

Y/AMT-381

Y-12

OAK RIDGE Y-12 PLANT

LOCKHEED MARTIN



Technology Partnership Program

Fiscal Year 1998 Program Plan

RECEIVED
JUN 08 1998
OSTI

Ray Ford
Technology Partnerships Office
Y-12 Plant
Oak Ridge, Tennessee

September 15, 1997

LM **MASTER**

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED

Prepared by the
Oak Ridge Y-12 Plant
managed by
LOCKHEED MARTIN ENERGY SYSTEMS, INC.
for the
U.S. DEPARTMENT OF ENERGY
under contract DE-AC05-84OR21400

MANAGED BY
LOCKHEED MARTIN ENERGY SYSTEMS, INC.
FOR THE UNITED STATES
DEPARTMENT OF ENERGY

DISCLAIMER

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, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents 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 or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

DISCLAIMER

**Portions of this document may be illegible
electronic image products. Images are
produced from the best available original
document.**

1. INTRODUCTION.....	3
1.1. Mission	3
1.2. Goal	3
1.3. Y-12 Weapons Program Requirements Overview	4
1.4. Program Policy	5
1.5. Organizational Description.....	5
2. TECHNOLOGY PARTNERSHIP PROGRAM.....	6
2.1. Partnerships scope	6
2.2. National Leadership.....	7
2.3. Alignment with DP Requirements.....	7
2.4. Project Selection Process.....	8
3. ROLES AND RESPONSIBILITIES	10
3.1. Director Technology Services Organization (TSO)	11
3.2. Manager TSO Partnership Programs Organization	11
3.3. Manager Technology Partnerships Organization	11
3.4. Y-12 DP Weapons Advisory Council	12
3.5. Energy Systems Partnerships Office	12
3.6. Laboratory Coordinating Board (LCB) Member.....	12
3.7. Principal Investigator (PI)	12
3.8. Individual Contributors.....	13
3.9. DOE /ORO DP Program Manager for Technology Partnerships.....	13
4. Reports and Reviews.....	13
4.1. Reports.....	13
4.1.1. Program/Project Reports.....	13
4.1.2. Financial Reports	15
4.2. Reviews	15
4.2.1. Technical Reviews.....	15
4.2.2. Program Review.....	15
5. METRICS	16
APPENDIX 1 Project Closeout/Accomplishments Summary Guidelines	17
APPENDIX 2 Technology Partnership Program Project Technical Reviews.....	19
Appendix 3 Annual program reviews.....	21
APPENDIX 4 Planned FY98 Technology Partnership Program Budget	24
APPENDIX 5 Y-12 Organizational Chart (Abridged)	25
APPENDIX 6 Technology Services Organizational Chart (Abridged).....	24

OAK RIDGE Y-12 PLANT

FY98 TECHNOLOGY PARTNERSHIP PROGRAM

1. INTRODUCTION

1.1. Mission

The Oak Ridge Y-12 Plant will use the Technology Partnership Program to support the DOE nuclear weapons complex (NWC), particularly at the Oak Ridge Y-12 Plant. This support will be achieved through partnerships with industry that enhance the science and technology base and the core capabilities necessary to meet current and future weapons program mission needs.

1.2. Goal

This program will enhance the Weapons Complex technology base and core capabilities by participating, in diversified portfolios of collaborative projects with industrial.

The Y-12 Technology Partnership Program (TPP) closely aligns its program with the goals, objectives, and strategies of the DP Stockpile Stewardship and Management plans and DOE technology transfer policy. The Y-12 Defense Programs Office is the primary customer of the Y-12 TPP, and provides input to program planning and execution. Industry involvement is also an essential component. Programs and projects within the Y-12 TPP are responsive to identified weapons complex mission needs.

In FY98 the Y-12 TPP will execute the plan devised during FY97 which emphasized the program's increasing focus on providing benefits to DP. This plan called for the "soft-landing" of four terminated projects early in FY97 and the normal conclusion of four others at various times throughout the year. Successful conclusion of these projects enabled a call for new TPP projects in FY98 with clearer Defense Program benefits. The Defense Programs benefits were assured by the participation of Y-12's Weapon Advisory Council, which met to determine proposal guidelines and criteria. The Weapons Advisory Council later met to rank each proposal against the established guidelines assuring those proposals with the best DP benefits would be chosen.

The goal for the Y-12 TPP program will be to successfully implemented the winning proposals in the first quarter of FY98 and maintain administrative and fiscal control over these and continuing projects.

1.3. Y-12 Weapons Program Requirements Overview

The DOE is basing its production facility plans on the production capacity levels that support the START I Treaty stockpile levels. In addition, capacity levels for all production capabilities except pit production could be substantially increased in 3 to 4 years, if necessary, to accommodate future, unforeseen requirements.¹

The DOE must demonstrate that all technologies and processes required for weapon production either exist or can be reconstituted within an acceptable time. When there is sufficient production work, such a demonstration is accomplished in one of the following manners: (1) meeting the weapon-related workload as required by DOE directive schedules; (2) producing components for design agency testing and development programs; (3) performing authorized work funded by another government agency or commercial vendor or partner; (4) participating in technology transfer activities; or (5) carrying out other work funded by DOE.²

The Y-12 Plant is responsible for the current (DOE) missions of nuclear weapons evaluation from secondaries, dismantling secondaries returned from the field, and dispositioning the wide variety of materials removed during dismantlement. Secondaries and assemblies for test units are produced and directed workload units are produced. The DP materials associated with secondaries are stored at the Y-12 Plant. The proposed Y-12 Plant configuration to meet the SSM PEIS requirements is downsized to 11% of the historic DP footprint (square feet of area contained in buildings). Transition to this footprint will be completed by Fiscal Year (FY) 2003.³

Y-12's strategy and requirements to maintain the capability required is documented in several documents^{4, 5, 6, 7}. In essence, Y-12 will maintain (and in some areas enhance) its ability to meet DOE mission requirements above by using all of the manners suggested in the "Green Book" to demonstrate that all technologies and processes required for weapon production either exist or can be reconstituted within an acceptable time.

