



BlueDragon
Problem Solving Method™

Root Cause Analysis and Safety/Incident Investigations

DESCRIPTION AND PRICING FOR WORKSHOPS AND CONSULTING

Presented by:



DLE
TECHNICAL SERVICES, LLC



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What is BlueDragon?

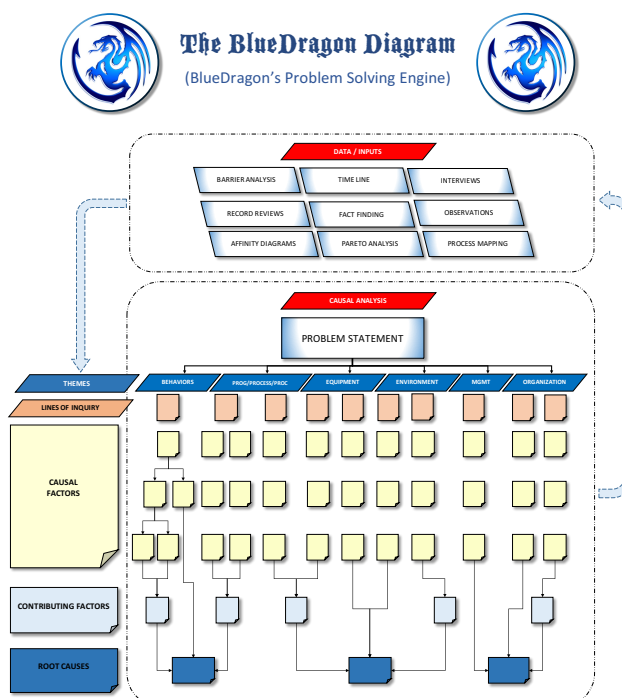
An Innovative Root Cause Analysis and
Event Investigation Method 25 Years in the Making

BlueDragon: an Innovative and Lean Approach to Root Cause

The BlueDragon Problem Solving Method™ (BlueDragon) is a Lean, highly effective problem-solving methodology for conducting apparent cause & root cause evaluations and significant event investigations of human performance issues, equipment malfunctions, and organizational and programmatic breakdowns. BlueDragon was created by Rob De La Espriella, a root cause practitioner in the commercial nuclear power industry since 1990 and root cause instructor since 1991. BlueDragon is the culmination of hundreds of iterations of root cause evaluations, assessments and event investigations and 25 years of refinement.

The heart of the BlueDragon Method is the BlueDragon Diagram; a unique “problem solving engine” that does not require any proprietary software. It consists of a carefully chosen combination of data analysis and causal analysis tool that are combined with our innovative, agile and non-linear techniques that make it highly effective and efficient. By applying the techniques shown in the BlueDragon Diagram, root cause teams can perform a tremendous amount of data and causal analysis in a matter of hours. Personnel will find that those same causal analysis tools and techniques can be applied more frequently to many (smaller) problems, increasing the problem-solving skills of the organization and establishing a strong problem-solving culture.

The “BlueDragon Diagram” is considered by some as the next major advancement in causal analysis since Dr. Kaoru Ishikawa developed the “Fishbone Diagram” at the University of Tokyo in 1943.





What Makes BlueDragon Different?

As a root cause practitioner since 1990, BlueDragon's creator used many root cause tools and techniques while working at commercial nuclear power plants, the Federal Government and Engineering/Procurement/Construction companies. After many iterations, the strengths and weaknesses of root cause methods and causal analysis tools became apparent. After weeding out those techniques that were not efficient or effective, BlueDragon's creator developed a fine-tuned root cause methodology that:

- ✓ Demystifies root cause analysis and clears up the many misconceptions about how root causes are identified;
- ✓ Dramatically enhances the effectiveness of root cause analysis using tools and techniques that have proven to be most effective over hundreds of iterations;
- ✓ Streamlines the root cause and event investigation process to develop a much more cost-effective approach that takes less people & time to complete; and
- ✓ Makes cause and effect analysis tools and techniques as simple and easy as possible to use, so they can be used more often as part of core business.

Our Customer Value Propositions

1. *BlueDragon can substantially lower the overall cost of performing root causes and event investigations by reducing the time it takes to conduct an analysis by as much as 75% and cutting the size of the investigative team by 50% or more.*
2. *Organizations that adopt the BlueDragon method can expect to dramatically strengthen their problem-solving skills, improve worker safety, and enhance their quality and continuous improvement cultures.*





What are Customers Saying?

“The most useful and practical training ever received!”

