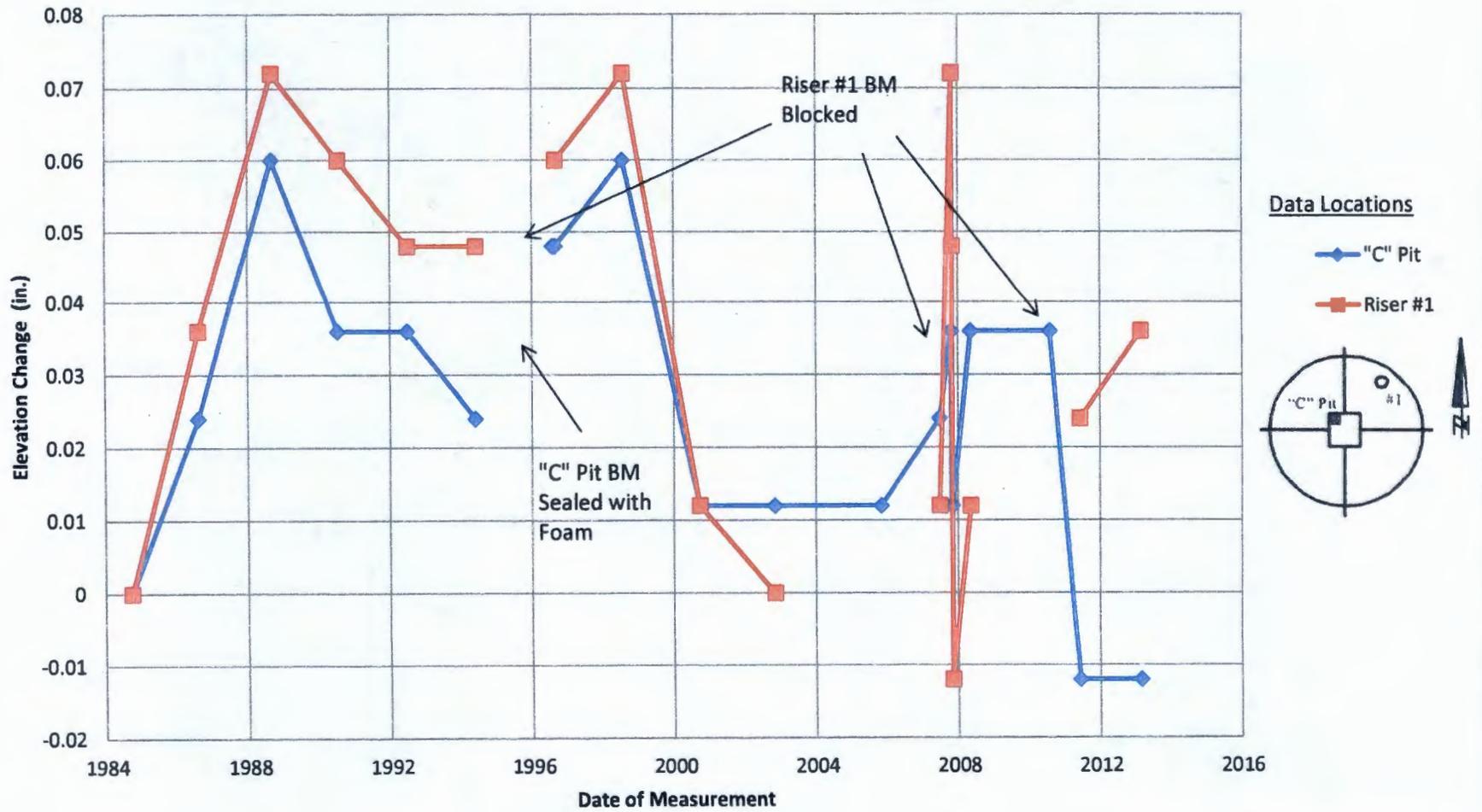


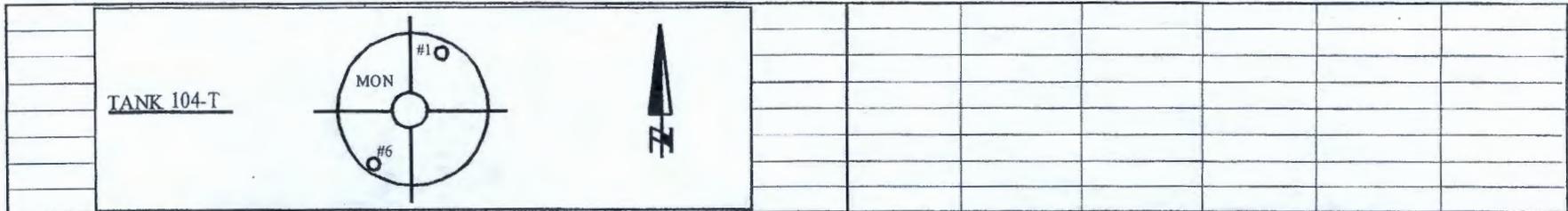
DATE	RISER - "C" PIT			RISER #1		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
9/26/1984	673.108	0	0	671.861	0	0
8/15/1986	673.110	0.002	0.002	671.864	0.003	0.003
8/30/1988	673.113	0.003	0.005	671.867	0.003	0.006
7/17/1990	673.111	-0.002	0.003	671.866	-0.001	0.005
6/26/1992	673.111	0	0.003	671.865	-0.001	0.004
6/1/1994	673.110	-0.001	0.002	671.865	0	0.004
7/11/1996	Sealed with Foam			Blocked by New Equipment		
7/31/1996	673.112	0.002	0.004	Blocked by New Equipment		
8/29/1996	673.112	0	0.004	671.866	0.001	0.005
7/22/1998	673.113	0.001	0.005	671.867	0.001	0.006
9/22/2000	673.109	-0.004	0.001	671.862	-0.005	0.001
11/5/2002	673.109	0	0.001	671.861	-0.001	0
11/3/2005	673.109	0	0.001	Blocked-Unable to plumb rod		
6/27/2007	673.110	0.001	0.002	671.862	0.001	0.001
10/25/2007	673.111	0.001	0.003	671.867	0.005	0.006
10/30/2007	673.109	-0.002	0.001	671.865	-0.002	0.004
11/6/2007	673.109	0	0.001	671.860	-0.005	-0.001
5/9/2008	673.111	0.002	0.003	671.862	0.002	0.001
8/3/2010	673.111	0	0.003	Blocked Low		
6/9/2011	673.107	-0.004	-0.001	671.863	0.001	0.002
2/26/2013	673.107	0.000	-0.001	671.864	0.001	0.003

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Tank 241-T-103 Dome Benchmark Elevation Change

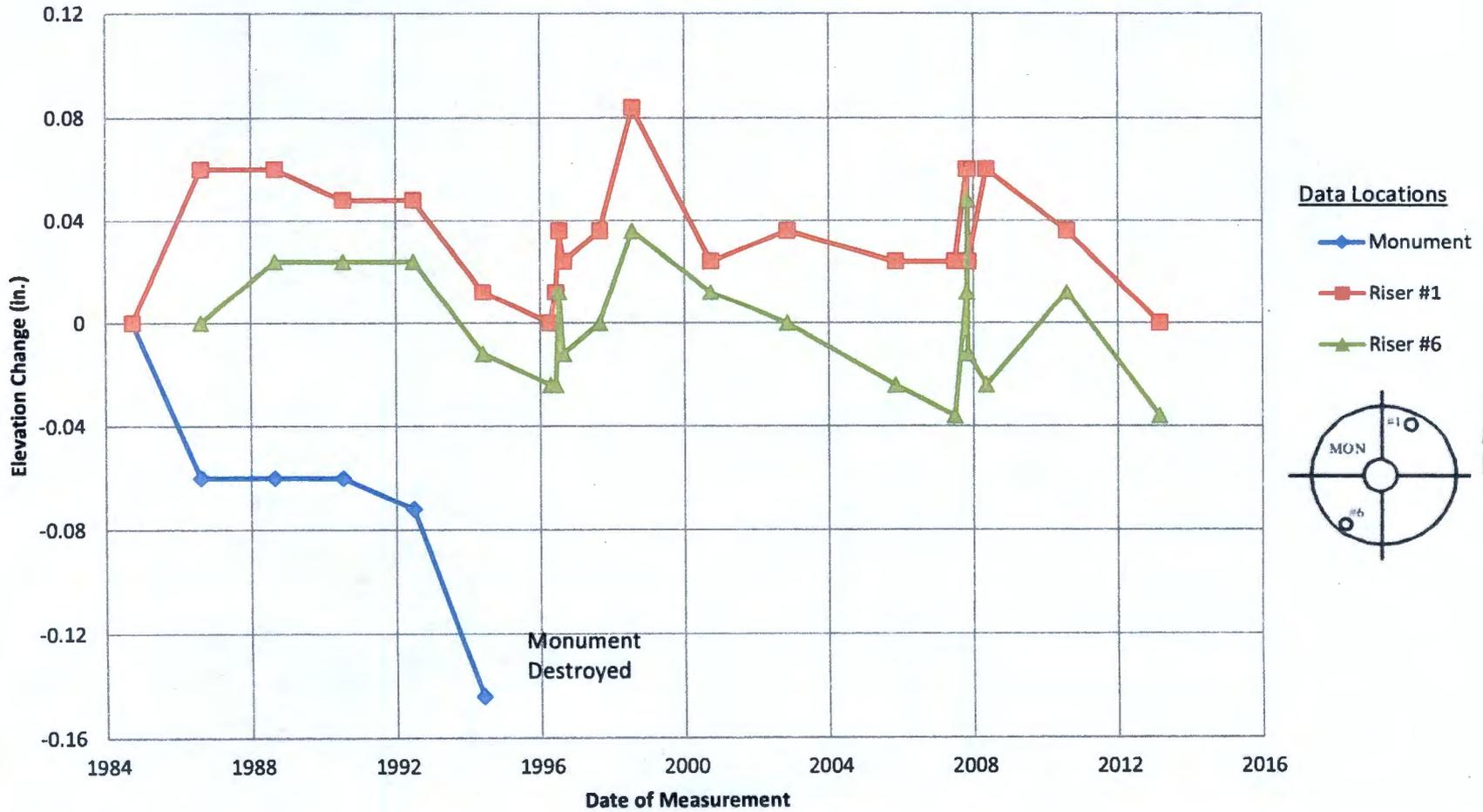


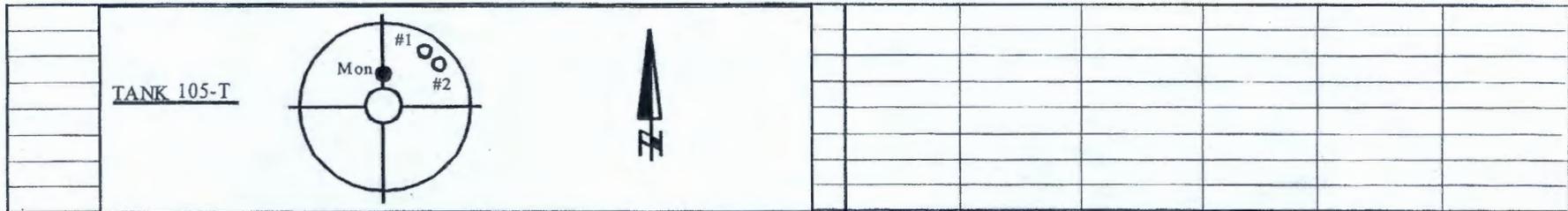


DATE	RISER - MON			RISER #1			RISER #6			RISER		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
9/26/1984	673.624	0	0	673.838	0	0						
8/15/1986	673.619	-0.005	-0.005	673.843	0.005	0.005	673.826	0	0			
8/30/1988	673.619	0	-0.005	673.843	0	0.005	673.828	0.002	0.002			
7/17/1990	673.619	0	-0.005	673.842	-0.001	0.004	673.828	0	0.002			
6/26/1992	673.618	-0.001	-0.006	673.842	0	0.004	673.828	0	0.002			
6/1/1994	673.612	-0.006	-0.012	673.839	-0.003	0.001	673.825	-0.003	-0.001			
4/12/1996	Destroyed or Covered			673.838	-0.001	0	673.824	-0.001	-0.002			
6/5/1996	Destroyed or Covered			673.839	0.001	0.001	673.824	0	-0.002			
7/11/1996	Destroyed or Covered			673.841	0.002	0.003	673.827	0.003	0.001			
8/23/1996	Destroyed or Covered			673.840	-0.001	0.002	673.825	-0.002	-0.001			
8/27/1997		Destroyed		673.841	0.001	0.003	673.826	0.001	0			
7/22/1998				673.845	0.004	0.007	673.829	0.003	0.003			
9/22/2000				673.840	-0.005	0.002	673.827	-0.002	0.001			
11/5/2002				673.841	0.001	0.003	673.826	-0.001	0			
11/3/2005				673.840	-0.001	0.002	673.824	-0.002	-0.002			
6/27/2007				673.840	0	0.002	673.823	-0.001	-0.003			
10/25/2007				673.843	0.003	0.005	673.827	0.004	0.001			
10/30/2007				673.843	0	0.005	673.830	0.003	0.004			
11/6/2007				673.840	-0.003	0.002	673.825	-0.005	-0.001			
5/9/2008				673.843	0.003	0.005	673.824	-0.001	-0.002			
8/3/2010				673.841	-0.002	0.003	673.827	0.003	0.001			
2/26/2013	Destroyed or Covered			673.838	-0.003	0.000	673.823	-0.004	-0.003			

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Tank 241-T-104 Dome Benchmark Elevation Change





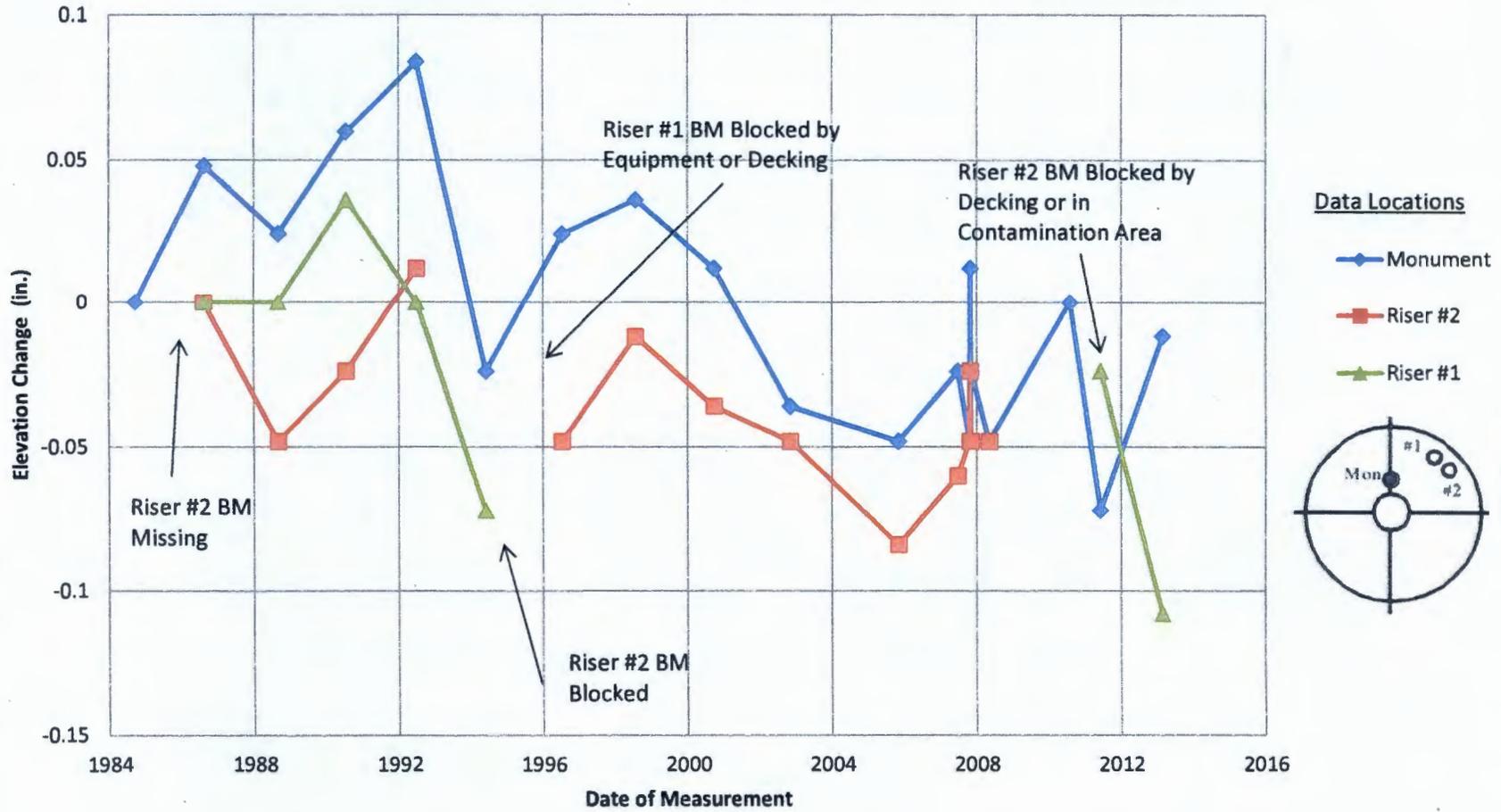
DATE	RISER - MON			RISER #2			RISER #1			RISER		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
9/26/1984	672.346	0	0		BM Missing							
8/15/1986	672.350	0.004	0.004	672.818	0	0	672.828	0	0			
8/30/1988	672.348	-0.002	0.002	672.814	-0.004	-0.004	672.828	0	0			
7/17/1990	672.351	0.003	0.005	672.816	0.002	-0.002	672.831	0.003	0.003			
6/26/1992	672.353	0.002	0.007	672.819	0.003	0.001	672.828	-0.003	0			
6/1/1994	672.344	-0.009	-0.002		BLOCKED		672.822	-0.006	-0.006			
7/11/1996	672.348	0.004	0.002	672.814	-0.005	-0.004	Blocked by New Equipment					
7/22/1998	672.349	0.001	0.003	672.817	0.003	-0.001	Blocked by Equipment					
9/22/2000	672.347	-0.002	0.001	672.815	-0.002	-0.003	Blocked by Equipment					
11/5/2002	672.343	-0.004	-0.003	672.814	-0.001	-0.004	Blocked by Equipment					
11/3/2005	672.342	-0.001	-0.004	672.811	-0.003	-0.007	Blocked by Equipment					
6/27/2007	672.344	0.002	-0.002	672.813	0.002	-0.005	Blocked by Equipment					
10/25/2007	672.342	-0.002	-0.004	672.814	0.001	-0.004	Blocked by Equipment					
10/30/2007	672.347	0.005	0.001	672.816	0.002	-0.002	Blocked by Equipment					
11/6/2007	672.344	-0.003	-0.002	672.814	-0.002	-0.004	Blocked by Equipment					
5/9/2008	672.342	-0.002	-0.004	672.814	0	-0.004	Blocked by Equipment					
8/3/2010	672.346	0.004	0.000	Blocked by Decking			Blocked by Decking					
6/9/2011	672.340	-0.006	-0.006		Contam. Area		672.826	0.004	-0.002			
2/26/2013	672.345	0.005	-0.001		Contam. Area		672.819	-0.007	-0.009			

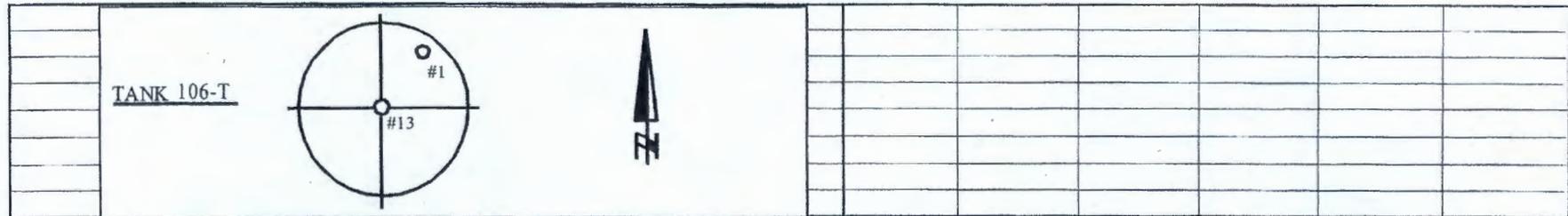
T-9

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Tank 241-T-105 Dome Benchmark Elevation Change



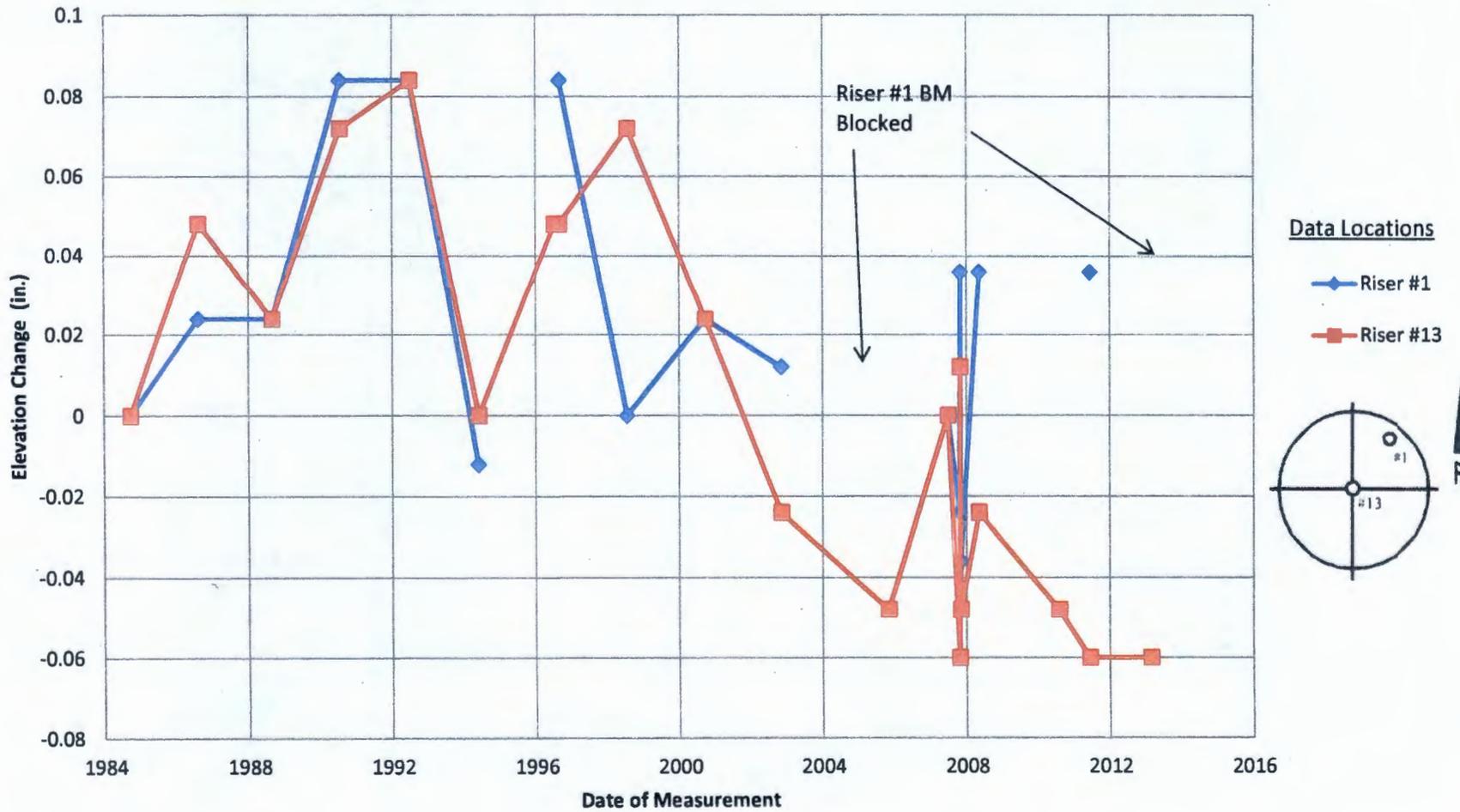


DATE	RISER #1			RISER #13			RISER			RISER		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
9/26/1984	671.828	0	0	673.528	0	0						
8/15/1986	671.830	0.002	0.002	673.532	0.004	0.004						
8/30/1988	671.830	0	0.002	673.53	-0.002	0.002						
7/17/1990	671.835	0.005	0.007	673.534	0.004	0.006						
6/26/1992	671.835	0	0.007	673.535	0.001	0.007						
6/1/1994	671.827	-0.008	-0.001	673.528	-0.007	0						
7/11/1996		BLOCKED		673.532	0.004	0.004						
8/29/1996	671.835	0.008	0.007	673.532	0	0.004						
7/22/1998	671.828	-0.007	0	673.534	0.002	0.006						
9/22/2000	671.830	0.002	0.002	673.530	-0.004	0.002						
11/5/2002	671.829	-0.001	0.001	673.526	-0.004	-0.002						
11/3/2005	Blocked-Unable to plumb rod			673.524	-0.002	-0.004						
6/27/2007	671.828	-0.001	0	673.528	0.004	0						
10/25/2007	671.826	-0.002	-0.002	673.523	-0.005	-0.005						
10/30/2007	671.831	0.005	0.003	673.529	0.006	0.001						
11/6/2007	671.825	-0.006	-0.003	673.524	-0.005	-0.004						
5/9/2008	671.831	0.006	0.003	673.526	0.002	-0.002						
8/3/2010	Blocked by Decking			673.524	-0.002	-0.004						
6/9/2011	671.831	0	0.003	673.523	-0.001	-0.005						
2/26/2013	Blocked-Unable to plumb rod			673.523	0.000	-0.005						

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Tank 241-T-106 Dome Benchmark Elevation Change

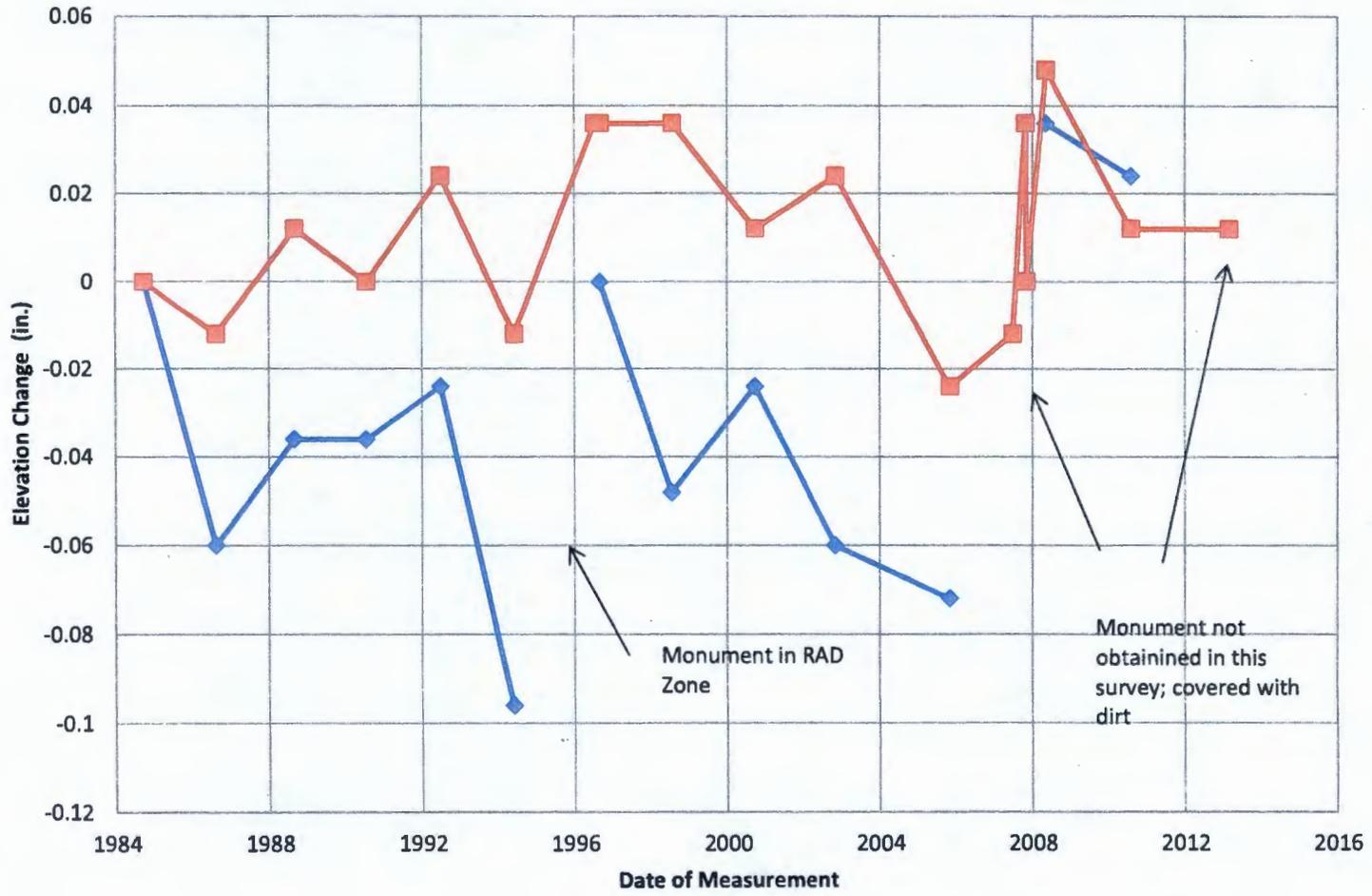


FIELD SKETCH												
DATE	RISER - MON			RISER #1			RISER			RISER		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
9/26/1984	673.227	0	0	673.824	0	0						
8/15/1986	673.222	-0.005	-0.005	673.823	-0.001	-0.001						
8/30/1988	673.224	0.002	-0.003	673.825	0.002	0.001						
7/17/1990	673.224	0	-0.003	673.824	-0.001	0						
6/26/1992	673.225	0.001	-0.002	673.826	0.002	0.002						
6/1/1994	673.219	-0.006	-0.008	673.823	-0.003	-0.001						
7/11/1996	Within Fenced "RAD Zone"			673.827	0.004	0.003						
8/29/1996	673.227	0.008	0	673.827	0	0.003						
7/22/1998	673.223	-0.004	-0.004	673.827	0	0.003						
9/22/2000	673.225	0.002	-0.002	673.825	-0.002	0.001						
11/5/2002	673.222	-0.003	-0.005	673.826	0.001	0.002						
11/3/2005	673.221	-0.001	-0.006	673.822	-0.004	-0.002						
6/27/2007	Not Obtained this Survey			673.823	0.001	-0.001						
10/25/2007	Mon is covered with dirt			673.827	0.004	0.003						
10/30/2007	Mon is covered with dirt			673.827	0	0.003						
11/6/2007	Mon is covered with dirt			673.824	-0.003	0						
5/9/2008	673.230	0.009	0.003	673.828	0.004	0.004						
8/3/2010	673.229	-0.001	0.002	673.825	-0.003	0.001						
2/26/2013	Mon is covered w/ dirt & inside CA			673.825	0.000	0.001						

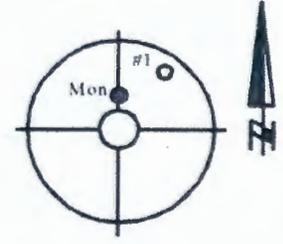
T-13

RPP-RPT-55202, Rev. 0

Tank 241-T-107 Dome Benchmark Elevation Change

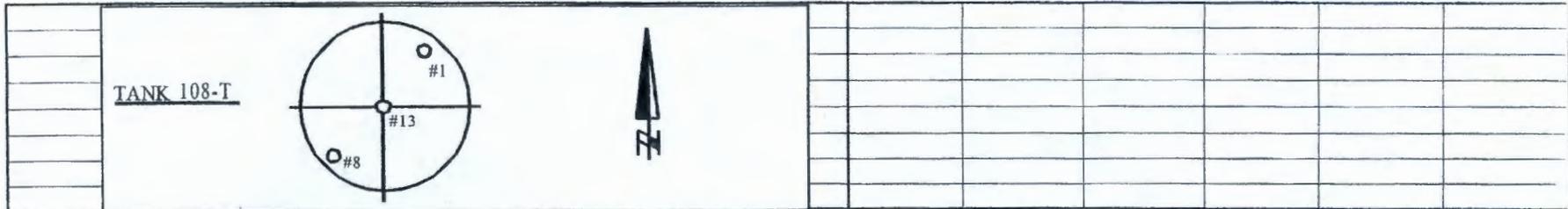


Data Locations
—◆— Monument
—■— Riser #1



Monument in RAD Zone

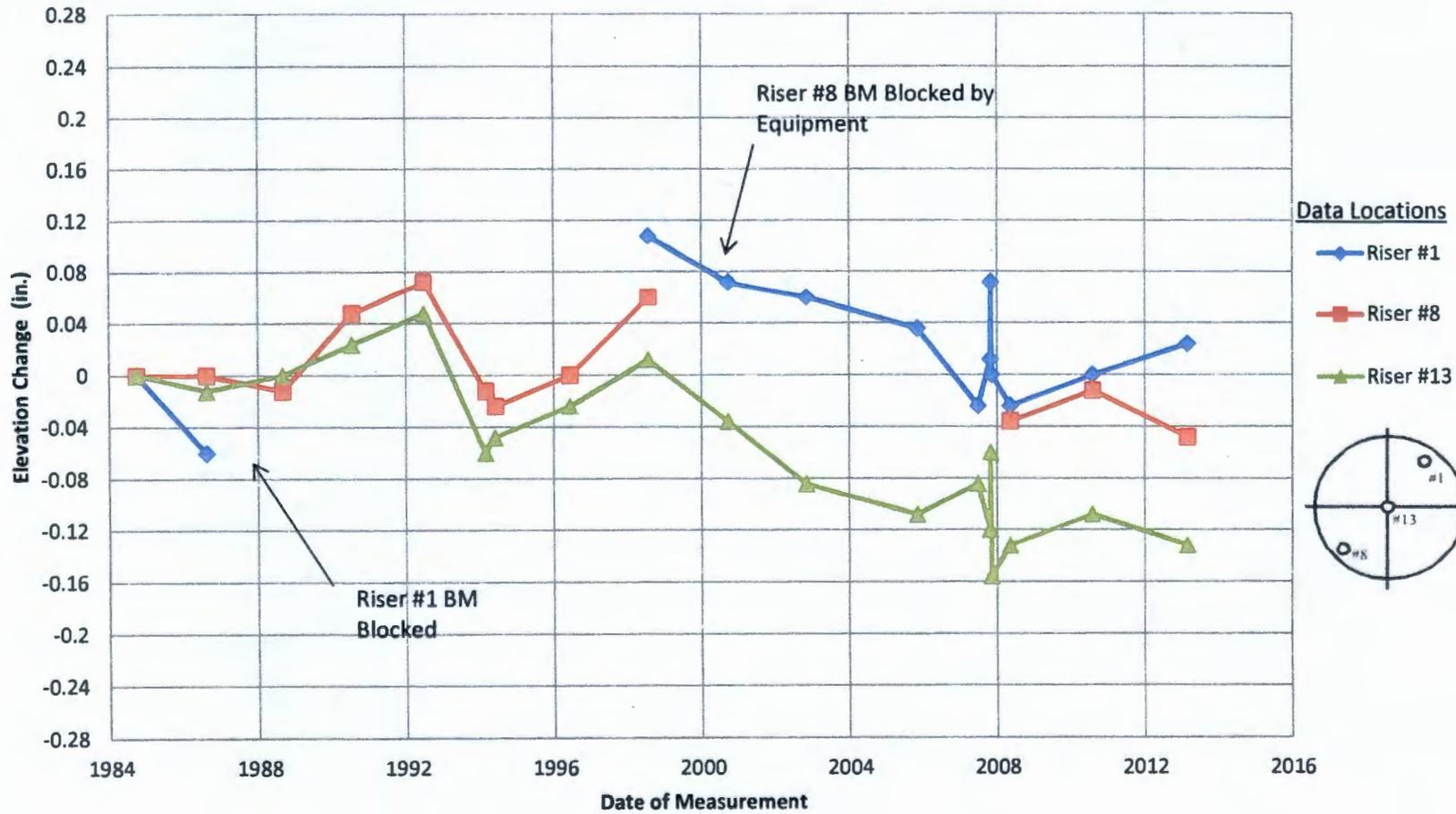
Monument not obtained in this survey; covered with dirt



