Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Office of Secretary Of Defense	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604016D8Z: *Department of Defense Corrosion Protection Projects*

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
Total Program Element	21.895	4.802	3.221	-	3.221	3.792	3.874	3.955	4.103	Continuing	Continuing
P015: *Corrosion Protection Projects*	21.895	4.802	3.221	-	3.221	3.792	3.874	3.955	4.103	Continuing	Continuing

A. Mission Description and Budget Item Justification

(U) The purpose of this program is to develop a comprehensive capability to prevent and mitigate corrosion and its effects on Department of Defense (DoD) weapon systems and infrastructure. Corrosion severely impacts system and facility reliability, readiness and safety, and consumes a disproportionate amount of material and labor hours for repair and treatment of corrosion damaged systems and facilities. The cost of corrosion across the DoD has been estimated at over 23 billion each year. The impact and cost of corrosion are so pervasive that Congress enacted Public Law 107-314 Sec: 1067 [portions codified in 10 U.S.C. 2228]: Prevention and mitigation of corrosion of military infrastructure and equipment. This legislation requires that DoD develop a long-term corrosion strategy to include establishment of a coordinated R&D program with transition plans. The legislation also requires that DoD designate a responsible official or organization to oversee a corrosion prevention and mitigation program. The responsibilities of the Director, Corrosion Policy and Oversight and the Military Department Corrosion Prevention and Control Executives were further delineated in DODI 5000.67 "Prevention and Mitigation of Corrosion on Military Equipment and Infrastructure" of 01 February 2010.

(U) The Deputy Secretary of Defense designated the Principal Deputy Under Secretary of Defense (Acquisition, Technology, and Logistics) (PDUSD(AT&L)) as the DoD Corrosion Executive in May 2003. The DoD Corrosion Executive subsequently established a Corrosion Control and Oversight office to implement the program. Subsequently, in accordance with Section 371 of the 2008 National Defense Authorization Act, the Under Secretary of Defense (USD(AT&L)) designated a Director, Corrosion Policy and Oversight to perform the duties of the DoD Corrosion Executive with responsibilities as described in the 2008 NDAA legislation. A major responsibility of the Director, Corrosion Policy and Oversight is to select high payoff research and development projects that promise to prevent or mitigate corrosion and significantly reduce the total cost of corrosion along with the adverse impact of corrosion effects on weapon system and infrastructure operational capability. This office chartered a Corrosion Prevention and Control Integrated Product Team (CPCIPT) that has selected and funded Operation and Maintenance projects for each Fiscal Year (FY) commencing in FY 2005. However, the DoD CPCIPT has determined that the biggest payoff in corrosion prevention and mitigation will come from investing in up-front prevention technologies, materials, and processes to leverage downstream cost avoidance in corrosion maintenance and repair. Likewise, development of improved predictive and prognostic techniques can eliminate unseen failure and reduce unnecessary maintenance and repair costs. Thus, R&D projects have been selected and funded since FY 2006. The 2009 National Defense Authorization Act added requirements for corrosion executives in each military service and for reports to Congress on inserting corrosion planning into the acquisition process. These funds provide a portion of the funds used to implement associated corrosion R&D projects.

(U) The Corrosion Prevention Control Integrated Product Team membership consists of both the equipment and infrastructure corrosion control experts from the Services, the Joint Staff, the Coast Guard, and the National Aeronautics and Space Administration. The Services are given project guidelines and selection criteria. The CPC project selection board, chaired by the Director, Corrosion Policy and Oversight, reviews the projects and makes recommendations to the USD(AT&L) for final approval.

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Office of Secretary Of Defense	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0604016D8Z: *Department of Defense Corrosion Protection Projects*

(U) The former Corrosion Executive issued a policy letter that states: "Basic systems design, materials and processes selection, and intrinsic corrosion-prevention strategies establish the corrosion susceptibility of Defense material. The early stages of acquisition provide our best opportunity to make effective trade-offs among the many competing design criteria. . ." The Congress and former DoD Corrosion Executive made it clear that research and development into materials and methods to prevent or mitigate corrosion should receive high priority. Since Congress has clearly established this program as one of its highest priorities, and has reiterated its expectations regarding funding levels and methods, our budget request is designed to reflect both fiscal realities of one or more on many proposed projects over the next five to ten years.