Successful demonstration will require that Y-12 remain concurrent with state-of-the-art capability:

- with all of the materials used in and in support of, weapons fabrication for the enduring stockpile,

¹ Final Draft, Stockpile Stewardship and Management Plan: First Annual Update (SRD), Office of Defense Programs, March 1997. "Green Book", page 5-16

² *ibid.*, page 5-15

³ Stockpile Stewardship and Management Final Programmatic Environmental Impact Statement (PEIS) (SRD)

⁴ ORCMT Strategic Plan

⁵ Core Competencies Report

⁶ Transition Plan

⁷ others

- with all required fabrication techniques,
- to handle all waste streams created directly or in support of fabrication
- to handle maximum workload on the reduced PEIS factory footprint on short notice,
- to dismantle secondaries in accordance with needs for enhanced surveillance
- to maintain security over stored strategic materials, and
- for efficient, agile, and safe operations of this highly complex plant

One of these "manners" listed in the green book involves participating in Technology Transfer (No. 4) activities. This involves numerous mechanisms including collaborative R&D, technical assistance, operating user facilities, training, and personnel exchanges. DP-17's Defense Programs Technology Partnership Program is by far the largest supporter of technology transfer activities in Y-12 and provides important funding for projects of the type needed by Y-12 to use technology transfer activities in providing the required demonstration.

1.4. Program Policy

In keeping with the policies established by the DP TPP, it is the policy of Y-12 to:

- Conduct the Y-12 TPP in support of the DP nuclear weapons complex.
- Encourage collaboration with industry (and other entities where applicable) in technology development essential to the Oak Ridge Y-12 Plant and DP weapons complex.
- Require industry participants to bear the costs of technology partnership activities commensurate with the risks taken and benefits derived. Collaborative projects must involve significant private-sector cost sharing.
- Manage the Y-12 TPP to protect against individual and organizational conflict of interest, protect proprietary and commercially valuable information developed under cooperative agreements, and assure fairness of opportunity for private sector participants.

1.5. Organizational Description

The day to day TPP programmatic activities are performed by the Manager of the Technology Partnerships Office and his staff who are members of the Y-12 Technology Services Organization (see organizational chart in Appendix 6) line organization. As such the manager draws from the same pool of technologists as the plant to perform the R&D required for the TPP cooperative projects. User facilities, work for other federal agencies, and work for industrial sponsors also draw from this same pool and provides Y-12 an ability to load level its personnel and capabilities.

TPP draws upon the manufacturing and fabrication capabilities at the Y-12 Plant to support collaborative efforts between DP and the industrial sector in the development of advanced technologies which offer benefit to DOE/DP programs. Initiatives are being pursued which

are directly related to weapons program needs and core areas at the Y-12 Plant. The all-inclusive expertise found in Y-12 Plant personnel covers concept, through detailed design and specification, to building prototypes and configuring integrated manufacturing process.

The capability requirements for Y-12 involve production of secondaries and test units, disassembly of secondaries returned from the stockpile, and storage of secondary materials. To accomplish this the Y-12 plant has an extensive work breakdown structure⁸ which, in part, includes:

- Casting
- Melting - crucible material
- Metal working with over 100 different metals
- Machining - tooling and parts
- Non destructive examination
- Dimensional inspection
- Chemical analysis
- Assembly - welding, adhesive joining, etc.
- Disassembly
- Quality evaluation
- Scrap material recovery
- Storage
- Plating
- Mechanical properties testing
- Powder metallurgy
- Plasma spraying
- Foams, plastics, ceramics

The TPP program at Y-12 will support these work breakdown technologies. Examples of support may include new or improved processing methods, controls, measuring devices or improved processing times.

2. TECHNOLOGY PARTNERSHIP PROGRAM

2.1. Partnerships scope

The Y-12 TPP consists of technology partnership R&D projects managed by Technology Services Organization's Technology Partnerships Office (TPO) in support of nuclear weapons complex mission requirements. Some of the partnerships are between Y-12 and individual companies; some are multi-laboratory or facility and multi-company; and some are Y-12 or multi-laboratory/facility with national industrial alliances. These strategic partnerships with individual companies or groups of companies are pursued only if they maintain, strengthen and advance Y-12 and DOE nuclear weapons complex projects, core competencies, critical technologies, and/or key capabilities.

⁸ PEIS Figure 3.3

2.2. National Leadership

DP-17 coordinates programs that are of national scope and may include multiple DOE office and multi-agency coordination. Y-12 provides the national leadership for two major national programs: Technologies Enabling Agile Manufacturing (TEAM), and the AMTEX PartnershipTM. Leadership and participation in such programs provides benefit to DOE by establishing DOE as a major player in the national manufacturing agenda. As a DOE production site involved in manufacture of weapons components, Y-12 is the obvious choice to lead such programs for DOE.