“On behalf of Fluor B&W Ports, I would like to offer my personal thanks for teaching your DLE Root Cause and Event Investigation course at our Piketon, OH training facilities... We sent a wide cross section of our personnel to attend the training, including managers, operators, mechanics and safety representatives, and the feedback we received has been extremely positive. You did an outstanding job of helping our personnel understand the fundamentals of causal analysis that will help us create an excellent problem solving organization. Your material was top notch and your subject matter expertise and delivery of the course content were way above average. Again, I thank you for providing excellent training that has contributed to improving our problem-solving culture at Fluor B&W Portsmouth.”

➤ Dennis Carr, Program Manager, Fluor B&W Portsmouth

“The BlueDragon Root Cause workshops you provided at both Depleted Uranium Hexafluoride Conversion Facilities DUF6 sites were extremely well received by our staff as well as the DOE and their Technical Support representatives in attendance. It increased our ability to discern and dissect our problems, and provided an important addition to the UDS “toolbox”. By more effectively identifying the causes of our issues and events we were able to target our Corrective Actions to mitigate recurrence and improve our overall performance. Your understanding and use of the BlueDragon root cause method is best-in-class. On behalf of UDS and myself, I extend my sincerest appreciation.”

➤ Paul Kreitz, President – Uranium Disposition Services

“On behalf of CANDU Energy and myself, I would like to thank you for teaching your DLE Root Cause and Event Investigations course at our Mississauga office. The training you provided had a significant and positive contribution in equipping our staff with problem solving skills that have become a routine practice. Overall, the feedback from all participants was extremely positive. Some indicated it was some of the most useful and practical training they had ever received. Since your class, we have used your approach to conduct a root cause evaluation with excellent results.”

➤ Ecaterina Clavel, Director Quality Assurance, CANDU Energy





What are Participants Saying?

- *"I think this can revolutionize the current processes used by the DOE." (Rich R. - Sept 2016)*
- *"This is an excellent course for anyone that wants to learn multiple methods to solve program, process or industry issues, and to support efficient causal analysis." (Courtney J. - Sept 2016)*
- *"A great course! Should be folded into the Nuclear Regulatory Commission, the Department of Energy and commercial industries. (Martin M. - Sept 2016)*
- *The BlueDragon approach was fantastic! BlueDragon techniques are a great way to efficiently improve operations and safety. They will help you complete your mission." (Martin M. - Sept 2016)*
- *"This course brings together a collection of established and proven quality tools in a manner that can be efficiently applied in any situation with the rigor necessary to solve the problems." (Tammy P. - Sept 2016)*
- *"Humbling experience, but a good one." (Dave H. - Sept 2016)*
- *"I was blown away. This workshop should be taught to every [college] graduating senior, to give them real-world problem solving skills." (Cody W. – May 2017)*
- *"I will apply [to bring BlueDragon] to my students and my University." (Hyung K. – May 2017)*
- *"Method seems to be faster than any other method being used [in the industry]." (Erick S. – May 2017)*
- *"Rob is an expert with a world of knowledge." (Sean L. – May 2017)*
- *"It's not easy to sit in a course for 9-hrs a day, but the workshop was so engaging that time just flew by!" (Rebecca R. – May 2017)*

BlueDragon Clients

Rob's list of past clients include commercial companies and government agencies:

- | | |
|---------------------------------------|--------------------------------------|
| ▪ Bechtel | ▪ Candu Energy |
| ▪ Fluor | ▪ Uranium Disposition Services (UDS) |
| ▪ URS, CH2M Oak Ridge (UCOR) | at the DOE Paducah and Portsmouth |
| ▪ S.M. Stoller | Depleted Uranium Hexafluoride |
| ▪ Oak Ridge National Laboratory | (DUF6) Conversion Plants |
| ▪ Fluor-B&W Portsmouth | ▪ Nuclear Fuels Services |
| ▪ LATA Environmental Services of KY | ▪ Watts Waterworks |
| ▪ Paducah Remediation Services (PRS) | ▪ StrataG |
| at the DOE Gaseous Diffusion Plant | |
| ▪ ENTERGY Nuclear Division | |
| ▪ Kewaunee Nuclear Power Station | |
| ▪ Burns & McDonnell Engineering Co. | |
| ▪ AMEC United States Nuclear Services | |
| ▪ Schneider Electric - Switzerland | |
| ▪ Atomic Energy of Canada Limited | |





Facilitation of Root Cause Evaluations or Event Investigations

Companies interested in contracting DLE and Rob De La Espriella to lead, facilitate or participate in root cause evaluations or significant event investigations should contact Rob directly for pricing and availability. His contact information is listed on the last page of this brochure.