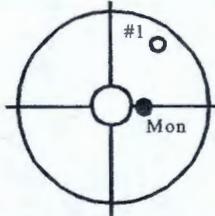
DATE	RISER #1			RISER #8			RISER #13			RISER		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
9/26/1984	672.832	0	0	672.716	0	0	674.489	0	0			
8/15/1986	672.827	-0.005	-0.005	672.716	0	0	674.488	-0.001	-0.001			
8/30/1988		BLOCKED		672.715	-0.001	-0.001	674.489	0.001	0			
7/17/1990		BLOCKED		672.720	0.005	0.004	674.491	0.002	0.002			
6/26/1992		BLOCKED		672.722	0.002	0.006	674.493	0.002	0.004			
2/25/1994		BLOCKED		672.715	-0.007	-0.001	674.484	-0.009	-0.005			
6/1/1994		BLOCKED		672.714	-0.001	-0.002	674.485	0.001	-0.004			
6/11/1996		BLOCKED		672.716	0.002	0	674.487	0.002	-0.002			
7/22/1998	672.841	0.014	0.009	672.721	0.005	0.005	674.490	0.003	0.001			
9/22/2000	672.838	-0.003	0.006	Blocked by Equipment			674.486	-0.004	-0.003			
11/5/2002	672.837	-0.001	0.005	Blocked by Equipment			674.482	-0.004	-0.007			
11/3/2005	672.835	-0.002	0.003	Blocked by Equipment			674.480	-0.002	-0.009			
6/27/2007	672.830	-0.005	-0.002	Blocked by Equipment			674.482	0.002	-0.007			
10/25/2007	672.833	0.003	0.001	Blocked by Equipment			674.479	-0.003	-0.010			
10/30/2007	672.838	0.005	0.006	Blocked by Equipment			674.484	0.005	-0.005			
11/6/2007	672.832	-0.006	0	Blocked by Equipment			674.476	-0.008	-0.013			
5/9/2008	672.830	-0.002	-0.002	672.713	-0.008	-0.003	674.478	0.002	-0.011			
8/3/2010	672.832	0.002	0	672.715	0.002	-0.001	674.480	0.002	-0.009			
2/26/2013	672.834	0.002	0.002	672.712	-0.003	-0.004	674.478	-0.002	-0.011			

T-15

Tank 241-T-108 Dome Benchmark Elevation Change



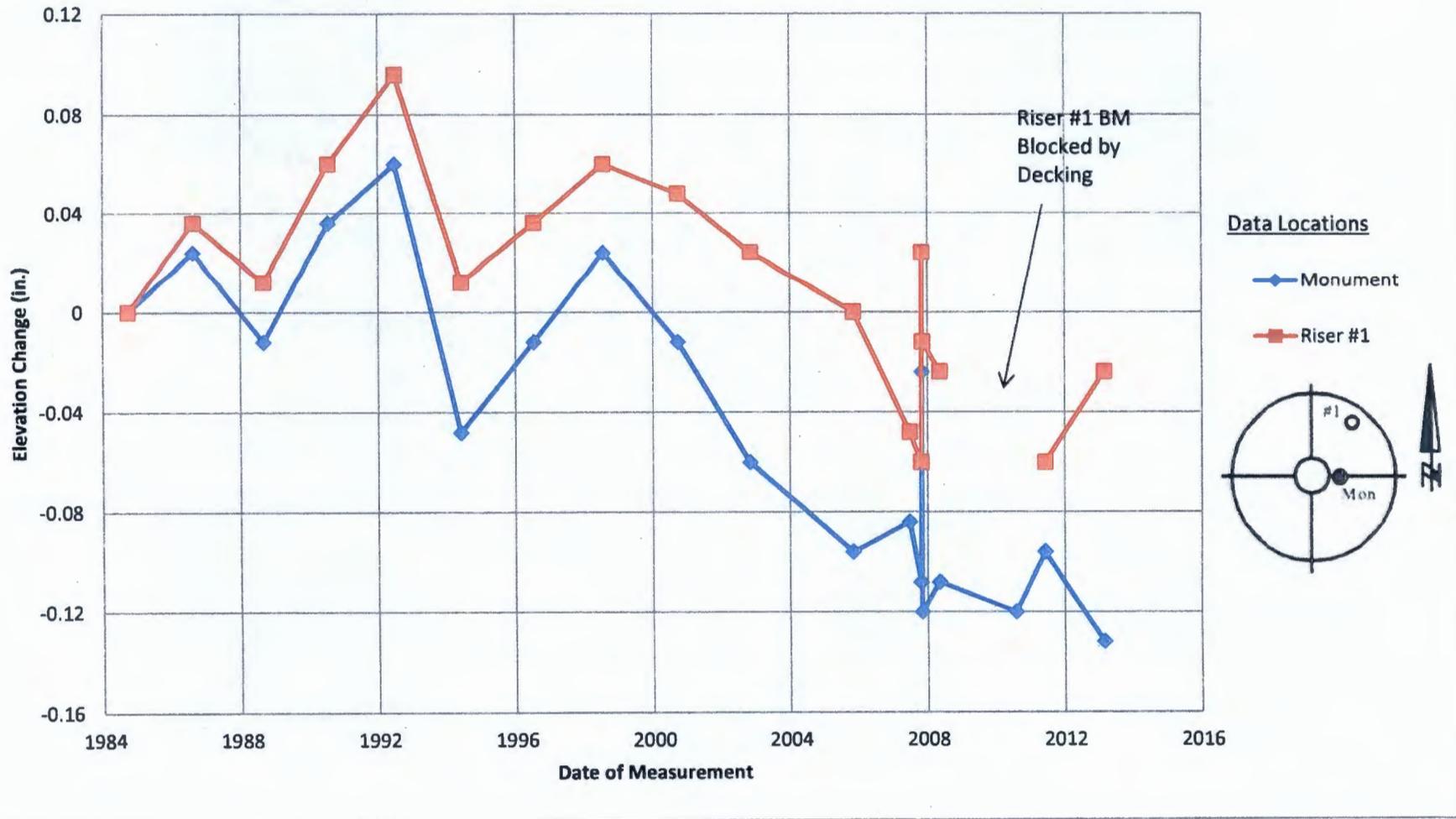
TANK 109-T

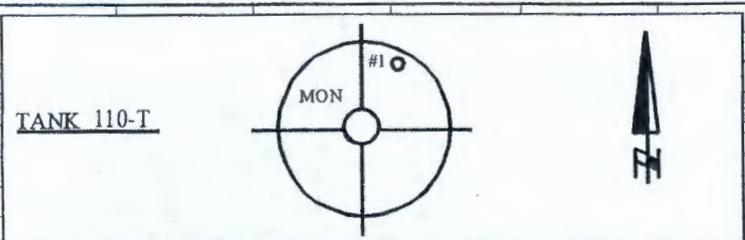


DATE	RISER - MON			RISER #1			RISER			RISER		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
9/26/1984	670.993	0	0	671.820	0	0						
8/15/1986	670.995	0.002	0.002	671.823	0.003	0.003						
8/30/1988	670.992	-0.003	-0.001	671.821	-0.002	0.001						
7/17/1990	670.996	0.004	0.003	671.825	0.004	0.005						
6/26/1992	670.998	0.002	0.005	671.828	0.003	0.008						
6/1/1994	670.989	-0.009	-0.004	671.821	-0.007	0.001						
7/11/1996	670.992	0.003	-0.001	671.823	0.002	0.003						
7/22/1998	670.995	0.003	0.002	671.825	0.002	0.005						
9/22/2000	670.992	-0.003	-0.001	671.824	-0.001	0.004						
11/5/2002	670.988	-0.004	-0.005	671.822	-0.002	0.002						
11/3/2005	670.985	-0.003	-0.008	671.820	-0.002	0						
6/27/2007	670.986	0.001	-0.007	671.816	-0.004	-0.004						
10/25/2007	670.984	-0.002	-0.009	671.815	-0.001	-0.005						
10/30/2007	670.991	0.007	-0.002	671.822	0.007	0.002						
11/6/2007	670.983	-0.008	-0.010	671.819	-0.003	-0.001						
5/9/2008	670.984	0.001	-0.009	671.818	-0.001	-0.002						
8/3/2010	670.983	-0.001	-0.010	Blocked by Decking								
6/9/2011	670.985	0.002	-0.008	671.815	-0.003	-0.005						
2/26/2013	670.982	-0.003	-0.011	671.818	0.003	-0.002						

T-17

Tank 241-T-109 Dome Benchmark Elevation Change



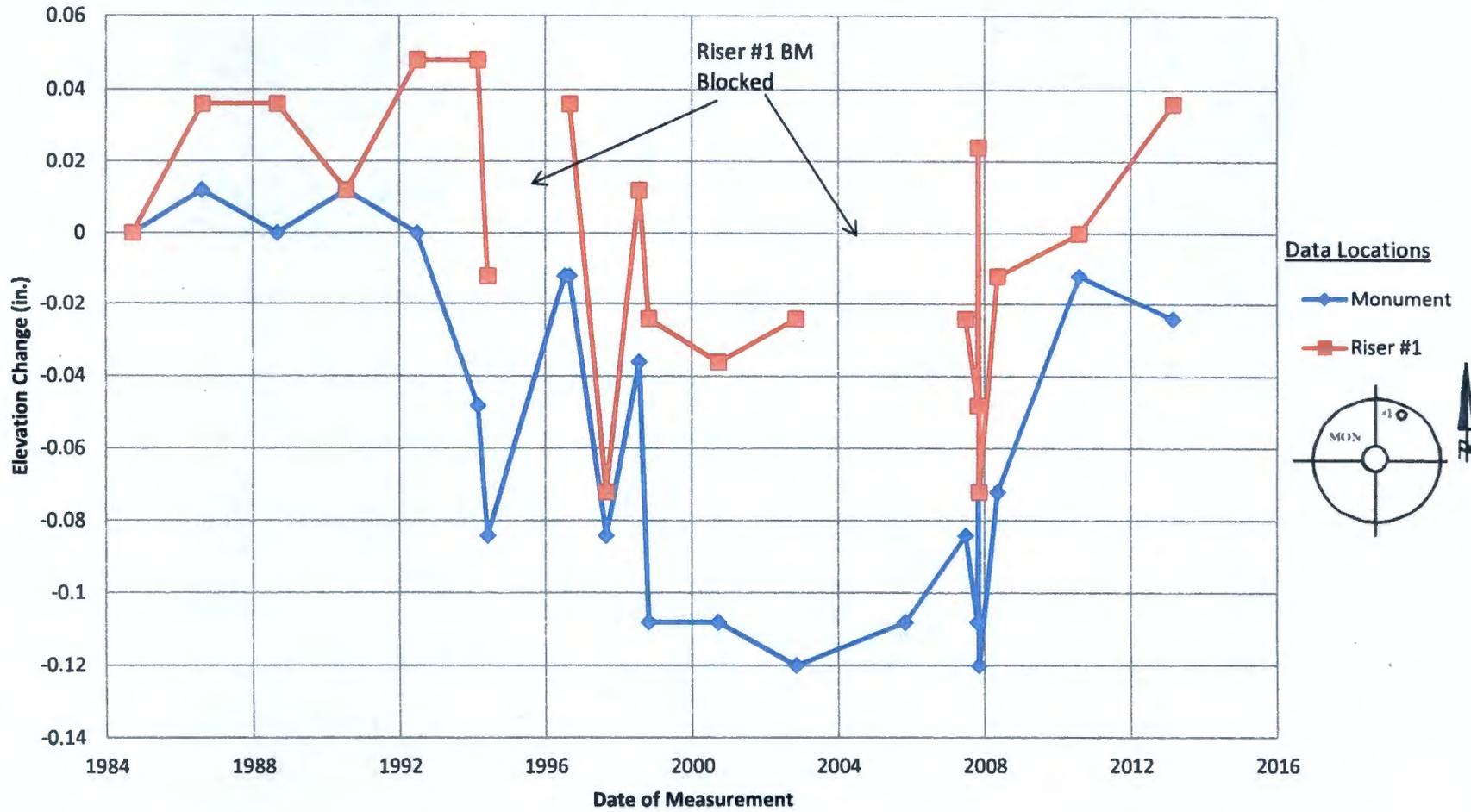


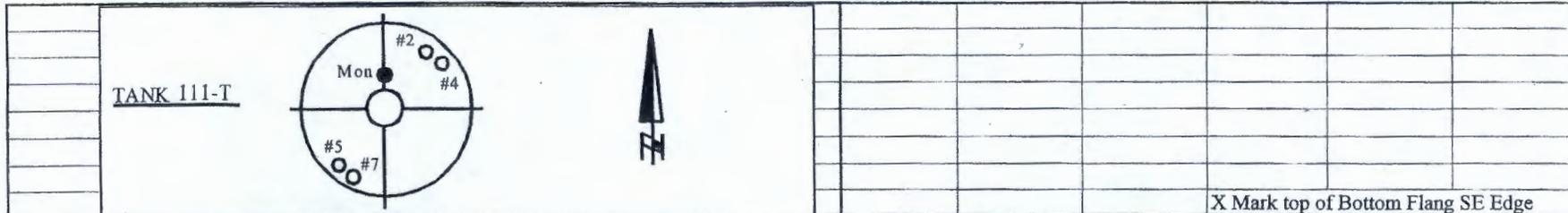
T-19

DATE	RISER - MON			RISER #1			RISER			RISER		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
9/26/1984	673.698	0	0	673.810	0	0						
8/15/1986	673.699	0.001	0.001	673.813	0.003	0.003						
8/30/1988	673.698	-0.001	0	673.813	0	0.003						
7/17/1990	673.699	0.001	0.001	673.811	-0.002	0.001						
6/26/1992	673.698	-0.001	0	673.814	0.003	0.004						
2/25/1994	673.694	-0.004	-0.004	673.814	0	0.004						
6/1/1994	673.691	-0.003	-0.007	673.809	-0.005	-0.001						
7/11/1996	673.697	0.006	-0.001		BLOCKED							
8/29/1996	673.697	0	-0.001	673.813	0.004	0.003						
8/27/1997	673.691	-0.006	-0.007	673.804	-0.009	-0.006						
7/22/1998	673.695	0.004	-0.003	673.811	0.007	0.001						
10/27/1998	673.689	-0.006	-0.009	673.808	-0.003	-0.002						
9/22/2000	673.689	0	-0.009	673.807	-0.001	-0.003						
11/5/2002	673.688	-0.001	-0.010	673.808	0.001	-0.002						
11/3/2005	673.689	0.001	-0.009	Blocked by Enraf Equipment								
6/27/2007	673.691	0.002	-0.007	673.808	0	-0.002						
10/25/2007	673.689	-0.002	-0.009	673.806	-0.002	-0.004						
10/30/2007	673.692	0.003	-0.006	673.812	0.006	0.002						
11/6/2007	673.688	-0.004	-0.010	673.804	-0.008	-0.006						
5/9/2008	673.692	0.004	-0.006	673.809	0.005	-0.001						
8/3/2010	673.697	0.005	-0.001	673.810	0.001	0.000						
2/26/2013	673.696	-0.001	-0.002	673.813	0.003	0.003						

RPP-RPT-55202, Rev. 0

Tank 241-T-110 Dome Benchmark Elevation Change





X Mark top of Bottom Flang SE Edge

DATE	RISER - MON			RISER #2			RISER #5			RISER #4		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
9/26/1984	672.282	0	0	672.877	0	0						
8/15/1986	672.284	0.002	0.002	672.879	0.002	0.002	672.840	0	0			
8/30/1988	672.284	0	0.002	672.879	0	0.002	672.841	0.001	0.001			
7/17/1990	672.285	0.001	0.003	672.879	0	0.002	672.842	0.001	0.002			
6/26/1992	672.288	0.003	0.006	672.882	0.003	0.005	672.842	0	0.002			
2/25/1994	672.284	-0.004	0.002	672.882	0	0.005	672.841	-0.001	0.001	673.013	0	0
6/1/1994	672.280	-0.004	-0.002	672.877	-0.005	0	672.837	-0.004	-0.003			
7/11/1996	672.284	0.004	0.002	672.879	0.002	0.002	672.840	0.003	0		Not Found	
7/22/1998	672.287	0.003	0.005	672.881	0.002	0.004	672.842	0.002	0.002		Not Found	
9/22/2000	672.283	-0.004	0.001	672.879	-0.002	0.002	672.840	-0.002	0			
11/5/2002	672.281	-0.002	-0.001	672.878	-0.001	0.001	672.837	-0.003	-0.003			
11/3/2005	672.281	0	-0.001	672.876	-0.002	-0.001	672.836	-0.001	-0.004			
6/27/2007	672.285	0.004	0.003	672.877	0.001	0	672.838	0.002	-0.002			
10/25/2007	672.284	-0.001	0.002	672.877	0	0	672.838	0	-0.002			
10/30/2007	672.287	0.003	0.005	672.880	0.003	0.003	672.840	0.002	0			
11/6/2007	672.280	-0.007	-0.002	672.875	-0.005	-0.002	672.834	-0.006	-0.006			
5/9/2008	672.285	0.005	0.003	672.875	0	-0.002	672.838	0.004	-0.002			
8/3/2010	672.288	0.003	0.006	672.877	0.002	0	672.842	0.004	0.002			
2/26/2013	672.293	0.005	0.011	672.880	0.003	0.003	672.842	0.000	0.002		Not Found	

RPP-20452, Rev. 0/2

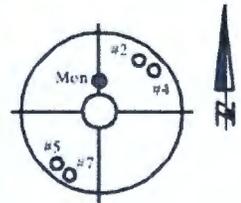
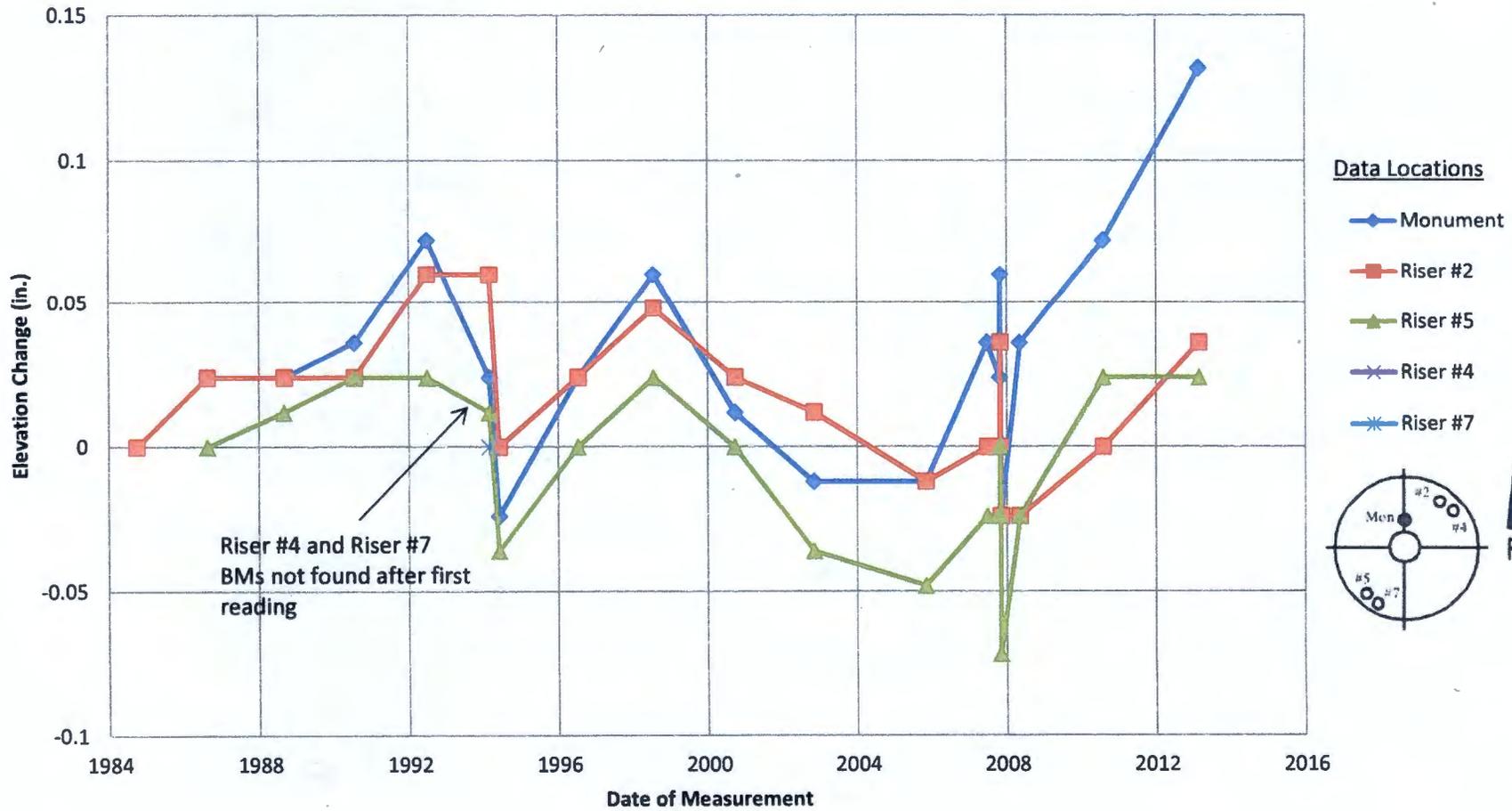
ATTACH Survey

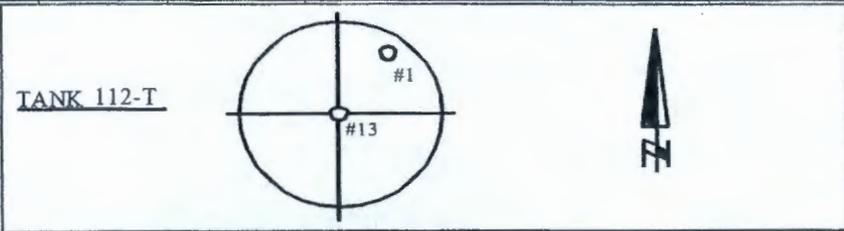
Page: T-Survey-12 of 14

T-21

RPP-RPT-55202, Rev. 0

Tank 241-T-111 Dome Benchmark Elevation Change

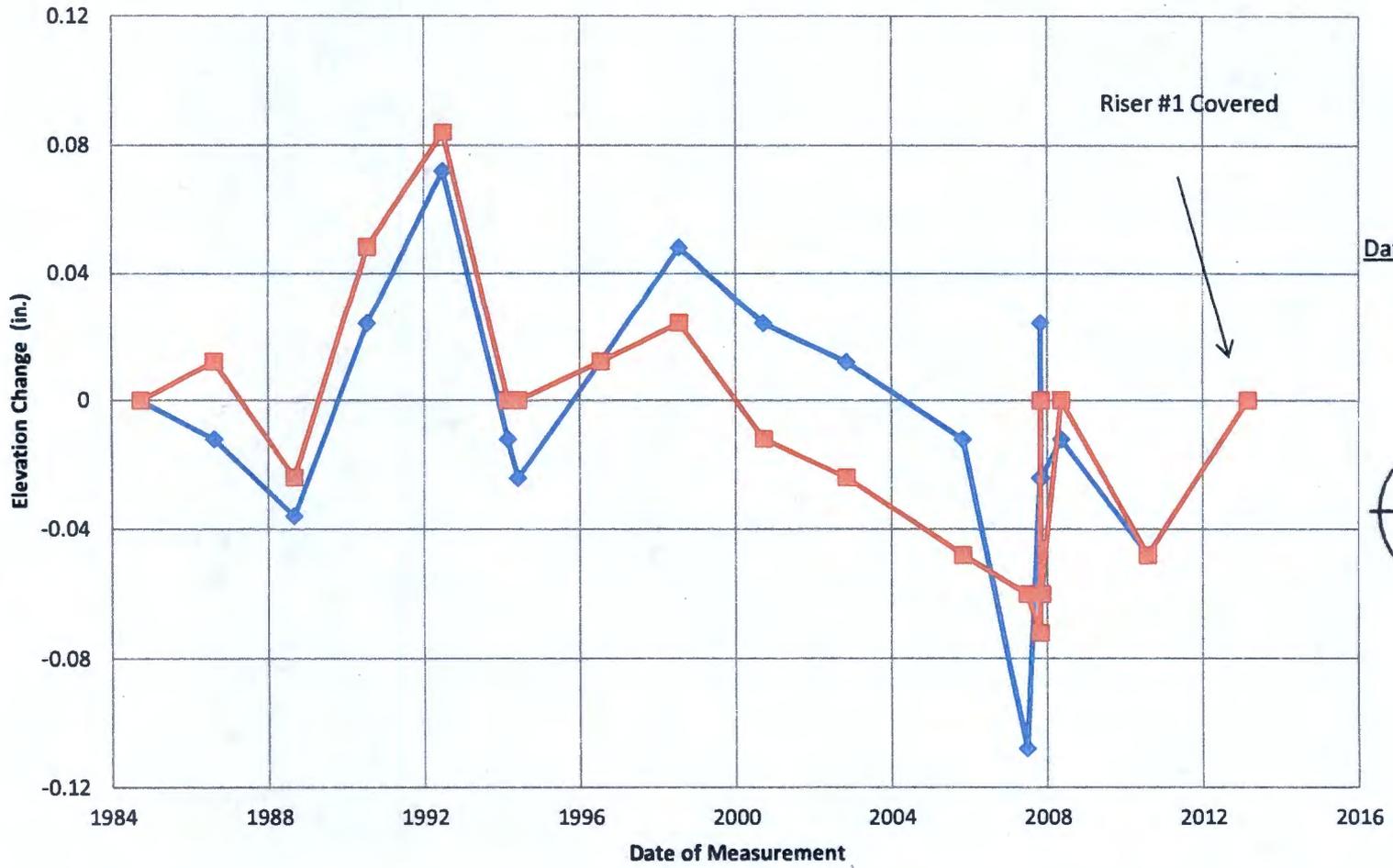




DATE	RISER #1			RISER #13			RISER			RISER		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
9/26/1984	671.810	0	0	673.526	0	0						
8/15/1986	671.809	-0.001	-0.001	673.527	0.001	0.001						
8/30/1988	671.807	-0.002	-0.003	673.524	-0.003	-0.002						
7/17/1990	671.812	0.005	0.002	673.530	0.006	0.004						
6/26/1992	671.816	0.004	0.006	673.533	0.003	0.007						
2/25/1994	671.809	-0.007	-0.001	673.526	-0.007	0						
6/1/1994	671.808	-0.001	-0.002	673.526	0	0						
7/11/1996	671.811	0.003	0.001	673.527	0.001	0.001						
7/22/1998	671.814	0.003	0.004	673.528	0.001	0.002						
9/22/2000	671.812	-0.002	0.002	673.525	-0.003	-0.001						
11/5/2002	671.811	-0.001	0.001	673.524	-0.001	-0.002						
11/3/2005	671.809	-0.002	-0.001	673.522	-0.002	-0.004						
6/27/2007	671.801	-0.008	-0.009	673.521	-0.001	-0.005						
10/25/2007	671.808	0.007	-0.002	673.520	-0.001	-0.006						
10/30/2007	671.812	0.004	0.002	673.526	0.006	0						
11/6/2007	671.808	-0.004	-0.002	673.521	-0.005	-0.005						
5/9/2008	671.809	0.001	-0.001	673.526	0.005	0						
8/3/2010	671.806	-0.003	-0.004	673.522	-0.004	-0.004						
2/26/2013	Covered with dirt-unable to access			673.526	0.004	0.000						

T-24

Tank 241-T-112 Dome Benchmark Elevation Change

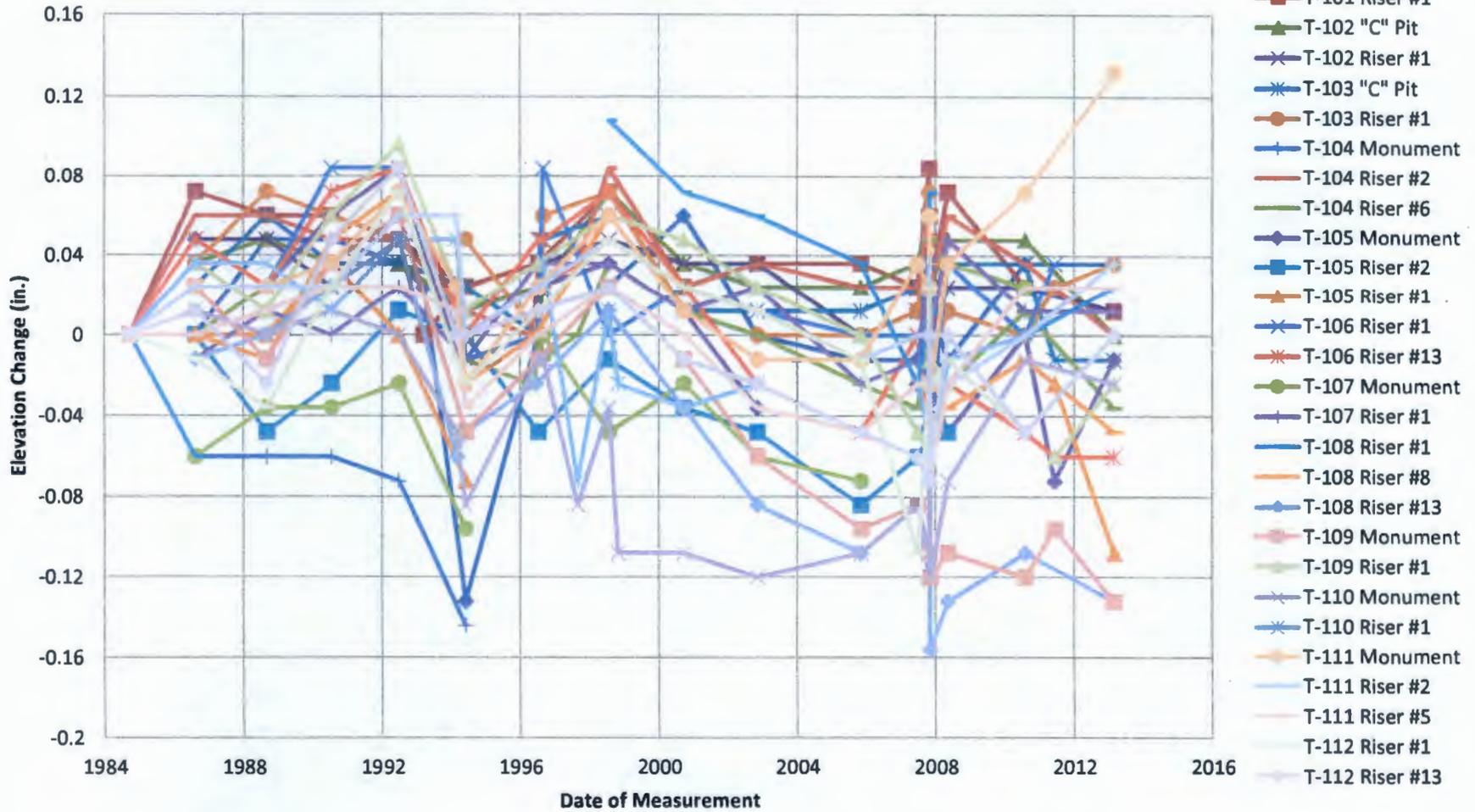


Data Locations

- Riser #1
- Riser #13

The diagram shows a circular benchmark with two riser locations marked: Riser #1 at the top right and Riser #13 at the bottom center. A north arrow is located to the right of the diagram.