2.3. Alignment with DP Requirements

Individual partnerships with private industry are strongly aligned with the weapons manufacturing mission of Y-12. Technologies of interest to both Y-12 and industry partners focus on advanced manufacturing development and improvement. This includes process definition and testing, automation, machine control, materials development, joining, modeling and simulation, expert advisor systems, interconnectivity, concurrent engineering, and a number of other disciplines. Since these are among the strengths of the Y-12 plant, it is reasonable to seek to develop partnerships in these areas.

For FY98 DP-17 has issued guidance⁹ indicating that FY98 projects should focus first and foremost on collaborative research and development in the broad range of sciences and technologies that support advanced manufacturing, including process technologies, advanced coating, precision machining and inspection, casting, microelectronics, opto-electronics, forming and joining technologies, computer modeling and simulation, robotics, and many others. Second, in order to retain the ability to manufacture components and systems and ramp up production as required, a portion of the TPP funding will be directed to creating partnerships with current and potential key suppliers of components, tools and equipment.

Another important part of the Y-12 TPP is the Small Business Initiative. SBI activities consist of both regional economic development activity and technology partnerships on weapons related R&D conducted by Y-12. These activities are based on an implementation plan developed from an approved SBI Strategic Plan¹⁰. In Y-12 these activities have:

- Expanded our portfolio of applicable technologies
- Challenged and broadened the experience base of technical contributors
- Assisted in the retention of people with necessary weapons manufacturing skill base
- Developed potential vendors of critical equipment

⁹ DP TPP The strategic Plan, August 1997

¹⁰ Oak Ridge Centers for Manufacturing Technology Small Business Initiative Implementation Plan, 1996

- Improved the status of the weapons complex as a good citizen in the community

In accordance with DP-17 guidance for FY98, the SBI project will:

- Target small companies that are (or are potentially) Y-12 vendors for parts or supplies required by Y-12. Particularly those companies identified by our Production, Program Management, Development, and Purchasing divisions as needing to upgrade their capabilities in order to meet Y-12 requirements.
- Continue to make opportunities available for solving tough manufacturing problems to the Production and Development Organizations within Y-12 and other organizations that support the Y-12 DP mission.
- Continue partial support to small business and educational users of the Y-12 Deployment/User Facility as a way of keeping these important capital assets viable, maintained, and fully functional for use in production support.
- Focus on important Y-12 capabilities maintained in these centers including:
 - Plasma spray and coating
 - Concurrent Engineering
 - Materials characterization
 - Nondestructive evaluation
 - Metrology (dimensional, physical, and electrical)
 - Ultraprecision manufacturing technology
 - Advanced machine tool controller laboratory
- We will be looking for opportunities to team with other Y-12 divisions and perhaps co-fund with them cooperative projects that they would like to pursue.

2.4. Project Selection Process

No new call for FY99 projects is anticipated for the Y-12 TPP program in FY98 as the FY97 call produced enough two year projects to commit the anticipated FY99 TPP funds, but should funding become available for new projects the same methodology used with the FY97 would be used in FY98. That process is outlined in the following section.

The TPP Program Manager will oversee the TPP project selection process. Figure 1 graphically depicts the process in an IDEF0 format.

New Project Selection Process

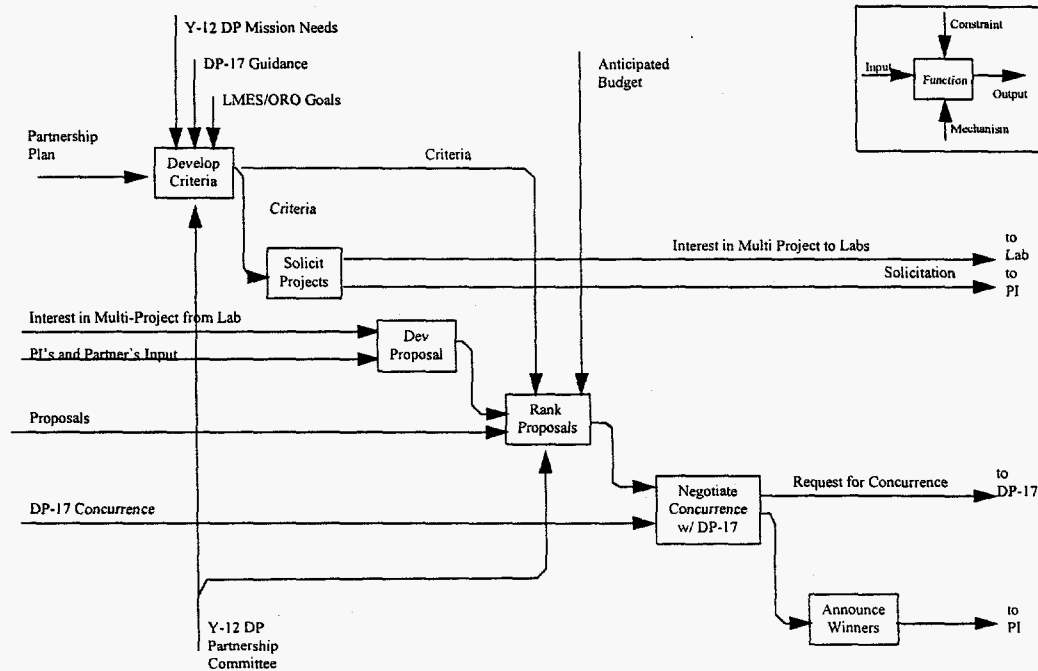


Figure 1 New project selection process

During May prior to the new funding year, the Y-12 Plant's Weapons Advisory Council will develop the criteria upon which project selection will be based. These criteria would be based on the latest guidance¹¹ from DP-17 for project selection seeking projects that benefit DP weapons missions objectives. Multi-site programs, which provide benefits across the complex, would receive special consideration and would be coordinated among the applicable facilities. AMTEX, TEAM/PNGV and ACTI project funding would be directed by DP-17.