BlueDragon Workshops

BlueDragon 2-day workshops are for Colleges, Universities and everyday users that require problem solving skills to support their job functions. BlueDragon 3-day workshops are for personnel that are root cause practitioners seeking to become root cause facilitators and team leaders. The outline below is for the more comprehensive 3-day workshop that includes 14 Case Studies designed to develop proficiency in using the BlueDragon tools and techniques. For clients that work under the Department of Energy (DOE) guidelines, the DOE Causal Analysis Tree is included in Appendix B.

1.1. How Learning Takes Place

Learning at BlueDragon workshops takes place primarily in two ways:

- Experiential learning: the practical and repetitive application of BlueDragon tools and techniques for root cause and problem-solving that are founded on Socratic Questioning. There are 14 Case Studies of increasing difficulty that allow the attendees to practice key skills needed to conduct effective apparent cause, root cause or event investigations; and,
- Through the cognitive development of critical thinking and problem-solving skills that evolve with repetitive application. Critical thinking and problem solving skills are given a jump-start during the workshops but must continue to be nurtured through the routine use of the BlueDragon tools in day-to-day problem-solving.



Socratic Questioning: Critical Thinking is Driven by Questions

Questions define tasks, express problems and delineate issues. Answers on the other hand, often signal a full stop in thought. Only when an answer generates a further question does critical thinking continue its life as such. Socratic questioning is at the heart of the BlueDragon tools and techniques for determining the root causes and contributing factors.

1.2. Terminal and Enabling Objectives

The workshops were developed to help participants become proficient in applying the BlueDragon tools and techniques to the extent that they can support, participate in or facilitate apparent cause and root cause evaluations and significant event investigations. Using Case Studies, emphasis is placed on applying the BlueDragon tools and techniques to solve problems or events involving human errors, equipment performance and organizational and programmatic issues.



Terminal Objective

After completion of this workshop, participants will understand how to use the BlueDragon Method and be able to participate in or facilitate apparent cause evaluations, root cause evaluations, or significant event investigations, in an effective and efficient manner.

Enabling Objectives

On completion of this workshop, the participants will be able to:

- Define the basic terminology used in root cause evaluations, such as root cause, apparent cause, causal factors, extent of condition, extent of the cause, and generic implications;
- Understand the regulations that drive the identification of root causes and actions to prevent recurrence;
- Describe the Anatomy of an Event and what had to have failed for an event to take place;
- Describe the difference between symptoms and underlying causes, and how to determine whether underlying causes are root causes;
- Follow the BlueDragon Diagram to collect and analyze data, develop lines of inquiry and conduct cause & effect analysis to identify root causes and contributing factors for most problems and events;
- Evaluate Human Performance issues, Equipment malfunctions and Organizational and Programmatic (O&P) weaknesses;
- Validate whether identified causal factors are root causes and establish effective corrective action plans that directly address identified causes and manage and prioritize corrective actions to prevent recurrence;
- Understand the importance of standardizing effective corrective measures, distributing lessons learned and operating experience to other parts of the organization, indoctrinating (training) the staff on important enhancements to improve performance, and celebrating successes along the way; and
- Effectively communicate the results of root cause and event investigations to management and regulators.

Student Handbook

CH.1 – TERMINAL & ENABLING OBJECTIVES

- A. Terminal Objective
- B. Enabling Objectives
- C. Instructor's Role
- D. Your Own Goals and Objectives

CH.2 – INTRODUCTION TO CRITICAL THINKING & PROBLEM SOLVING

- A. The Importance of Root Cause
- B. Introduction to Critical Thinking

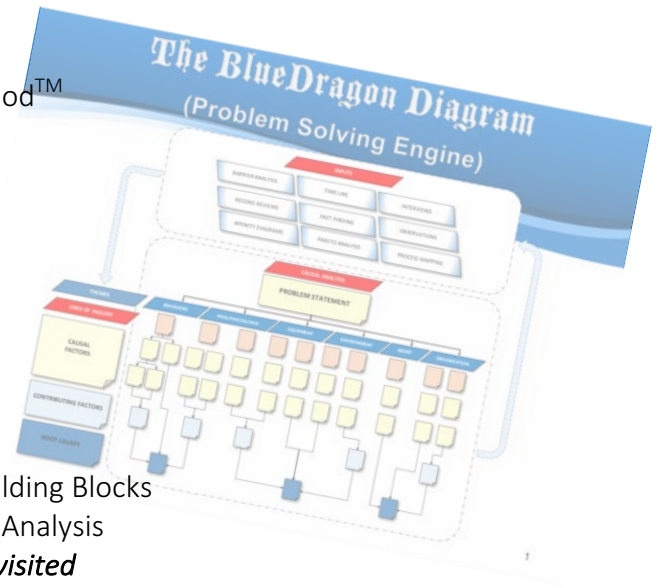




- C. **Case Study #01: The Fender Bender**
- D. Standard Problem Solving Methods
- E. Typical Problem Solving Tools
- F. The BlueDragon Problem Solving Method™
- G. The BlueDragon Diagram