T Farm Dome Benchmark Elevation Change



Appendix TX – 241-TX Farm Dome Survey Data and Plots

FIELD SKETCH							T:\excel\fs-tx.xls					
							Mon. 1. N41752.00 W76150.00 EL = 667.705 (NAVD88-Ft. Ref. Elev=671.167) Mon. Held 2. N41650.00 W76150.00 EL = 668.035 (NAVD88-Ft. Ref. Elev=671.496)					
DATE	RISER 8			PIT "S"			RISER 12 "B"			RISER		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
6/22/1981	673.239	0	0									
7/7/1981	673.238	-0.001	-0.001	672.629	0	0						
7/9/1981				672.624	-0.005	-0.005						
8/5/1981	673.237	-0.001	-0.002	672.625	0.001	-0.004						
12/18/1981	673.244	0.007	0.005	672.635	0.010	0.006						
10/26/1982	Not Requested This Survey											
4/19/1983	Not Requested This Survey											
6/14/1983	Not Requested This Survey											
6/9/1985	All BM's Unaccessible This Date											
8/18/1986	Blocked by Bagout Unit						674.195	0	0			
9/4/1987	Blocked by Bagout Unit			672.624	-0.011	-0.005	674.193	-0.002	-0.002			
9/14/1988	Blocked by Bagout Unit			672.618	-0.006	-0.011	674.186	-0.007	-0.009			
8/7/1989				672.623	0.005	-0.006	674.193	0.007	-0.002			
7/19/1990		Inaccessible		672.619	-0.004	-0.010	674.188	-0.005	-0.007			
7/22/1991		Inaccessible		672.619	0	-0.010	674.190	0.002	-0.005			
6/25/1992				672.617	-0.002	-0.012	674.188	-0.002	-0.007			
5/22/1993				672.619	0.002	-0.010						
6/11/1993							674.188	0	-0.007			
5/14/1994		Inaccessible		672.621	0.002	-0.008	674.189	0.001	-0.006			
6/12/1995		Inaccessible		672.614	-0.007	-0.015	674.184	-0.005	-0.011			
7/31/1996		Inaccessible		672.620	0.006	-0.009	674.190	0.006	-0.005			
7/29/1997		Inaccessible		672.622	0.002	-0.007	674.189	-0.001	-0.006			
7/16/1998		Inaccessible		672.620	-0.002	-0.009	674.189	0	-0.006			
7/20/1999		Blocked		672.621	0.001	-0.008	674.189	0	-0.006			

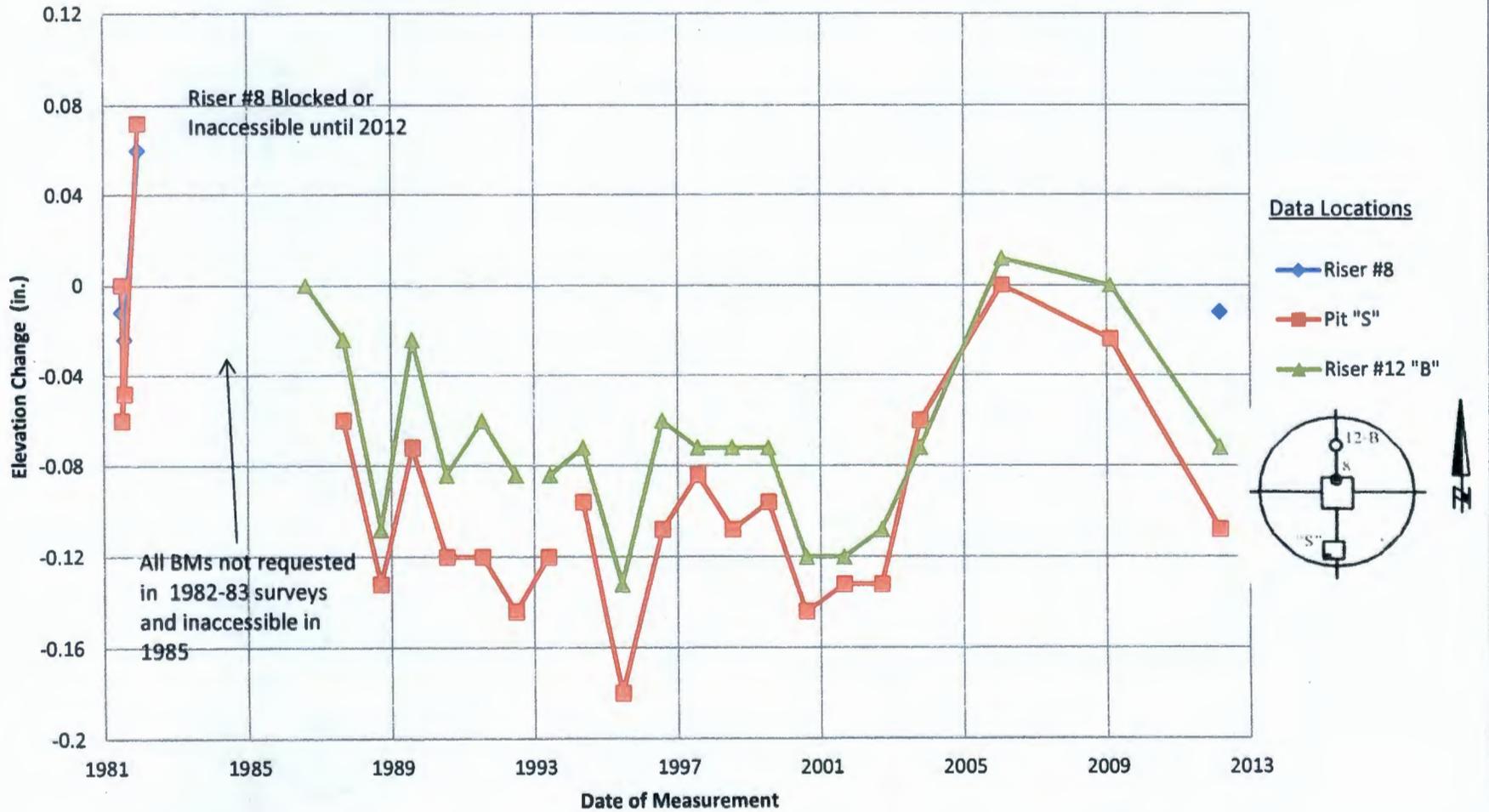
RPP-20453, Rev.0D
 ATTACH. Survey
 Page: TX -Survey-2 of 38

TX-1

RPP-RPT-55202, Rev. 0

TX-3

Tank 241-TX-101 Dome Benchmark Elevation Change

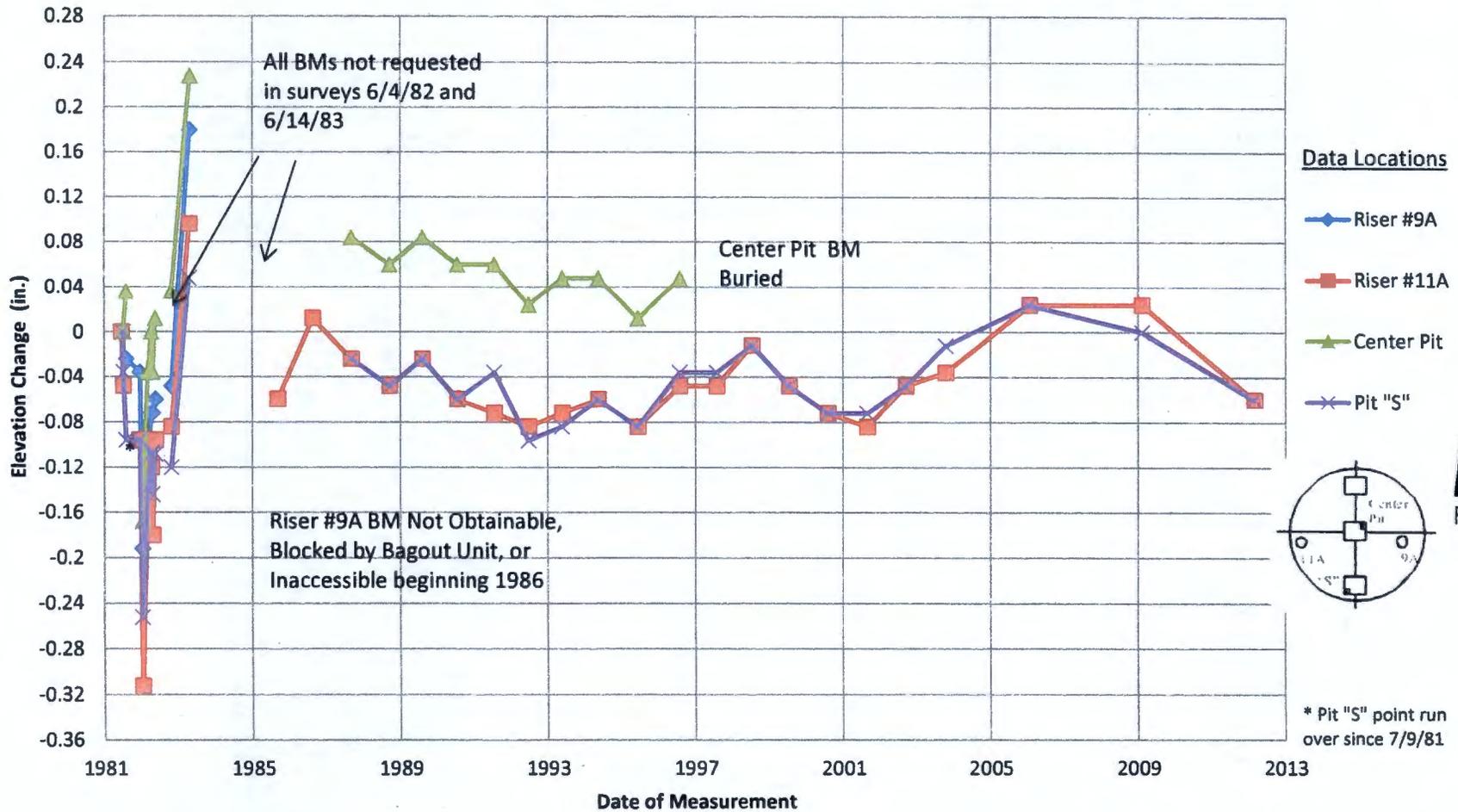


TANK 102-TX							T:\excel\fs-tx.xls					
* Point run over since Survey 7/9/81.												
DATE	RISER 9A			RISER 11A			RISER CENTER PIT			PIT "S"		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
6/22/1981	673.067	0	0	672.926	0	0						
7/7/1981	673.063	-0.004	-0.004	672.922	-0.004	-0.004	671.709	0	0	671.696	0	0
7/9/1981							671.709	0	0	671.693	-0.003	-0.003
8/5/1981	673.065	0.002	-0.002				671.712	0.003	0.003	*671.688	-0.005	-0.008
12/18/1981	673.064	-0.001	-0.003	672.918	-0.004	-0.008				671.688	0	-0.008
1/12/1982	673.051	-0.013	-0.016	672.900	-0.180	-0.026	671.695	-0.017	-0.014	671.675	-0.013	-0.021
3/5/1982	673.058	0.007	-0.009	672.914	0.014	-0.012	671.706	0.011	-0.003	671.684	0.009	-0.012
4/9/1982	673.061	0.003	-0.006	672.916	0.002	-0.010	671.709	0.003	0	671.687	0.003	-0.009
4/21/1982	673.061	0	-0.006	672.911	-0.005	-0.015	671.706	-0.003	-0.003	671.684	-0.003	-0.012
5/19/1982	673.062	0.001	-0.005	672.918	0.007	-0.008	671.710	0.004	0.001	671.687	0.003	-0.009
6/4/1982				Not Requested This Survey								
10/26/1982	673.063	0.001	-0.004	672.919	0.001	-0.007	671.712	0.002	0.003	671.686	-0.001	-0.010
4/19/1983	673.082	0.019	0.015	672.934	0.015	0.008	671.728	0.016	0.019	671.700	0.014	0.004
6/14/1983				Not Requested This Survey								
9/6/1985				672.921	-0.013	-0.005						
8/18/1986	Not Obtainable			672.927	0.006	0.001						
9/4/1987	Blocked by Bagout Unit			672.924	-0.003	-0.002	671.716	-0.012	0.007	671.694	-0.006	-0.002
9/14/1988	Blocked by Bagout Unit			672.922	-0.002	-0.004	671.714	-0.002	0.005	671.692	-0.002	-0.004
8/7/1989	Blocked by Bagout Unit			672.924	0.002	-0.002	671.716	0.002	0.007	671.694	0.002	-0.002
7/19/1990	Blocked by Bagout Unit			672.921	0.003	-0.005	671.714	-0.002	0.005	671.691	-0.003	-0.005
7/22/1991		Inaccessible		672.920	-0.001	-0.006	671.714	0	0.005	671.693	0.002	-0.003
6/25/1992		Inaccessible		672.919	-0.001	-0.007	671.711	-0.003	0.002	671.688	-0.005	-0.008
5/22/1993		Inaccessible		672.920	0.001	-0.006	671.713	0.002	0.004	671.689	0.001	-0.007
5/14/1994		Inaccessible		672.921	0.001	-0.005	671.713	0	0.004	671.691	0.002	-0.005

TX-4

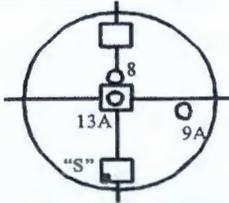
RPP-RPT-55202, Rev. 0

Tank 241-TX-102 Dome Benchmark Elevation Change



T:\excel\TX-Dome.xls

TANK 103-TX



*Riser run over since previous shot.

**Has been bent down.

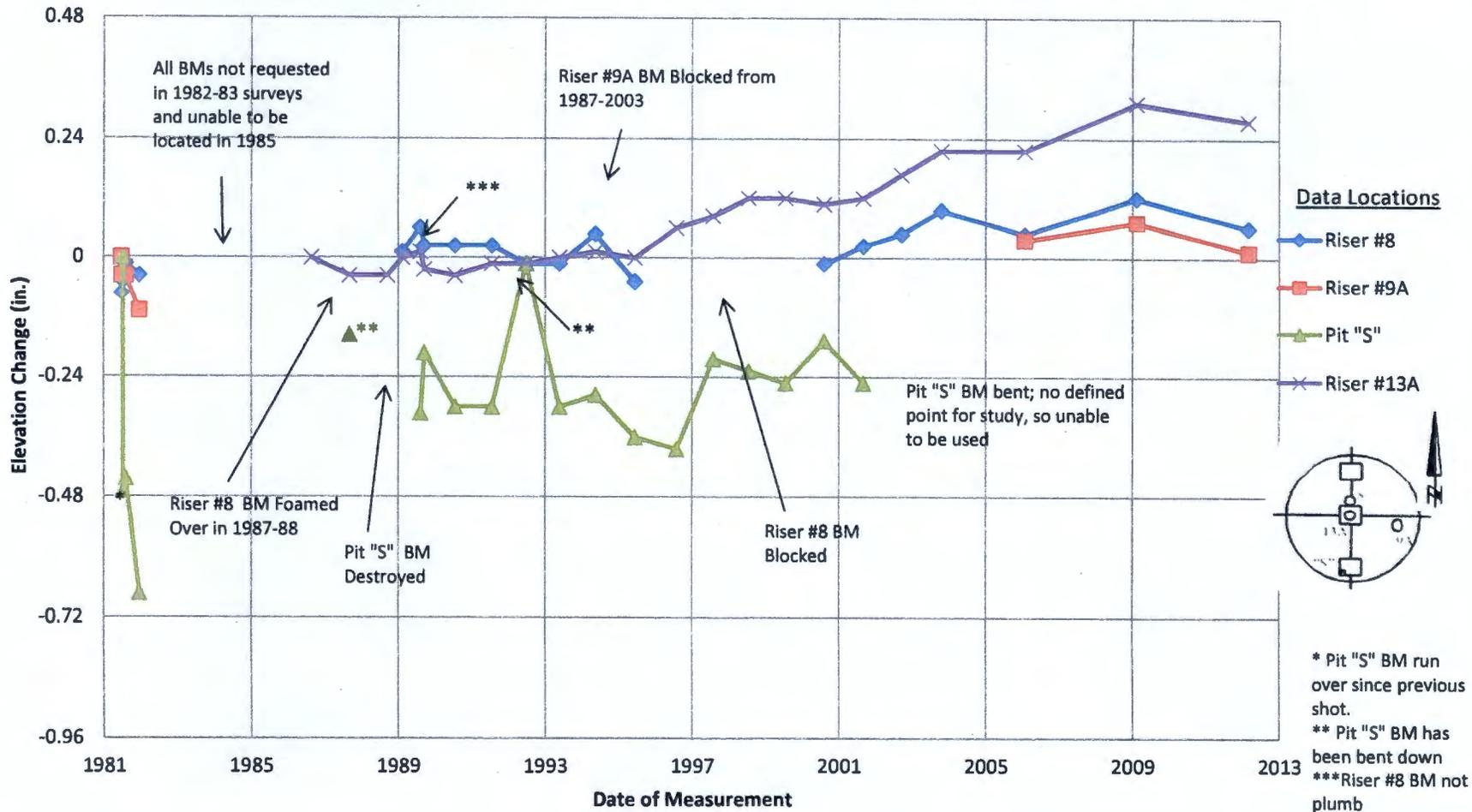
***Bench mark not plumb.

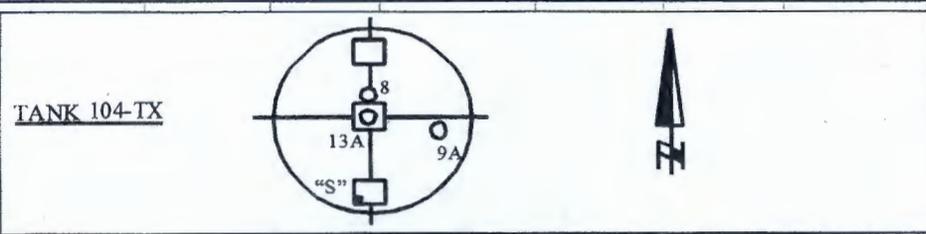
DATE	RISER 8			RISER 9A			PIT "S"			RISER 13A		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
6/22/1981	670.990	0	0	672.042	0	0						
6/26/1981	670.984	-0.006	-0.006	672.039	-0.003	-0.003						
7/8/1981	670.988	0.004	-0.002	672.039	0	-0.003	670.689	0	0			
7/9/1981	670.986	0.002	-0.004				* 670.650	-0.039	-0.039			
8/5/1981	670.989	0.003	-0.001	672.039	0	-0.003	670.652	0.002	-0.037			
12/18/1981	670.987	-0.002	-0.003	672.033	-0.006	-0.009	670.633	-0.019	-0.056			
10/26/1982				Not Requested This Survey								
4/19/1983				Not Requested This Survey								
6/14/1983				Not Requested This Survey								
9/6/1985				Unable to Locate Any BM's								
8/18/1986										672.479	0	0
9/4/1987		Foamed Over		Blocked by Bagout Unit			** 670.676	0.043	-0.013	672.476	0.003	-0.003
9/14/1988		Foamed Over		Blocked by Bagout Unit				Destroyed		672.476	0	-0.003
2/7/1989	670.991	0.004	0.001	Blocked by Bagout Unit				Destroyed		672.479	0.003	0
8/7/1989	670.995	0.004	0.005	Blocked by Bagout Unit			670.663	-0.013	-0.026	672.480	0.001	0.001
9/15/1989	*** 670.992	-0.003	0.002	Blocked by Bagout Unit			670.673	0.010	-0.016	672.477	-0.003	-0.002
7/19/1990	670.992	0	0.002	Blocked by Bagout Unit			670.664	-0.009	-0.025	672.476	-0.001	-0.003
7/22/1991	670.992	0	0.002	Blocked by Bagout Unit			670.664	0	-0.025	672.478	0.002	-0.001
6/25/1992	670.989	-0.003	-0.001	BLOCKED			** 671.688	0.024	-0.001	672.478	0	-0.001
5/22/1993	670.989	-0-	-0.001	BLOCKED			670.664	-0.024	-0.025	672.479	0.001	0
5/14/1994	670.994	0.005	0.004	BLOCKED			670.666	0.002	-0.023	672.480	0.001	0.001
6/12/1995	670.986	-0.008	-0.004	BLOCKED			670.659	-0.007	-0.030	672.479	-0.001	0
7/31/1996		BLOCKED		BLOCKED			670.657	-0.002	-0.032	672.484	0.005	0.005

TX-7

RPP-RPT-55202, Rev. 0

Tank 241-TX-103 Dome Benchmark Elevation Change

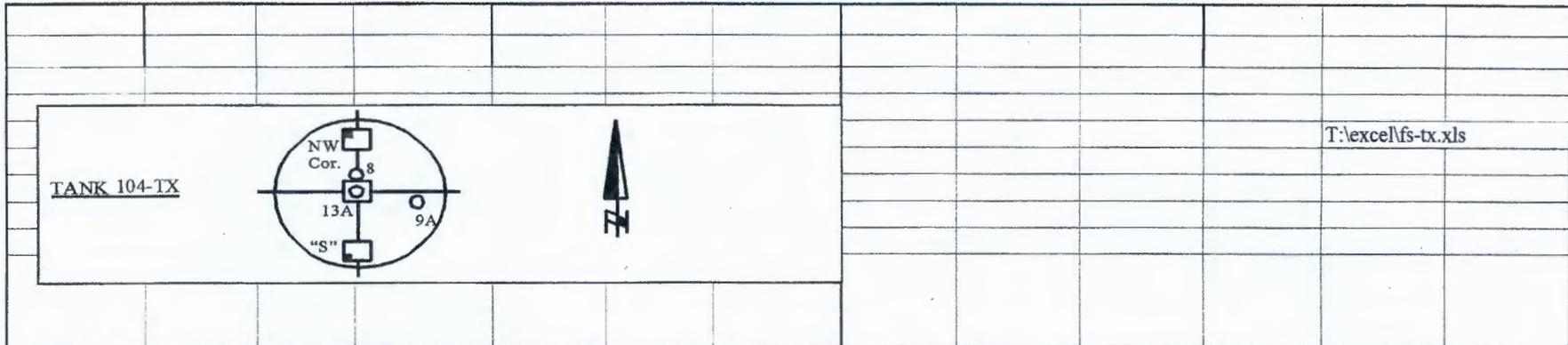




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TX-10

DATE	RISER 8			RISER 9A			SOUTH PIT "S"			RISER 13A		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
6/22/1981	669.944	0	0	671.436	0	0						
6/26/1981	669.940	-0.004	-0.004	671.437	0.001	0.001						
7/8/1981	669.943	0.003	-0.001	671.436	-0.001	0	669.692	0	0			
7/9/1981							669.694	0.002	0.002			
8/5/1981	669.947	0.004	0.003	671.430	-0.006	-0.006	669.695	0.001	0.003			
12/18/1981	669.931	-0.016	-0.013	671.425	-0.005	-0.011	669.684	-0.011	-0.008			
10/26/1982				Not Requested This Survey								
4/19/1983				Not Requested This Survey								
6/14/1983				Not Requested This Survey								
9/6/1985				All Covered This Survey								
8/18/1986				Not Found						671.436	0	0
9/4/1987		Destroyed		Blocked by Bagout Unit			670.712	0	0	671.432	-0.004	-0.004
9/14/1988		Destroyed		Blocked by Bagout Unit			670.711	-0.001	-0.001	671.432	0	-0.004
							Continued on Page 2			Continued on Page 2		
8/7/2000	669.952	0.021	0.008	671.442	0.017	0.006						
8/30/2001	669.955	0.003	0.011	671.448	0.006	0.012						
9/17/2002	669.955	0	0.011	671.456	0.008	0.020						
10/16/2003	669.956	0.001	0.012	671.458	0.002	0.022						
1/25/2006	669.955	-0.001	0.011	671.449	-0.009	0.013						
2/9/2009	669.959	0.004	0.015	671.450	0.001	0.014						
3/1/2012	669.954	-0.005	0.010	671.447	-0.003	0.011						



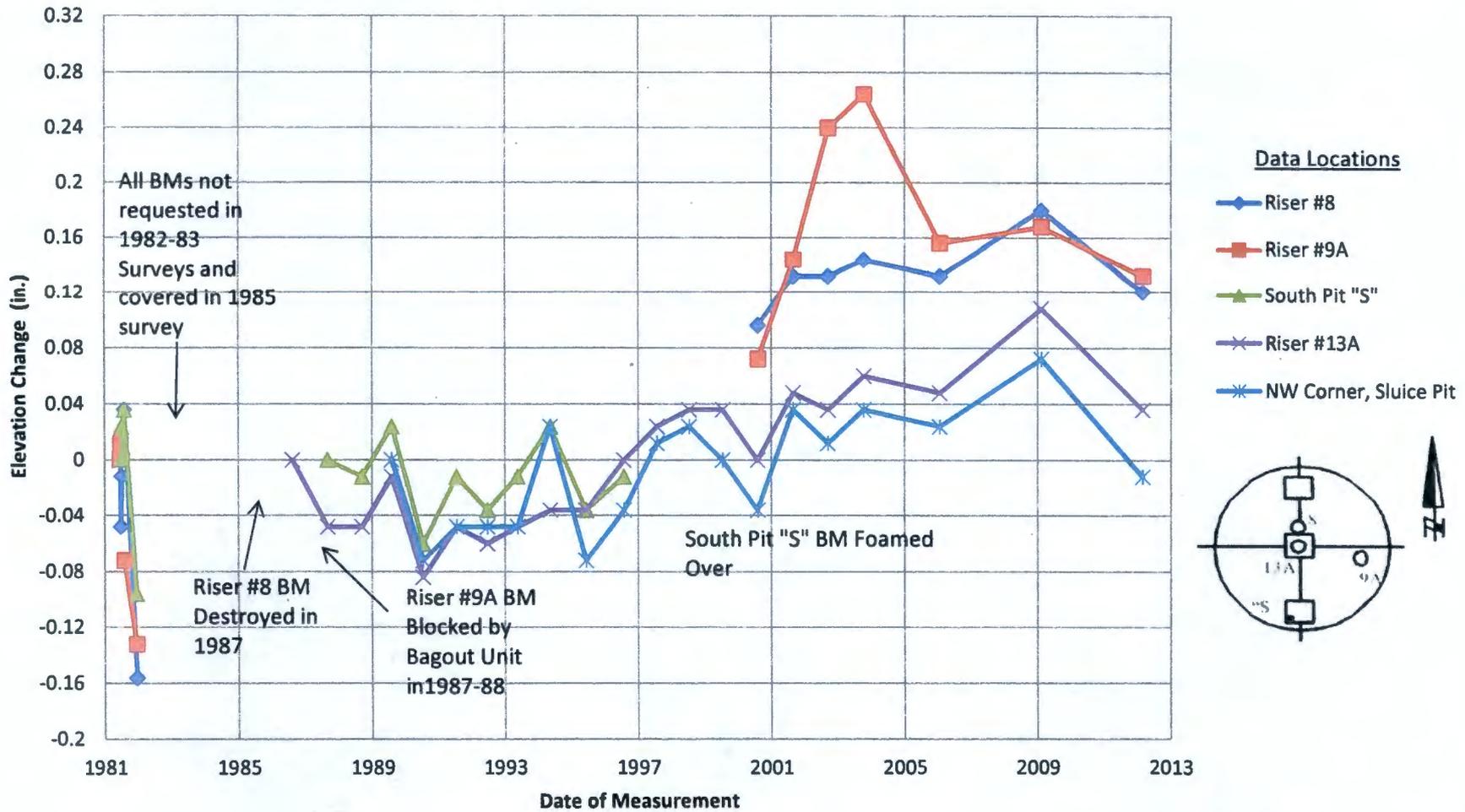
DATE	NW COR SLUICE PIT			SOUTH PIT "S"			RISER 13A			RISER		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
8/7/1989	669.704	0	0	670.714	0.003	0.002	671.435	0.003	-0.001			
7/19/1990	669.698	-0.006	-0.006	670.707	-0.007	-0.005	671.429	-0.006	-0.007			
7/23/1991	669.700	0.002	-0.004	670.711	0.004	-0.001	671.432	0.003	-0.004			
6/25/1992	669.700	0	-0.004	670.709	-0.002	-0.003	671.431	-0.001	-0.005			
5/22/1993	669.700	0	-0.004	670.711	0.002	-0.001	671.432	0.001	-0.004			
5/14/1994	669.706	0.006	0.002	670.714	0.003	0.002	671.433	0.001	-0.003			
6/12/1995	669.698	-0.008	-0.006	670.709	-0.005	-0.003	671.433	0	-0.003			
7/31/1996	669.701	0.003	-0.003	670.711	0.002	-0.001	671.436	0.003	0			
7/29/1997	669.705	0.004	0.001	Foamed Over			671.438	0.002	0.002			
7/16/1998	669.706	0.001	0.002	Foamed Over			671.439	0.001	0.003			
7/20/1999	669.704	-0.002	0	Foamed Over			671.439	0	0.003			
8/7/2000	669.701	-0.003	-0.003	Foamed Over			671.436	-0.003	0			
8/30/2001	669.707	0.006	0.003	Foamed Over			671.440	0.004	0.004			
9/17/2002	669.705	-0.002	0.001	Foamed Over			671.439	-0.001	0.003			
10/16/2003	669.707	0.002	0.003	Foamed Over			671.441	0.002	0.005			
1/25/2006	669.706	-0.001	0.002	Foamed Over			671.440	-0.001	0.004			
2/9/2009	669.710	0.004	0.006	Foamed Over			671.445	0.005	0.009			
3/1/2012	669.703	-0.007	-0.001	Foamed Over			671.439	-0.006	0.003			

RPP-20453, Rev.0D
 ATTACH. Survey
 Page: TX -Survey-9 of 38

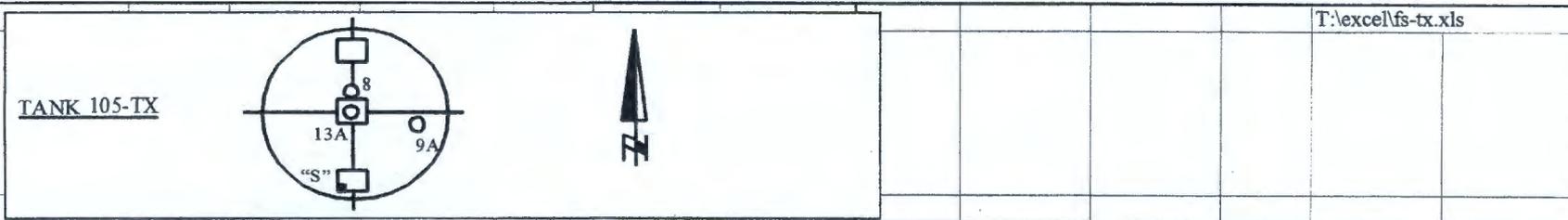
TX-11

RPP-RPT-55202, Rev. 0

Tank 241-TX-104 Dome Benchmark Elevation Change



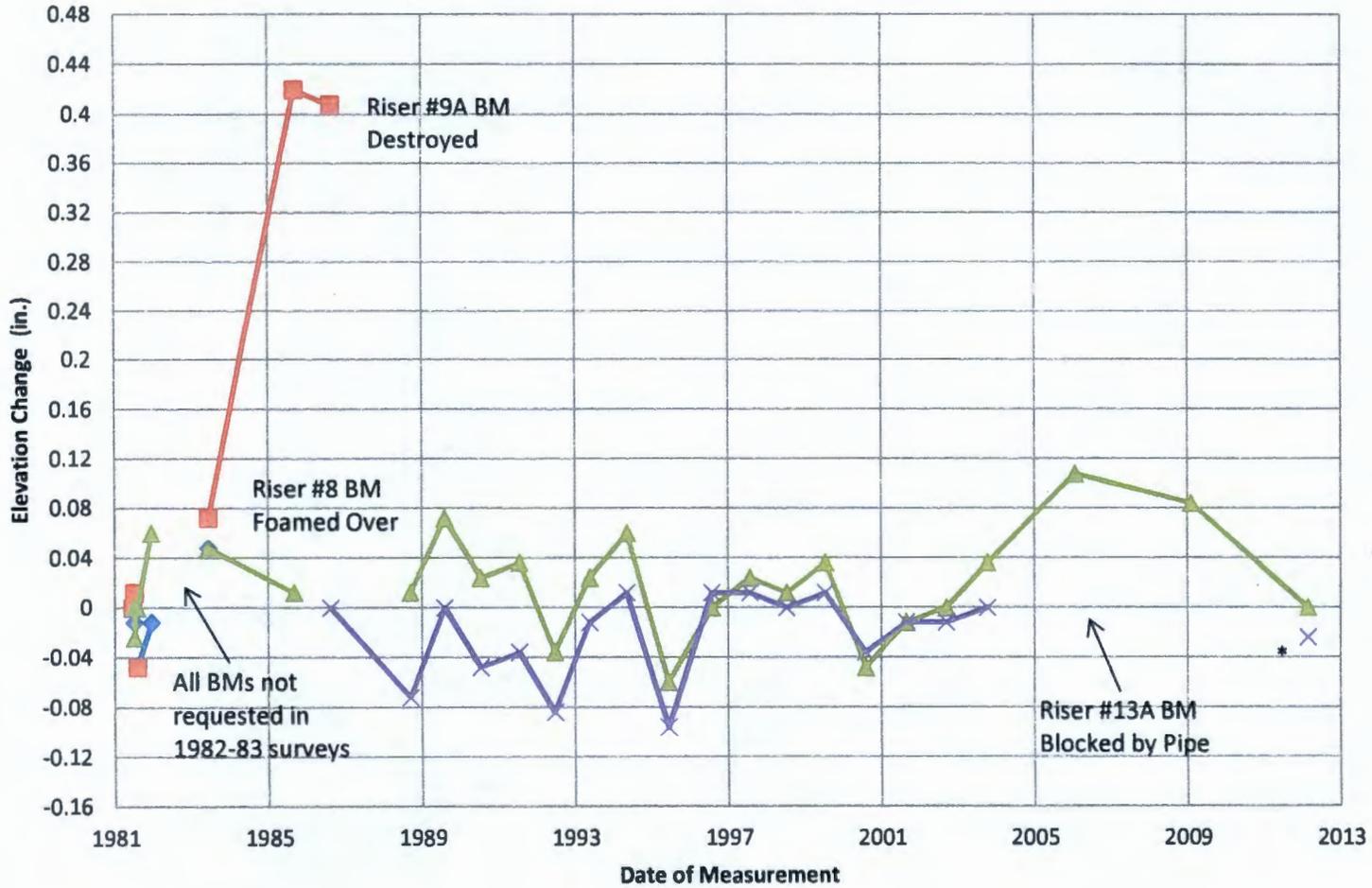
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TX-13

DATE	RISER 8			RISER 9A			PIT "S"			RISER 13A		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
6/22/1981	672.892	0	0	674.680	0	0						
6/26/1981												
7/8/1981	672.891	-0.001	-0.001	674.681	0.001	0.001	672.634	0	0			
7/9/1981							672.632	-0.002	-0.002			
8/5/1981	672.888	-0.003	-0.004	674.676	-0.005	-0.004	672.634	0.002	0			
12/18/1981	672.891	0.003	-0.001				672.639	0.005	0.005			
10/26/1982	Not Requested This Survey											
4/19/1983	Not Requested This Survey											
6/14/1983	672.896	0.005	0.004	674.686	0.010	0.006	672.638	-0.001	0.004			
9/6/1985				674.715	0.029	0.035	672.635	-0.003	0.001			
8/18/1986		Foamed Over		674.714	-0.001	0.034				674.638	0	0
9/14/1988		Foamed Over		DESTROYED			672.635	0	0.001	674.632	-0.006	-0.006
8/7/1989		Foamed Over					672.640	0.005	0.006	674.638	0.006	0
7/19/1990		Foamed Over					672.636	-0.004	0.002	674.634	-0.004	-0.004
7/23/1991		Foamed Over					672.637	0.001	0.003	674.635	0.001	-0.003
6/25/1992		Foamed Over					672.631	-0.006	-0.003	674.631	-0.004	-0.007
5/22/1993		Foamed Over					672.636	0.005	0.002	674.637	0.006	-0.001
5/14/1994		Foamed Over					672.639	0.003	0.005	674.639	0.002	0.001
6/12/1995		Foamed Over					672.629	-0.010	-0.005	674.630	-0.009	-0.008
7/31/1996		Foamed Over					672.634	0.005	0	674.639	0.009	0.001
7/29/1997		Foamed Over					672.636	0.002	0.002	674.639	0	0.001
7/16/1998		Foamed Over					672.635	-0.001	0.001	674.638	-0.001	0
7/20/1999		Foamed Over					672.637	0.002	0.003	674.639	0.001	0.001
8/7/2000		Foamed Over					672.630	-0.007	-0.004	674.635	-0.004	-0.003

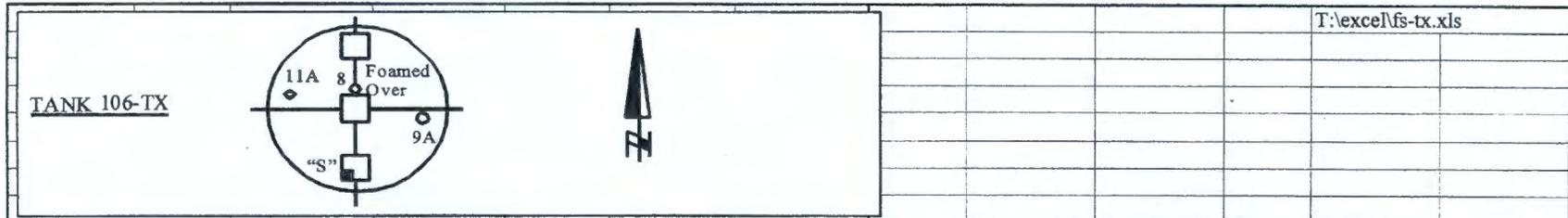
Tank 241-TX-105 Dome Benchmark Elevation Change