The Y-12 TPP Program office will develop and announce the call with a description of the project areas desired, the criteria, and other submission requirements such as content, format, and etc., as we have done in the past.

This office will also receive proposals and oversee the prioritizing process by the Y-12 Weapons Advisory Council. Upon receipt of DP-17 and ORO Site Office concurrence, the program manager will announce results with instructions for proceeding based upon the current understanding of funds available. The FY schedule for these events is as follows:

- May DPWAC sets project selection criteria
- June Call for proposals
- July Selection by DPWAC Committee

¹¹ August 21, 1997 Letter, Diane Bird to LCB, Subject: FY1998 Defense Programs Technology Partnering Program Guidance.

- July DP-17 Concurrence
- July Begin negotiate Agreement
- Oct Begin Work upon receipt of FY Funding

Project selection relies heavily upon the Y-12 DP Weapons Advisory Council. This committee is composed of appropriately senior level managers from the Y-12 Plant (including the LMES Laboratory Coordinating Board member), and may include the Oak Ridge DOE Offices dealing with technology partnerships. This year's membership includes:

ADaPT	F Jones	Development	W Babb
Pgm Mgmt	G Bowers	Quality	A Zava
Pgm Mgmt	V Gordon	ORO Site Office	A Stevens
Pgm Mgmt	T Chilcoat	Gen. Machining	J Gertsen
LCB Member	J. Koger	TPP Program Management	

Since multi-year funding is currently very tenuous, approved projects will have limited scopes and durations no greater than two years. Projects may be augmented annually, subject to the full approval process. Clear funding limits and augmentation limits will avoid over subscription and raising undue industry expectations.

Prior to the start of fiscal year 1999, a review of existing projects will be conducted. Projects will be prioritized by their current relativity to the evolving goals of DOE and the Oak Ridge Complex. The reviewed projects and their mortgages will determine the level of funding to conduct the business of technology partnerships for the following year. Projections of expected new funding, plus an estimate of carryover funds, will determine which partnerships will be funded at what levels.

FY98 projects selected by this process in FY97 plus anticipated Headquarters directed projects are given in Appendix 4.

3. ROLES AND RESPONSIBILITIES

The Defense Programs technology partnership program is the responsibility of the Director, Office of Development and Technology Transfer (DP-17), and is implemented by the DP laboratories and facilities through the DOE Operations Offices. The roles and responsibilities of these organizations are described in the Defense Programs Technology Partnership Program Plan. The responsibilities of the Laboratories and Production Facilities per the DP TPP plan are:

- implementing and carrying out the technology partnership program consistent with DP policy and guidelines;
- developing an annual technology partnership program plan and SBI Implementation Plan for DP-17 review and approval;

- program and project planning and management, multi-site coordination, and integration with other DP programs and objectives;
- selecting and evaluating individual projects in accordance with the General Model for Project Selection and Evaluation, including establishing a Weapons Advisory Council at their site;
- submitting project initiation information to DP-17 and the appropriate Operations Office within 30 days of project selection;
- collecting evidence of performance to be used to determine how well DP-17 expectations are being met;
- planning and carrying out the annual review of the Technology Partnership Program at their site in accordance with DP-17 guidance;
- performing, at least annually, project technical peer reviews of all technology partnership projects to assess the technical progress of each project (DP-17 and the appropriate Operations Office will be invited to participate in these reviews); and
- providing reports and other information to DP-17 and the appropriate Operations Office as requested or required.

The specific roles and responsibilities at the Y-12 plant for the Technology Partnerships Program are listed below.

3.1. Director Technology Services Organization (TSO)

The Director of TSO (JL Cook (acting)) has the overall responsibility for the technical performance, milestones, and cost control of the Technology Partnerships Program at Y-12. In that capacity, the Director maintains an oversight of DOE-DP contracts, assists in the negotiation of scope changes, conducts reviews of projects and represents LMES in reviews with the sponsor. The Director of TSO is the LMES agent for receiving funds for approved projects for Work for Others and Technology Partnerships.

3.2. Manager TSO Partnership Programs Organization

The Manager of the TSO Partnership Programs (RS Steele) is delegated the overall responsibility for the technical performance, milestones, and cost control of the Y-12 Technology Partnership Program. In that capacity, he maintains an oversight of DOE-DP contracts, assists in the negotiation of scope changes, exercises responsibility as a member of the Y-12 Defense Programs Weapons Advisory Council, conducts reviews of projects and represents Y-12 in reviews with the sponsor. He is responsible for managing the process of acquiring the DOE-DP projects for Y-12.

3.3. Manager Technology Partnerships Organization

The TSO Technology Partnerships Manager (RS Steele) and his staff are responsible for the day to day management of TPP projects, implementing and carrying out the technology partnership program consistent with DOE policy and guidelines. This includes site level program/project planning and management, project selection and review, fulfilling reporting requirements, multi-laboratory coordination, and integration with other DP programs and objectives. He and his staff also exercises responsibility as a member of the Y-12 Defense Programs Weapons Advisory Council.