CH.3 – CAUSAL ANALYSIS FUNDAMENTALS

- A. Regulations That Drive Root Cause
- B. Definitions
- C. Anatomy of a Root Cause
- D. Anatomy of an Event
- E. 3 Types of Causal Factors
- F. Cause and Effect Relationships
- G. Why Staircases – The Fundamental Building Blocks
- H. How Rigor Provides Confidence in Our Analysis
- I. **Case Study #02: The Fender Bender Revisited**



CH.4 – DEFINING THE PROBLEM AND GATHERING DATA

- A. Establishing the Root Cause Teams
- B. Defining the Problem
- C. Continual Data Gathering & Processing
- D. Document/Record Reviews
- E. Fact Finding
- F. Establishing the Event Time Line
- G. Barrier Analysis
- H. **Case Study #03: Barrier Analysis**
- I. Immersion & Observations
- J. Interviewing Techniques
- K. Determining the Extent of Condition
- L. **Case Study #04: Interview Techniques**

CH.5 – ANALYZE DATA & DEVELOP LINES OF INQUIRY

- A. Affinity Diagrams
- B. **Case Study #05: Affinity Diagrams**
- C. Pareto Charts
- D. **Case Study #06: Pareto Charts**
- E. Radar Charts
- F. Process Mapping
- G. **Case Study #07: Process Mapping**
- H. Analyzing a Culture
- I. Developing Lines of Inquiry





CH.6 – CAUSAL ANALYSIS

- A. Building the BlueDragon Diagram
- B. Ishikawa (Fish Bone Diagram)
- C. **Case Study #08: Fishbone Diagram**
- D. Fault Tree Analysis
- E. **Case Study #09: Fault Tree**
- F. Success Trees
- G. **Case Study #10: Success Trees**
- H. Event & Causal Factors (E&CF) Charts
- I. Analyzing Human Performance
- J. **Case Study #11: Diagnosing Error Precursors**
- K. Diagnosing Organizational & Programmatic (O&P) Weaknesses
- L. **Case Study #12: O&P Analysis**



CH.7 – IDENTIFY & VALIDATE ROOT CAUSES

- A. Root Causes vs. Apparent Causes
- B. Identifying Root Causes
- C. Validating Root Causes
- D. Extent of Cause Reviews

CH.8 – CORRECTIVE ACTIONS TO PREVENT RECURRENCE

- A. Corrective Actions to Prevent Recurrence
- B. Countermeasures Matrix
- C. **Case Study #13: Countermeasures Matrix**
- D. T-Matrix for Complex Problems and Solutions
- E. Effectiveness Reviews

CH.9 – ROOT CAUSE REPORTS & COMMUNICATING RESULTS

- A. Typical Root Cause Report Outline
- B. Communicating Results to Management
- C. Communicating with Regulators



CH.10 – LOCK-IN THE GAINS & CELEBRATE

- A. Standardization
- B. Dissemination
- C. Indoctrination
- D. Celebration

App. A – FINAL CASE STUDY

- A. Putting it All Together
- B. **Case Study #14: Safety Incident Investigation**

App. B – DOE CAUSAL ANALYSIS TREE

- A. Use of the DOE Causal Analysis Tree



1.3. Key Skills, Knowledge and Behaviors

The following skills, knowledge and behaviors are considered essential for success in conducting root cause evaluations and event investigations, and have been incorporated into the 3-day workshop.