These projects address critical corrosion issues in both Department of Defense infrastructure as well as warfighting systems. A number of low-risk, high-payoff technologies promise to vastly improve the service life and significantly reduce the maintenance costs of storage tanks and other mission support facilities essential to maintain support for the warfighter. Each of the services has identified important projects that vastly increase operational readiness and reduce operations and maintenance costs. All services are studying corrosion inhibitors that improve reliability and life of electrical and avionics equipment. Likewise, an array of highly effective, rapid cure coatings that are easy to apply and can forestall corrosion for many years on aircraft and ships are being developed. Other vital projects being considered include sealants, wash down systems, sensors and prognostic technologies that have joint service applications and potential to prevent and mitigate corrosion and its effects over a wide range of systems. The FY 2011 budget request will provide a critically needed resource to trigger even larger investment and cost avoidance.

B. Program Change Summary ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	-	4.802	4.129	-	4.129
Current President's Budget	21.895	4.802	3.221	-	3.221
Total Adjustments	21.895	-	-0.908	-	-0.908
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Program Adjustments	21.895	-	-	-	-
• Defense Efficiency - Contractor Staff Support	-	-	-0.468	-	-0.468
• Defense Efficiency - Report, Studies, Boards and Commissions	-	-	-0.399	-	-0.399
• Defense Efficiency - Baseline Review	-	-	-0.037	-	-0.037
• Economic Assumptions	-	-	-0.004	-	-0.004

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Office of Secretary Of Defense	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0604016D8Z: *Department of Defense Corrosion Protection Projects*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2010	FY 2011
Project: P015: *Corrosion Protection Projects*		
Congressional Add: *Corrosion Control, Prevention and Prediction through Polymer R&D*	17.400	-
Congressional Add Subtotals for Project: P015	17.400	-
Congressional Add Totals for all Projects	17.400	-

Change Summary Explanation

Defense Efficiency – Baseline Review. As part of the Department of Defense reform agenda, implements a zero-based review of the organization to align resources to the most critical priorities and eliminate lower priority functions.

Defense Efficiency – Report, Studies, Boards and Commissions. As part of the Department of Defense reform agenda, reflects a reduction in the number and cost of reports, studies, DoD Boards and DoD Commissions below the aggregate level reported in previous budget submission.

Defense Efficiency – Contractor Staff Support. As part of the Department of Defense reform agenda, reduces funds below the aggregate level reported in the previous budget submission for contracts that augment staff functions.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Office of Secretary Of Defense								DATE: February 2011			
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*				R-1 ITEM NOMENCLATURE PE 0604016D8Z: *Department of Defense Corrosion Protection Projects*				PROJECT P015: *Corrosion Protection Projects*			
COST ($ in Millions)	**FY 2010**	**FY 2011**	**FY 2012 Base**	**FY 2012 OCO**	**FY 2012 Total**	**FY 2013**	**FY 2014**	**FY 2015**	**FY 2016**	**Cost To Complete**	**Total Cost**
P015: *Corrosion Protection Projects*	21.895	4.802	3.221	-	3.221	3.792	3.874	3.955	4.103	Continuing	Continuing
Quantity of RDT&E Articles											