3.4. Y-12 DP Weapons Advisory Council

The Y-12 DP Weapons Advisory Council is made up of appropriately senior managers and technologists drawn from those active in process development and weapons production. This committee reviews proposed DP projects, ranks the proposals according to criteria provided by DOE-DP and the importance to the weapons mission at Y-12. The objective of the Council is to assure that the priority ranking of proposals remains consistent with DP Benefits. The FY98 members of this committee are given in the section on project selection.

3.5. Energy Systems Partnerships Office

In FY98 LMES will establish an Energy Systems Partnerships Office (ESPO) managed by the Partnerships Program Manager to work in conjunction with Lockheed Martin Energy Research's Office of Technology Transfer (OTT) in developing collaborations with the private sector which enable commercialization and encourages utilization of technologies developed by or with the LMES complex. ESPO also serves as an integrator of common issues, activities, and communications regarding technology transfer across LMES.

The ESPO is the LMES agent negotiating technology transfer contracts, i.e. CRADAs and licenses, with the industrial partner(s), and notifying the proper authorities that the contract has been executed. Once a project is started, the ESPO maintains oversight on the contracts. If project activities lead to the development of licensable intellectual property, the ESPO/OTT has the responsibility for developing licensing agreements consistent with the terms and agreements of the CRADA and the charter of the ESPO/OTT.

3.6. Laboratory Coordinating Board (LCB) Member

The LCB is a senior-management committee with members from each of the DP laboratories and the Y-12 and Kansas City production plants with advisory responsibility to DP-17. The Y-12 LCB Member (JW Koger) reports to the Manager of Technology Services at Y-12 and serves as the liaison between the Technology Partnership Program and LMES ESPO.

3.7. Principal Investigator (PI)

The PI has responsibility for developing the proposal and would generally be expected to manage the project should the proposal be selected for funding. Once a contract (CRADA or some other appropriate agreement) is signed with the partner, the PI is accountable for its performance. This includes managing the technical work, keeping the project file, identifying four to six milestones/year for assessing progress, and periodically reporting technical and financial progress. In addition, the PI maintains regular contact with, and an awareness of, work being done by the industrial partner, and informs the Director of Technology Services or his designee, and line management, as appropriate, on program issues, problems, and/or the need to negotiate a change in the scope (technical, deliverables, milestones, funding, etc.) of the project. The PI also participates in reviews of DOE-DP TPP projects and fulfills the completion requirements of the project.

3.8. Individual Contributors

Scientific and Engineering research and development people define and perform specific tasks under the direction of a Principal Investigator (PI).

3.9. DOE /ORO DP Program Manager for Technology Partnerships

The DOE Site DP Program Manager for Technology Partnerships (AJ Stevens) has the responsibility to monitor the Technology Partnerships Organizations activities with respect to both the LMES prime contract's requirements to perform technology transfer and the organization's stewardship of the DP-17 funding in Oak Ridge.

4. REPORTS AND REVIEWS

4.1. Reports

4.1.1. Program/Project Reports

Y-12 will provide reports to DP-17 and the ORO Site offices on all technology partnership programs and projects at the following times:

- Program or project initiation, including information such as technical description, partner, funding, objectives, milestones, DP and U.S. economic benefits, etc.
- Quarterly exception reports, showing significant change in program or project.
- Annual progress reports.
- Program or project closeout/accomplishments summary.
- At least quarterly financial reports
- Periodic reports for DP-17 coordinated projects

The report formats and contents are outlined in the following sections

4.1.1.1. Project Initiation

At project initiation, the following information will be provided:

- Project description, benefits to DP, benefits to the US economy.
- Project milestones
- Agreement type and identification number
- Partner names, street address, city, state, and zip code
- Partner information, e.g. small/medium/.../minority/business, academic, govt.
- Partner funding by fiscal year (identify in-kind and funds-in separately)
- DP funding profile by fiscal year.
- Agreement approval, execution, and scheduled completion dates.

4.1.1.2. Exception Report

An exception report will be submitted for significant changes to the above information, or for amendments to project agreements. Exception reports, identifying specific changes being made, will be submitted to the operations office and DP-17 by January 30, April 30, July 30, and October 30 of each year. Negative reports will be submitted. Exception criteria include:

- Milestone Slippage. A milestone (not a task) is delayed or will be delayed such that an amendment is required.
- Funding Change. The DOE or participant funding changes by an amount that requires an amendment.
- Statement of Work. The Project's statement of work changes by adding, deleting, modifying tasks or delaying milestones.
- Technical Breakthroughs and Significant Impacts. The project has a particular success or unintended benefit that is not documented. This should be documented in a Project Accomplishment Summary (see Appendix 1), which may be generated at any time, not just the end of the project. The summary should be approved by the company and the Y-12 Plant as containing information which may be released to the public.

4.1.1.3. Annual Progress

An annual project progress report will be submitted for each project that was active during the fiscal year. The reports will be submitted to DP-17 and the Operations Office thirty to sixty (30-60) after the end of the fiscal year. In addition to the information required in a

project initiation report, the report should include a half-page discussion of the work progress and accomplishments during the preceding twelve (12) months.

4.1.1.4. Small Business Initiative

The Y-12 PI for the Small Business Initiative project (HA Eason) will submit periodic reports in accordance with the requirements of the DP-17 Small Business Initiative Program Plan.

4.1.1.5. TEAM

The PI for the Technologies Enabling Agile Manufacturing project (RE Neal) will submit periodic reports in accordance with the requirements of the TEAM Program Plan.

4.1.1.6. AMTEX

The PI for the AMTEX Partnerships project (MA Miller) will submit periodic reports in accordance with the requirements of the AMTEX Program Plan.