Data Locations

- ◆ Riser #8
- Riser #9A
- ▲ Pit "S"
- × Riser #13A

* Riser #13A BM read with tape due to pipe obstruction over the BM

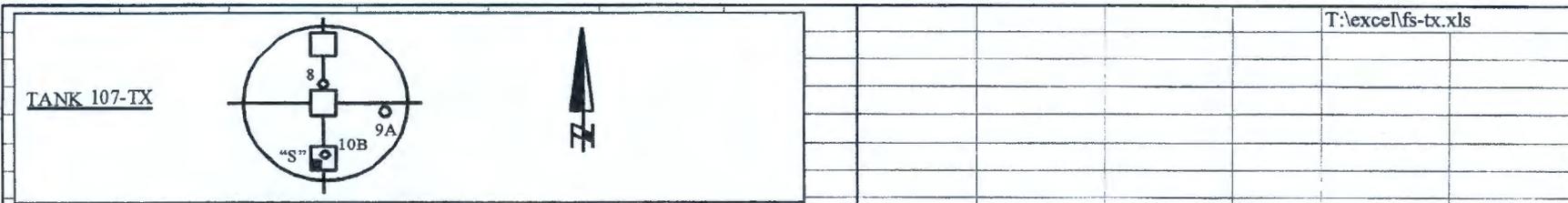


DATE	RISER 8			RISER 9A			RISER 11A			RISER "S"		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
6/22/1981	671.935	0	0	672.911	0	0	672.915	0	0			
6/26/1981												
7/8/1981	671.930	-0.005	-0.005	672.904	-0.007	-0.007	672.909	-0.006	-0.006	671.685	0	0
7/9/1981	671.928	-0.002	-0.007	672.904	0	-0.007	672.909	0	-0.006	671.683	-0.002	-0.002
8/5/1981	671.933	0.005	-0.002	672.907	0.003	-0.004	672.912	0.003	-0.003	671.688	0.005	0.003
12/18/1981	671.928	-0.005	-0.007	672.906	-0.001	-0.005	672.909	-0.003	-0.006	671.686	-0.002	0.001
1/12/1982	671.912	-0.016	-0.023	672.889	-0.017	-0.022	672.894	-0.015	-0.021			
3/5/1982	671.925	0.013	-0.01	672.902	0.013	-0.009	672.907	0.013	-0.008	671.681	-0.005	-0.004
4/9/1982	671.929	0.004	-0.006	672.905	0.003	-0.006	672.909	0.002	-0.006	671.685	0.004	0
4/21/1982	671.924	-0.005	-0.011	672.903	-0.002	-0.008	672.905	-0.004	-0.01	671.680	-0.005	-0.005
5/19/1982	671.931	0.007	-0.004	672.907	0.004	-0.004	672.912	0.007	-0.003	671.687	0.007	0.002
6/4/1982				Not Requested This Survey								
10/26/1982	671.931	0	-0.004	672.907	0	-0.004	672.913	0.001	-0.002	671.688	0.001	0.003
4/19/1983	671.947	0.016	0.012	672.918	0.011	0.007	672.928	0.015	0.013	671.703	0.015	0.018
6/14/1983				Not Requested This Survey								
9/6/1985		Foamed Over		672.909	-0.009	-0.002				671.687	-0.016	0.002
8/18/1986		Foamed Over		672.914	0.005	0.003	672.926	-0.002	0.011			
9/14/1988		Foamed Over		672.910	-0.004	-0.001	672.915	-0.011	0	671.688	0.001	0.003
8/7/1989		Foamed Over		672.917	0.007	0.006	672.922	0.007	0.007	671.694	0.006	0.009
7/19/1990		Foamed Over		672.909	-0.008	-0.002	672.914	-0.008	-0.001	671.687	-0.007	0.002
7/23/1991		Foamed Over		672.910	0.001	-0.001	672.913	-0.001	-0.002	671.687	0	0.002
6/25/1992		Foamed Over		672.906	-0.004	-0.005	672.910	-0.003	-0.005	671.684	-0.003	-0.001
5/22/1993		Foamed Over		672.911	0.005	0	672.914	0.004	-0.001	671.687	0.003	0.002
5/14/1994		Foamed Over		672.912	0.001	0.001	672.916	0.002	0.001	671.690	0.003	0.005

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RPP-RPT-55202, Rev. 0

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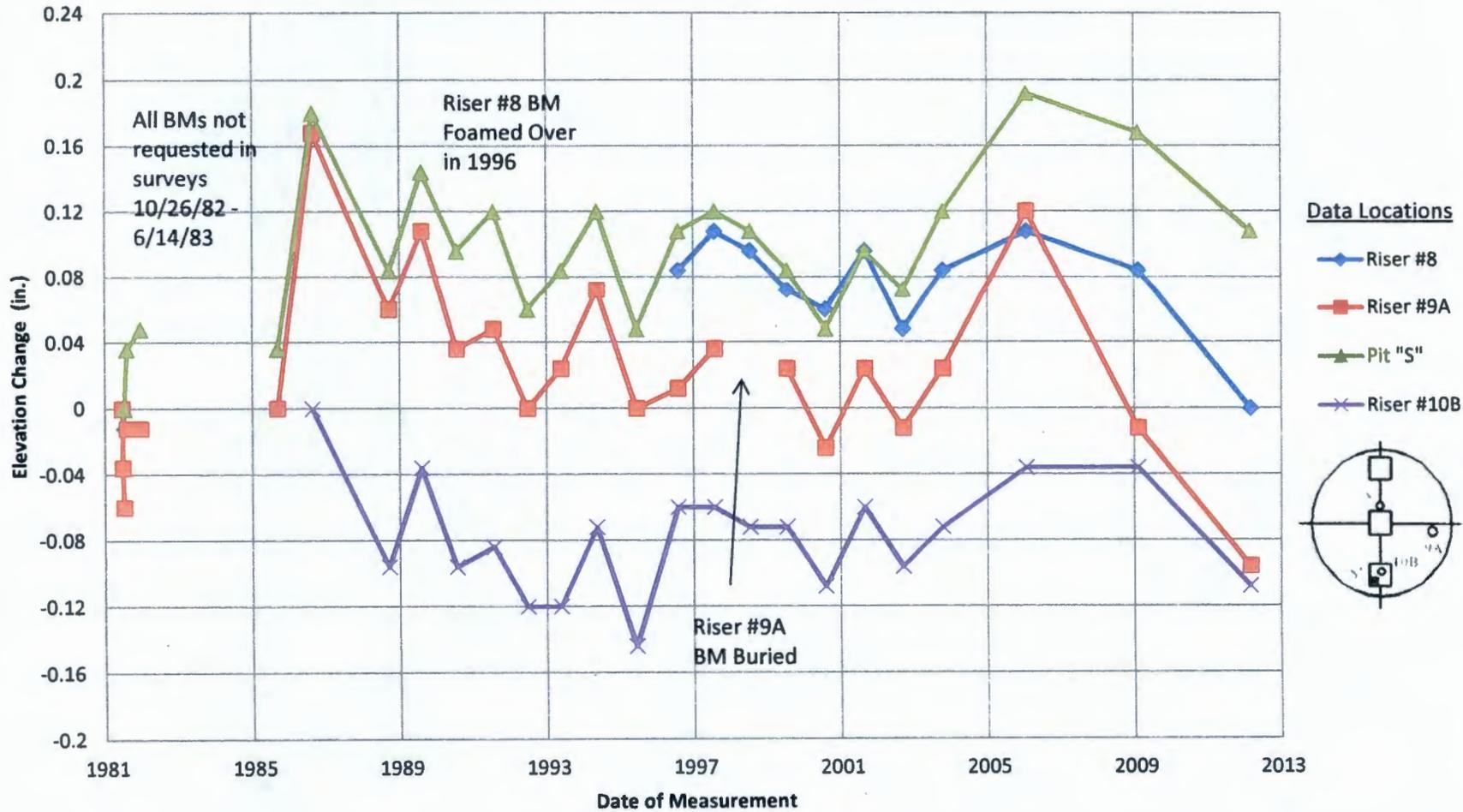
DATE	RISER 8			RISER 9A			PIT "S"			RISER 10B		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
6/22/1981	670.937	0	0	670.967	0	0						
6/26/1981	670.937	0	0	670.964	-0.003	-0.003						
7/8/1981	670.936	-0.001	-0.001	670.962	-0.002	-0.005	670.661	0	0			
7/9/1981							670.661	0	0			
8/5/1981	670.936	0.000	-0.001	670.966	0.004	-0.001	670.664	0.003	0.003			
12/18/1981	670.936	0	-0.001	670.966	0	-0.001	670.665	0.001	0.004			
10/26/1982				Not Requested This Survey								
4/19/1983				Not Requested This Survey								
6/14/1983				Not Requested This Survey								
9/6/1985				670.967	0.001	0.000	670.664	-0.001	0.003			
8/18/1986		Foamed Over		670.981	0.014	0.014	670.676	0.012	0.015	673.428	0	0
9/14/1988		Foamed Over		670.972	-0.009	0.005	670.668	0.004	0.007	673.420	-0.008	-0.008
8/7/1989		Foamed Over		670.976	0.004	0.009	670.673	0.005	0.012	673.425	0.005	-0.003
7/19/1990		Foamed Over		670.970	-0.006	0.003	670.669	-0.004	0.008	673.420	-0.005	-0.008
7/23/1991		Foamed Over		670.971	0.001	0.004	670.671	0.002	0.010	673.421	0.001	-0.007
6/25/1992		Foamed Over		670.967	-0.004	0	670.666	-0.005	0.005	673.418	-0.003	-0.010
5/22/1993		Foamed Over		670.969	0.002	0.002	670.668	0.002	0.007	673.418	0	-0.010
5/14/1994		Foamed Over		670.973	0.004	0.006	670.671	0.003	0.010	673.422	0.004	-0.006
6/12/1995		Foamed Over		670.967	-0.006	0	670.665	-0.006	0.004	673.416	-0.006	-0.012
7/31/1996	670.944	0.008	0.007	670.968	0.001	0.001	670.670	0.005	0.009	673.423	0.007	-0.005
7/29/1997	670.946	0.002	0.009	670.970	0.002	0.003	670.671	0.001	0.010	673.423	0	-0.005
7/16/1998	670.945	-0.001	0.008		Buried		670.670	-0.001	0.009	673.422	-0.001	-0.006
7/20/1999	670.943	-0.002	0.006	670.969	-0.001	0.002	670.668	-0.002	0.007	673.422	0	-0.006
8/7/2000	670.942	-0.001	0.005	670.965	-0.004	-0.002	670.665	-0.003	0.004	673.419	-0.003	-0.009

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RPP-RPT-55202, Rev. 0

TX-21

Tank 241-TX-107 Dome Benchmark Elevation Change

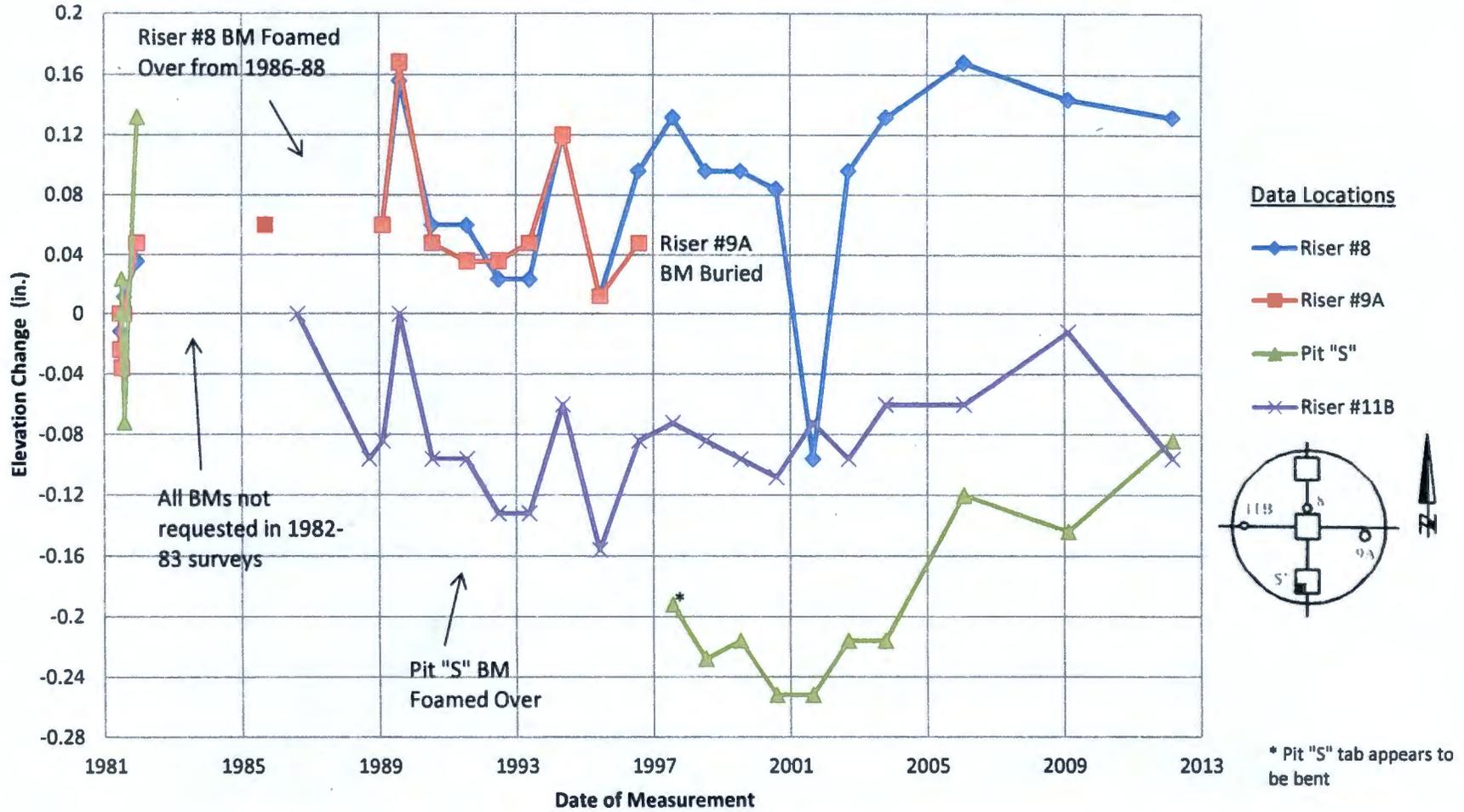


FIELD SKETCH												
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* Tab appears to be bent												
DATE	RISER 8			RISER 9A			PIT "S"			RISER 11B		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
6/22/1981	669.963	0	0	669.549	0	0						
6/26/1981	669.962	-0.001	-0.001	669.547	-0.002	-0.002						
7/8/1981	669.961	-0.001	-0.002	669.546	-0.001	-0.003	669.697	0	0			
7/9/1981							669.699	0.002	0.002			
8/5/1981	669.964	0.003	0.001	669.549	0.003	0.000	669.691	-0.008	-0.006			
12/18/1981	669.966	0.002	0.003	669.553	0.004	0.004	669.708	0.017	0.011			
10/26/1982				Not Requested This Survey								
4/19/1983				Not Requested This Survey								
6/14/1983				Not Requested This Survey								
9/6/1985				669.554	0.001	0.005		Foamed Over				
8/18/1986		Foamed Over						Foamed Over		671.793	0	0
9/14/1988		Foamed Over						Foamed Over		671.785	-0.008	-0.008
2/7/1989	669.968	0.002	0.005	669.554	0	0.005		Foamed Over		671.786	0.001	-0.007
8/7/1989	669.976	0.008	0.013	669.563	0.009	0.014		Foamed Over		671.793	0.007	0
7/19/1990	669.968	-0.008	0.005	669.553	-0.010	0.004		Foamed Over		671.785	-0.008	-0.008
7/23/1991	669.968	0	0.005	669.552	-0.001	0.003		Foamed Over		671.785	0	-0.008
6/25/1992	669.965	-0.003	0.002	669.552	0	0.003		Foamed Over		671.782	-0.003	-0.011
5/22/1993	669.965	0	0.002	669.553	0.001	0.004		Foamed Over		671.782	0	-0.011
5/14/1994	669.973	0.008	0.010	669.559	0.006	0.010		Foamed Over		671.788	0.006	-0.005
6/12/1995	669.964	-0.009	0.001	669.550	-0.009	0.001		Foamed Over		671.780	-0.008	-0.013
7/31/1996	669.971	0.007	0.008	669.553	0.003	0.004		Foamed Over		671.786	0.006	-0.007
7/29/1997	669.974	0.003	0.011	Buried at the Time			669.681*	-0.027	-0.016	671.787	0.001	-0.006
7/16/1998	669.971	-0.003	0.008	Buried			669.678	-0.003	-0.019	671.786	-0.001	-0.007
7/20/1999	669.971	0	0.008	Buried			669.679	0.001	-0.018	671.785	-0.001	-0.008

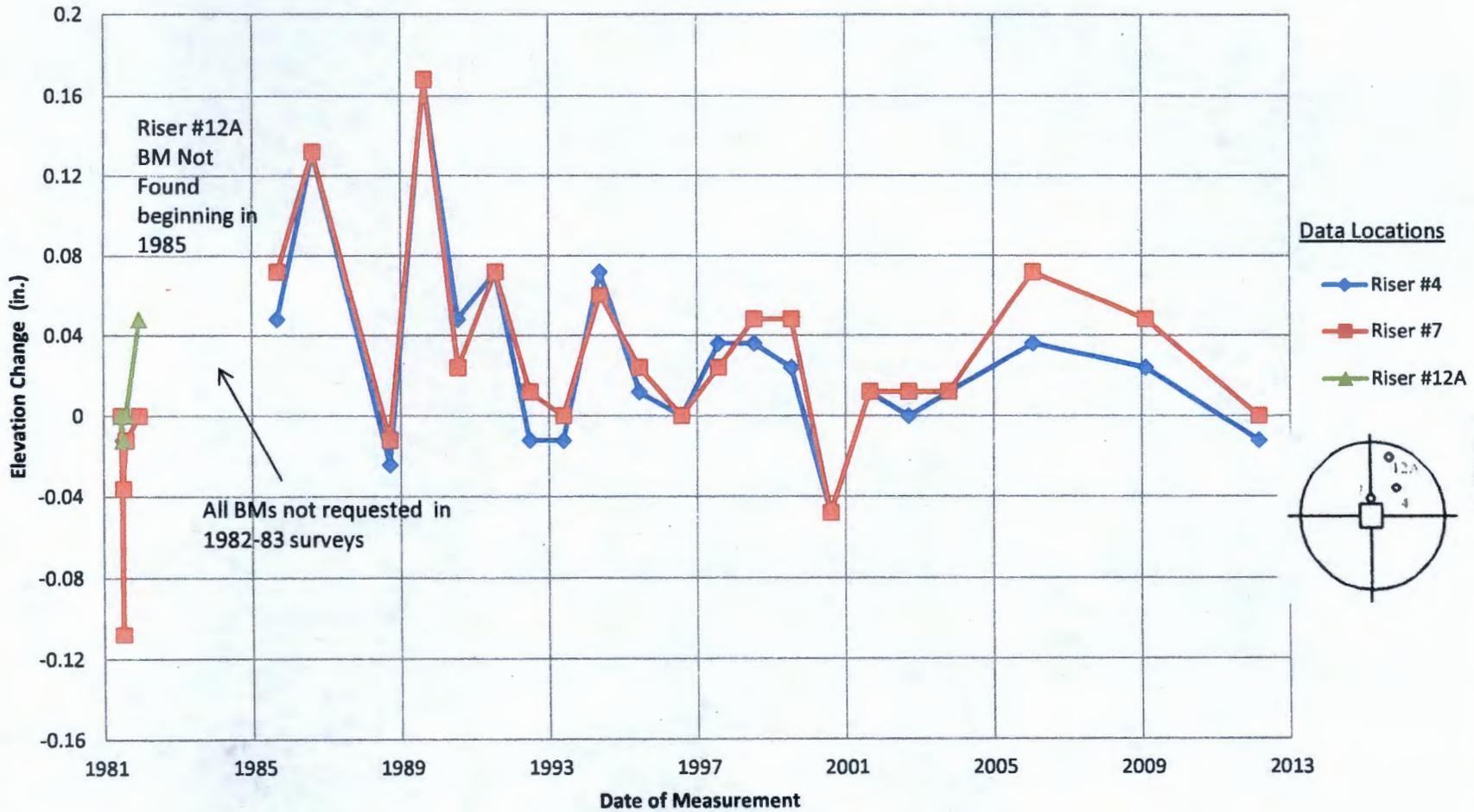
TX-22

TX-24

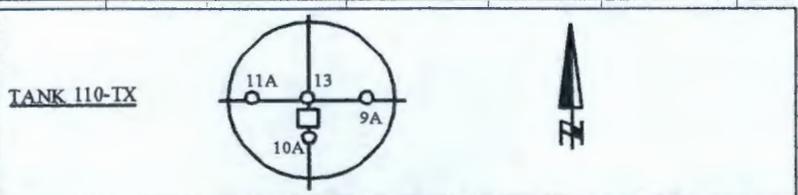
Tank 241-TX-108 Dome Benchmark Elevation Change



Tank 241-TX-109 Dome Benchmark Elevation Change



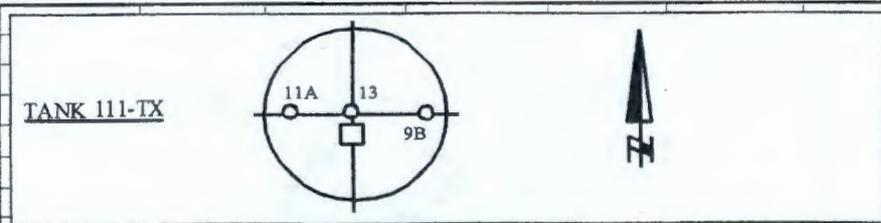
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DATE	RISER 9A			RISER 11A			RISER 13			RISER 10A		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
6/22/1981	671.346	0	0	670.972	0	0						
7/8/1981	671.343	-0.003	-0.003	670.969	-0.003	-0.003	669.399	0	0			
7/9/1981							669.398	-0.001	-0.001			
8/5/1981	671.344	0.001	-0.002	670.971	0.002	-0.001	669.401	0.003	0.002			
12/18/1981	671.344	0	-0.002	670.968	-0.003	-0.004	669.397	-0.004	-0.002			
1/12/1982	671.32	-0.024	-0.026	670.962	-0.006	-0.01	669.39	-0.007	-0.009			
3/5/1982	671.336	0.016	-0.01	670.964	0.002	-0.008	669.392	0.002	-0.007			
4/9/1982	671.343	0.007	-0.003	670.970	0.006	-0.002	669.400	0.008	0.001			
4/21/1982	671.337	-0.006	-0.009	670.962	-0.008	-0.01	669.396	-0.004	-0.003			
5/19/1982	671.346	0.009	0	670.971	0.009	-0.001	669.403	0.007	0.004			
6/4/1982				Not Requested This Survey								
7/22/1982	671.345	-0.001	-0.001	670.987	0.016	0.015	669.406	0.003	0.007			
10/26/1982	671.346	0.001	0	670.991	0.004	0.019	669.402	-0.004	0.003			
4/19/1983	671.356	0.010	0.010	671.004	0.013	0.032	669.420	0.018	0.021			
6/14/1983				Not Requested This Survey								
9/6/1985	No Riser Found			670.992	-0.012	0.020	No Riser Found					
8/18/1986	No Riser Found			670.993	0.001	0.021						
9/4/1987	No Riser Found			670.993	0	0.021	No Riser Found			671.610	0	0
9/14/1988	No Riser Found			670.989	-0.004	0.017	No Riser Found			671.600	-0.010	-0.010
8/21/1989	No Riser Found			670.992	0.003	0.020	No Riser Found			671.614	0.014	0.004
7/19/1990	No Riser Found			670.988	-0.004	0.016	No Riser Found			671.604	-0.010	-0.006
7/23/1991	No Riser Found			670.987	-0.001	0.015	No Riser Found			671.606	0.002	-0.004
6/25/1992	No Riser Found			670.988	0.001	0.016	No Riser Found			671.601	-0.005	-0.009
5/22/1993	No Riser Found			670.992	0.004	0.020	No Riser Found			671.602	0.001	-0.008

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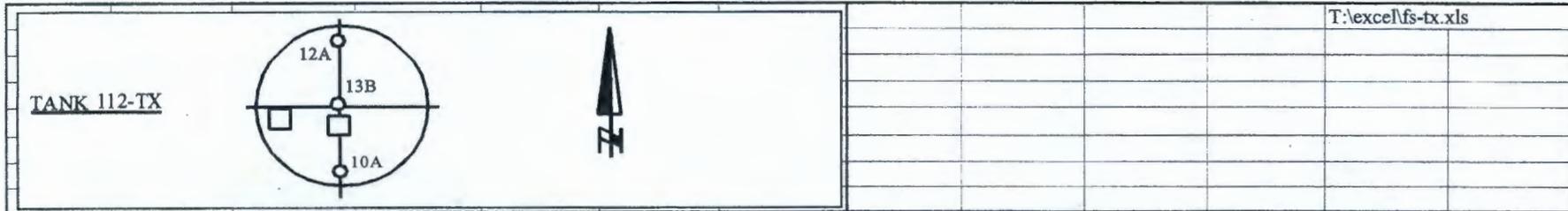
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DATE	RISER 9B			RISER 11A			RISER 13			RISER		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
6/22/1981	670.347	0	0	669.909	0	0						
6/26/1981	670.347	0	0	669.907	-0.002	-0.002						
7/8/1981	670.347	0	0	669.908	-0.001	-0.001	668.373	0	0			
7/9/1981							668.369	-0.004	-0.004			
8/5/1981	670.345	-0.002	-0.002	669.905	-0.003	-0.004	668.378	0.009	0.005			
12/18/1981	670.351	0.006	0.004	669.911	0.006	0.002	668.378	0	0.005			
1/12/1982	670.336	-0.015	-0.011	669.893	-0.018	-0.016	668.364	-0.014	-0.009			
3/5/1982	670.343	0.007	-0.004	669.906	0.013	-0.003	668.373	0.009	0			
4/9/1982	670.349	0.006	0.002	669.908	0.002	-0.001	668.380	0.007	0.007			
4/21/1982	670.342	-0.007	-0.005	669.905	-0.003	-0.004	668.373	-0.007	0			
5/19/1982	670.347	0.005	0	669.906	0.001	-0.003	668.379	0.006	0.006			
6/4/1982				Not Requested This Survey								
10/26/1982	670.350	0.003	0.003	669.908	0.002	-0.001	668.380	0.001	0.007			
4/19/1983	670.362	0.012	0.015	669.925	0.017	0.016	668.388	0.008	0.015			
6/14/1983				Not Requested This Survey								
9/6/1985	670.348	-0.014	0.001	669.911	-0.014	0.002	No Riser Found					
8/18/1986	670.361	0.013	0.014	669.919	0.008	0.01	No Riser Found					
9/14/1988	670.345	-0.016	-0.002	669.908	-0.011	-0.001	No Riser Found					
8/21/1989	670.357	0.012	0.010	669.919	0.011	0.01	No Riser Found					
7/19/1990	670.347	-0.010	0.000	669.911	-0.008	0.002	No Riser Found					
7/23/1991	670.346	-0.001	-0.001	669.911	0	0.002	No Riser Found					
6/25/1992	670.343	-0.003	-0.004	669.906	-0.005	-0.003	No Riser Found					
5/22/1993	670.346	0.003	-0.001	669.907	0.001	-0.002	No Riser Found					
5/14/1994	670.347	0.001	0.000	669.911	0.004	0.002	No Riser Found					

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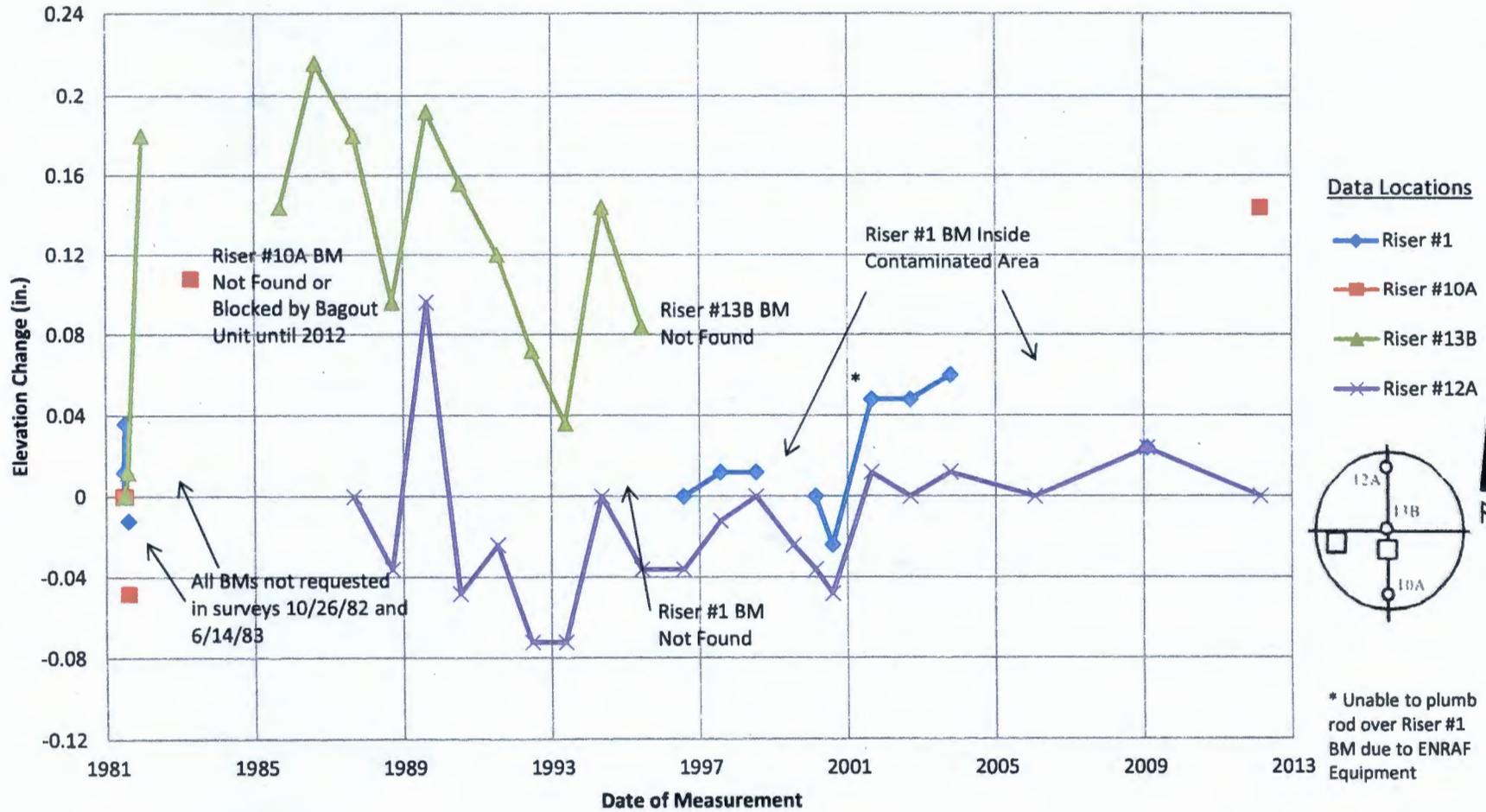


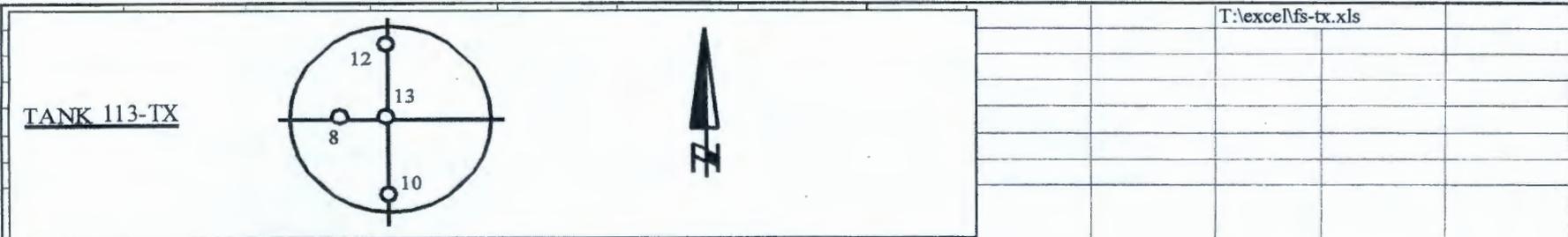
DATE	RISER 1			RISER 10A			RISER 13B			RISER 12A		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
6/22/1981	669.137	0	0	669.520	0	0						
6/26/1981	669.138	0.001	0.001	669.520	0	0						
7/8/1981	669.140	0.002	0.003	669.520	0	0	669.173	0	0			
7/9/1981							669.169	-0.004	-0.004			
8/5/1981	669.136	-0.004	-0.001	669.516	-0.004	-0.004	669.170	0.001	-0.003			
12/18/1981							669.184	0.014	0.011			
10/26/1982				Not Requested This Survey								
4/19/1983				669.529	0.013	0.009						
6/14/1983				Not Requested This Survey								
9/6/1985							669.181	-0.003	0.008			
8/18/1986				No Riser Found			669.187	0.006	0.014			
9/4/1987		No Riser Found		Blocked by Bagout Unit			669.184	-0.003	0.011	669.555	0	0
9/14/1988		No Riser Found		Blocked by Bagout Unit			669.177	-0.007	0.004	669.552	-0.003	-0.003
8/21/1989		No Riser Found		Blocked by Bagout Unit			669.185	0.008	0.012	669.563	0.011	0.008
7/19/1990		No Riser Found		Blocked by Bagout Unit			669.182	-0.003	0.009	669.551	-0.012	-0.004
7/23/1991		No Riser Found		Blocked by Bagout Unit			669.179	-0.003	0.006	669.553	0.002	-0.002
6/25/1992		No Riser Found		Blocked by Bagout Unit			669.175	-0.004	0.002	669.549	-0.004	-0.006
5/22/1993		No Riser Found		Blocked by Bagout Unit			669.172	-0.003	-0.001	669.549	0	-0.006
5/14/1994		No Riser Found		Blocked by Bagout Unit			669.181	0.009	0.008	669.555	0.006	0
6/12/1995		No Riser Found		Blocked by Bagout Unit			669.176	-0.005	0.003	669.552	-0.003	-0.003
7/31/1996	669.137	0.001	0	Blocked by Bagout Unit			No Riser Found			669.552	0	-0.003
7/29/1997	669.138	0.001	0.001	Blocked by Bagout Unit			No Riser Found			669.554	0.002	-0.001
7/16/1998	669.138	0	0.001	Blocked by Bagout Unit			No Riser Found			669.555	0.001	0
7/20/1999	Inside contam. area and buried			Blocked by Bagout Unit			No Riser Found			669.553	-0.002	-0.002

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Tank 241-TX-112 Dome Benchmark Elevation Change

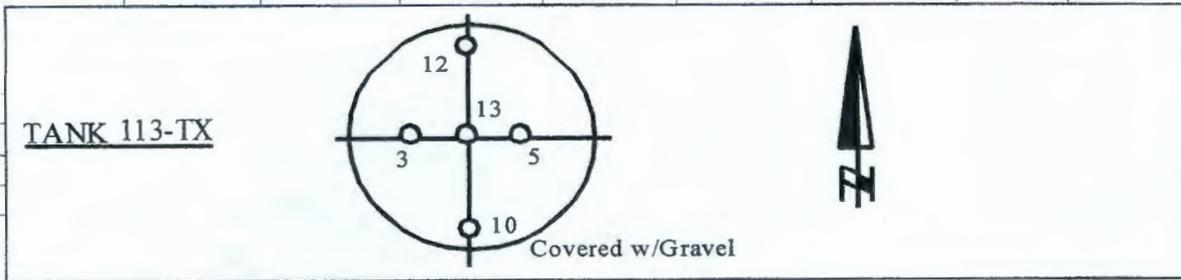




DATE	RISER 8			RISER 10			RISER 12			RISER 13		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
7/8/1981				670.404	0	0	671.262	0	0	670.146	0	0
7/9/1981				670.403	-0.001	-0.001	671.259	-0.003	-0.003	670.143	-0.003	-0.003
8/5/1981				670.403	0	-0.001	671.261	0.002	-0.001	670.145	0.002	-0.001
12/18/1981				670.405	0.002	0.001	671.263	0.002	0.001			
1/12/1982				670.385	-0.020	-0.019	671.254	-0.009	-0.008	670.131	-0.014	-0.015
3/5/1982				670.399	0.014	-0.005	671.255	0.001	-0.007	670.143	0.012	-0.003
4/9/1982				670.403	0.004	-0.001	671.256	0.001	-0.006	670.146	0.003	0
4/21/1982				Not Requested This Survey								
5/19/1982				Not Requested This Survey								
6/4/1982				Not Requested This Survey								
10/26/1982				Not Requested This Survey								
4/19/1983				Not Requested This Survey								
6/14/1983				Not Requested This Survey								
9/6/1985												
SEE PAGE 2 OF 2 - TANK 113												
RPP-20453, Rev.0D ATTACH. Survey Page: TX -Survey-26 of 38												