Skills	Knowledge	Behaviors
<ul style="list-style-type: none">• How to conduct interviews and ask the kind of questions that support causal analysis.• How to conduct data analysis using tools such as Affinity Diagrams and Pareto Charts.• How to conduct cause and effect analysis using multiple lines of inquiry.• How to use causal analyses tools such as Ishikawa, Fault Tree Analysis and Events and Causal Factors Charts, and how these are combined into the BlueDragon Diagram.• Techniques for capturing data on post-its, organizing the data and maintaining the proper cause and effect relationships.• How to construct time lines.• How to conduct a Barrier Analysis to identify all of the different physical and administrative barriers that are in effect during an event.• How to determine & validate whether a causal factor is a root cause.• How to prepare corrective action plans that effectively prevent recurrence and are within the company's capabilities to implement.	<ul style="list-style-type: none">• An understanding of problem solving fundamentals.• A comparison of the structure behind the BlueDragon, Lean, Six Sigma, Design Thinking, Ford 8D and the Toyota Way methods.• An understanding of the cause and effect relationships and how they will lead to root causes.• An understanding of how to differentiate between direct causes, apparent causes and root causes.• Approaches to conducting data gathering, causal analysis & documenting the results.• An understanding of how to increase the rigor of the analysis by adding lines of inquiry based on the significance and complexity of the event being analyzed.• Knowledge of the guidelines for preparing effective corrective action plans that prevent recurrence, and of the types of corrective actions are not to be credited for preventing recurrence.• Knowledge of the guidelines for preparing root cause reports.	<ul style="list-style-type: none">• Root cause analysts do not jump to conclusions before conducting the causal analysis.• Rigor is applied in conducting root cause analysis, proportional to the significance and consequences of the events being analyzed.• Excellent problem solvers use causal analysis tools and agile methods as much as possible in day-to-day problem solving, at work and at home.• Root cause analysts have a questioning attitude and a curiosity of what latent weaknesses lay deep within the organization.• Root cause analysts are open to feedback and new information that may change their conclusions.• Management verifies that a rigorous process and methodology were used to identify the root causes, but do not second-guess the analysis without having gone through the process themselves.



1.4. Assessment of Student Performance

Assessment of student performance takes place throughout this course in different ways. The assessment activities and are aligned to the overall objectives for course and include:

- **Instructor assessment:** The instructor will guide participants on a journey of learning and discovery through structured discussions where the instructor can assess the students' understanding of the concepts and paradigm shifts being presented, and provide direct feedback and additional information to ensure that the participants have grasped the concepts.
- **Case Studies:** To ensure the students develop the skills necessary to conduct root causes and event investigations, the course includes 14 Case Studies that build on each other, to develop proficiency in using the BlueDragon tools and techniques for problem solving. The instructor monitors and assesses the students' performance on a real-time basis and provide feedback and coaching as necessary to ensure the required skills are developed.
- **Testing:** The final Case Study calls for one-on-one interactions between participants and the instructor, where the participants must demonstrate their knowledge and understanding of the tools and techniques for determining root causes and contributing factors. There is also a quiz at the end of the course based on the Enabling Objectives, to test the student's retention of key concepts taught during the class. Any quiz questions that the students miss are immediately remediated during a post-quiz discussion.





1.5. Professional Development Units and Continuing Education

Effective October 1, 2014, the Project Management Institute (PMI), the world's largest project management member association, named DLE Technical Services, LLC as a Registered Education Provider (R.E.P.). R.E.P.s are organizations that have been approved by PMI to help project managers achieve and maintain the Project Management Professional (PMP®), Program Management Professional (PgMP®) and other PMI professional credentials. These organizations have met PMI's rigorous quality criteria for course content, instructor qualification, and instructional design.



The 3-day BlueDragon Problem Solving Method™ workshop awards 27 Professional Development Units (PDU) under Category A of the PMI Continuing Certification Requirements program. The 27 PDUs earned from this workshop may be applied toward project management "contact hours" required to be eligible for PMI certification exams and to the maintenance of PMI Credentials such as PMP®, PgMP® and PMI Risk Management Professional (PMI-RMP®).

DLE Technical Services is an Approved Registered Education Provider for the Project Management Institute (PMI)



Participants of the BlueDragon Problem Solving Method™ 3-day workshop (BD-301) will receive a certificate designating them as a BlueDragon Practitioner.





2. Pricing

2.1. Price List for BlueDragon Workshops

DLE offers workshops tailored to our client's needs at various locations throughout the year. Tuition for our workshops is as follows.

Workshop ID	BlueDragon Workshops	Tuition
BD-101	Instructor-led, 6-hour workshop designed for managers and above. The workshop covers management's role in overseeing and approving root causes and investigations. They are introduced to BlueDragon tools and techniques and the many benefits of using BlueDragon. A sample case study is performed to practice using the BlueDragon Diagram.	\$750
BD-201	Instructor-led, 2-day workshop on root cause and safety/incident investigation fundamentals designed for college students and occasional investigation team participants. Case studies allow attendees to develop proficiency in using BlueDragon tools and techniques and the BlueDragon Diagram. The fee includes a PMI certified instructor with an assistant and a Student Handbook.	\$1150
BD-301	Instructor-led, enhanced 3-day workshops designed for oversight personnel, root cause practitioners, facilitators and team leaders for root cause and safety/incident investigations. Case studies allow attendees to develop proficiency in using BlueDragon tools and techniques and the BlueDragon Diagram. The fee includes a PMI certified instructor with an assistant and a Student Handbook.	\$1650
BD-401	Instructor-led, enhanced 1-day workshops designed for root cause and safety/incident investigation power users, facilitators and team leaders. The workshop covers additional (more sophisticated) tools and techniques not covered under BD-301. The fee includes a PMI certified instructor with an assistant and a Student Handbook. Must have attended BD-301 as a prerequisite.	\$750
Discounts are available for certain groups such as Project Management Professionals and full-time University faculty and students. Colleges and Universities that host BlueDragon workshops as part of their continuing education or certificate programs receive special pricing.		Contact us