4.1.2. Financial Reports

The Y-12 TPP manager will report financial information associated with Y-12 technology partnership activity to DP-17 at least quarterly. Costs will be identified by project by budget code.

4.2. Reviews

4.2.1. Technical Reviews

The Y-12 Technology Partnerships Office will perform an annual technical review of each project for which at least six months work has been accomplished. An outline for the content for review of on-going and completed projects is given in Appendix 2. Technical Project reviews are scheduled for August 11th and 12th 1998.

4.2.2. Program Review

Y-12 Technology Partnerships Office will participate in the annual review of technology partnership program implementation at Y-12 by DP-17 in accordance with the Defense Programs Technology Partnership Program Plan. The TPO will perform the following functions for the annual review:

- Assist DP-17 in establishing a schedule of the annual program review.
- Assist, in cooperation with DP-17 and Oak Ridge Operations Office (ORO), in determining performance measures and review team membership (and team leader) for the planned review.
- Assist DP-17 and ORO in preparing a Review Planning Document (see Appendix 3).
- Assist the Review Team Leader in planning and executing the review at the Y-12 Plant.
- Prepare for and participate in the review.
- Receive and evaluate the preliminary results of the review (as briefed by the Review Team immediately following the review.)
- Provide feedback, recommendations, etc. to DP-17 on required follow-up actions and activities based on Review Report.
- Implement required actions and follow-up activities based on final Review Report.

5. METRICS

Program metrics will be established with the following goals.

- Less than 10% of funding carried over to next fiscal year.
- Conduct annual project reviews in August of each year.
- Quarterly exception reports to DP-17.
- Economic impact of partnerships with the business will be determined.
- Customer satisfaction surveys will be conducted.

APPENDIX 1 PROJECT CLOSEOUT/ACCOMPLISHMENTS SUMMARY

GUIDELINES

A Project Accomplishments Summary (PAS) will be provided to DP-17 within 60 days of project completion/termination. Project Accomplishments Summaries are used by DOE Headquarters to demonstrate the value of the technology partnership program to the DP weapons program and to American industry. The project closeout/accomplishments information should be in narrative form and divided into the general areas described below. The questions posed are provided to stimulate thought and provide a sense of the type of information required. They should be used only as a guide when developing the narrative information required for each paragraph. If necessary, additional information will be provided about why the project is important and why it is successful. Information should reflect actual experience/current thinking and should be written in language to convey the value of the project to someone familiar with the weapons program but not necessarily an expert in the particular field. Avoid technology-specific language. Spell out acronyms when first used.

With approval of the industrial partner(s), the responsible laboratory/facility person should sign and date the project accomplishment summary, signifying that the information is unclassified and non-sensitive to the industrial partner.

Points of contact, company information, project examples/photos, and other project-related information such as success stories or publicly released information should be provided, as an attachment to the Project Accomplishments Summary. Information regarding individual company size and technology commercialization plans will not be released to the public.

PAS FORMAT

TITLE:	Give the descriptive title of the project.
DOE TPP NUMBER:	Give the DOE TPP project number.
CRADA NUMBER:	Give the Oak Ridge CRADA number if a CRADA was involved
PARTNER:	Give the name of the Partner.

BACKGROUND: What was the state-of-the-art of the product/process prior to initiation of the project? From the weapons program perspective, why was the project needed (e.g., what deficiency or shortcoming in the current weapons program is being addressed)? From the industrial partner's perspective, why was the project needed (e.g., performance, quality, cost, time to market)? Describe the expertise and interests of each party and how they complemented each other with respect to the project.

DESCRIPTION: What was the purpose/objective of the project? What were the roles of the laboratory/facility and the company? What were the technical results and/or significant accomplishments? Discuss the value of working together on the project from the point of

view of each party. Where possible, provide positive comments from the industrial partner(s) regarding the project.

BENEFITS TO DP: How did this project support the Defense Programs' mission at the DOE laboratory/facility? What specific products or processes used in the development or manufacture of DP products were developed/improved as a result of this project? If possible, provide quantification of benefits (e.g., will reduce the rejection of parts by 20%, saved 5 million dollars in capital equipment costs, etc.). What new or additional capability will the weapons program have as a result of this project? Does this technology have applicability to other DOE laboratories/facilities and has it been shared with them or what plans are there to do so? Would DP have funded this work whether or not there was a partner?

ECONOMIC IMPACT: What were the direct benefits to the industrial partner(s)? Is it expected that a product or process will be commercialized as a result of the project? When, by whom, and to what extent will the results be applied? Discuss the impact to the company, industry, and the economy in terms of jobs created/saved, revenues generated, and other indirect benefits such as environmental, safety, and health. What are the expected benefits to the consumer/taxpayer?

PROJECT STATUS: Note whether the project is either completed or terminated. Provide a reason, if the project was terminated. What percentage of the project milestones was completed? A terminated project is one in which the project was started and funds were expended, whereas a canceled project was never started and expended no funds.

DOE SITE POINT(S) OF CONTACT FOR PROJECT INFORMATION: Provide the name, address, e-mail, and telephone numbers (voice and fax) of the DOE laboratory/facility personnel responsible for the project and who can provide additional information if necessary.

COMPANY SIZE AND POINT(S) OF CONTACT: If releasable to the general public, provide information on the industrial partner's annual sales, number of employees, and the name and telephone numbers (voice and fax) of company personnel responsible for the project. Indicate whether company personnel would be willing to provide feedback regarding the success of the project and list who should be contacted.