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RPP-RPT-55202, Rev. 0



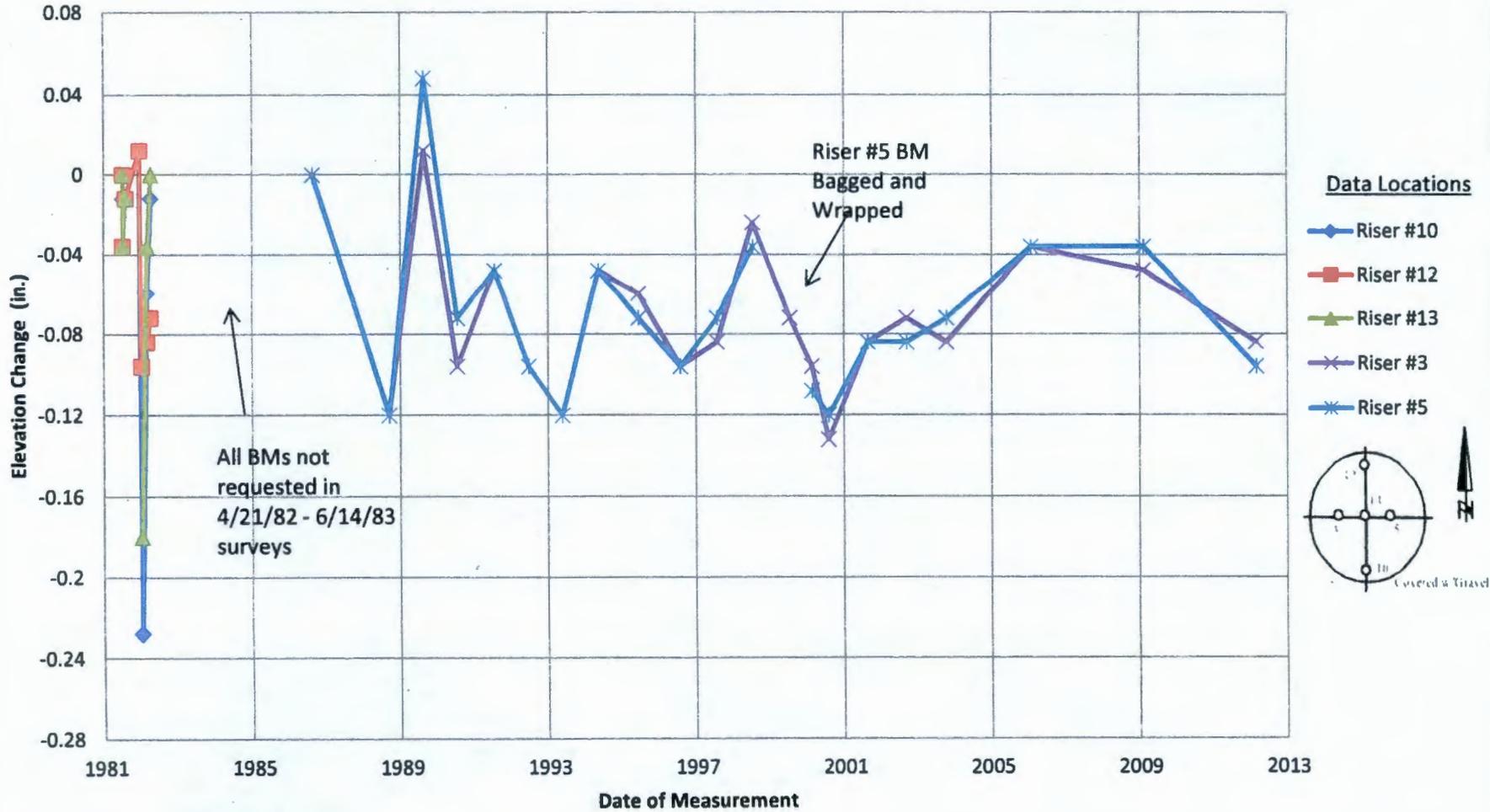
TX-38

DATE	RISER 3			RISER 5			RISER			RISER		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
8/18/1986	671.959	0	0	671.958	0	0						
9/14/1988	671.949	-0.010	-0.010	671.948	-0.010	-0.010						
8/21/1989	671.960	0.011	0.001	671.962	0.014	0.004						
7/19/1990	671.951	-0.009	-0.008	671.952	-0.010	-0.006						
7/23/1991	671.955	0.004	-0.004	671.954	0.002	-0.004						
6/25/1992	671.951	-0.004	-0.008	671.950	-0.004	-0.008						
5/22/1993	671.949	-0.002	-0.01	671.948	-0.002	-0.010						
5/14/1994	671.955	0.006	-0.004	671.954	0.006	-0.004						
6/12/1995	671.954	-0.001	-0.005	671.952	-0.002	-0.006						
7/31/1996	671.951	-0.003	-0.008	671.950	-0.002	-0.008						
7/29/1997	671.952	0.001	-0.007	671.952	0.002	-0.006						
7/16/1998	671.957	0.005	-0.002	671.955	0.003	-0.003						
7/20/1999	671.953	-0.004	-0.006	Bagged & Wrapped - Inaccessible								
2/22/2000	671.951	-0.002	-0.008	671.949	-0.006	-0.009						
8/7/2000	671.948	-0.003	-0.011	671.948	-0.001	-0.010						
8/30/2001	671.952	0.004	-0.007	671.951	0.003	-0.007						
9/17/2002	671.953	0.001	-0.006	671.951	0	-0.007						
10/16/2003	671.952	-0.001	-0.007	671.952	0.001	-0.006						
1/25/2006	671.956	0.004	-0.003	671.955	0.003	-0.003						
2/9/2009	671.955	-0.001	-0.004	671.955	0	-0.003						
3/1/2012	671.952	-0.003	-0.007	671.950	-0.005	-0.008						

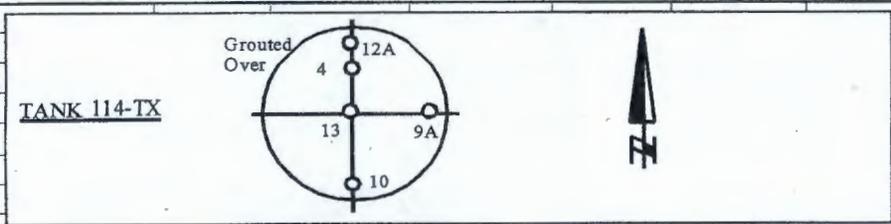
RPP-20453, Rev.0D
 ATTACH. Survey
 Page: TX -Survey-27 of 38

RPP-RPT-55202, Rev. 0

Tank 241-TX-113 Dome Benchmark Elevation Change



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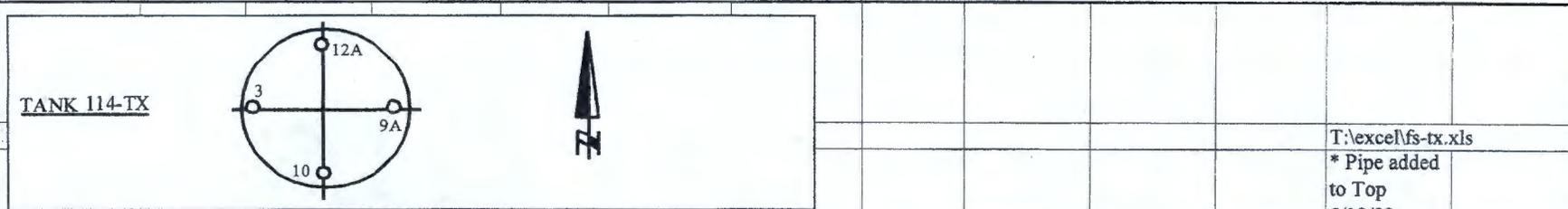
DATE	RISER 4			RISER 13			RISER			RISER		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
6/22/1981	671.107	0	0									
6/26/1981												
7/8/1981	671.107	0	0	669.329	0	0						
7/9/1981				669.327	-0.002	-0.002						
8/5/1981	671.108	0.001	0.001	669.331	0.004	0.002						
12/18/1981	671.104	-0.004	-0.003	669.330	-0.001	0.001						
1/12/1982	671.077	-0.027	-0.03	669.309	-0.021	-0.02						
3/5/1982	671.098	0.021	-0.009	669.322	0.013	-0.007						
4/9/1982	671.104	0.006	-0.003	669.329	0.007	0						
4/21/1982	671.097	-0.007	-0.010	669.327	-0.002	-0.002						
5/19/1982	671.106	0.009	-0.001	669.331	0.004	0.002						
6/4/1982	Not Requested This Survey											
7/22/1982	671.109	0.003	0.002	669.334	0.003	0						
10/26/1982	Not Requested This Survey											
4/19/1983												
6/14/1983	Not Requested This Survey											
9/6/1985												
8/18/1986	Grouted Over											

Note: Risers 4 & 13 discontinued. Risers 9A, 10, & 12A are on page 2 & 3.

RPP-20453, Rev.0D
 ATTACH. Survey
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RPP-RPT-55202, Rev. 0



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 * Pipe added to Top 5/19/82

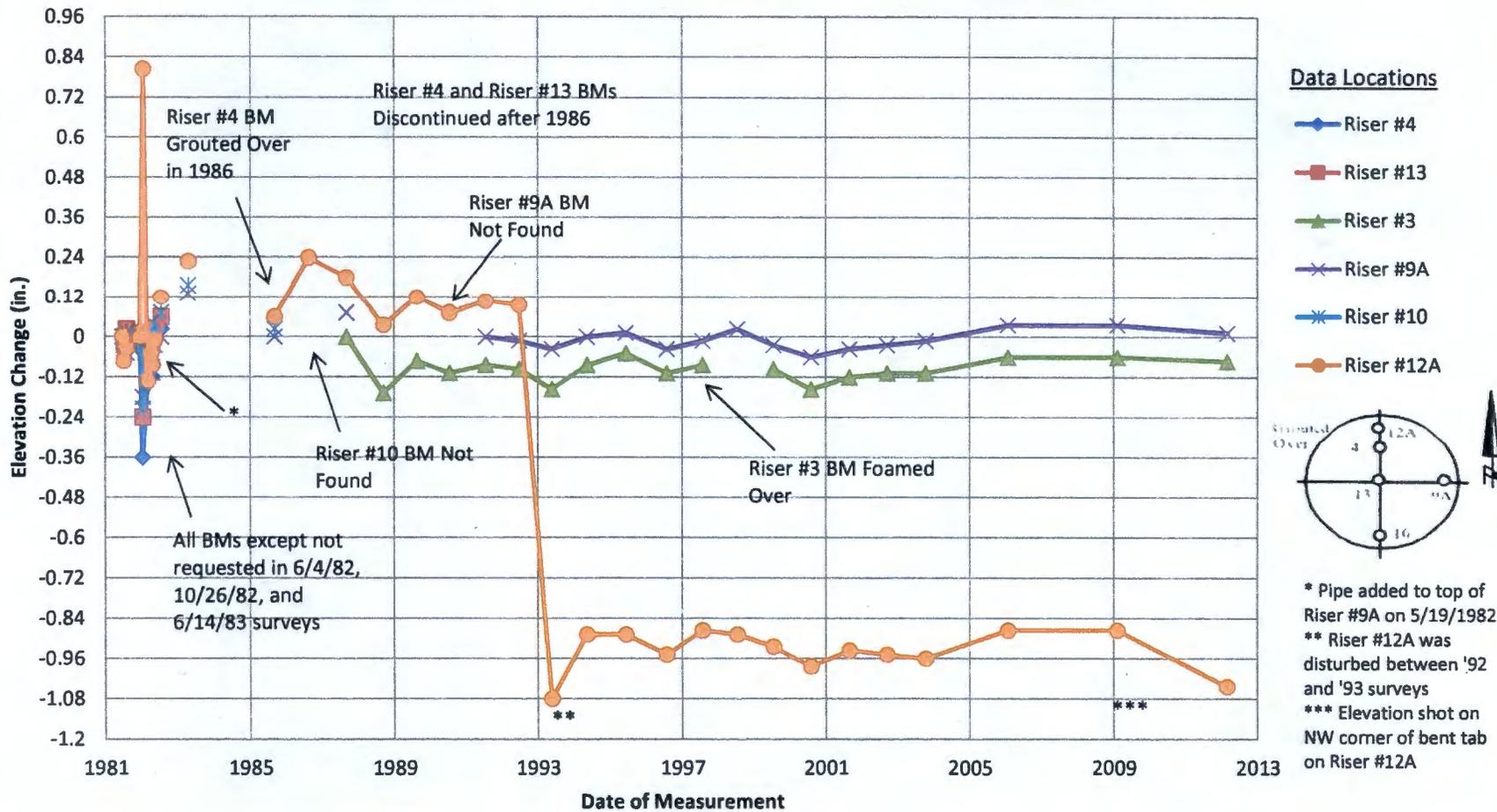
TX-41

DATE	RISER 3			RISER 9A *			RISER 10			RISER 12A *		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
6/22/1981				670.322	0	0				671.705	0	0
7/8/1981				670.317	-0.005	-0.005	669.552	0	0	671.699	-0.006	-0.006
7/9/1981							669.549	-0.003	-0.003			
8/5/1981				670.318	0.001	-0.004	669.553	0.004	0.001	671.702	0.003	-0.003
12/18/1981				670.321	0.003	-0.001	669.552	-0.001	0	671.705	0.003	0
1/12/1982				670.307	-0.014	-0.015	669.534	-0.018	-0.018	671.772	0.067	0.067
3/5/1982				670.312	0.005	-0.01	669.544	0.010	-0.008	671.694	-0.078	-0.011
4/9/1982				670.317	0.005	-0.005	669.552	0.008	0	671.701	0.007	-0.004
4/21/1982				670.313	-0.004	-0.009	669.548	-0.004	-0.004	671.698	-0.003	-0.007
5/19/1982				670.320	0.007	-0.002	669.555	0.007	0.003	671.704	0.006	-0.001
6/4/1982				Not Requested This Survey								
7/22/1982				670.322	0.002	0	669.558	0.003	0	671.715	0.011	0
10/26/1982				Not Requested This Survey								
4/19/1983				670.333	0.011	0.011	669.565	0.007	0	671.724	0.009	0
6/14/1983				Not Requested This Survey								
9/6/1985				670.322	-0.011	0	669.554	-0.011	0	671.710	-0.014	0
8/18/1986										671.725	0.015	0.020
9/4/1987	671.066	0	0	670.328	0.006	0.006	No Riser Found			671.720	-0.005	0.015
9/14/1988	671.052	-0.014	-0.014	No Riser Found			No Riser Found			671.708	-0.012	0.003
8/21/1989	671.060	0.008	-0.006	No Riser Found			No Riser Found			671.715	0.007	0.01
7/19/1990	671.057	-0.003	-0.009	No Riser Found			No Riser Found			671.711	-0.004	0.006
7/23/1991	671.059	0.002	-0.007	670.322	-0.006	0	No Riser Found			671.714	0.003	0.009
6/25/1992	671.058	-0.001	-0.008	670.321	-0.001	-0.001	No Riser Found			671.713	-0.001	0.008

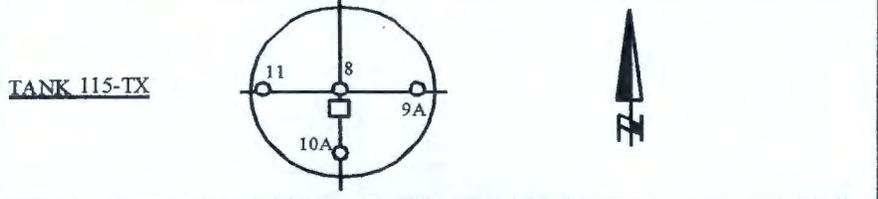
RPP-RPT-55202, Rev. 0

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Tank 241-TX-114 Dome Benchmark Elevation Change



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DATE	RISER 8			RISER 9A			RISER 10A			RISER 11 (W)		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
6/22/1981	670.121	0	0	669.335	0	0	669.031	0	0			
6/26/1981	670.114	-0.007	-0.007	669.330	-0.005	-0.005	669.024	-0.007	-0.007			
7/8/1981	670.117	0.003	-0.004	669.330	0	-0.005	669.025	0.001	-0.006	669.388	0	0
7/9/1981										669.382	-0.006	-0.006
8/5/1981	670.115	-0.002	-0.006	669.326	-0.004	-0.009	669.024	-0.001	-0.007	669.386	0.004	-0.002
12/18/1981	670.118	0.003	-0.003				669.031	0.007	0	669.389	0.003	0.001
1/12/1982	670.102	-0.016	-0.019	669.318	-0.008	-0.017	669.015	-0.016	-0.016	669.382	-0.007	-0.006
3/5/1982	670.110	0.008	-0.011	669.311	-0.007	-0.024	669.021	0.006	-0.01	669.386	0.004	-0.002
4/9/1982	670.114	0.004	-0.007	669.314	0.003	-0.021	669.028	0.007	-0.003	669.392	0.006	0.004
4/21/1982				Not Requested This Survey								
5/19/1982				Not Requested This Survey								
6/4/1982	670.118	0.004	-0.003	669.317	0.003	-0.018	669.028	0	-0.003	669.389	-0.003	0.001
7/22/1982	670.120	0.002	-0.001	669.320	0.003	-0.015	669.031	0.003	0			
10/26/1982				669.315	-0.005	-0.02	669.027	-0.004	-0.004	Point Destroyed		
4/19/1983				Not Requested This Survey								
6/14/1983	670.112	-0.008	-0.009	669.318	0.003	-0.017	669.031	0.004	0.000			
9/6/1985	670.114	0.002	-0.007	669.318	0	-0.017	669.030	-0.001	-0.001			
8/18/1986	670.120	0.006	-0.001	669.330	0.012	-0.005	669.042	0.012	0.011			
9/14/1988	670.11	-0.010	-0.011	669.301	-0.029	-0.034	669.026	-0.016	-0.005			
8/21/1989	670.114	0.004	-0.007	669.306	0.005	-0.029	669.033	0.007	0.002			
9/15/1989	670.113	-0.001	-0.008	669.306	0	-0.029	669.035	0.002	0.004			

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RPP-RPT-55202, Rev. 0

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* Riser 8 measured with tape due to interferences above benchmark beginning 7/20/99.

TANK 115-TX



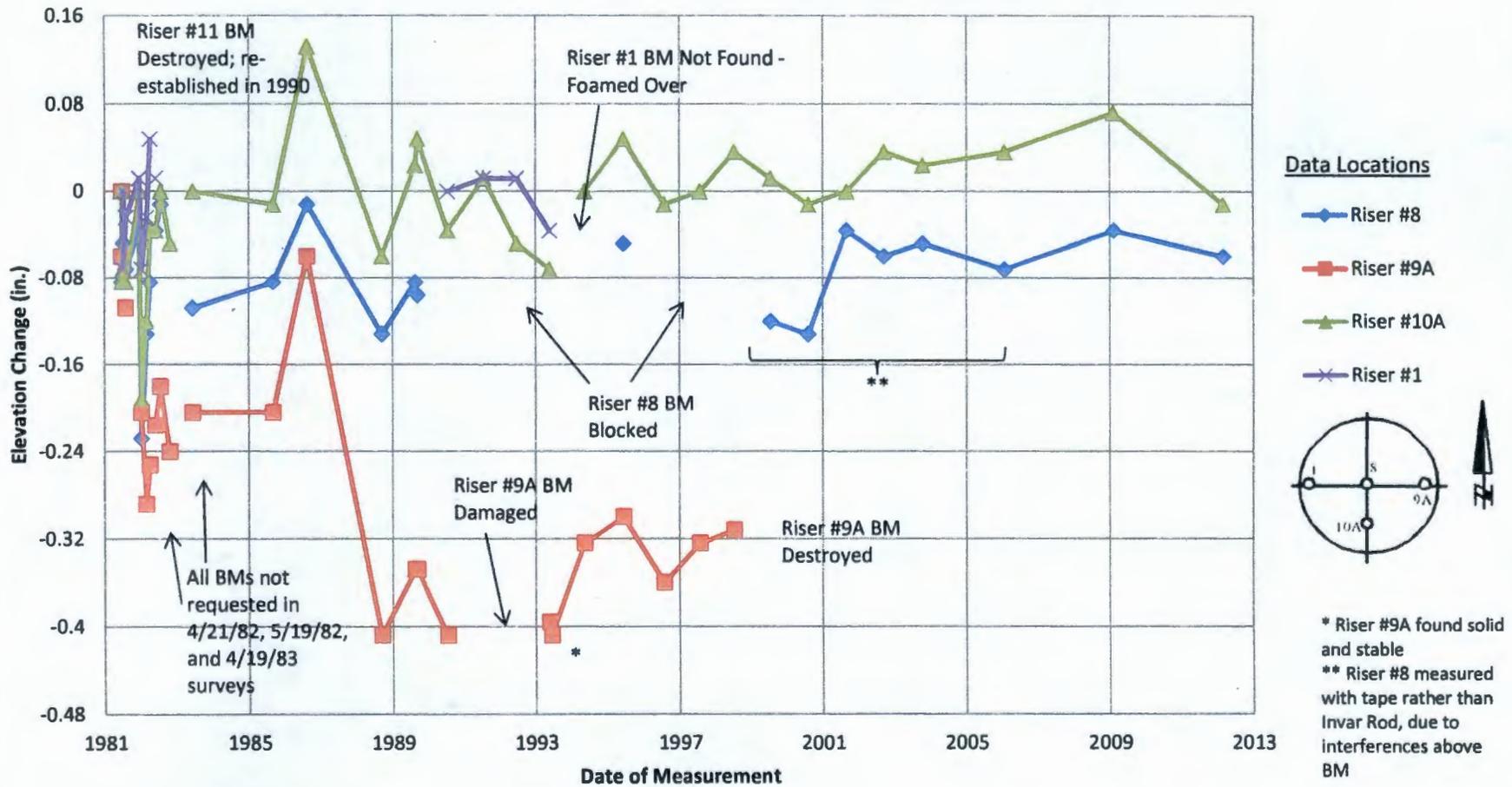
DATE	* RISER 8			RISER 9A			RISER 10A			RISER 1		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
7/19/1990		BLOCKED		669.301	-0.005	-0.034	669.028	-0.007	-0.003	670.120	0	0
7/23/1991		BLOCKED		Damaged - No Elevation			669.032	0.004	0.001	670.121	0.001	0.001
6/25/1992		BLOCKED		Damaged - No Elevation			669.027	-0.005	-0.004	670.121	0	0.001
5/22/1993		BLOCKED		669.302	0.001	-0.033	669.025	-0.002	-0.006	670.117	-0.004	-0.003
6/11/1993				669.301	0.000	-0.034	Riser 9A was found to be solid and stable.					
5/14/1994		BLOCKED		669.308	0.007	-0.027	669.031	0.006	0	Not Found - Foamed Over?		
6/12/1995	670.117	0.004	-0.004	669.310	0.002	-0.025	669.035	0.004	0.004	Not Found - Foamed Over?		
7/31/1996		BLOCKED		669.305	-0.005	-0.030	669.030	-0.005	-0.001	Not Found - Foamed Over?		
7/29/1997		BLOCKED		669.308	0.003	-0.027	669.031	0.001	0	Not Found - Foamed Over?		
7/16/1998		BLOCKED		669.309	0.001	-0.026	669.034	0.003	0.003	Not Found - Foamed Over?		
7/20/1999	670.111	-0.006	-0.010		Destroyed		669.032	-0.002	0.001	Not Found - Foamed Over?		
8/7/2000	670.110	-0.001	-0.011				669.030	-0.002	-0.001	Not Found - Foamed Over?		
8/30/2001	670.118	0.008	-0.003				669.031	0.001	0	Not Found - Foamed Over?		
9/17/2002	670.116	-0.002	-0.005				669.034	0.003	0.003	Not Found - Foamed Over?		
10/16/2003	670.117	0.001	-0.004				669.033	-0.001	0.002	Not Found - Foamed Over?		
1/25/2006	670.115	-0.002	-0.006				669.034	0.001	0.003	Not Found - Foamed Over?		
2/9/2009	670.118	0.003	-0.003				669.037	0.003	0.006	Not Found - Foamed Over?		
3/1/2012	670.116	-0.002	-0.005				669.030	-0.007	-0.001	Not Found - Foamed Over?		

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RPP-RPT-55202, Rev. 0

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Tank 241-TX-115 Dome Benchmark Elevation Change

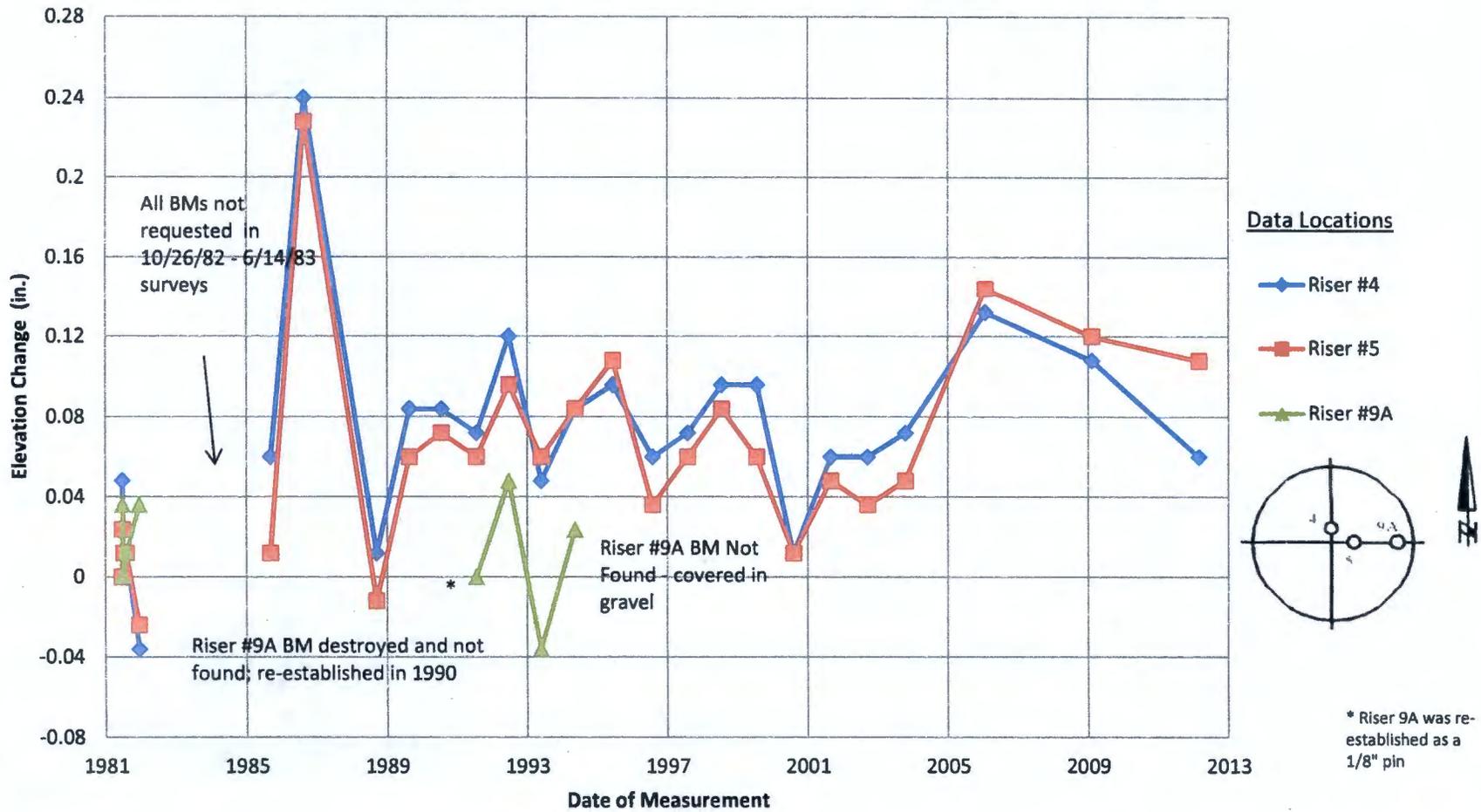


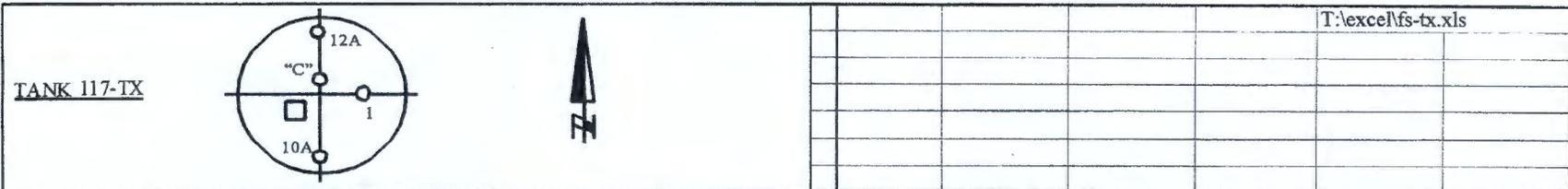
FIELD SKETCH							T:\excel\fs-tx.xls			
<p>TANK 116-TX</p>							Note: Riser 9A was re-established 7/23/91, as an 1/8" Pin.			
RISER 4			RISER 5			RISER 9A				
DATE	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	
6/22/1981	672.182	0	0	672.016	0	0	670.102	0	0	
6/26/1981	672.186	0.004	0.004	672.018	0.002	0.002	670.105	0.003	0.003	
7/8/1981	672.182	-0.004	0	672.017	-0.001	0.001	670.102	-0.003	0	
8/5/1981	672.183	0.001	0.001	672.017	0	0.001	670.103	0.001	0.001	
12/18/1981	672.179	-0.004	-0.003	672.014	-0.003	-0.002	670.105	0.002	0.003	
10/26/1982	Not Requested This Survey									
4/19/1983	Not Requested This Survey									
6/14/1983	Not Requested This Survey									
9/6/1985	672.187	0.008	0.005	672.017	0.003	0.001				
8/18/1986	672.202	0.015	0.02	672.035	0.018	0.019	DESTROYED			
9/14/1988	672.183	-0.019	0.001	672.015	-0.020	-0.001	No Riser Found			
8/21/1989	672.189	0.006	0.007	672.021	0.006	0.005	No Riser Found			
7/19/1990	672.189	0	0.007	672.022	0.001	0.006				
7/23/1991	672.188	-0.001	0.006	672.021	-0.001	0.005	672.019	0	0	
6/25/1992	672.192	0.004	0.01	672.024	0.003	0.008	672.023	0.004	0.004	
5/26/1993	672.186	-0.006	0.004	672.021	-0.003	0.005	672.016	-0.007	-0.003	
5/14/1994	672.189	0.003	0.007	672.023	0.002	0.007	672.021	0.005	0.002	
6/12/1995	672.190	0.001	0.008	672.025	0.002	0.009	Not Found - Covered with Gravel			
7/31/1996	672.187	-0.003	0.005	672.019	-0.006	0.003	Not Found - Covered with Gravel			
7/29/1997	672.188	0.001	0.006	672.021	0.002	0.005	Not Found - Covered with Gravel			
7/16/1998	672.190	0.002	0.008	672.023	0.002	0.007	Not Found - Covered with Gravel			
7/20/1999	672.190	0	0.008	672.021	-0.002	0.005	Not Found - Covered with Gravel			
8/7/2000	672.183	-0.007	0.001	672.017	-0.004	0.001	Not Found - Covered with Gravel			
8/30/2001	672.187	0.004	0.005	672.020	0.003	0.004				
9/17/2002	672.187	0	0.005	672.019	-0.001	0.003				

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RPP-RPT-55202, Rev. 0

Tank 241-TX-116 Dome Benchmark Elevation Change

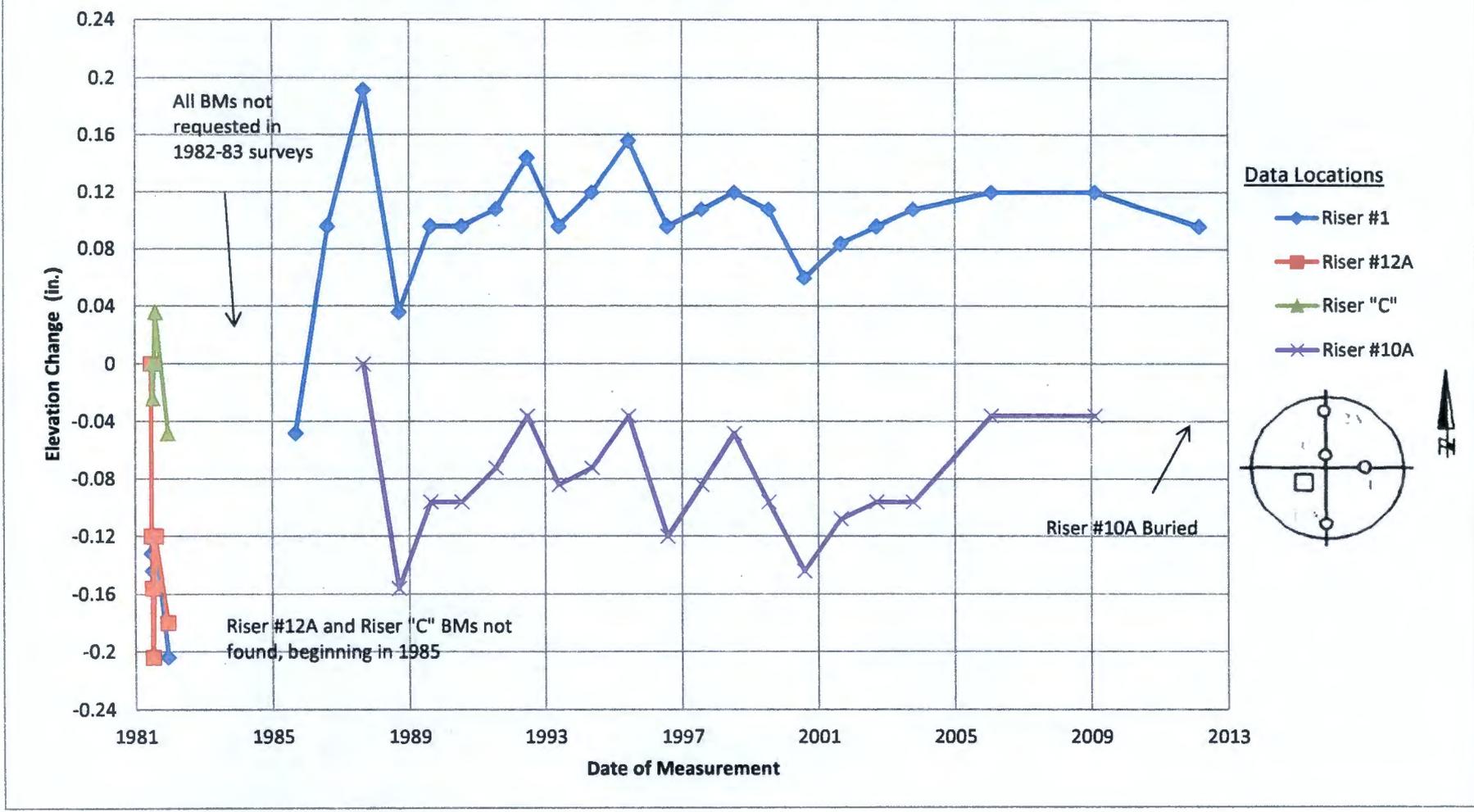




DATE	RISER 1			RISER 12A			RISER "C"			RISER 10A		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
6/22/1981	671.084	0	0	672.277	0	0						
6/26/1981	671.073	-0.011	-0.011	672.267	-0.01	-0.01						
7/8/1981	671.072	-0.001	-0.012	672.264	-0.003	-0.013	670.850	0	0			
7/9/1981				672.260	-0.004	-0.017	670.848	-0.002	-0.002			
8/5/1981	671.074	0.002	-0.010	672.267	0.007	-0.01	670.853	0.005	0.003			
12/18/1981	671.067	-0.007	-0.017	672.262	-0.005	-0.015	670.846	-0.007	-0.004			
10/26/1982				Not Requested This Survey								
4/19/1983				Not Requested This Survey								
6/14/1983				Not Requested This Survey								
9/6/1985	671.080	0.013	-0.004	No Riser Found			No Riser Found					
8/18/1986	671.092	0.012	0.008	No Riser Found			No Riser Found					
9/4/1987	671.100	0.008	0.016	No Riser Found						671.171	0	0
9/14/1988	671.087	-0.013	0.003	No Riser Found			No Riser Found			671.158	-0.013	-0.013
8/21/1989	671.092	0.005	0.008	No Riser Found			No Riser Found			671.163	0.005	-0.008
7/19/1990	671.092	0	0.008	No Riser Found			No Riser Found			671.163	0	-0.008
7/23/1991	671.093	0.001	0.009	No Riser Found			No Riser Found			671.165	0.002	-0.006
6/25/1992	671.096	0.003	0.012	No Riser Found			No Riser Found			671.168	0.003	-0.003
5/26/1993	671.092	-0.004	0.008	No Riser Found			No Riser Found			671.164	-0.004	-0.007
5/14/1994	671.094	0.002	0.010	No Riser Found			No Riser Found			671.165	0.001	-0.006
6/12/1995	671.097	0.003	0.013	No Riser Found			No Riser Found			671.168	0.003	-0.003
7/31/1996	671.092	-0.005	0.008	No Riser Found			No Riser Found			671.161	-0.007	-0.010
7/29/1997	671.093	0.001	0.009	No Riser Found			No Riser Found			671.164	0.003	-0.007
7/16/1998	671.094	0.001	0.010	No Riser Found			No Riser Found			671.167	0.003	-0.004
7/20/1999	671.093	-0.001	0.009	No Riser Found			No Riser Found			671.163	-0.004	-0.008

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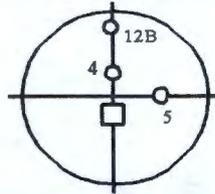
Tank 241-TX-117 Dome Benchmark Elevation Change



T:\excel\fs-tx.xls

* Measured with tape rather than Invar Rod due to interferences above BM.