2.2. Hosting BlueDragon Workshops

DLE offers an option for clients to host a BlueDragon Workshop at or near their place of business. This option is open to clients that have a minimum of six participants, and allows the clients to save on the costs associated with sending their personnel to a workshop. DLE offers a discount on the tuition for clients that host a workshop.

Assumptions:

- Instructor-led, enhanced workshops with case studies that allow attendees to develop proficiency in using the BlueDragon Method and Diagram.
- The fee includes a PMI certified instructor and an assistant, and Student Handbooks.
- The client provides a suitable training facility that can hold up to 20 attendees.
- The client will have priority for training slots, and will also allow DLE to invite additional attendees to the workshop.
- The minimum number of participants for hosting a workshop is six (6).
- There is a \$1000 fee for each trip, to off-set travel, per diem and incidentals for the instructor and his assistant (5 days, 4 nights lodging, car rental, airfare, meals & incidentals).

A.	BlueDragon Workshops	Tuition
1.	Discounted price for hosting a 3-day workshop at a suitable training facility that can hold up to 20 attendees.	\$1500/participant
2.	Fee for travel and expenses for instructor and assistant	\$1000/trip
3.	Further discounts are available for certain groups such as Project Management Professionals and full-time University students.	Contact us

Typical Costs for Hosting Workshops

	Fee	6 Students	8 Students	10 Students	12 Students	14 Students
Minimum Fee (up to 6 participants)	\$9,000	\$9,000	\$9,000	\$9,000	\$9,000	\$9,000
Each additional participant	\$1,500	\$0	\$3,000	\$6,000	\$9,000	\$12,000
Travel Fees (1 trip to CY)	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000
Totals		\$10,000	\$13,000	\$16,000	\$19,000	\$22,000

The benefit of hosting vs. traveling to a workshop are highlighted in the following table.

	Participants	Tuition @ \$1650	Tuition @ \$1500	Travel @ \$1500ea	Total
Travel	8	\$13,200.00		\$12,000.00	\$25,200.00
Host	8		\$13,000.00*	\$0	\$13,000.00

(*Includes \$1000 travel fee)