PROJECT EXAMPLES: Are there tangible items related to the project which could be used in a "show-and-tell" situation (e.g., during congressional testimony)? If there are photographs, which help tell the story, please provide a copy.

APPENDIX 2 TECHNOLOGY PARTNERSHIP PROGRAM PROJECT TECHNICAL REVIEWS

A. On-going Projects -- Presentations should include the following information:

1. Title slide
2. Project participants
3. Overall objective and project goal
4. Project funding (life of project)
5. Task / schedule/ milestone chart
6. Funding / costing profile
7. Current year plan and accomplishments
8. Private sector partner presentation (if available)
9. DP Benefits
10. Summary project assessment
11. Issues and actions plans

B. Completed/Terminated Projects -- The following information should be included:

Principle Investigator

1. Briefly overview the original objective, scope, time-line, and funding requirements of the project as originally approved and overview any changes in project scope/objectives.
2. Summarize the technical results of the project (not a detailed technical presentation-but a short, concise technical overview).
 - Technical results of project – technical breakthroughs, innovations, assessment of value/significance of technical results.
 - Goals/milestones met and problems encountered and/or deviations from original goals/objectives
1. Summarize results of Commercialization Plan with assistance and understanding/agreement of the industrial partner(s) – include utilization of products/processes, patents applied for licenses granted, success stories, industrial partner assessment of usefulness/success of project, dissemination of results to other industries, companies, plans for additional commercialization etc.
2. Financial Review – review results of financial plan- plan vs. actual results, total project costs, total expenditures by lab and by partners, causes of deviations from original plan, etc.

3. Summary of Project Benefits – general assessment of benefits of project to DP, industry and US economy, i.e., maintaining/enhancing core capabilities, dual-use developments, technical improvements, size of market effected, impact on targeted industry, benefits to American worker, effects on unemployment and local economy.

Industrial Partner

In addition to the Commercialization Plan overview, the industrial partner should give a short summary of his/her assessment of the project, i.e., assessment of the TT process, lessons learned, suggested improvements, possible follow-up projects or further technical improvements/ innovations recommended.

APPENDIX 3 ANNUAL PROGRAM REVIEWS

DP-17 will conduct an annual review of the technology partnership program at each site. Information provided at these reviews will conform to the outline below.

OUTLINE FOR ANNUAL REVIEWS

1) Program Overview:

a) Present an overview of the FY97 program:

- Describe program goals.
- Discuss the FY97 downselection process. Identify projects completed or terminated in FY97. Discuss any major highlights and impacts.
- Identify and discuss new project starts (CRADAs executed in FY97).
- Assess overall performance on all projects (i.e., degree to which technical, schedule and cost goals were met).
- Describe the most significant contributions to the weapons program (3 or 4 specific projects).
- Identify the most significant industrial partner contributions to the weapons program (3 or 4 specific projects).
- Identify the most significant benefits to industrial partners (3 or 4 specific projects).
- Discuss performance measures for the FY97 program.

b) Describe the following program/project planning and management activities (identify participants and their roles, describe processes involved, identify criteria/driving factors, discuss results/statistics, etc.):

- Program planning.
- Process for selecting new projects.
- Annual project technical review processes.
- Reporting procedures (initial, exception and annual reports, PASes).
- Procedures in place to ensure fairness of opportunity, prevent conflicts of interest, ensure weapons program benefit, realize and maintain confidence in the partner's cost share.
- Discuss the use of other partnership mechanisms (beta test site agreements, procurements, etc.).
- Discuss planning and management performance measures.

c) Present an overview of the FY98 program:

- Describe program goals.

- Describe the process used to assure that the TPP is aligned with weapons program goals. What efforts were made to more closely support DP-16, DP-26, and/or other DP program office needs?
- Discuss the process used to decide which specific advanced manufacturing technologies would be developed collaboratively through industrial partnerships. Why were these particular technologies and partners chosen?
- Describe the overall approach for enhancing the supplier base.
- Discuss the FY98 project selection process. Identify projects being funded by DP-17 and those transferred to other funding sources.
- Describe anticipated benefits to the weapons program and industrial partners. Identify the most significant industrial partner contributions to the weapons program.
- Describe how AMTEX, ACTI, and PNGV projects are being managed to maximize benefit to DP.
- List and discuss new project starts.
- Discuss performance measures for the FY98 program.

d) Describe the SBI program:

- Provide an overview of the FY97 SBI implementation plan.
- Provide FY97 spending levels for: Technical Assistance, Personnel Exchange, CRADAs, Intermediary Relationships, Facility Utilization and Training.
- Describe FY97 performance and compare to FY97 implementation plan.
- Present the FY98 implementation plan. Provide FY98 funding levels and discuss differences from the FY97 plan.

2) Weapons Program Overview (opportunity for the weapons program to give their view of the site's partnership program):

- Describe weapons program goals and research plans (may limit to WSAs if appropriate).
- Summarize/assess past contributions of technology partnerships to the weapons program (for FY97).
- Identify and discuss the projects with the strongest weapons program benefits.
- Discuss expected future contributions of technology partnerships (FY98 and beyond).

3) Specific Activities and Issues:

Provide briefings on specific activities and/or issues of interest to the laboratory/facility and/or DP-17 (to be determined prior to review). For example: very large programs, major technical breakthroughs, unique experimental programs,

new internal procedures, site reorganizations, public/taxpayer issues, problem areas, etc.