TANK 118-TX



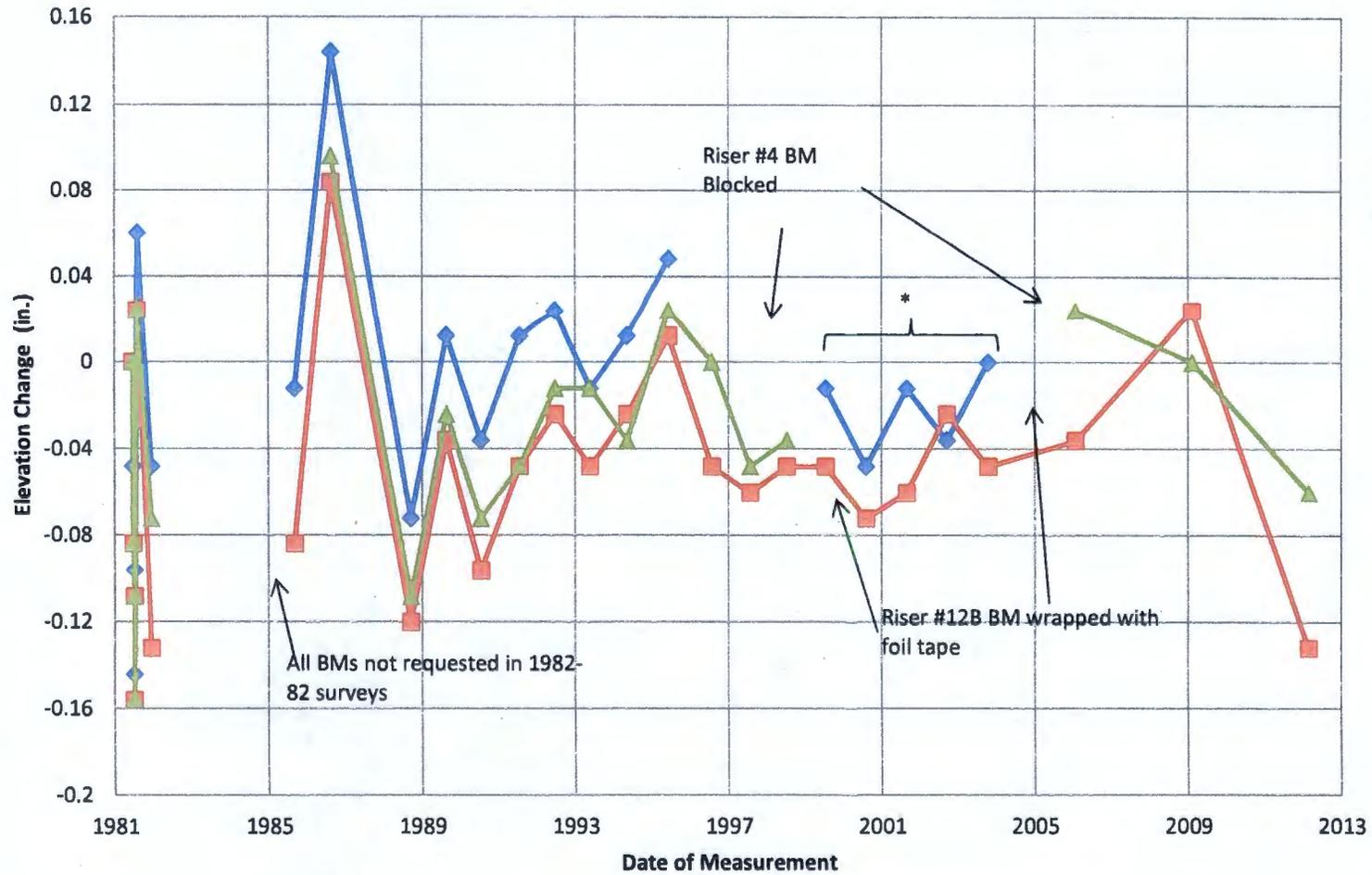
DATE	RISER 4			RISER 5			RISER 12B			RISER		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
6/22/1981	670.099	0	0	671.098	0	0	670.719	0	0			
6/26/1981	670.095	-0.004	-0.004	671.091	-0.007	-0.007	670.712	-0.007	-0.007			
7/8/1981	670.091	-0.004	-0.008	671.089	-0.002	-0.009	670.710	-0.002	-0.009			
7/9/1981	670.087	-0.004	-0.012	671.085	-0.004	-0.013	670.706	-0.004	-0.013			
8/5/1981	670.104	0.017	0.005	671.100	0.015	0.002	670.721	0.015	0.002			
12/18/1981	670.095	-0.009	-0.004	671.087	-0.013	-0.011	670.713	-0.008	-0.006			
10/26/1982				Not Requested This Survey								
4/19/1983				Not Requested This Survey								
6/14/1983				Not Requested This Survey								
9/6/1985	670.098	0.003	-0.001	671.091	0.004	-0.007						
8/18/1986	670.111	0.013	0.012	671.105	0.014	0.007	670.727	0.014	0.008			
9/14/1988	670.093	-0.018	-0.006	671.088	-0.017	-0.01	670.710	-0.017	-0.009			
8/21/1989	670.100	0.007	0.001	671.095	0.007	-0.003	670.717	0.007	-0.002			
7/19/1990	670.096	-0.004	-0.003	671.09	-0.005	-0.008	670.713	-0.004	-0.006			
7/23/1991	670.100	0.004	0.001	671.094	0.004	-0.004	670.715	0.002	-0.004			
6/25/1992	670.101	0.001	0.002	671.096	0.002	-0.002	670.718	0.003	-0.001			
5/26/1993	670.098	-0.003	-0.001	671.094	-0.002	-0.004	670.718	0	-0.001			
5/14/1994	670.100	0.002	0.001	671.096	0.002	-0.002	670.716	-0.002	-0.003			
6/12/1995	670.103	0.003	0.004	671.099	0.003	0.001	670.721	0.005	0.002			
7/31/1996		BLOCKED		671.094	-0.005	-0.004	670.719	-0.002	0			
7/29/1997		BLOCKED		671.093	-0.001	-0.005	670.715	-0.004	-0.004			
7/16/1998		BLOCKED		671.094	0.001	-0.004	670.716	0.001	-0.003			
7/20/1999	* 670.098	-0.005	-0.001	671.094	0	-0.004	Wrapped with foil tape					
8/7/2000	* 670.095	-0.003	-0.004	671.092	-0.002	-0.006	Wrapped with foil tape					

RPP-20453, Rev.0D
 ATTACH. Survey
 Page: TX -Survey-37 of 38

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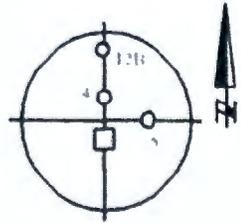
RPP-RPT-55202, Rev. 0

Tank 241-TX-118 Dome Benchmark Elevation Change



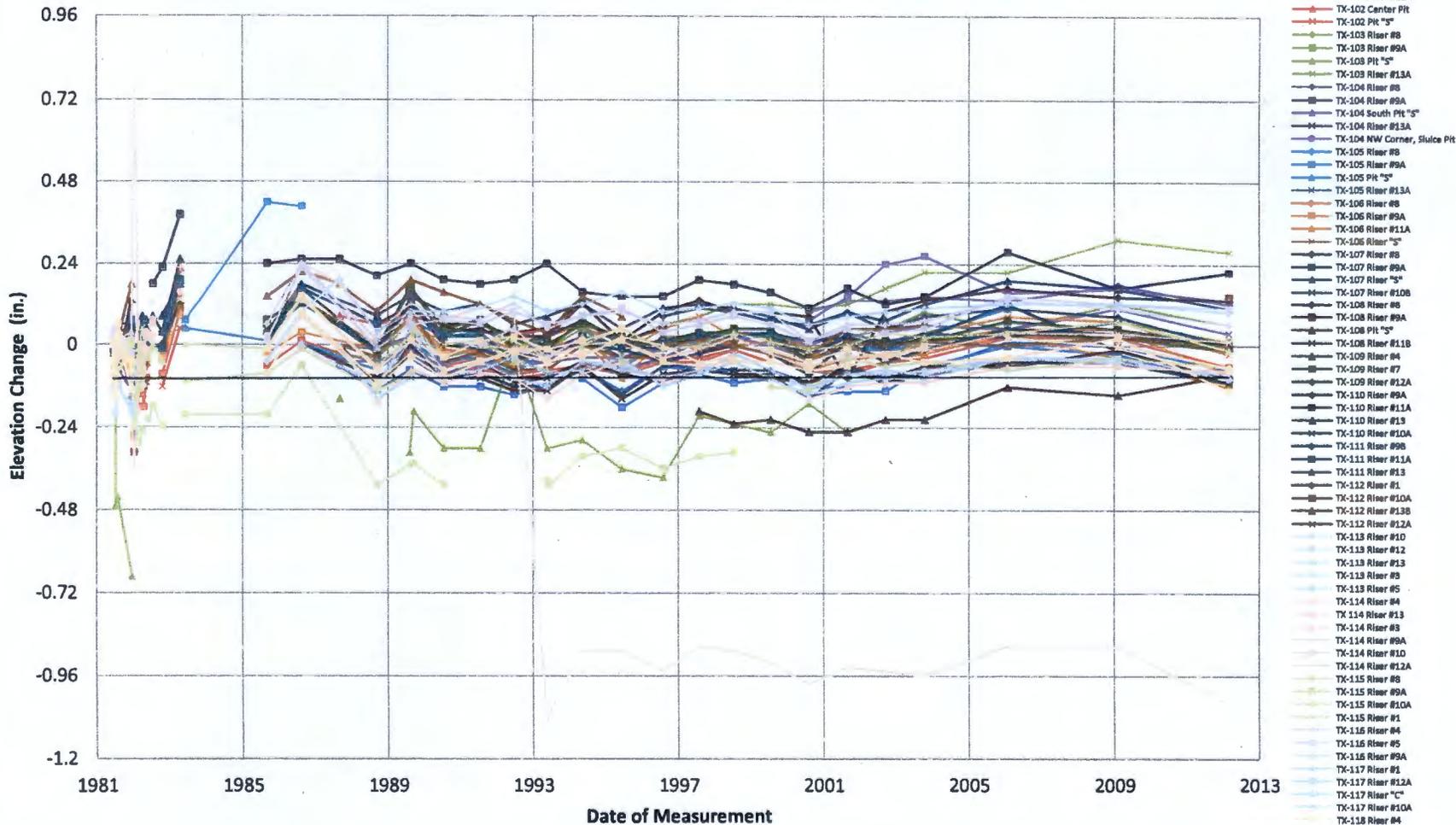
Data Locations

- ◆ Riser #4
- Riser #5
- ▲ Riser #12B



* Riser #4 measured with tape rather than Invar Rod, due to interferences above BM

TX Farm Dome Benchmark Elevation Change



TX-56
95-X1

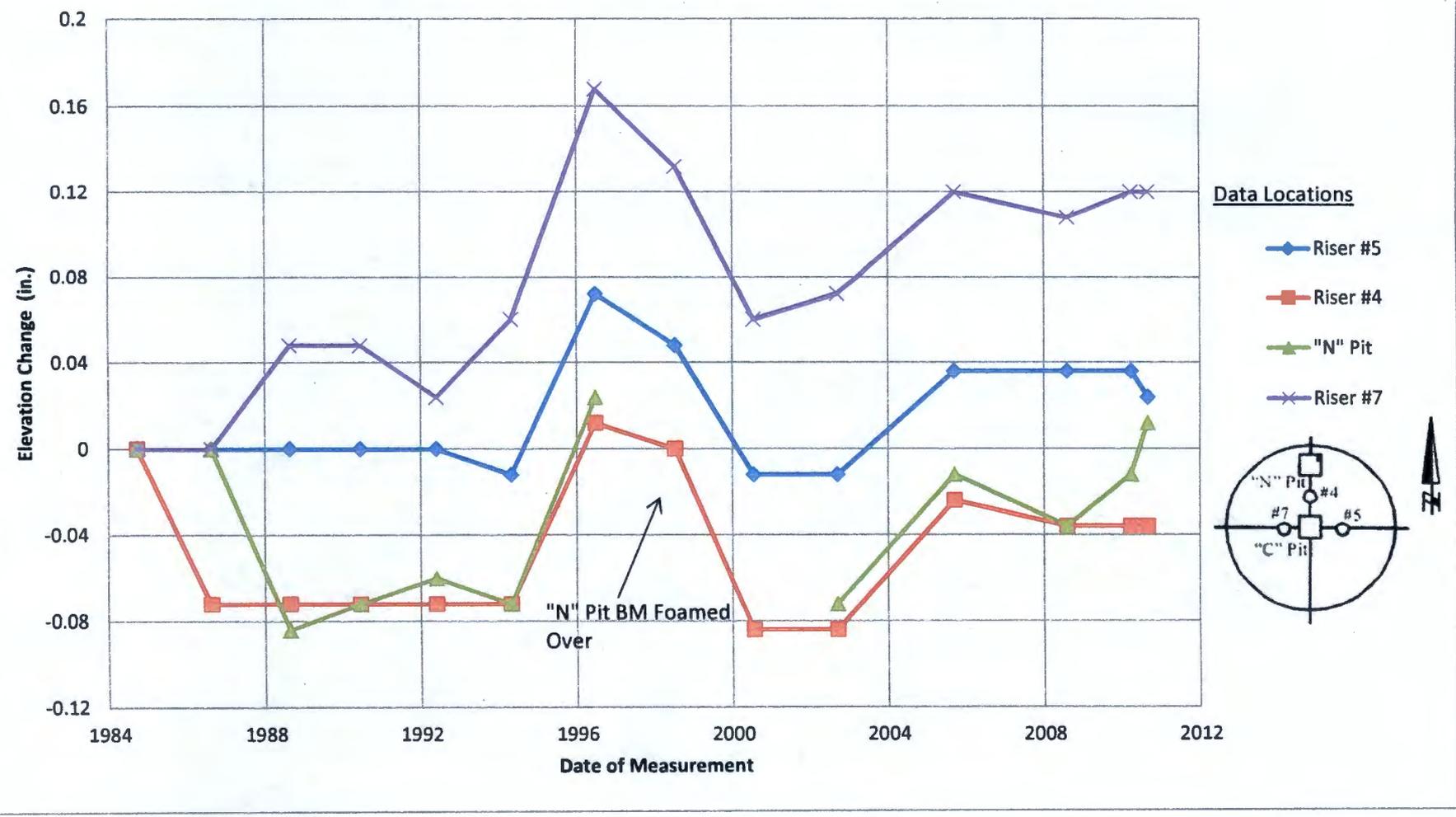
Appendix TY – 241-TY Farm Dome Survey Data and Plots

TANK 101-TY												
							T:\excel\TY-Dome.xls Control Mon's N42385.12 W76060.00 EL=667.467 (NAVD88-Ft. Ref. Elev= 670.938) Held - N42385.12 W75641.80 EL=668.087 (NAVD88-Ft. Ref. Elev= 671.563)					
DATE	RISER #5 12" - East side of "C" Pit			RISER #4			RISER "N" PIT			RISER #7 12" - West side of "C" Pit		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
9/26/1984	0	0	0	671.959	0	0	672.224	0	0	0	0	0
8/19/1986	671.950	0	0	671.953	-0.006	-0.006	0	0	0	671.999	0	0
8/19/1988	671.950	0	0	671.953	0	-0.006	672.217	-0.007	-0.007	672.003	0.004	0.004
6/14/1990	671.950	0	0	671.953	0	-0.006	672.218	0.001	-0.006	672.003	0	0.004
5/27/1992	671.950	0	0	671.953	0	-0.006	672.219	0.001	-0.005	672.001	-0.002	0.002
4/29/1994	671.949	-0.001	-0.001	671.953	0	-0.006	672.218	-0.001	-0.006	672.004	0.003	0.005
6/28/1996	671.956	0.007	0.006	671.960	0.007	0.001	672.226	0.008	0.002	672.013	0.009	0.014
7/15/1998	671.954	-0.002	0.004	671.959	-0.001	0		Foamed over		672.010	-0.003	0.011
7/19/2000	671.949	-0.005	-0.001	671.952	-0.007	-0.007		Foamed over		672.004	-0.006	0.005
9/11/2002	671.949	0	-0.001	671.952	0	-0.007	672.218	-0.008	-0.006	672.005	0.001	0.006
9/13/2005	671.953	0.004	0.003	671.957	0.005	-0.002	672.223	0.005	-0.001	672.009	0.004	0.010
8/6/2008	671.953	0	0.003	671.956	-0.001	-0.003	672.221	-0.002	-0.003	672.008	-0.001	0.009
3/25/2010	671.953	0	0.003	671.956	0	-0.003	672.223	0.002	-0.001	672.009	0.001	0.010
8/30/2010	671.952	-0.001	0.002	671.956	0	-0.003	672.225	0.002	0.001	672.009	0	0.010

TY-1

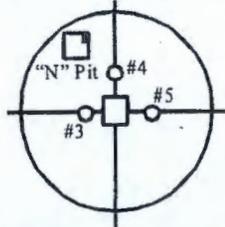
TY-2

Tank 241-TY-101 Dome Benchmark Elevation Change



T:\excel\TY-Dome.xls

TANK 102-TY

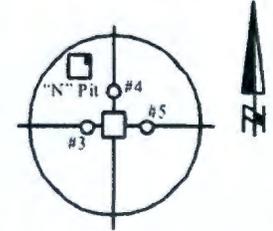
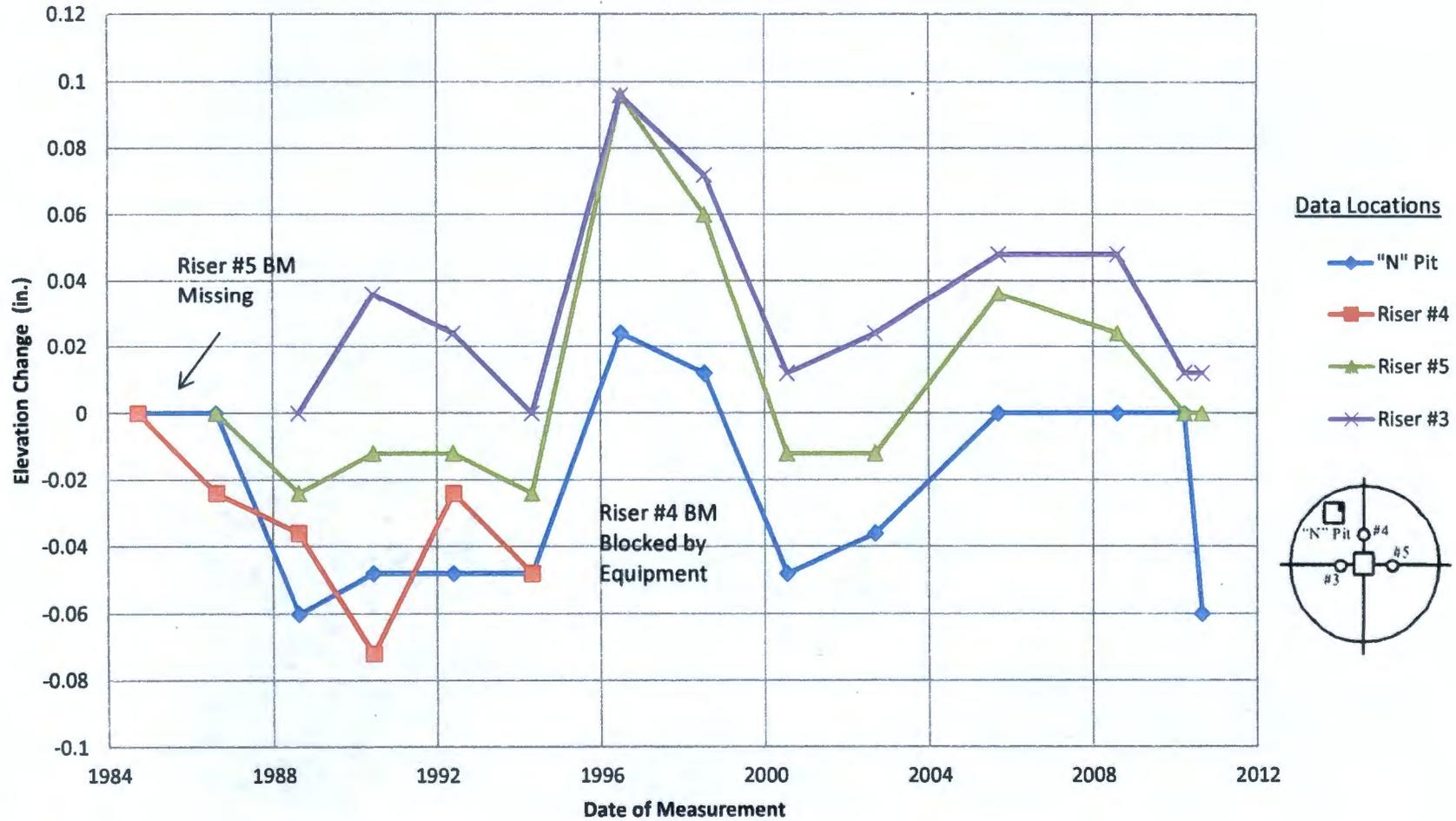


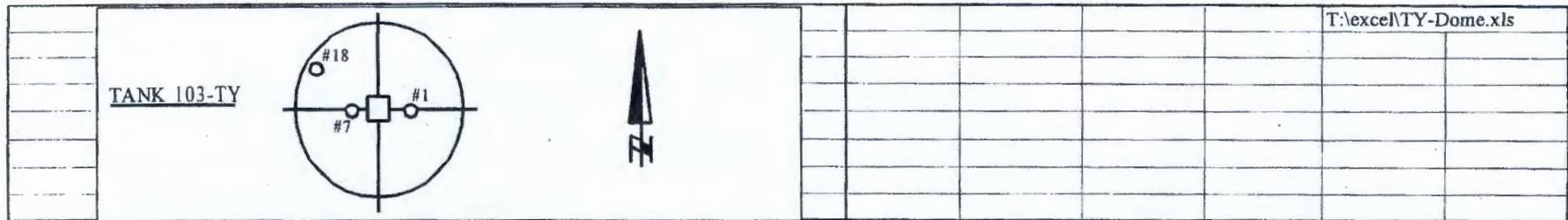
TY-3

DATE	RISER "N" PIT			RISER #4			RISER #5			RISER #3		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
9/26/1984	671.308	0	0	670.943	0	0		Missing				
8/19/1986	0	0	0	670.941	-0.002	-0.002	670.950	0	0			
8/19/1988	671.303	-0.005	-0.005	670.940	-0.001	-0.003	670.948	-0.002	-0.002	670.937	0	0
6/14/1990	671.304	0.001	-0.004	670.937	-0.003	-0.006	670.949	0.001	-0.001	670.940	0.003	0.003
5/27/1992	671.304	0	-0.004	670.941	0.004	-0.002	670.949	0	-0.001	670.939	-0.001	0.002
4/29/1994	671.304	0	-0.004	670.939	-0.002	-0.004	670.948	-0.001	-0.002	670.937	-0.002	0
6/28/1996	671.310	0.006	0.002	Blocked by Equipment			670.958	0.010	0.008	670.945	0.008	0.008
7/15/1998	671.309	-0.001	0.001	Blocked by Equipment			670.955	-0.003	0.005	670.943	-0.002	0.006
7/19/2000	671.304	-0.005	-0.004	Blocked by Equipment			670.949	-0.006	-0.001	670.938	-0.005	0.001
9/11/2002	671.305	0.001	-0.003	Blocked by Equipment			670.949	0	-0.001	670.939	0.001	0.002
9/13/2005	671.308	0.003	0	Blocked by Equipment			670.953	0.004	0.003	670.941	0.002	0.004
8/6/2008	671.308	0	0	Blocked by Equipment			670.952	-0.001	0.002	670.941	0	0.004
3/25/2010	671.308	0	0	Blocked by Equipment			670.950	-0.002	0	670.938	-0.003	0.001
8/30/2010	674.303	-0.005	-0.005	Blocked by Equipment			673.950	0.000	0	670.938	0	0.001

TY-4

Tank 241-TY-102 Dome Benchmark Elevation Change

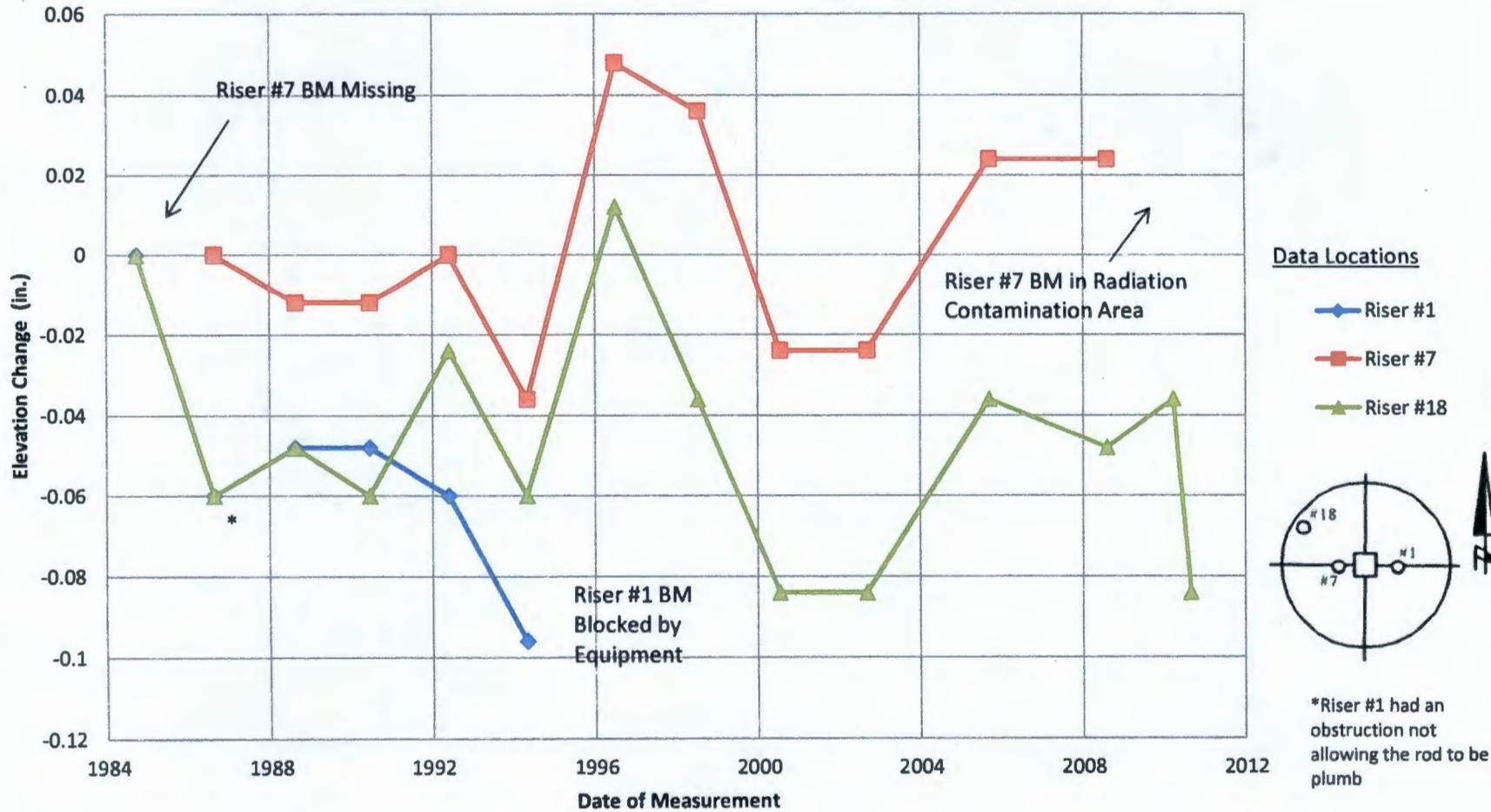




DATE	RISER #1			RISER #7			RISER #18			RISER		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
9/26/1984	671.922	0	0		Missing		671.481	0	0			
8/19/1986	671.917	-0.005	-0.005	671.958	0	0	671.476	-0.005	-0.005			
8/19/1986	Note: Riser #1 has an obstruction that will not let the Rod be plumb.											
8/19/1988	671.918	0.001	-0.004	671.957	-0.001	-0.001	671.477	0.001	-0.004			
6/14/1990	671.918	0	-0.004	671.957	0	-0.001	671.476	-0.001	-0.005			
5/27/1992	671.917	-0.001	-0.005	671.958	0.001	0	671.479	0.003	-0.002			
4/29/1994	671.914	-0.003	-0.008	671.955	-0.003	-0.003	671.476	-0.003	-0.005			
6/28/1996	Blocked by Equipment			671.962	0.007	0.004	671.482	0.006	0.001			
7/15/1998	Blocked by Equipment			671.961	-0.001	0.003	671.478	-0.004	-0.003			
7/19/2000	Blocked by Equipment			671.956	-0.005	-0.002	671.474	-0.004	-0.007			
9/11/2002	Blocked by Equipment			671.956	0	-0.002	671.474	0	-0.007			
9/13/2005	Blocked by Equipment			671.960	0.004	0.002	671.478	0.004	-0.003			
8/6/2008	Blocked by Enraf Equipment			671.960	0	0.002	671.477	-0.001	-0.004			
3/25/2010	Blocked by Enraf Equipment			Rad Contam. Area			671.478	0.001	-0.003			
8/30/2010	Blocked by Enraf Equipment			Rad Contam. Area			671.474	-0.004	-0.007			

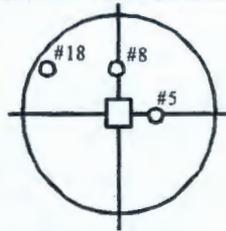
TY-5

Tank 241-TY-103 Dome Benchmark Elevation Change



T:\excel\TY-Dome.xls

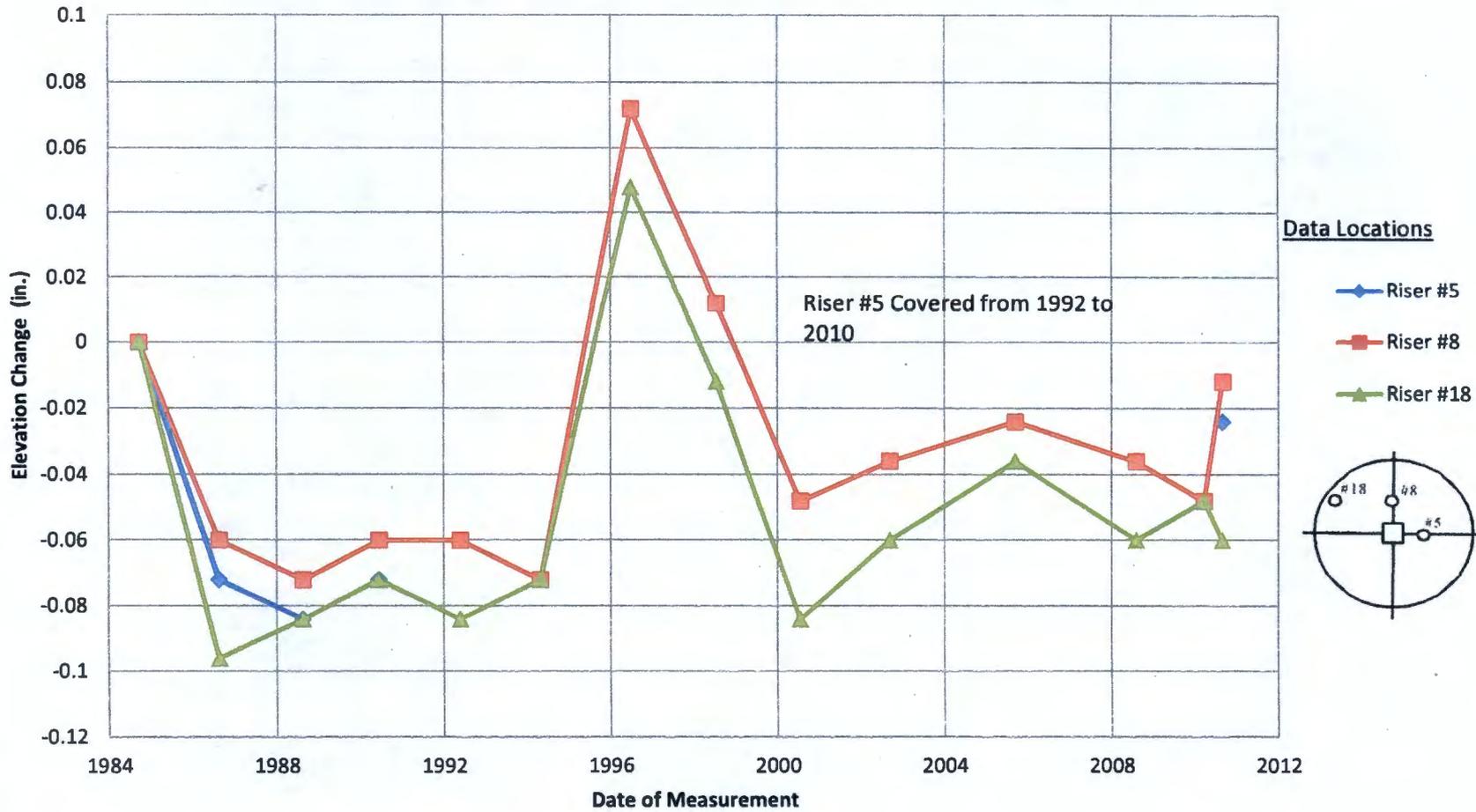
TANK 104-TY



DATE	RISER #5			RISER #8			RISER #18			RISER		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
9/26/1984	670.953	0	0	670.975	0	0	671.179	0	0			
8/19/1986	670.947	-0.006	-0.006	670.970	-0.005	-0.005	671.171	-0.008	-0.008			
8/19/1988	670.946	-0.001	-0.007	670.969	-0.001	-0.006	671.172	0.001	-0.007			
6/14/1990	670.947	0.001	-0.006	670.970	0.001	-0.005	671.173	0.001	-0.006			
5/27/1992	Covered on this Survey			670.970	0	-0.005	671.172	-0.001	-0.007			
4/29/1994	Covered on this Survey			670.969	-0.001	-0.006	671.173	0.001	-0.006			
6/28/1996	Covered on this Survey			670.981	0.012	0.006	671.183	0.010	0.004			
7/15/1998	Covered on this Survey			670.976	-0.005	0.001	671.178	-0.005	-0.001			
7/19/2000	Covered on this Survey			670.971	-0.005	-0.004	671.172	-0.006	-0.007			
9/11/2002	Covered on this Survey			670.972	0.001	-0.003	671.174	0.002	-0.005			
9/13/2005	Covered on this Survey			670.973	0.001	-0.002	671.176	0.002	-0.003			
8/6/2008	Covered on this Survey			670.972	-0.001	-0.003	671.174	-0.002	-0.005			
3/25/2010	Covered on this Survey			670.971	-0.001	-0.004	671.175	0.001	-0.004			
8/30/2010	670.951	0.004	-0.002	670.974	0.003	-0.001	671.174	-0.001	-0.005			

