

SANDIA REPORT

SAND2002-xxxx
Unlimited Release
Printed June 2002

Supersedes SAND1901-0001
Dated January 1901

On the Use of Dry Erase Markers at National Laboratories (Article style, not strict, using PDF logos and JPG graphics)

Jonh E. Smith, Jane S. Miller

Prepared by
Sandia National Laboratories
Albuquerque, New Mexico 87185 and Livermore, California 94550

Sandia National Laboratories is a multi-program laboratory managed and operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corporation, for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000.

Approved for public release; further dissemination unlimited.

Issued by Sandia National Laboratories, operated for the United States Department of Energy by Sandia Corporation.

NOTICE: This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government, nor any agency thereof, nor any of their employees, nor any of their contractors, subcontractors, or their employees, make any warranty, express or implied, or assume any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represent that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government, any agency thereof, or any of their contractors or subcontractors. The views and opinions expressed herein do not necessarily state or reflect those of the United States Government, any agency thereof, or any of their contractors.

Printed in the United States of America. This report has been reproduced directly from the best available copy.

Available to DOE and DOE contractors from
U.S. Department of Energy
Office of Scientific and Technical Information
P.O. Box 62
Oak Ridge, TN 37831

Telephone: (865) 576-8401
Facsimile: (865) 576-5728
E-Mail: reports@adonis.osti.gov
Online ordering: <http://www.osti.gov/bridge>

Available to the public from
U.S. Department of Commerce
National Technical Information Service
5285 Port Royal Rd
Springfield, VA 22161

Telephone: (800) 553-6847
Facsimile: (703) 605-6900
E-Mail: orders@ntis.fedworld.gov
Online ordering: <http://www.ntis.gov/help/ordermethods.asp?loc=7-4-0#online>



SAND2002-xxxx
Unlimited Release
Printed June 2002

Supersedes SAND1901-0001
dated January 1901

On the Use of Dry Erase Markers at National Laboratories (Article style, not strict, using PDF logos and JPG graphics)

John E. Smith
Special Projects Department
Sandia National Laboratories
P.O. Box 5800
Albuquerque, NM 87185-9999
root@sandia.gov

Jane S. Miller
Whatsamatter University
Northside, New York, NY
jsm@whatsmatteru.edu

Abstract

It would appear that many projects carried out at the national DOE laboratories could benefit from some dry-erase markers. This report examines the requirements for the use of dry-erase markers and gives a few specific examples on how dry-erase markers can be used to advance the state of the art.

Before we start exploring the exciting world of dry-erase markers, we need a test paragraph so we can check paragraph formatting in the abstract. Pay attention to the indentation and spacing of these two paragraphs. The *strict* option controls this.

Acknowledgment

Thanks to Ben Blueberry for valuable discussions and helping us find new uses of dry-erase markers.

The format of this report is based on information found in [1].

Contents

Preface	6
Summary	7
Nomenclature	8
1 Introduction	9
1.1 The Circle	9
1.2 The Square	10
1.3 The Dot	10
1.4 Tables and Such	10
2 A Section With Subfigures	12
3 A Long Section	13
4 Conclusion	17
References	18

Appendix

A Historical Perspective	19
B Some Other Appendix	20

Figures

1 The circle	9
2 The square	10
3 The dot	10
4 Creatures not drawn using dry-erase markers	12

Tables

1 Shapes	11
2 A magic square	11

Preface

Although staff members usually have only limited experience with dry-erase markers, and many even dispute their existence, it is worthwhile to be open minded and explore the possibilities.

Summary

Once a certain level of mistrust and skepticism has been overcome, dry-erase markers find many uses in today's science and engineering. In this report we explain some of the fundamental properties, dangers, and benefits of dry-erase markers. We then conclude with a few examples on how they can be used in daily activities at national Laboratories.

Nomenclature

dry spell using a dry erase marker to spell words

dry wall the writing on the wall

dry humor when people just do not understand

DRY Don't Repeat Yourself

1 Introduction

In [3] we have shown that dry-erase markers have a use in science. In this report we address the use of dry-erase markers specifically to the science and engineering performed at the DOE national laboratories. Let us begin with a description of a couple of basic dry-erase marker drawings. We use the circle and the square to make our point.

1.1 The Circle

Figure 1 shows one of the basic shapes. It appears in many dry-erase drawings and has many important properties.