A. Mission Description and Budget Item Justification

U) The purpose of this program is to develop a comprehensive capability to prevent and mitigate corrosion and its effects on Department of Defense (DoD) weapon systems and infrastructure. Corrosion severely impacts system and facility reliability, readiness and safety, and consumes a disproportionate amount of material and labor hours for repair and treatment of corrosion damaged systems and facilities. The cost of corrosion across the DoD has been estimated at over 23 billion each year. The impact and cost of corrosion are so pervasive that Congress enacted Public Law 107-314 Sec: 1067 [portions codified in 10 U.S.C. 2228]: Prevention and mitigation of corrosion of military infrastructure and equipment. This legislation requires that DoD develop a long-term corrosion strategy to include establishment of a coordinated R&D program with transition plans. The legislation also requires that DoD designate a responsible official or organization to oversee a corrosion prevention and mitigation program. The responsibilities of the Director, Corrosion Policy and Oversight and the Military Department Corrosion Prevention and Control Executives were further delineated in DODI 5000.67 "Prevention and Mitigation of Corrosion on Military Equipment and Infrastructure" of 01 February 2010.

(U) The Deputy Secretary of Defense designated the Principal Deputy Under Secretary of Defense (Acquisition, Technology, and Logistics) (PDUSD(AT&L)) as the DoD Corrosion Executive in May 2003. The DoD Corrosion Executive subsequently established a Corrosion Control and Oversight office to implement the program. Subsequently, in accordance with Section 371 of the 2008 National Defense Authorization Act, the Under Secretary of Defense (USD(AT&L)) designated a Director, Corrosion Policy and Oversight to perform the duties of the DoD Corrosion Executive with responsibilities as described in the 2008 NDAA legislation. A major responsibility of the Director, Corrosion Policy and Oversight is to select high payoff research and development projects that promise to prevent or mitigate corrosion and significantly reduce the total cost of corrosion along with the adverse impact of corrosion effects on weapon system and infrastructure operational capability. This office chartered a Corrosion Prevention and Control Integrated Product Team (CPCIPT) that has selected and funded Operation and Maintenance projects for each Fiscal Year (FY) commencing in FY 2005. However, the DoD CPCIPT has determined that the biggest payoff in corrosion prevention and mitigation will come from investing in up-front prevention technologies, materials, and processes to leverage downstream cost avoidances in corrosion maintenance and repair. Likewise, development of improved predictive and prognostic techniques can eliminate unseen failure and reduce unnecessary maintenance and repair costs. Thus, R&D projects have been selected and funded since FY 2006. The 2009 National Defense Authorization Act added requirements for corrosion executives in each military service and for reports to Congress on inserting corrosion planning into the acquisition process. These funds provide a portion of the funds used to implement associated corrosion R&D projects.

(U) The Corrosion Prevention Control Integrated Product Team membership consists of both the equipment and infrastructure corrosion control experts from the Services, the Joint Staff, the Coast Guard, and the National Aeronautics and Space Administration. The Services are given project guidelines and selection criteria. The CPC project selection board, chaired by the Director, Corrosion Policy and Oversight, reviews the projects and makes recommendations to the USD(AT&L) for final approval.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Office of Secretary Of Defense		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604016D8Z: *Department of Defense Corrosion Protection Projects*	PROJECT P015: *Corrosion Protection Projects*

(U) The former Corrosion Executive issued a policy letter that states: "Basic systems design, materials and processes selection, and intrinsic corrosion-prevention strategies establish the corrosion susceptibility of Defense material. The early stages of acquisition provide our best opportunity to make effective trade-offs among the many competing design criteria. . ." The Congress and former DoD Corrosion Executive made it clear that research and development into materials and methods to prevent or mitigate corrosion should receive high priority. Since Congress has clearly established this program as one of its highest priorities, and has reiterated its expectations regarding funding levels and methods, our budget request is designed to reflect both fiscal realities of one or more on many proposed projects over the next five to ten years.