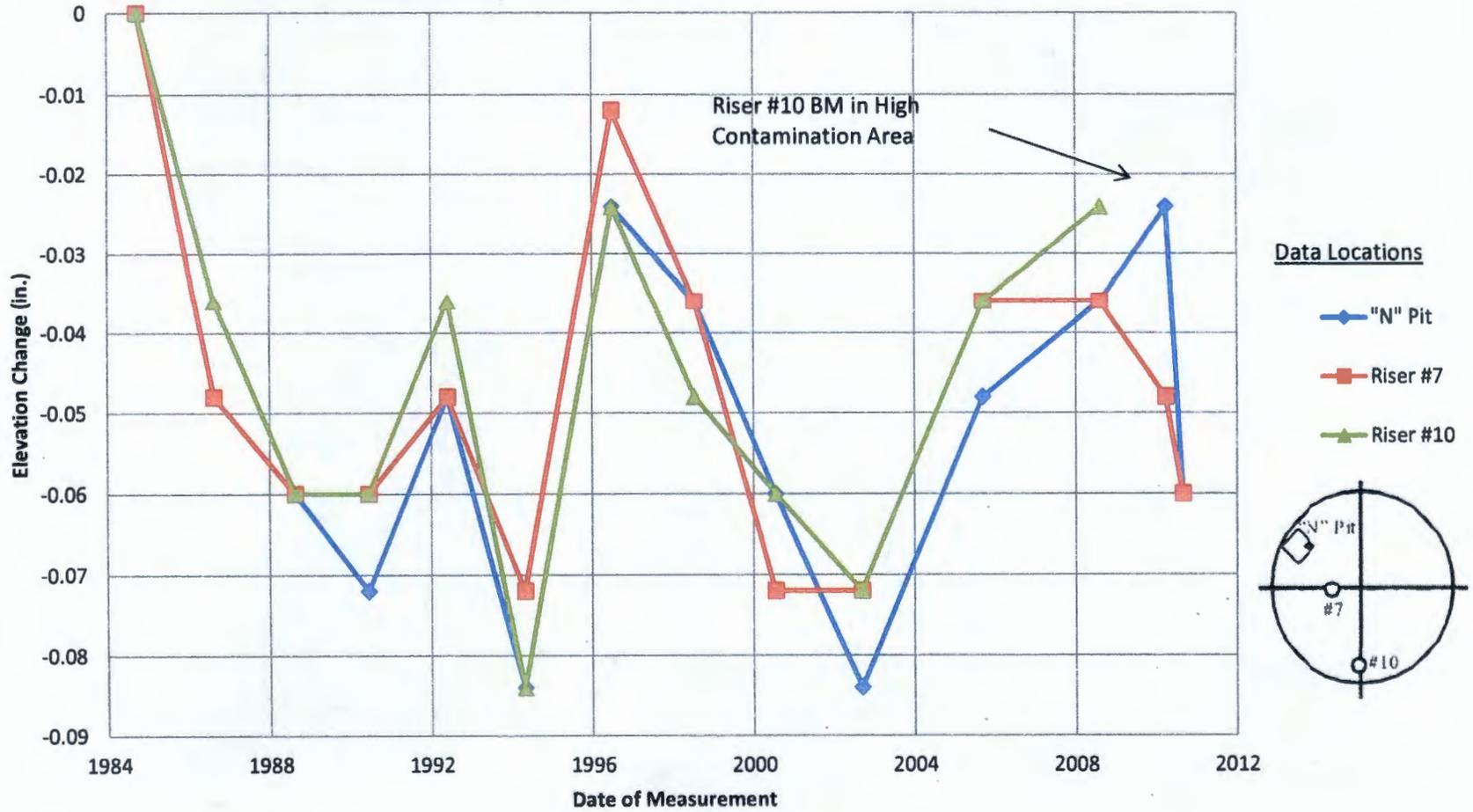
TY-7

Tank 241-TY-104 Dome Benchmark Elevation Change



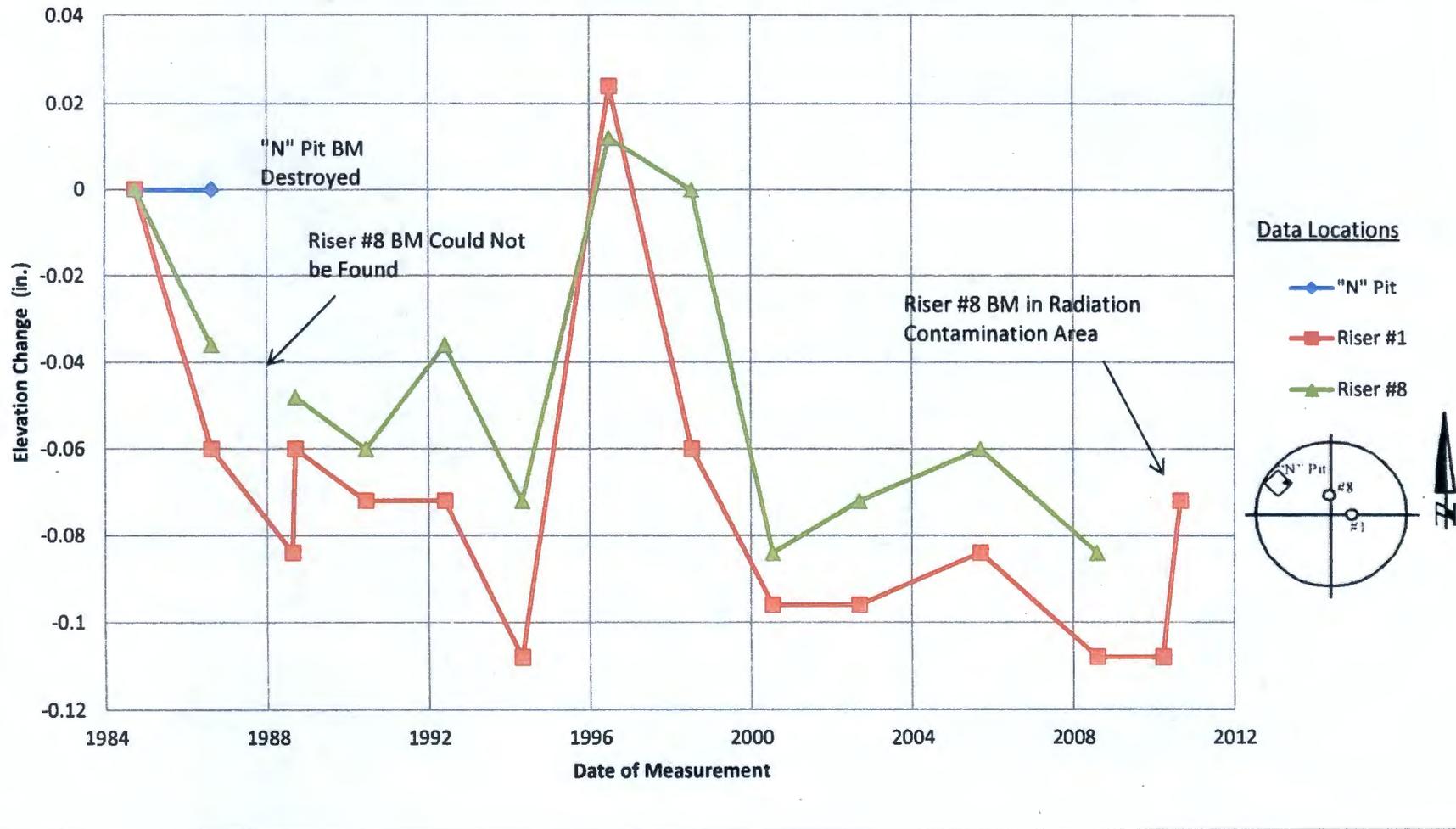
TY-10

Tank 241-TY-105 Dome Benchmark Elevation Change

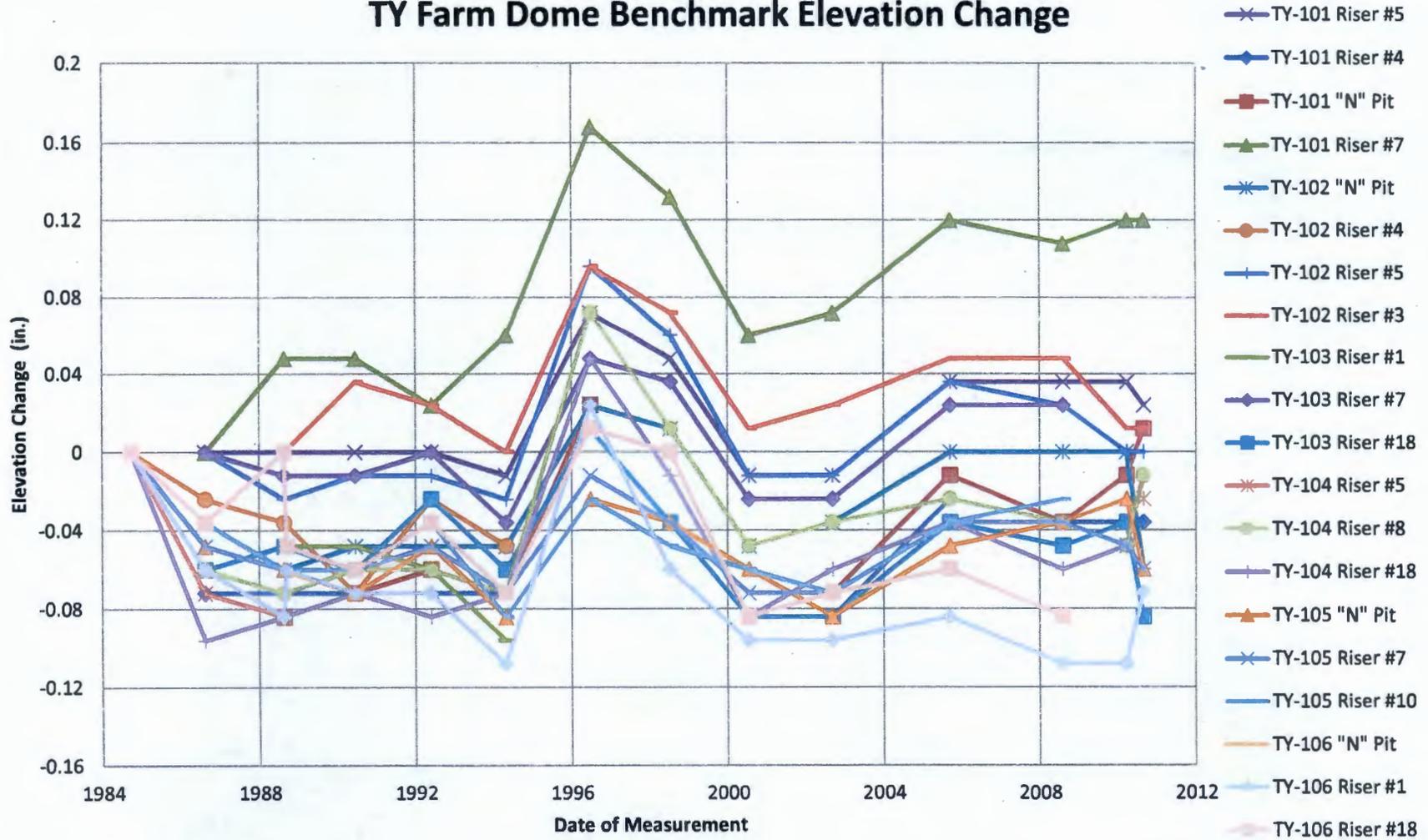


TY-12

Tank 241-TY-106 Dome Benchmark Elevation Change

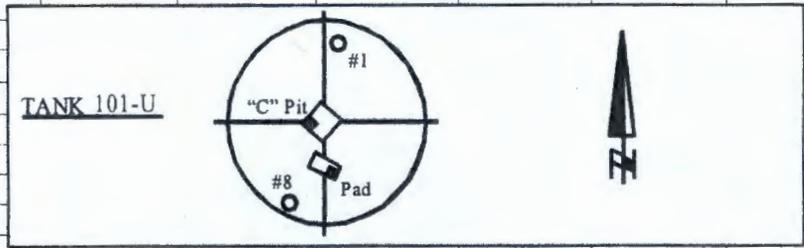


TY Farm Dome Benchmark Elevation Change

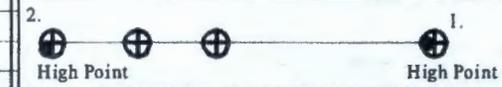


Appendix U – 241-U Farm Dome Survey Data and Plots

T:\excel\U-Dome.xls



- Control Mon's
1. N38136.00 W75910.00 EL = 664.444 Held (7/29/96)
(668.037 NAVD88-ft Ref.)
 2. N37897.50 W75910.00 EL = 664.148 Disturbed
 3. N37936.50 W75910.00 EL = 664.159 New Secondary Mon (9/23/98)
(667.751 NAVD88-ft Ref.)

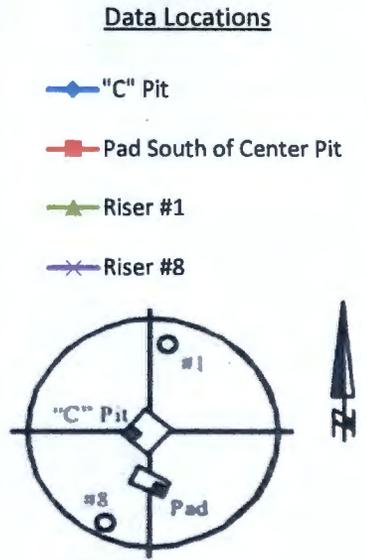
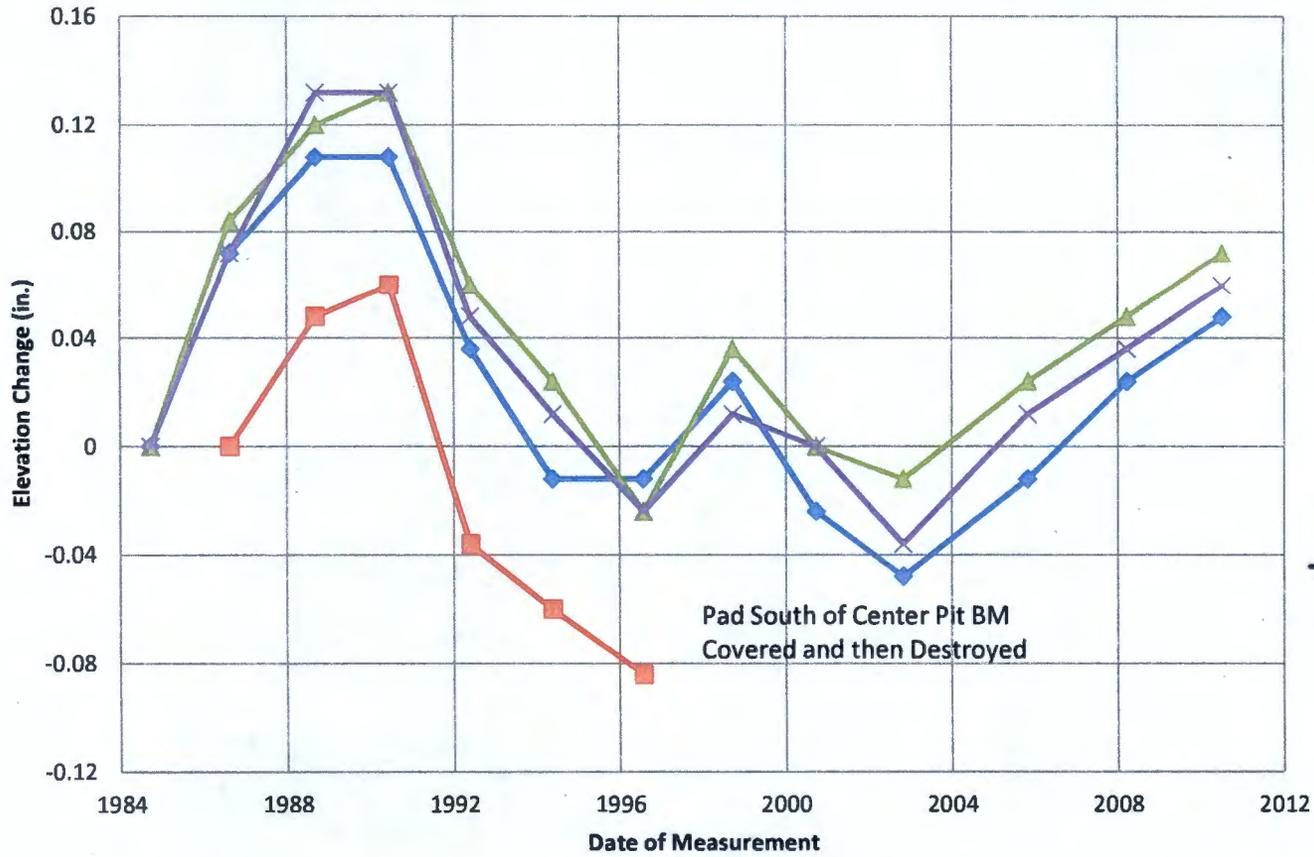


DATE	RISER - "C" PIT			RISER - PAD SOUTH OF CTR PIT			RISER #1			RISER #8		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
9/26/84	668.186	0	0				666.959	0	0	666.963	0	0
8/19/86	668.192	0.006	0.006	666.654	0	0	666.966	0.007	0.007	666.969	0.006	0.006
9/7/88	668.195	0.003	0.009	666.658	0.004	0.004	666.969	0.003	0.010	666.974	0.005	0.011
6/15/90	668.195	0	0.009	666.659	0.001	0.005	666.970	0.001	0.011	666.974	0	0.011
5/28/92	668.189	-0.006	0.003	666.651	-0.008	-0.003	666.964	-0.006	0.005	666.967	-0.007	0.004
5/21/94	668.185	-0.004	-0.001	666.649	-0.002	-0.005	666.961	-0.003	0.002	666.964	-0.003	0.001
7/29/96	668.185	0	-0.001	666.647	-0.002	-0.007	666.957	-0.004	-0.002	666.961	-0.003	-0.002
9/23/98	668.188	0.003	0.002		Covered		666.962	0.005	0.003	666.964	0.003	0.001
9/25/00	668.184	-0.004	-0.002		Covered		666.959	-0.003	0	666.963	-0.001	0
10/31/02	668.182	-0.002	-0.004		Covered		666.958	-0.001	-0.001	666.960	-0.003	-0.003
11/2/05	668.185	0.003	-0.001		Destroyed		666.961	0.003	0.002	666.964	0.004	0.001
3/19/08	668.188	0.003	0.002		Destroyed		666.963	0.002	0.004	666.966	0.002	0.003
7/7/10	668.190	0.002	0.004		Destroyed		666.965	0.002	0.006	666.968	0.002	0.005

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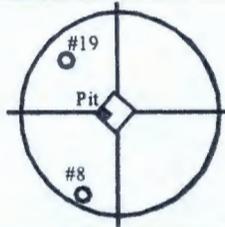
U-1

Tank 241-U-101 Dome Benchmark Elevation Change



T:\excel\U-Dome.xls

TANK 102-U



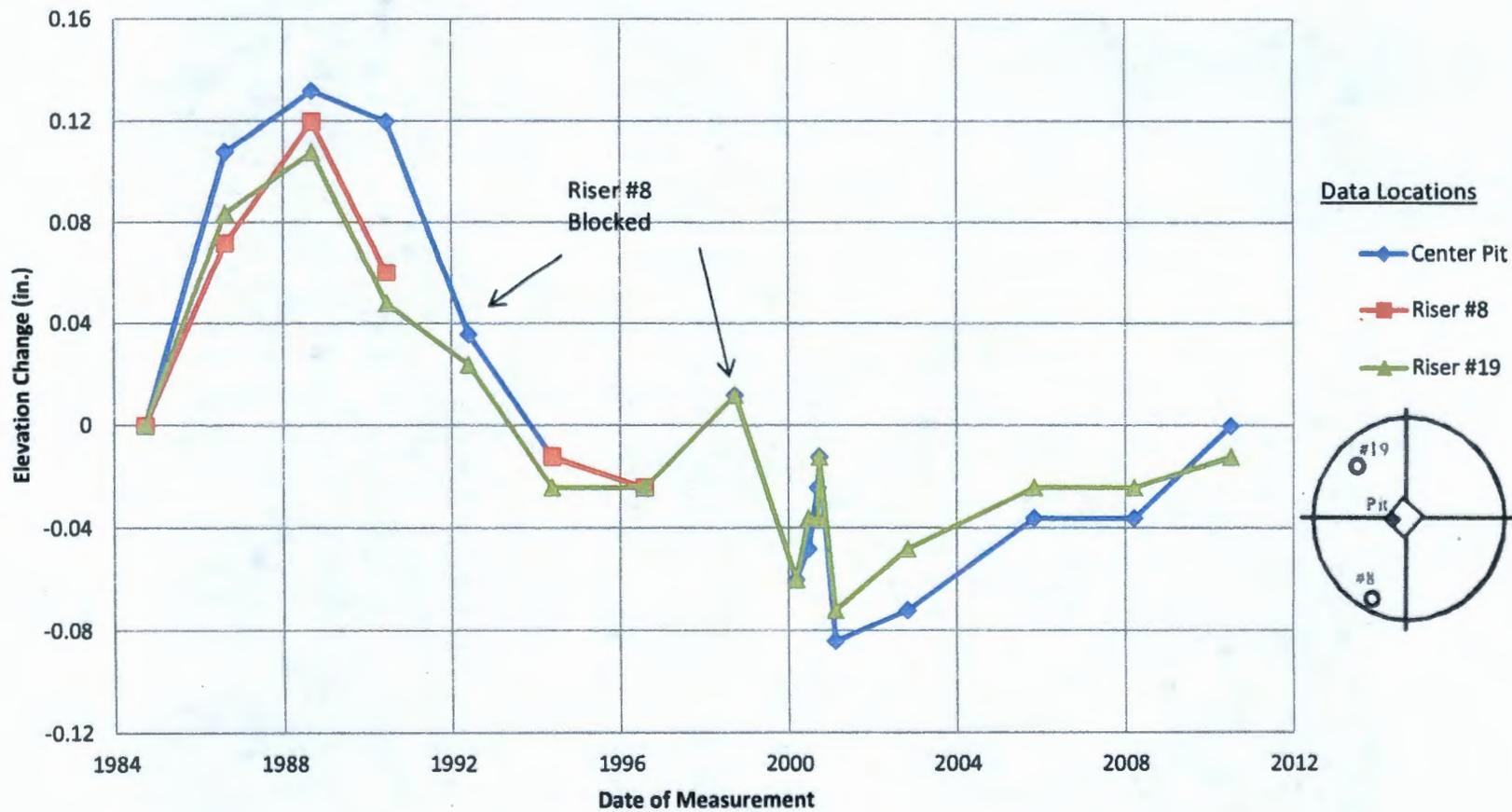
DATE	CENTER PIT			RISER #8			RISER #19			RISER		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
9/26/84	667.163	0	0	665.864	0	0	665.658	0	0			
8/19/86	667.172	0.009	0.009	665.870	0.006	0.006	665.665	0.007	0.007			
9/7/88	667.174	0.002	0.011	665.874	0.004	0.01	665.667	0.002	0.009			
6/15/90	667.173	-0.001	0.01	665.869	-0.005	0.005	665.662	-0.005	0.004			
5/28/92	667.166	-0.007	0.003		BLOCKED		665.660	-0.002	0.002			
5/21/94	667.162	-0.004	-0.001	665.863	-0.006	-0.001	665.656	-0.004	-0.002			
7/29/96	667.161	-0.001	-0.002	665.862	-0.001	-0.002	665.656	0	-0.002			
9/23/98	667.164	0.003	0.001	Blocked by ENRAF Equipment			665.659	0.003	0.001			
3/8/00	667.158	-0.006	-0.005	Blocked by ENRAF Equipment			665.653	-0.006	-0.005			
6/22/00	667.159	0.001	-0.004	Blocked by ENRAF Equipment			665.655	0.002	-0.003			
9/13/00	667.161	0.002	-0.002	Blocked by ENRAF Equipment			665.655	0	-0.003			
9/25/00	667.162	0.001	-0.001	Blocked by ENRAF Equipment			665.657	0.002	-0.001			
2/12/01	667.156	-0.006	-0.007	Blocked by ENRAF Equipment			665.652	-0.005	-0.006			
10/31/02	667.157	0.001	-0.006	Blocked by ENRAF Equipment			665.654	0.002	-0.004			
11/2/05	667.160	0.003	-0.003	Blocked by ENRAF Equipment			665.656	0.002	-0.002			
3/19/08	667.160	0	-0.003	Blocked by ENRAF Equipment			665.656	0	-0.002			
7/7/10	667.163	0.003	0	Blocked by ENRAF Equipment			665.657	0.001	-0.001			

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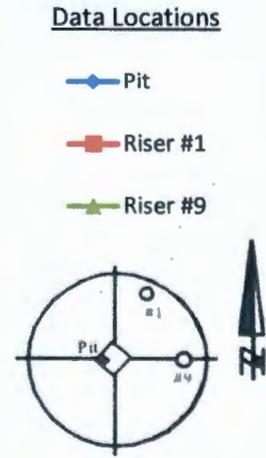
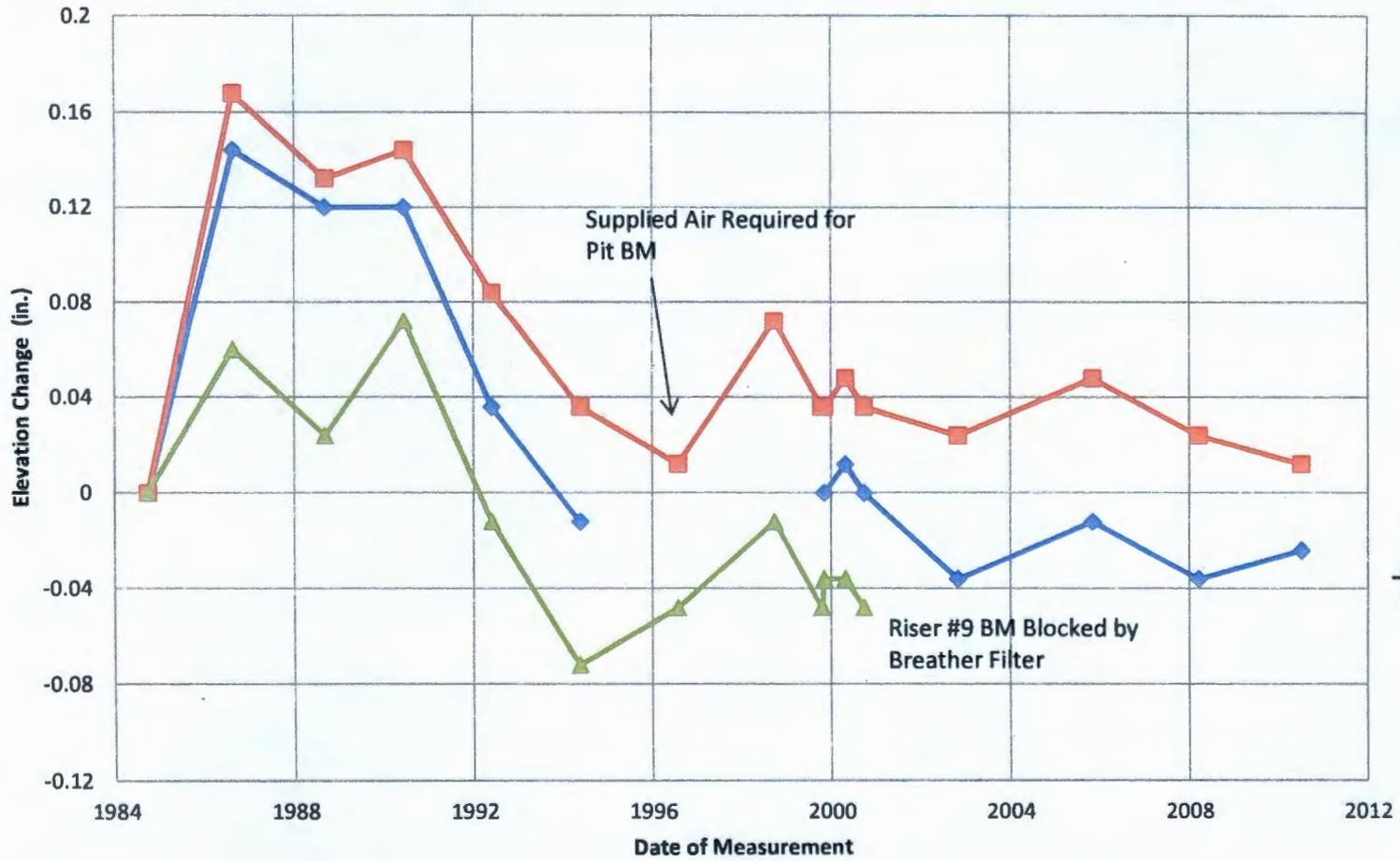
U-3

RPP-RPT-55202, Rev. 0

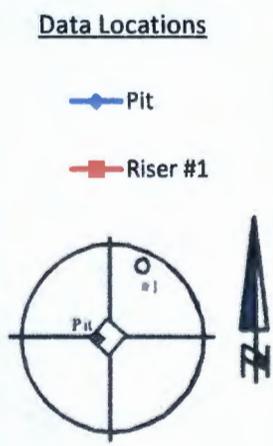
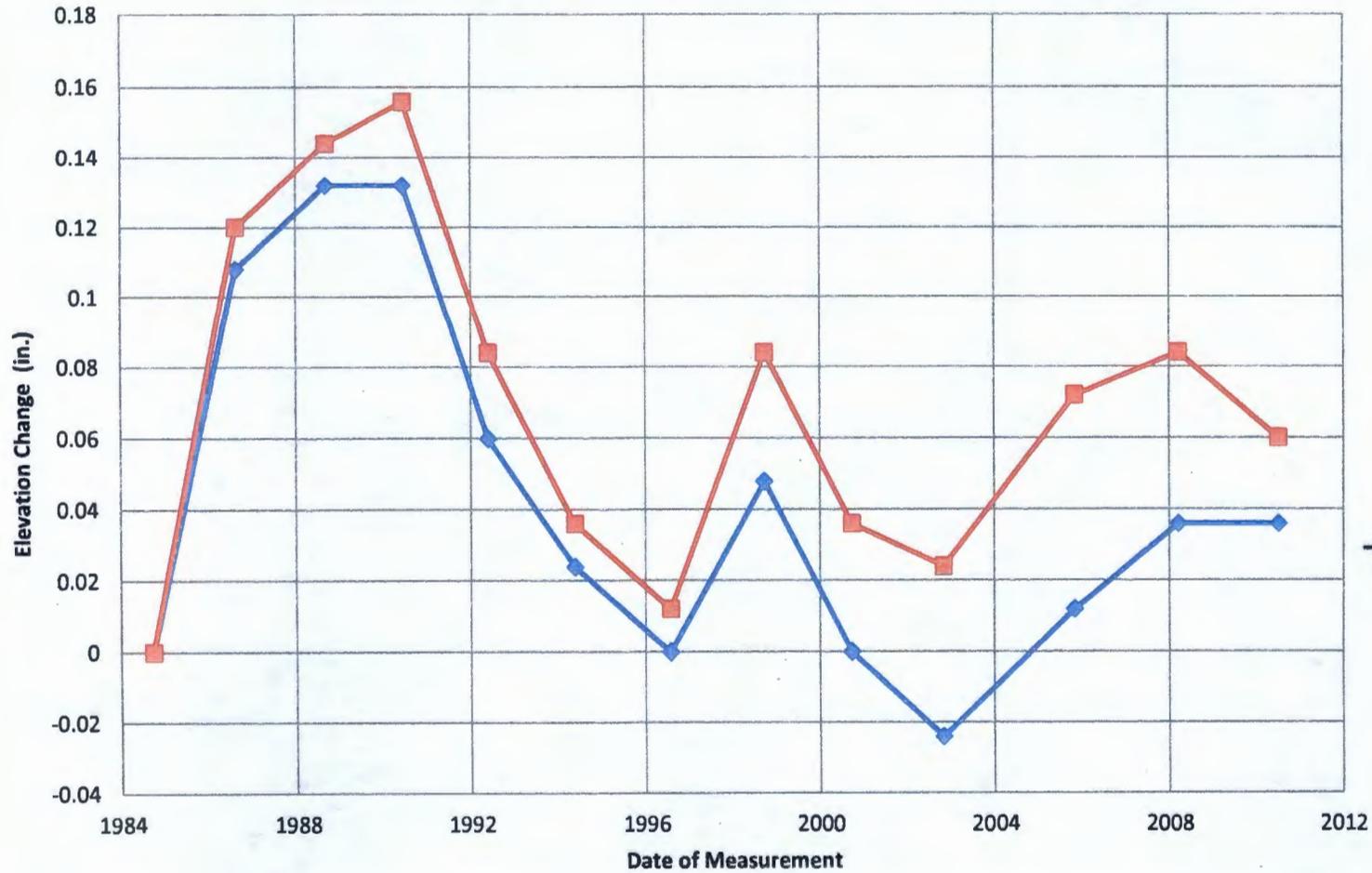
Tank 241-U-102 Dome Benchmark Elevation Change