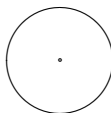


Figure 1. A circle is one of the basic shapes. It has many important properties. Note, for example, that every point along its circumference is at exactly the same distance from the center. A truly important property for a circle.

Whole books have been written about the circle and similar, lesser shapes. So, it would be presumptuous to attempt to even list some of its properties and uses in dry-erase marker drawings. Simply admire the shape in Figure 1 and its power will soon engulf you in ideas and beautiful feelings of completeness.

Small Circles

We also need an example of a subsection to make sure titles and table of content entries work for those.

And while we are at it, we might as well check paragraph spacing. Although, we will do that again in a later section¹.

¹In strict article mode, section numbers cannot be referenced because section numbering is turned off. If you use strict mode, do not reference your sections by number. For reports you can reference chapters

1.2 The Square

Figure 2 illustrates another famous shape. We will show some of its uses in later chapters, but we wanted to introduce it here because this is a good place for another figure.

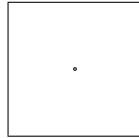


Figure 2. A square is another of the basic shapes. It is not quite as powerful as the circle. It has some similarities (note that the four corners all have the same distance to the center), and has many fine uses in everyday dry-erase marker drawing.

1.3 The Dot

We also need a figure with a short caption. In order to do this, we introduce the dot. Figure 3 shows the shape of a dot.



Figure 3. A simple dot

1.4 Tables and Such

In order to test our class file, we also need to have some tables. One should be enough for our purposes, so here it is: Table 1. On second thought, we need another one to test the list of tables with multiple entries. So, we introduce Table 2.

Table 1. This superb table lists a few of the more important shapes and some of their properties. Be aware that this condensed list can by no means describe all the properties or shapes drawable by dry-erase markers.

Name	Number of corners	Importance	Shape
circle	0	high	○
square	4	medium	◇
triangle	3	low	△

Table 2. A magic square

1	15	14	4
12	6	7	9
8	10	11	5
13	3	2	16

2 A Section With Subfigures

The subfigure package used to cause problems until James Gruetzner and Todd Pitts found out that the subfigure package uses `addcontentsline`, which is redefined in the `SANDreport` class. The class uses the `ifthen` package, but it is not loaded at the time the subfigure package uses `addcontentsline`. The new code avoids using the `ifthen` package. Have a look at Figure 4 for an example.



(a) A Hyppogriff



(b) A Dragon

Figure 4. Creatures not drawn using dry-erase markers.

3 A Long Section

We need a long chapter to test full-page formatting. Therefore, we switch to the ancient language of Latin.

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Maecenas ante augue, dictum ut, scelerisque vitae, sagittis vel, velit. Curabitur velit. Curabitur eleifend eleifend felis. Curabitur purus. Nunc aliquet felis a pede. Suspendisse dictum consequat nunc. In accumsan. Sed sit amet diam. Aliquam rhoncus, orci non sodales suscipit, libero risus condimentum lacus, vitae laoreet velit purus ac est. Etiam id sem eu arcu pellentesque rhoncus. Quisque feugiat est at elit lacinia vestibulum. Integer eget nisl sed diam sodales egestas.

Quisque risus libero, pellentesque ac, iaculis a, pulvinar quis, leo. Cras sapien erat, lacinia sit amet, accumsan porta, bibendum malesuada, nulla. Suspendisse non lorem. Sed pellentesque nulla id nisl. In hac habitasse platea dictumst. Ut nec sem. Proin interdum fringilla felis. Aenean lacus. Quisque nisi. Aliquam congue venenatis purus. Vestibulum ante ipsum primis in faucibus orci luctus et ultrices posuere cubilia Curae; Suspendisse a nunc.

Nunc lobortis. Aliquam ultricies volutpat felis. Nulla nisi tellus, ultrices vel, sodales in, lacinia at, leo. Fusce odio turpis, mattis nec, semper ut, aliquam nec, odio. Sed tristique lacus eget arcu. In at elit. Duis semper, est ut sagittis tempor, risus arcu mattis ligula, quis posuere velit ipsum a neque. Proin mattis, urna vehicula tempus placerat, nisl tortor pharetra dolor, nec luctus orci nisi a ante. Ut a lectus at nulla ultricies congue. Ut rhoncus, purus in malesuada rhoncus, nisi ante laoreet lectus, eget volutpat dui nunc ac metus. Sed dignissim faucibus elit. Vestibulum cursus nonummy mauris. Vestibulum dapibus neque eu ligula. Ut scelerisque urna ut orci tincidunt volutpat. Aliquam ipsum purus, eleifend sed, nonummy non, dapibus vel, metus. Class aptent taciti sociosqu ad litora torquent per conubia nostra, per inceptos hymenaeos.