These projects address critical corrosion issues in both Department of Defense infrastructure as well as warfighting systems. A number of low-risk, high-payoff technologies promise to vastly improve the service life and significantly reduce the maintenance costs of storage tanks and other mission support facilities essential to maintain support for the warfighter. Each of the services has identified important projects that vastly increase operational readiness and reduce operations and maintenance costs. All services are studying corrosion inhibitors that improve reliability and life of electrical and avionics equipment. Likewise, an array of highly effective, rapid cure coatings that are easy to apply and can forestall corrosion for many years on aircraft and ships are being developed. Other vital projects being considered include sealants, wash down systems, sensors and prognostic technologies that have joint service applications and potential to prevent and mitigate corrosion and its effects over a wide range of systems. The FY 2011 budget request will provide a critically needed resource to trigger even larger investment and cost avoidance.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2010	FY 2011	FY 2012
Title: Corrosion Prevention and Control Projects and Activities	4.495	4.802	3.221
FY 2010 Accomplishments: Coatings and Corrosion Prevention Compounds Diagnostics, Prognostics, Monitoring and NDI Technologies Prediction, Modeling and Supporting Technologies Maintenance and Cathodic Protection Technologies and Practices Materials Selection Processes University initiatives for Corrosion Prevention and Control			
FY 2011 Plans: Coatings and Corrosion Prevention Compounds Diagnostics, Prognostics, Monitoring and NDI Technologies Prediction, Modeling and Supporting Technologies Maintenance and Cathodic Protection Technologies and Practices Materials Selection Processes			
FY 2012 Plans: Coatings and Corrosion Prevention Compounds Diagnostics, Prognostics, Monitoring and NDI Technologies			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Office of Secretary Of Defense		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604016D8Z: *Department of Defense Corrosion Protection Projects*	PROJECT P015: *Corrosion Protection Projects*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2010	FY 2011	FY 2012
Prediction, Modeling and Supporting Technologies Maintenance and Cathodic Protection Technologies and Practices Materials Selection Processes			
Accomplishments/Planned Programs Subtotals	4.495	4.802	3.221

	FY 2010	FY 2011
Congressional Add: Corrosion Control, Prevention and Prediction through Polymer R&D	17.400	-
FY 2010 Accomplishments: Funding would support a DOD-initated pilot program among four universities, focused on understanding and reducing the premature failure of military assets via corrosion. Overall goal is to develop adequate screening protocols for the early detection and characterization of corrosion failure.		
Congressional Adds Subtotals	17.400	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

There is an annual Corrosion Prevention and Control Integrated Project Team (CPCIPT) call for proposed project plans in April. Projects are submitted by the Services annually in June. The project plan format is contained in the DoD Corrosion Prevention and Mitigation Strategic Plan. Each project plan contains:

1. Problem statement: Description of the problem or situation, including background, history, issues, operational problems and support costs.
2. Impact statement: Details regarding why project is important including description of the operational and/or logistic impact if no action is taken.
3. Technical description: Definition of the corrosion prevention and control objective and description of the system affected by this project; applicable technologies and associated development; expected operations and logistics performance improvement characteristics; brief description of the user community and how it will apply to their mission; and current acquisition status.
4. Risk analysis: Description of the risk in managing/developing/prototyping/ testing/qualifying/manufacturing/completing the technical effort including assumptions that could affect project development or implementation.
5. Proposed phases: If project is complex and will be performed in phases, description of each phase objective.
6. Expected deliverables and results or outcomes: Description of products to be delivered such as type/number of hardware, technical orders/drawings, installation, training, etc.; and description of expected operations and/or logistics performance improvements.
7. Program management: Description of the overall approach and tasks to be taken to accomplish the project, including organization, coordination and acquisition approach.
8. Cost/benefit analysis: Definition of all resources necessary to accomplish project, description of resulting benefits, computation of Return-On-Investment (ROI), documentation of mission criticality, and description of joint applicability.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Office of Secretary Of Defense		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604016D8Z: *Department of Defense Corrosion Protection Projects*	PROJECT P015: *Corrosion Protection Projects*

9. Schedule: Milestone chart showing all significant events through project completion.
10. Implementation plan: Explanation of how the project will be implemented when completed including a description of the transition approach, and plans to evaluate ROI during the first two years of implementation.