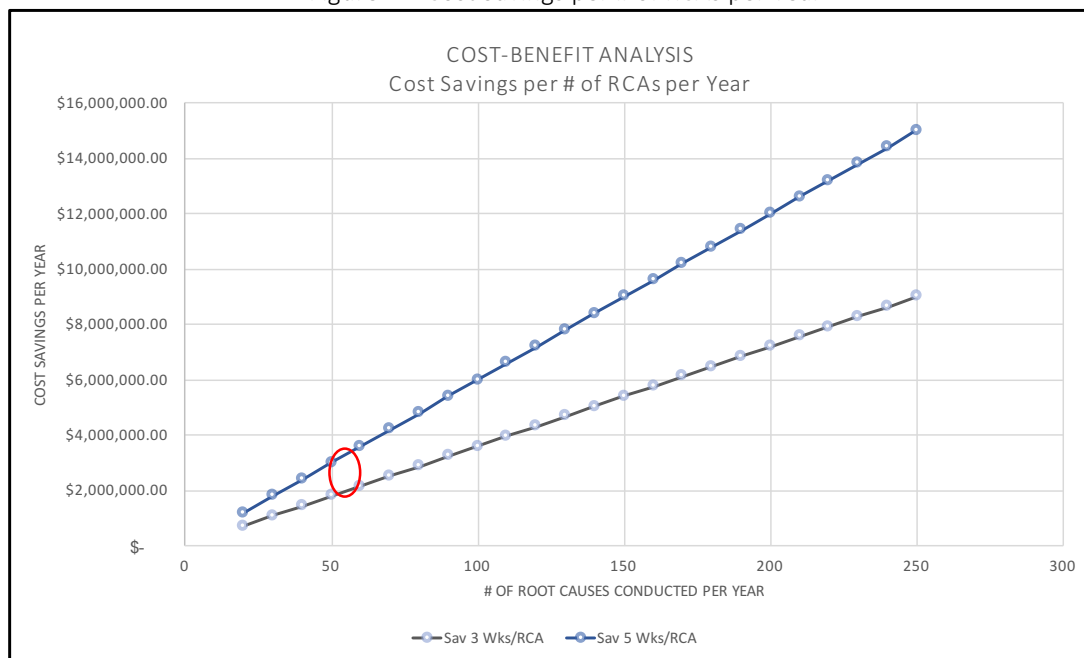
3. Cost Benefit Analysis

3.1. Annual Savings Based on #RCAs/Yr.

When compared to traditional root causes, BlueDragon uses 2 to 3 people on a team rather than 4 to 5; we can complete a root cause in 3 weeks not 6 to 8; and, we don't require the use of a subject matter expert on the team, but an experienced BlueDragon facilitator. On average, an organization can expect to save three to five man-weeks per RCA or event investigation. Depending on the number of RCAs an organization conducts each year, the savings are significant as shown on the charts below.

Annualized Savings per Root Cause Analysis (for 3 and 5 Man-weeks of Savings per RCA)							
RCAs /yr.	People Savings	Time Savings (weeks)	Time Savings (weeks)	hrs/wk	Average Labor Rate	Annual Savings @3Wks saved/RCA	Annual Savings @5Wks saved/RCA
20	2	3	5	40	\$150.00	\$720,000.00	\$1,200,000.00
30	2	3	5	40	\$150.00	\$1,080,000.00	\$1,800,000.00
40	2	3	5	40	\$150.00	\$1,440,000.00	\$2,400,000.00
50	2	3	5	40	\$150.00	\$1,800,000.00	\$3,000,000.00
60	2	3	5	40	\$150.00	\$2,160,000.00	\$3,600,000.00
70	2	3	5	40	\$150.00	\$2,520,000.00	\$4,200,000.00
80	2	3	5	40	\$150.00	\$2,880,000.00	\$4,800,000.00
90	2	3	5	40	\$150.00	\$3,240,000.00	\$5,400,000.00
100	2	3	5	40	\$150.00	\$3,600,000.00	\$6,000,000.00

Figure 1 – Cost Savings per # of RCAs per Year



3.2.



There is a significant benefit to reducing costs. Let's assume that for every \$1 saved using the BlueDragon method, it would take the equivalent of \$10 in gross revenues with a 10% profit margin to match those savings. In the following example, a typical company that performs an average of 50 root causes per year can expect to save approximately \$1,800,000 in O&M costs per year.

- ✓ $(50 \text{ RCAs/yr.}) \times (2 \text{ people less per RCA}) \times (3 \text{ weeks less duration per RCA}) \times (40 \text{ hrs./week}) \times (\$150/\text{hr. average labor rate}) = \$1,800,000/\text{yr. in O\&M savings.}$
- ✓ This equates to a savings of \$9,000,000 over a 5-year period, notwithstanding the intangible benefits listed on page 12.

To match the reduction in O&M costs from BlueDragon of \$9,000,000 over a 5-year period, a company would have to win \$90,000,000 in new contracts at a net profit of 10%.





3.3. Tangible & Intangible Benefits

The Benefits of Adopting BlueDragon

The application of the BlueDragon Problem Solving Method™ generates many benefits including improved worker safety, stronger quality and management control systems, and the advancement of a continuous improvement culture.

Cost Effective

The benefits of the BlueDragon method include overall shorter times to complete root cause & problem investigations (to as few as two weeks from start to finish), and BlueDragon does not require an investment in expensive software, both of which result in a better return on investment. Return on Investment calculations show that organizations that average 50 root causes per year may conservatively save \$1,800,000 in O&M costs per year.

Promotes a Safer Workplace

BlueDragon supports a company's values for Safety and Health: it is an ideal method for investigating Industrial Safety events as it not only helps uncover and address the fundamental root causes, but also ensures that the human factors and behaviors that are causing the events are also identified and addressed. Using BlueDragon for event investigations can save lives, and over time, will result in improved safety performance and lower costs associated with industrial safety events.

Promotes a Strong Quality Culture

BlueDragon supports a company's values for Quality: BlueDragon promotes a strong Quality Culture by identifying and strengthening the administrative and physical barriers that are in place for performing tasks right the first time. Over time, a strong quality culture helps lower or eliminate waste associated with the cost of poor quality.

Promotes Innovation and Continuous Improvement

BlueDragon supports a company's values for Innovation: BlueDragon's innovative and efficient approach to analyzing problems promotes a proactive and strong problem solving culture where workers continuously anticipate problems, identify and address issues, and implementing controls before small problems can turn into big events. Over time, a continuous improvement culture helps improve performance and lower costs associated with organizational problems.