Ut vitae mauris. Aenean diam. Nam euismod massa bibendum orci. Proin sed arcu. Phasellus commodo lacus. Nunc sit amet dolor eget arcu iaculis congue. Sed volutpat, dolor nec porta facilisis, purus mi euismod lacus, sed pharetra magna arcu id dolor. Vestibulum a purus nec nisl varius facilisis. Sed semper mattis lorem. Suspendisse tellus dolor, tincidunt fermentum, imperdiet eu, ultrices et, massa. Nulla facilisi. Nulla rhoncus. Ut vestibulum quam feugiat quam. Aliquam nisi. Vivamus facilisis euismod ipsum. Nunc suscipit semper felis. Nunc non metus. Vestibulum ante ipsum primis in faucibus orci luctus et ultrices posuere cubilia Curae;

Maecenas posuere rutrum odio. Curabitur dolor quam, semper sed, malesuada eu, sagittis eu, erat. Vestibulum facilisis, ipsum vitae venenatis consectetur, ipsum nibh scelerisque lacus, quis nonummy elit augue et lectus. Fusce ut dolor et ligula laoreet commodo. Phasellus ornare. Aliquam erat volutpat. Ut sapien leo, auctor vel, placerat vel, pretium quis, libero. Integer tempus interdum tellus. Vestibulum posuere, mi ultricies ullamcorper ornare, dolor nunc condimentum tellus, et commodo neque tellus at mi. Aliquam porttitor, tortor eu interdum malesuada, justo nisl feugiat lacus, eu venenatis augue tortor sit amet arcu. Maecenas quis enim. Mauris fringilla diam. Maecenas vitae metus a felis ullamcorper vestibulum. Suspendisse potenti. Etiam sit amet elit. Ut iaculis risus in odio.

Quisque porttitor, velit at consetetur pretium, nibh lacus dignissim erat, id imperdiet tellus lectus vel sapien. Integer varius dignissim urna. Vestibulum elementum lobortis lorem. Morbi vel metus in risus consetetur facilisis. Quisque ac purus eget ipsum interdum semper. Suspendisse blandit, nisi in mattis condimentum, elit sem tempus dui, eu convallis mi dolor in dui. Nunc vehicula eros in diam. Sed lectus velit, varius ut, posuere eget, lacinia a, augue. Suspendisse odio lectus, tincidunt porttitor, porttitor vitae, rhoncus id, turpis. Sed quam. Duis tortor tortor, ultrices ut, imperdiet a, convallis a, magna. Donec pellentesque sapien vitae elit. Fusce egestas eleifend velit. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas.

Proin ac sapien. Aenean tincidunt ante aliquet tortor. In non elit nec tortor pharetra pretium. Nulla facilisi. Maecenas pulvinar odio in libero. Nam tincidunt nulla et dui. Nunc in eros nec dolor congue varius. Suspendisse euismod. Aliquam nulla nibh, vulputate in, molestie ut, suscipit quis, orci. Ut feugiat sapien id velit. Nullam rutrum, enim non dictum posuere, nulla diam faucibus risus, vel suscipit tellus nisi nec libero. Nullam scelerisque vestibulum sem.

Sed ultrices ligula vel lacus. Donec elit felis, venenatis volutpat, varius eu, placerat cursus, sem. Nullam non felis quis enim laoreet dictum. Nulla in nisl at erat pretium facilisis. Vestibulum sed ante. In hac habitasse platea dictumst. Aenean lobortis ullamcorper ante. Aenean at magna. Etiam viverra erat id augue. Morbi purus. Sed congue. Integer sit amet enim vel sapien ullamcorper auctor. Phasellus neque sapien, cursus sit amet, pharetra ac, mollis non, nibh. Ut risus orci, dignissim eu, feugiat sit amet, ullamcorper sit amet, tortor. Nunc ac ligula ut libero fermentum tincidunt. Morbi lorem metus, bibendum ut, aliquet at, tristique vulputate, nisl. Duis risus turpis, bibendum in, faucibus cursus, eleifend sit amet, erat. Donec elit purus, facilisis nec, vulputate non, gravida et, eros. Curabitur porttitor sapien ac magna. Donec cursus.