The Corrosion Prevention and Control Integrated Project Team (CPCIPT) receives project plans and engages an evaluation panel to review proposed projects and make recommendations regarding project selection. Projects are also evaluated using Data Envelopment Analysis (DEA) to rank projects by relative efficiency. DEA factors include project performance period, ratio of OSD funding to Service funding, return-on-investment (ROI), degree to which the proposed technology addresses high-cost corrosion problems, potential benefits, and joint service applicability. DEA efficiency scores are provided to the evaluation team to assist in their prioritization of projects for funding. In addition, evaluators consider the following in recommending final priorities:
1. Return on investment credibility: Degree to which there is evidence that the project will achieve an acceptable return on investment
2. Technology maturity: Degree to which proposed technology has been developed or demonstrated and will satisfy project objectives
3. Schedule confidence: Degree to which the project is likely to be completed on time
4. Budget confidence: Degree to which the project is likely to be completed within the proposed budget
5. Management support: Degree to which management actively supports this project and has committed program resources to both manage and support this project
The project priority ranking is finalized and sent to the CPCIPT lead for a final decision.. Upon acceptance and approval of the projects by the CPCIPT, the projects are briefed to the Corrosion Forum. Funding is distributed between the Services based on funding priorities associated with the evaluation process results.

Upon selection by CPCIPT of the highest priority projects and final funding approval, Office of the Secretary of Defense (OSD) transfers individual project funding to the appropriate funding sites that are provided by the Services. After receiving the project funding, the Services are responsible for the funding and management of the projects. OSD retains oversight and direction of the Corrosion Prevention and Control initiative through the CPCIPT. Project oversight includes the review of quarterly status reports which address progress summary, performance goals and metrics and upcoming key events, as well as reports to periodic Corrosion Forums.

The quarterly project report (PR) format has been defined and requires the following input:
1. Statement of progress
2. Outstanding issues
3. Performance goals and metrics
4. Upcoming events
5. Schedule status
6. Current return on investment (ROI) status
These project reports (PRs) are submitted to the CPCIPT. The CPCIPT analyzes project status, progress and project statistics and informs the Service points of contact (POCs) of any project problems. Projects are also required to report verbally at Corrosion Forums, as appropriate.

Corrosion Prevention and Control (CPC) Program direction, control and oversight include the following activities to be performed by staff and support contractors:
1. Plan and schedule Corrosion Forums and oversee Corrosion Forum activities and working Integrated Product Team (IPT) meetings.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Office of Secretary Of Defense		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604016D8Z: *Department of Defense Corrosion Protection Projects*	PROJECT P015: *Corrosion Protection Projects*

2. Oversee project performance including review of quarterly status reports which address progress summary, performance goals and metrics and upcoming key events, as well as reports to periodic Corrosion Forums.
3. Perform Department of Defense (DoD) cost of corrosion study.
4. Develop improved, standard DoD-wide specifications, standards and qualification processes.
5. Develop corrosion training courses.
6. Prepare and publish Corrosion Prevention and Control Planning Guidebook spirals.
7. Prepare and publish annual Reports to Congress.
8. Update short-term and long-term metrics.
9. Develop corrosion control program management guide for selecting materials.
10. Develop, implement, and update the DoD Corrosion Prevention and Mitigation Strategic Plan.
11. Develop and maintain Roadmaps of IPT activities and accomplishments.
12. Assist in the annual project plan implementation and evaluation process, including the assessment of return on investment associated with proposed projects.
13. Respond to Congressional, Government Accountability Office and DoD inquiries regarding the CPC Program.
14. Perform CPC Program communication and outreach to services, agencies and other organizations.
15. Develop and implement corrosion prevention and control policies applicable for acquisition and sustainment of both weapons systems and infrastructure.
16. Perform reviews of major programs to ensure they are in compliance with corrosion prevention and control policy.
17. Provide oversight of the corrosion programs of the Military Departments and Chair the DoD Corrosion Board of Directors (which includes the Corrosion Control and Prevention Executives from each of the Military Departments).
18. Interact with industry, technical societies, trade associations, government personnel, and foreign allies to identify promising corrosion control technologies and assist in technology transition and insertion

E. Performance Metrics

Not applicable.