Promotes Critical Thinking and Problem Solving

BlueDragon promotes the daily use of data analysis and causal analysis tools and techniques as a part of "core business," helping managers transform their organizations into critical thinking teams with excellent problem-solving skills that improve the quality of products and services. Many of the tools taught by the BlueDragon Method can be implemented without prompts or software, which makes it easier for organizations to conduct more problem-solving efforts, rather than finding reasons not to perform root causes and apparent causes. Over time, the organization will get to the root of more problems, improving performance and preventing small problems from turning into big events.



4. Instructor/Root Cause Facilitator

Rob De La Espriella: President, DLE Technical Services, LLC

The BlueDragon Problem Solving Method™ was created by DLE's President, Mr. Roberto J. De La Espriella (Rob). Rob is a former nuclear submarine officer and one of the foremost experts in root cause analysis and event investigations. Rob has led or facilitated root cause or event investigations at nuclear power plants, the US Nuclear Regulatory Commission (NRC), the US Department of Energy (DOE), and Engineering firms in the US, Canada and Switzerland.



Rob integrated decades of experience in developing the BlueDragon method with a clear set of goals: to demystify root cause and clear up the many misconceptions about how root causes are identified; to dramatically enhance the effectiveness of root cause analysis; to simplify the tools and techniques so they can be used every day; and, to make root cause and event investigation efforts much more timely and cost-effective.

Rob became a root cause subject matter expert and practitioner in 1990 as a member of the Florida Power & Light team that won the Deming Prize, the first company in the world outside Japan to win the award. Since 1990, Rob has led or facilitated hundreds of root cause evaluations, audits, assessments and problem solving efforts. In 1995, Rob received an award from the NRC for leading two root cause teams at their Region I Headquarters in King of Prussia, PA, and for bringing Total Quality Management Concepts to the NRC. In 2003 and 2005, the Institute of Nuclear Power Operations (INPO) listed Rob's Nuclear Assurance organization as one of the strongest in the US, and Rob attributes that recognition, in large part, to teaching root cause and problem solving skills to his staff and promoting a problem-solving culture to line management.

Rob has been sought out as a root cause subject matter expert to facilitate or support root causes of technical issues (including a near fatality) at the DOE National Labs, the DOE Gaseous Diffusion Plants, and the DOE Depleted Uranium Hexafluoride Conversion Facilities. Rob was the lead root cause evaluator on a high visibility team that investigated an explosion that took place at Idaho National Laboratory's Experimental Breeder Reactor (EBR-1) in 2011. He was sought out by Atomic Energy of Canada to conduct an eight-week causal evaluation of their management systems, which had posted losses of \$1.2 Billion in previous years. Rob remains an active root cause practitioner to this day, facilitating root causes and providing consultation support to team leaders.

Teaching root cause analysis and event investigations is one of Rob's professional passions. In 2016, Rob embarked on an initiative to bring these valuable critical thinking and problem solving tools and techniques to colleges and universities, after learning from his own children (attending Princeton University and the University of Notre Dame) that these skills were not a part of their curriculum. Rob is bringing BlueDragon to the college campus and he has been asked to teach BlueDragon to Design Thinking Teams at Princeton's Keller Center for Entrepreneurship during the summer of 2017.

Rob is proud to say that BlueDragon is regarded by some as the next great advancement in causal analysis since Dr. Ishikawa created the Fish Bone Diagram in 1943.



Company Information

1. DLE Technical Services, LLC



DLE was established in 2006 and is a certified 8(a) Small Disadvantaged Business, a 100% Veteran Owned Small Business (VOSB), and a prime contractor for the US Department of Energy (DOE).

2. Point of Contact (POC)

The following person is authorized to negotiate on DLE's behalf:

Name of POC: Rob De La Espriella, President, DLE Technical Services, LLC
POC Address: 4634 SW Long Bay Drive
POC Telephone: (772) 341-1093
POC E-mail: rob.dle@dle-services.com

3. Representations and Certifications

- a) DLE Technical Services, LLC is certified by the Project Management Institute as a "Registered Education Provider."
- b) DUNS #: 623686834
- c) DLE Technical Services, LLC is registered in SAM and the representations and certifications for DLE are available in the SAM website.
- d) DLE Technical Services, LLC is also a certified VOSB and our certification can be verified on <https://www.vip.vetbiz.gov>.
- e) DLE Technical Services, LLC is an 8(a) Small Disadvantaged Business and our 8(a)-expiration date is August 2018.