Cras sodales posuere pede. Lorem ipsum dolor sit amet, consetetur adipiscing elit. Donec id nisi eu erat tempus ornare. Ut diam magna, bibendum sit amet, porttitor tempor, malesuada non, tellus. Duis iaculis gravida ante. Morbi dapibus elementum orci. Donec eget metus. Curabitur varius tortor condimentum nunc. In arcu. Nam ante justo, porta sed, pellentesque vitae, tristique in, metus. Nam ultricies nulla quis tellus. Donec egestas enim et dolor. In ornare ligula et eros.

Proin augue ligula, dictum non, viverra vitae, convallis sed, ipsum. Maecenas vitae justo. Lorem ipsum dolor sit amet, consetetur adipiscing elit. Aliquam erat volutpat. Aenean eget ligula. Nullam id dui eu lacus euismod iaculis. Nulla erat purus, convallis ac, ullamcorper a, vestibulum id, erat. Sed pulvinar consetetur neque. Nulla lobortis. Nulla congue, sapien in hendrerit rhoncus, est sem dignissim mauris, non nonummy nunc justo volutpat velit. Quisque suscipit risus a ipsum mattis viverra. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Vestibulum ante ipsum primis in faucibus orci luctus et ultrices posuere cubilia Curae; Fusce libero dolor, aliquam vel, varius id, faucibus sollicitudin, massa.

Proin iaculis semper ligula. Pellentesque malesuada, neque sit amet ornare mattis, augue lacus auctor tellus, quis porttitor felis sapien a nibh. In sed orci. Pellentesque congue purus sit amet urna. Proin tincidunt molestie nibh. Nulla et dui ac turpis venenatis ullamcorper. Nunc at nisl. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Sed magna. Curabitur gravida, metus id semper interdum, dui orci ullamcorper massa, congue ornare mauris

lectus rhoncus mi. Integer justo ante, sollicitudin tempor, egestas sit amet, egestas eu, eros. Etiam leo. Integer tristique velit nec nunc.

Nulla ac nibh id nunc volutpat ultrices. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Praesent a arcu. Suspendisse blandit justo eu justo. Nunc turpis metus, iaculis eget, molestie eu, egestas hendrerit, nibh. Sed elementum placerat metus. Cras pretium turpis non ipsum. Duis in libero. Praesent ut elit eu magna tempus rhoncus. Nunc consectetur quam ac orci. In nulla.

Donec porta turpis a velit. Donec accumsan. Pellentesque augue magna, cursus sed, elementum eget, cursus id, enim. Duis purus. Suspendisse tristique. Quisque condimentum. Quisque tristique lacus vitae nulla. Nunc nibh velit, gravida et, placerat nec, feugiat sed, ante. Phasellus nisi. Aenean auctor pede at leo. Nullam semper fringilla dui. Quisque est. Suspendisse dolor sem, euismod ac, tempor vitae, nonummy id, felis. Mauris eu tellus. Morbi rhoncus. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Nam sed nisi. Fusce ac sapien sit amet arcu venenatis facilisis. Proin faucibus pharetra risus.

Sed varius elit vitae urna. Ut at felis. Phasellus euismod metus a ante. Suspendisse eu massa. Nullam bibendum dui pulvinar turpis. Mauris lacinia odio id augue. Morbi ligula. Nulla ac massa. Nullam vel arcu. Pellentesque iaculis, tellus et convallis condimentum, erat diam viverra nibh, eget pellentesque mauris lorem faucibus neque.

Curabitur tincidunt, dui ac dictum iaculis, enim magna porttitor orci, quis ullamcorper enim magna commodo justo. Aliquam ut quam in velit porta consequat. Suspendisse potenti. Nunc cursus rutrum eros. Curabitur varius molestie massa. Fusce accumsan fringilla sem. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. In hac habitasse platea dictumst. Pellentesque risus nisl, tincidunt sed, sodales ac, interdum ac, diam. In purus ipsum, porttitor feugiat, viverra ac, mattis eget, ligula. Sed bibendum libero in metus. Morbi ornare. Donec libero justo, fringilla vitae, mollis sit amet, molestie ut, mauris. Morbi vel dolor. Donec at elit eget metus semper pharetra. Morbi est massa, volutpat ut, viverra varius, sagittis blandit, sapien. Sed dapibus. Pellentesque erat. Nullam hendrerit. Vestibulum vel diam in tortor consectetur volutpat.