Tank 241-U-103 Dome Benchmark Elevation Change

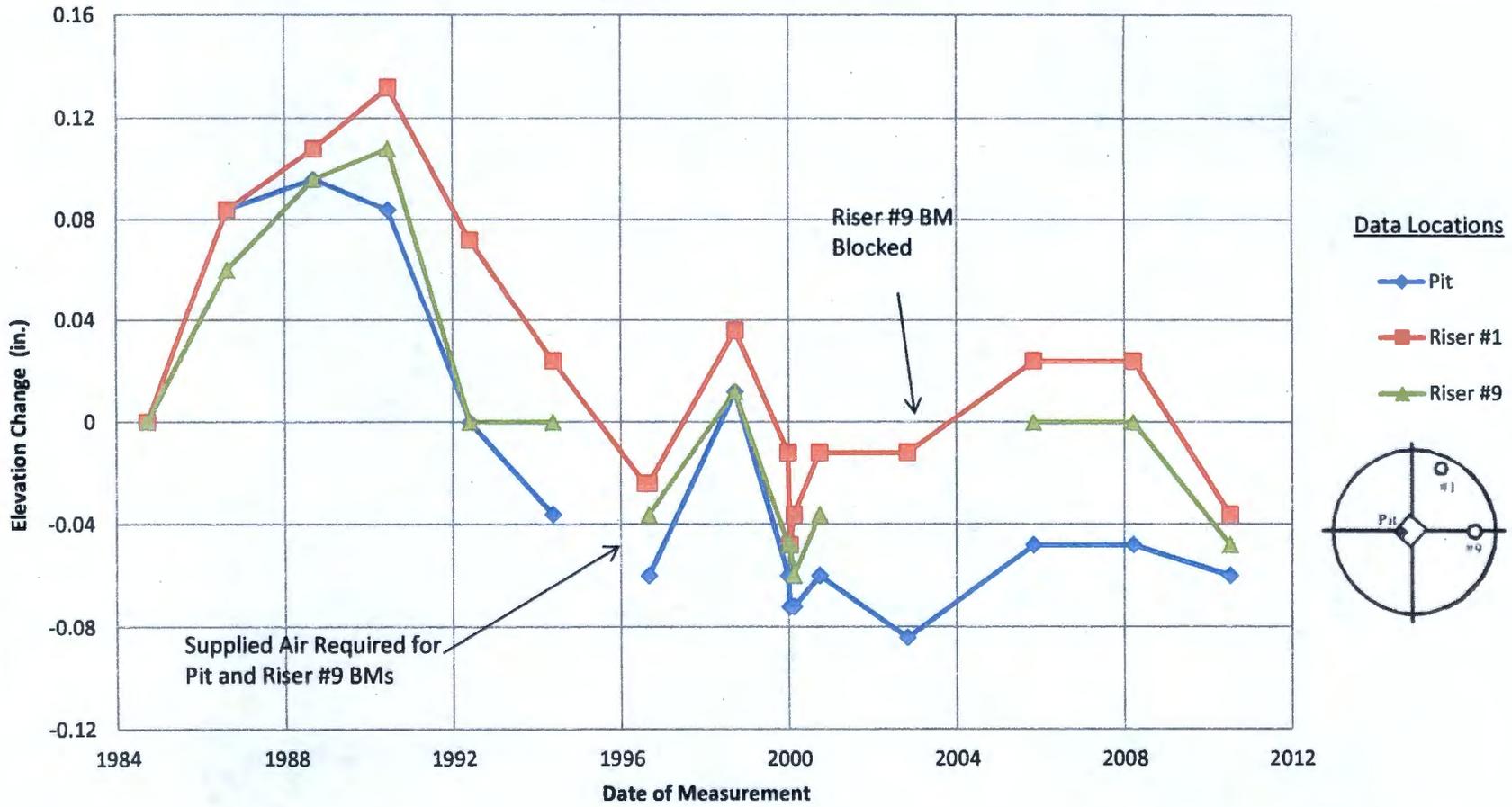


Tank 241-U-104 Dome Benchmark Elevation Change

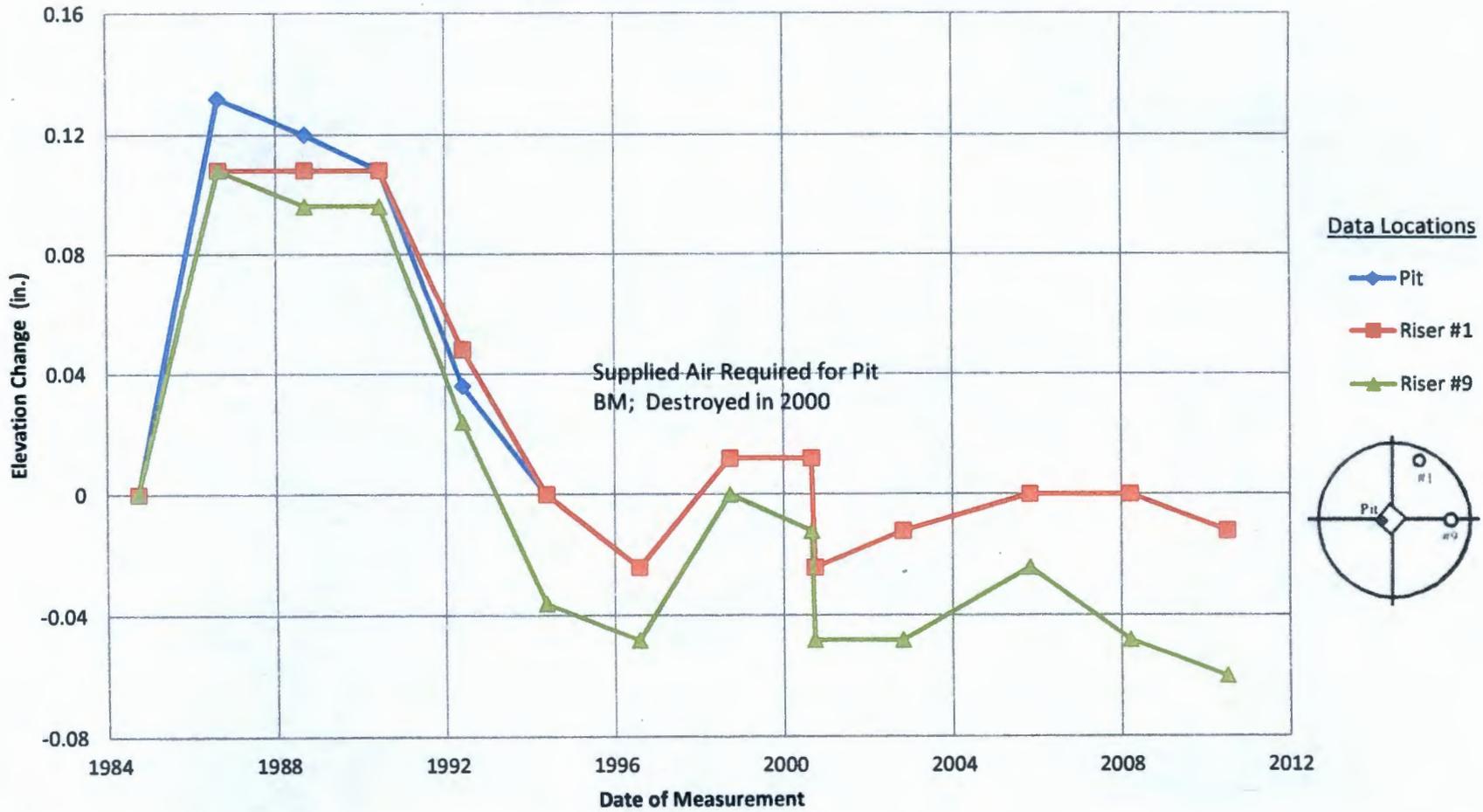


U-10

Tank 241-U-105 Dome Benchmark Elevation Change

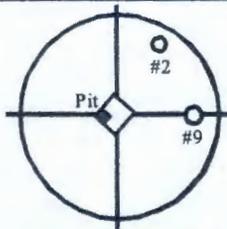


Tank 241-U-106 Dome Benchmark Elevation Change



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TANK 107-U



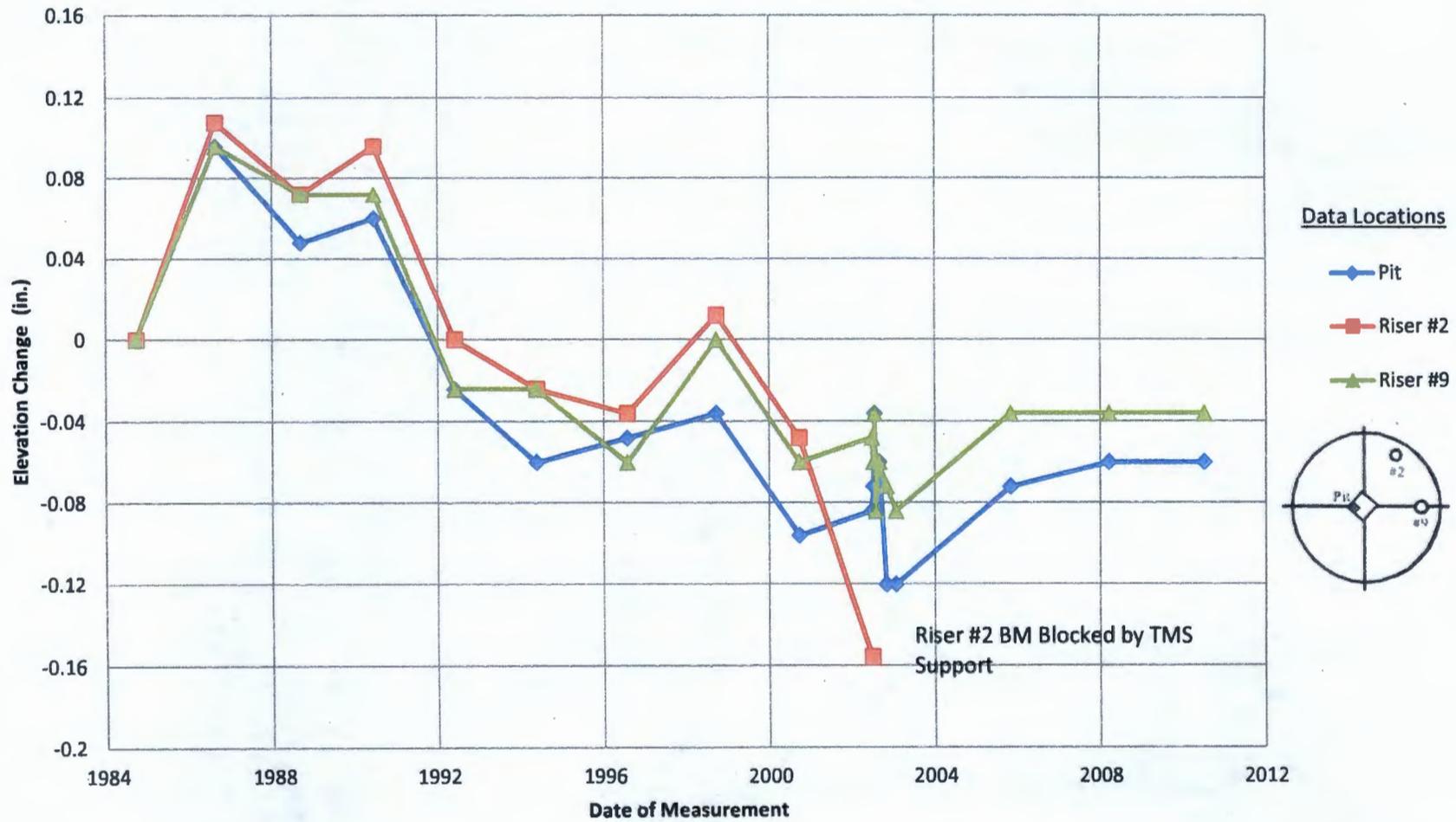
DATE	RISER - PIT			RISER #2			RISER #9			RISER		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
9/26/84	668.218	0	0	666.918	0	0	667.778	0	0			
8/19/86	668.226	0.008	0.008	666.927	0.009	0.009	667.786	0.008	0.008			
9/7/88	668.222	-0.004	0.004	666.924	-0.003	0.006	667.784	-0.002	0.006			
6/15/90	668.223	0.001	0.005	666.926	0.002	0.008	667.784	0	0.006			
5/28/92	668.216	-0.007	-0.002	666.918	-0.008	0	667.776	-0.008	-0.002			
5/21/94	668.213	-0.003	-0.005	666.916	-0.002	-0.002	667.776	0	-0.002			
7/29/96	668.214	0.001	-0.004	666.915	-0.001	-0.003	667.773	-0.003	-0.005			
9/23/98	668.215	0.001	-0.003	666.919	0.004	0.001	667.778	0.005	0			
9/25/00	668.210	-0.005	-0.008	666.914	-0.005	-0.004	667.773	-0.005	-0.005			
6/25/02	668.211	0.001	-0.007	666.905	-0.009	-0.013	667.774	0.001	-0.004			
7/9/02	668.212	0.001	-0.006	Blocked by TMS Support			667.773	-0.001	-0.005			
7/22/02	668.215	0.003	-0.003	Blocked by TMS Support			667.775	0.002	-0.003			
7/30/02	668.212	-0.003	-0.006	Blocked by TMS Support			667.771	-0.004	-0.007			
8/29/02	668.213	0.001	-0.005	Blocked by TMS Support			667.773	0.002	-0.005			
10/31/02	668.208	-0.005	-0.010	Blocked by TMS Support			667.772	-0.001	-0.006			
1/24/03	668.208	0	-0.010	Blocked by TMS Support			667.771	-0.001	-0.007			
11/2/05	668.212	0.004	-0.006	Blocked by TMS Support			667.775	0.004	-0.003			
3/19/08	668.213	0.001	-0.005	Blocked by TMS Support			667.775	0	-0.003			
7/7/10	668.213	0	-0.005	Blocked by TMS Support			667.775	0	-0.003			

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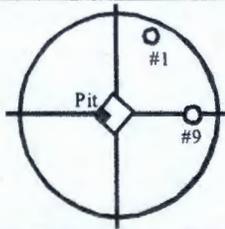
U-13

RPP-RPT-55202, Rev. 0

Tank 241-U-107 Dome Benchmark Elevation Change



TANK 108-U



T:\excel\U-Dome.xls

DATE	RISER - PIT			RISER #1			RISER #9			RISER		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
9/26/84	667.223	0	0	665.906	0	0	666.555	0	0			
8/19/86	667.231	0.008	0.008	665.913	0.007	0.007	666.563	0.008	0.008			
9/7/88	667.228	-0.003	0.005	665.910	-0.003	0.004	666.559	-0.004	0.004			
6/15/90	667.229	0.001	0.006	665.913	0.003	0.007	666.561	0.002	0.006			
5/28/92	667.223	-0.006	0	665.908	-0.005	0.002	666.556	-0.005	0.001			
5/21/94	667.218	-0.005	-0.005	665.904	-0.004	-0.002	666.550	-0.006	-0.005			
7/29/96	667.218	0	-0.005	665.902	-0.002	-0.004	666.550	0	-0.005			
9/23/98	667.222	0.004	-0.001	665.906	0.004	0	666.554	0.004	-0.001			
9/25/00	667.215	-0.007	-0.008	665.900	-0.006	-0.006	666.548	-0.006	-0.007			
7/9/02	667.218	0.003	-0.005	665.901	0.001	-0.005	666.548	0	-0.007			
7/22/02	667.220	0.002	-0.003	665.903	0.002	-0.003	666.551	0.003	-0.004			
9/12/02	667.217	-0.003	-0.006	665.902	-0.001	-0.004	666.549	-0.002	-0.006			
10/16/02	667.216	-0.001	-0.007	665.899	-0.003	-0.007	666.546	-0.003	-0.009			
10/31/02	667.213	-0.003	-0.010	665.899	0	-0.007	666.547	0.001	-0.008			
12/5/02	667.213	0	-0.010	665.900	0.001	-0.006	666.547	0	-0.008			
1/24/03	667.213	0	-0.010	665.900	0	-0.006	666.546	-0.001	-0.009			
4/28/03	667.215	0.002	-0.008	665.900	0	-0.006	666.547	0.001	-0.008			
10/21/03	667.217	0.002	-0.006	665.901	0.001	-0.005	666.549	0.002	-0.006			
11/2/05	667.217	0	-0.006	665.903	0.002	-0.003	666.552	0.003	-0.003			
3/19/08	667.217	0	-0.006	665.903	0	-0.003	666.550	-0.002	-0.005			
7/7/10	667.218	0.001	-0.005	665.902	-0.001	-0.004	666.549	-0.001	-0.006			

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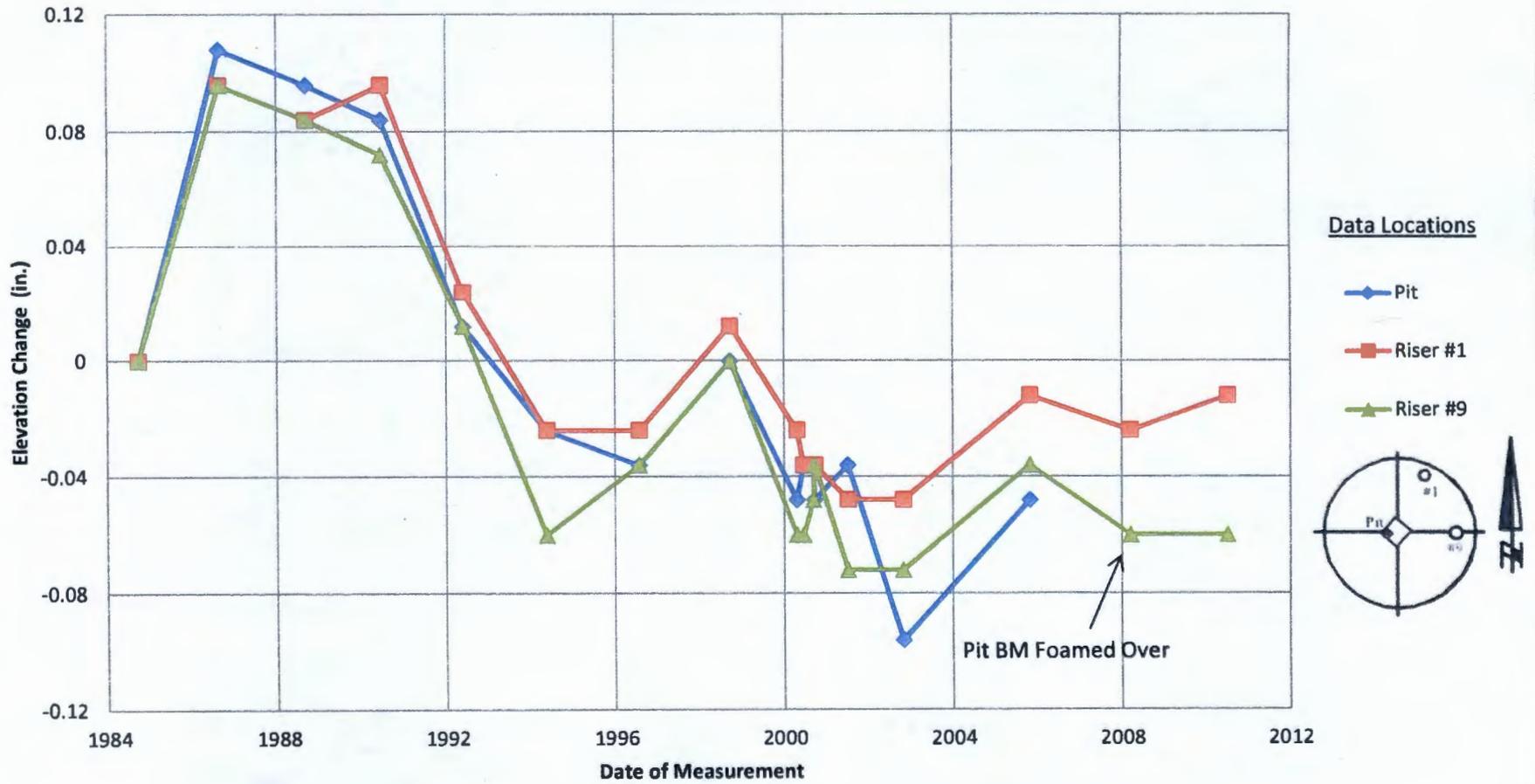
U-15

RPP-RPT-55202, Rev. 0

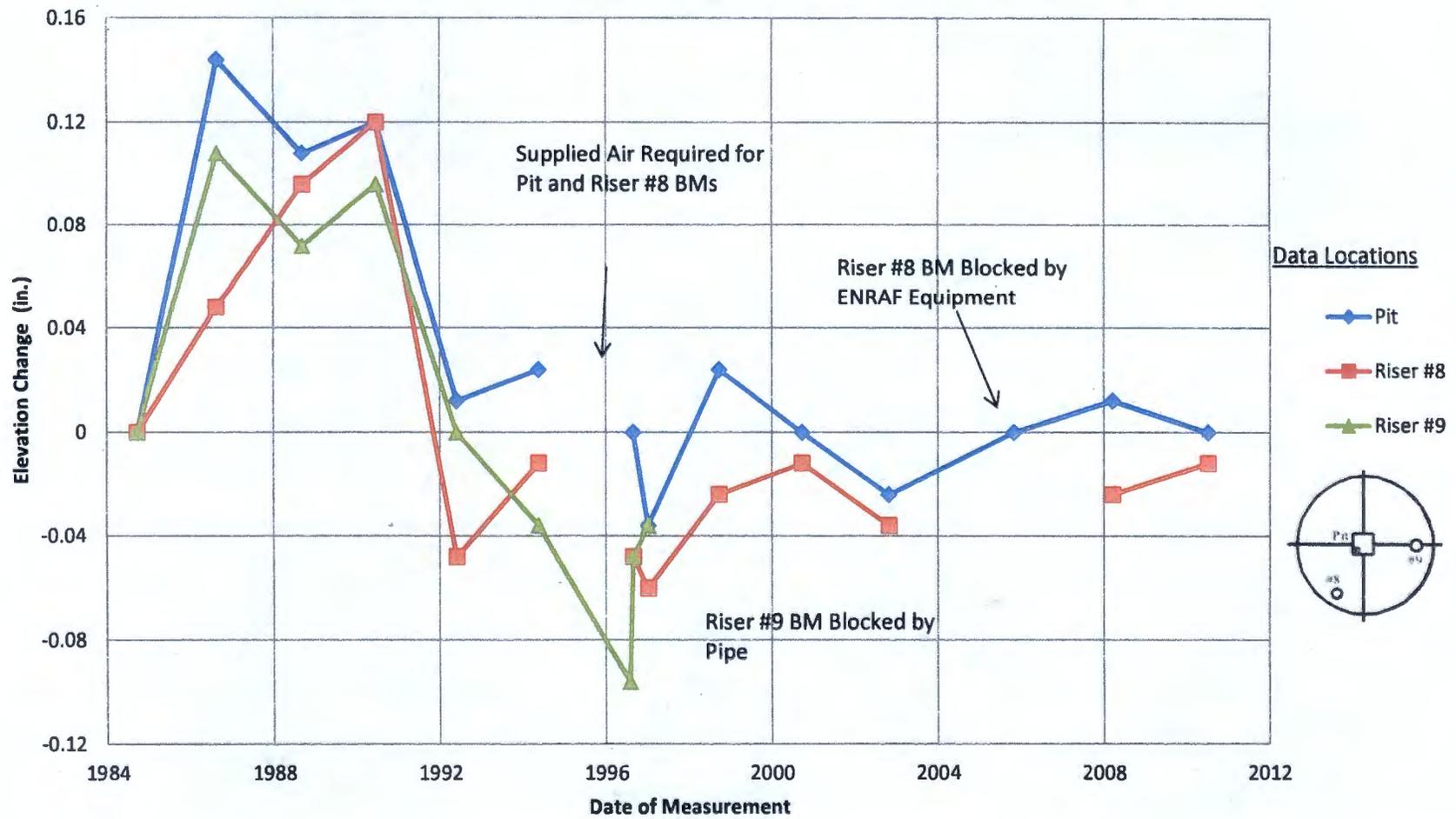
Tank 241-U-108 Dome Benchmark Elevation Change



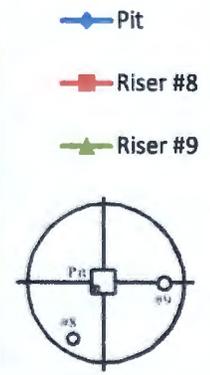
Tank 241-U-109 Dome Benchmark Elevation Change

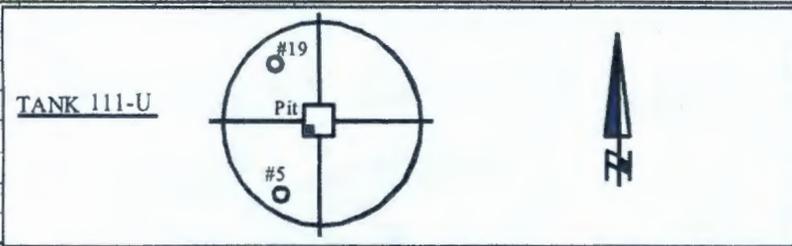


Tank 241-U-110 Dome Benchmark Elevation Change



Data Locations





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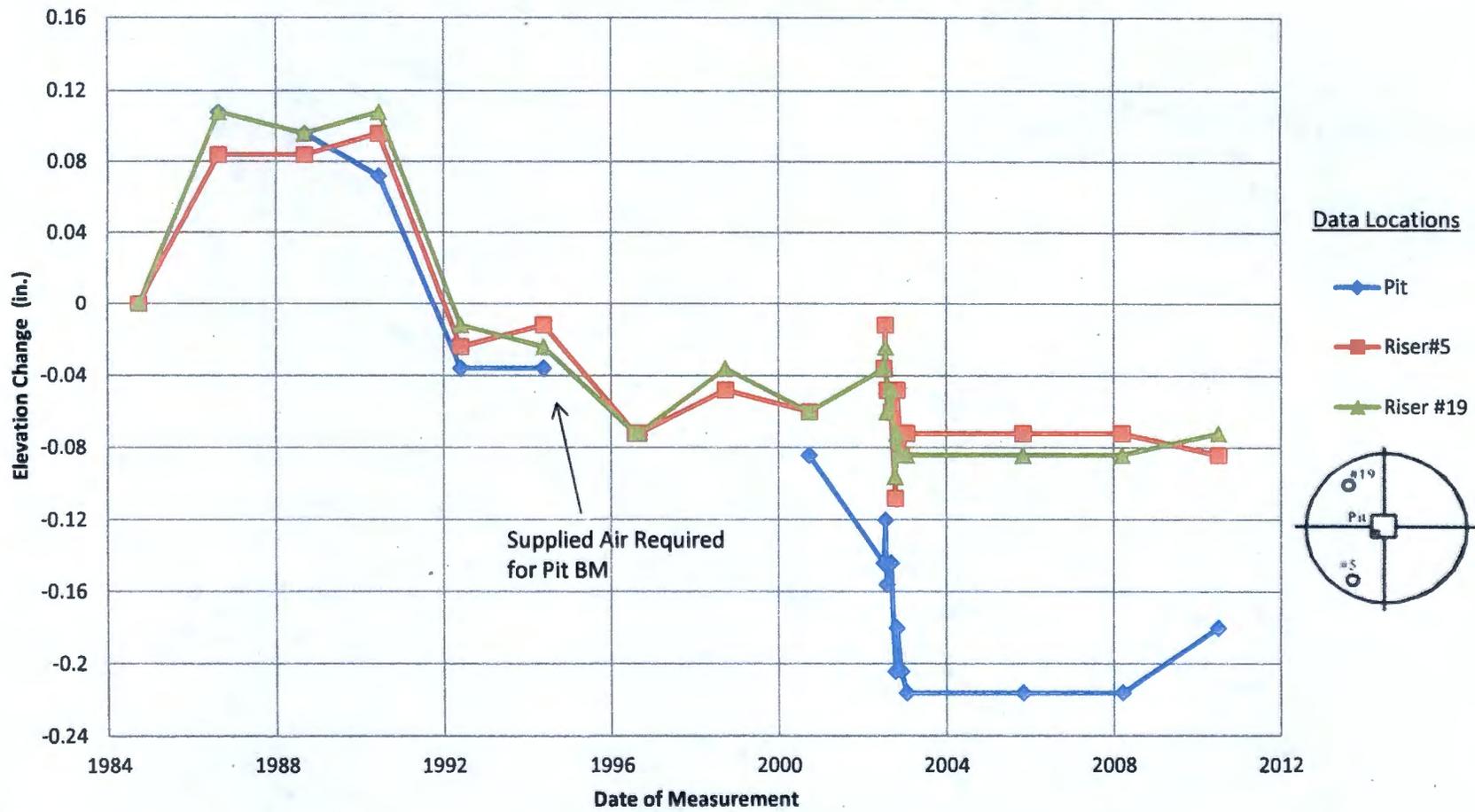
DATE	RISER - PIT			RISER #5			RISER #19			RISER		
	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.	Current Elev.	Delta From Prev. Elev.	Total Delta Orig. Elev.
9/26/84	665.534	0	0	665.961	0	0	665.712	0	0			
8/19/86	665.543	0.009	0.009	665.968	0.007	0.007	665.721	0.009	0.009			
9/7/88	665.542	-0.001	0.008	665.968	0	0.007	665.720	-0.001	0.008			
6/15/90	665.540	-0.002	0.006	665.969	0.001	0.008	665.721	0.001	0.009			
5/28/92	665.531	-0.009	-0.003	665.959	-0.010	-0.002	665.711	-0.010	-0.001			
5/21/94	665.531	0	-0.003	665.960	0.001	-0.001	665.710	-0.001	-0.002			
7/29/96	Supplied Air Required			665.955	-0.005	-0.006	665.706	-0.004	-0.006			
8/29/96	665.528	-0.003	-0.006	665.955	0	-0.006	665.706	0	-0.006			
9/23/98	Supplied Air Required			665.957	0.002	-0.004	665.709	0.003	-0.003			
9/25/00	665.527	-0.001	-0.007	665.956	-0.001	-0.005	665.707	-0.002	-0.005			
7/9/02	665.522	-0.005	-0.012	665.958	0.002	-0.003	665.709	0.002	-0.003			
7/22/02	665.524	0.002	-0.010	665.960	0.002	-0.001	665.710	0.001	-0.002			
8/5/02	665.521	-0.003	-0.013	665.957	-0.003	-0.004	665.707	-0.003	-0.005			
9/12/02	665.522	0.001	-0.012	665.956	-0.001	-0.005	665.708	0.001	-0.004			
10/16/02	665.517	-0.005	-0.017	665.952	-0.004	-0.009	665.704	-0.004	-0.008			
10/31/02	665.519	0.002	-0.015	665.957	0.005	-0.004	665.706	0.002	-0.006			
12/5/02	665.517	-0.002	-0.017	665.954	-0.003	-0.007	665.705	-0.001	-0.007			
1/24/03	665.516	-0.001	-0.018	665.955	0.001	-0.006	665.705	0	-0.007			
11/2/05	665.516	0	-0.018	665.955	0	-0.006	665.705	0	-0.007			
3/19/08	665.516	0	-0.018	665.955	0	-0.006	665.705	0	-0.007			
7/7/10	665.519	0.003	-0.015	665.954	-0.001	-0.007	665.706	0.001	-0.006			

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 ATTACH.Survey
 Page: U -Survey-12 of 13

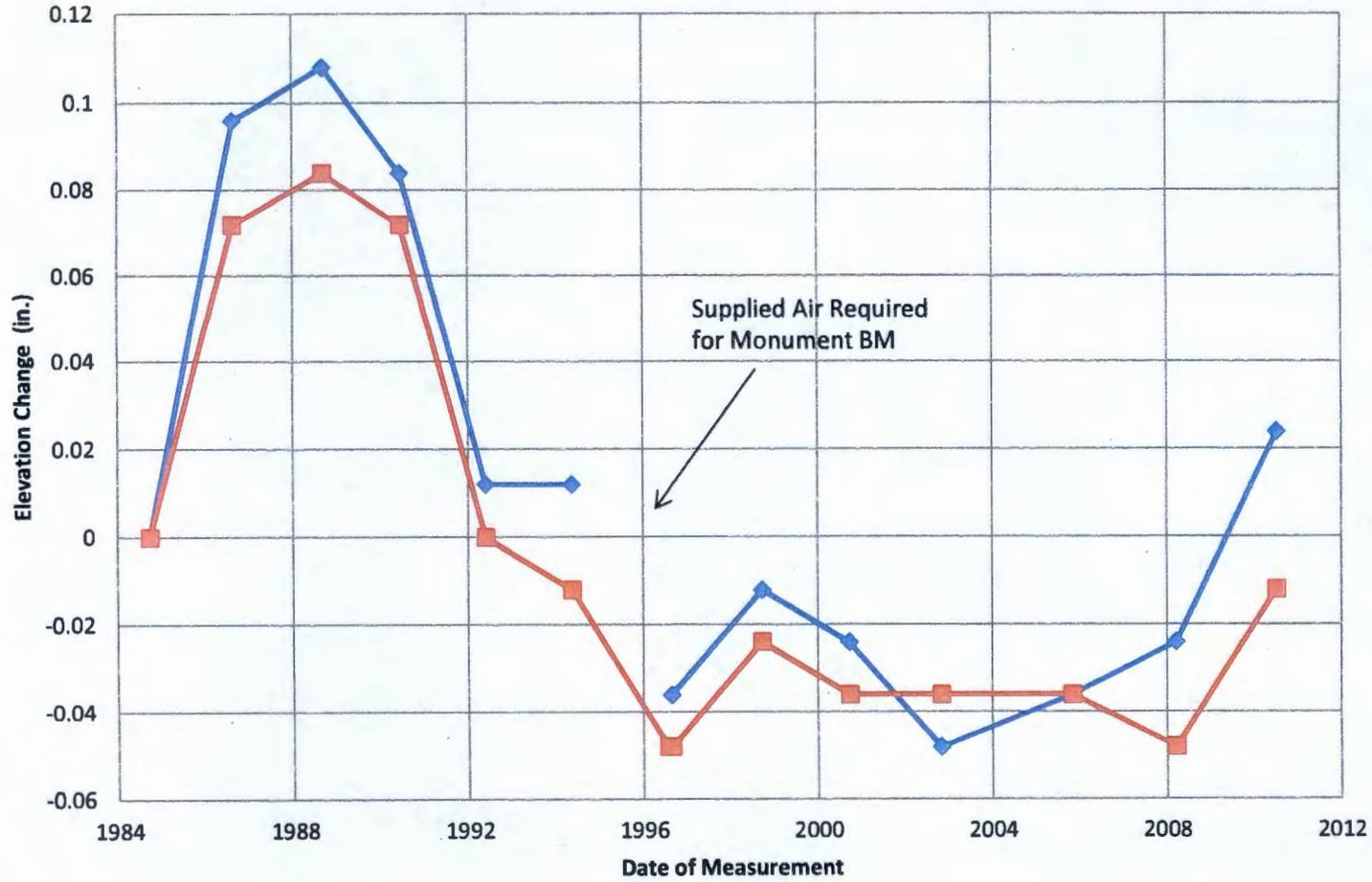
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RPP-RPT-55202, Rev. 0

Tank 241-U-111 Dome Benchmark Elevation Change

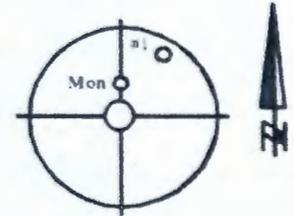


Tank 241-U-112 Dome Benchmark Elevation Change



Data Locations

- ◆ Monument
- Riser #1



U Farm Dome Benchmark Elevation Change