Quisque accumsan, elit quis sodales pellentesque, sapien metus consequat enim, et commodo leo nulla in elit. Donec varius. Donec ut risus. Donec quis lacus quis nisi congue consectetur. In sed odio. Duis nulla sem, ullamcorper ac, suscipit dignissim, suscipit vel, turpis. Fusce suscipit. Maecenas in augue non felis fermentum luctus. Aenean sem. Etiam in leo sit amet tortor malesuada auctor. Curabitur quis massa. Maecenas aliquam lectus. Maecenas sit amet augue. Sed sem elit, egestas vitae, condimentum suscipit, elementum et, nulla. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Nam dignissim tristique velit.

Pellentesque dui elit, tristique non, cursus a, elementum sed, magna. Ut eu augue. Maecenas scelerisque lectus vel enim. Vivamus eu mauris. Phasellus venenatis. Maecenas egestas. Phasellus ac purus. Sed vel dui. Nam consectetur venenatis lacus. Morbi ullamcorper, urna ac viverra tempor, urna dui imperdiet dui, sit amet hendrerit elit nisi ac lorem. Nullam gravida diam ut tellus. Aenean quam tortor, condimentum ac, commodo non, pharetra in, elit. Mauris tincidunt, orci sit amet lacinia varius, diam tortor dapibus tellus, id scelerisque quam magna pharetra libero.

Curabitur aliquet, ante sit amet ornare volutpat, urna ipsum dictum ipsum, at ullamcorper ligula arcu eget leo.

Ut libero lorem, condimentum nec, rhoncus id, vestibulum a, nisl. Cras hendrerit euismod sapien. Sed lectus ipsum, vehicula et, luctus vitae, venenatis at, magna. Ut nec nisl in quam facilisis tincidunt. Fusce enim purus, pellentesque vitae, molestie ut, dapibus in, eros. Integer eu turpis vel pede volutpat posuere. Nam porttitor suscipit metus. Curabitur mollis, quam quis porttitor nonummy, libero ante pulvinar magna, a bibendum massa erat nec sapien. Donec ac turpis. Suspendisse elit nisi, ultrices ut, fringilla sed, vestibulum suscipit, mauris. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Phasellus dictum aliquam lacus. Praesent in erat quis nunc consetetuer dictum. Morbi dignissim, turpis ut varius pharetra, tellus lectus rutrum lacus, bibendum iaculis velit nulla ac orci. Etiam gravida nibh eget massa. Sed elementum convallis purus. Duis tincidunt feugiat lacus. Donec id enim nec enim ullamcorper condimentum. Suspendisse urna.

4 Conclusion

Of course, no report would be complete without some conclusions. This section is where they would go, if we had any.

References

- [1] Tamara K. Locke. Guide to preparing SAND reports. Technical report SAND98-0730, Sandia National Laboratories, Albuquerque, New Mexico 87185 and Livermore, California 94550, May 1998.
- [2] Rolf Riesen. How to be conformant. *Psychology Today and Tomorrow*, 784(3):121–130, 2002.
- [3] John E. Smith. On the use of dry erase markers in science. *Journal of Pen and Pencil*, 784(3):121–130, 2002.

A Historical Perspective

This is an example of an appendix.

If we follow [1] strictly, we would have to have a separate bibliography section for each appendix. The style file doesn't provide that, but it can be done using the `bibunits` and `chapterbib` packages.

If there are many subsections in an appendix, it should also have its own table of contents. Again, the SAND report class file does not provide that functionality.

A.1 The Past a Long Time Ago

This is where we talk about things so old nobody can verify them. We are safe.

A.2 The Past More Recently

Now we have to be a little bit more careful, since records exist from that time, and some people still alive actually lived back then.

B Some Other Appendix

Just to show what a second Appendix would look like. It contains a table. Each appendix is supposed to be self-contained, so tables and figures are not supposed to show up in the main table of contents. There can be a separate table of contents for each appendix.

Table B.1. A small table

A	B
C	D

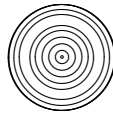


Figure B.1. Dizzy yet?

DISTRIBUTION:

- 1 An Address
99 99th street NW
City, State
- 3 Some Address
and street
City, State
- 12 Another Address
On a street
City, State
U.S.A.

- 1 MS 1319 Rolf Riesen, 1423
- 1 MS 1110 Another One, 01400
- 1 M9999 Someone, 01234
- 1 MS 0899 Technical Library, 9536 (electronic copy)