4) Strategic Planning:

a) Present laboratory/facility strategic thinking for the program:

- Major objectives of the technology partnership program.
- How projects will be chosen to align with weapons program goals/thrust areas.
- How appropriate industrial partnering will be stimulated?
- Coordination with other DP sites and other federal laboratories.
- Internal and external priorities and problems.

b) Specific discussion covering the following:

- What technology areas in Advanced Manufacturing are appropriate for partnering with industry? Collaborating with other sites?
- What approach will be taken to enhance the supplier base?
- What attempts will be made to more closely support DP-16, DP-26 and/or other program office needs?
- How are AMTEX, ACTI, and PNGV projects going to be managed to maximize benefit to DP?

Information to be provided to DP-17 prior to the annual review:

Item	Due Date
Program Plan covering FY98	Draft – 60 days prior to annual review Final – 30 days prior to annual review
Annual project reports	60-30 days prior to annual review
Documents referenced in the Site's Program Plan	30 days prior to annual review
FY98 SBI Implementation Plan	30 days prior to annual review
Project Statistics*	30 days prior to annual review
Agreed-upon specific activities and issues to be briefed	2 weeks prior to annual review

* Project Statistics include the following: Projects completed or terminated in FY97, projects funded in FY98 by DP-17, and projects moved to other funding sources in FY98, program funding distribution by thrust area for FY97 & FY98 (as well as specific technologies within the thrust areas the site will focus on), new project starts (CRADAs executed in FY97 or later), and planned new project starts.

APPENDIX 4 PLANNED FY98 TECHNOLOGY PARTNERSHIP PROGRAM BUDGET

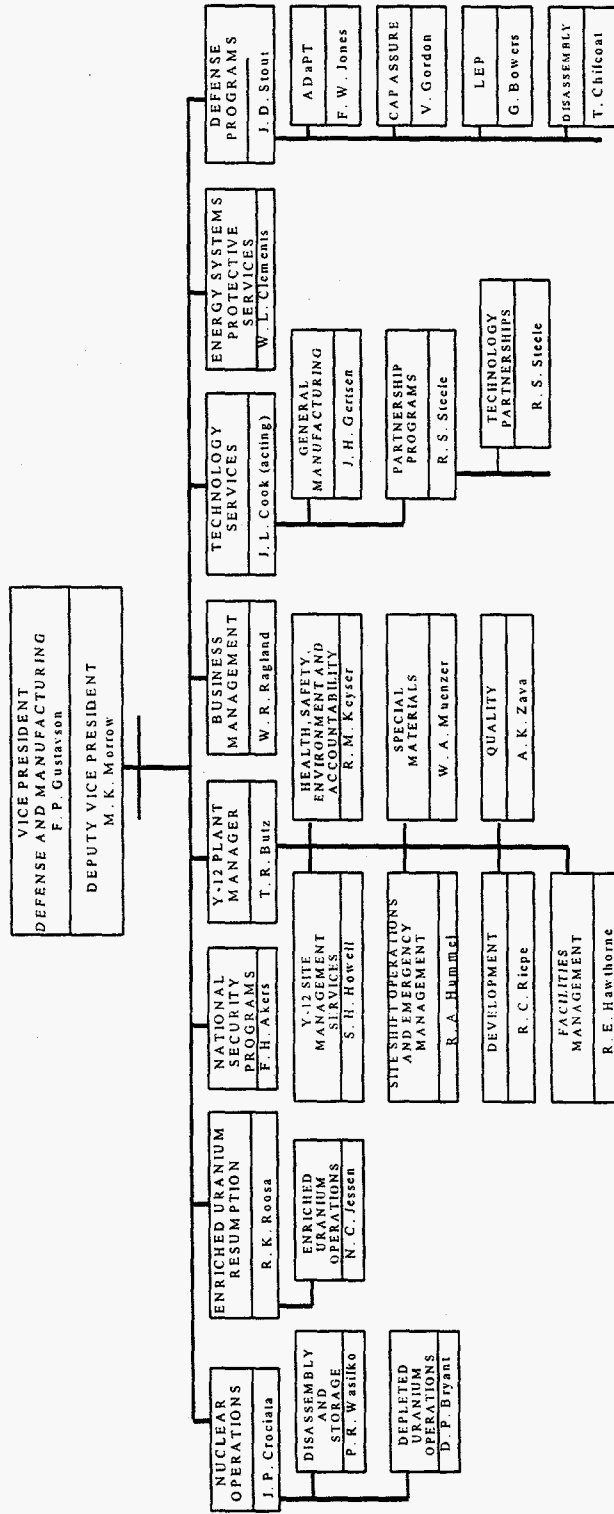
DOE TPP #	Project Title	FY98 Budget
93-Y12P-001-XX	Machine Tool Initiative at Y-12 (NMTP)	90,869 ¹²
93-Y12P-003-XX	Small Business Initiative	1,350,000 ¹³
98-Y12P-002-XX	Applied Instructional Systems for Machinist	200,000
98-Y12P-006-XX	Software-Based Controls Modules Development	80,000
98-Y12P-009-XX	Non-Intrusive Acoustic Sensors for Monitoring Y-12 Fluidized Beds	180,000
98-Y12P-010-XX	Spectroradiometer for Rapid Imaging LiOH on LiH	370,000
98-Y12P-011-XX	Machining Process Assurance	250,000
98-Y12P-012-XX	Lithium Cell Automation	150,000
98-Y12P-013-XX	Infrared (IR) Heated Tooling for Wrought Processing of Metal	160,000
98-Y12P-015-XX	Intelligent Forming Advisor	320,000
98-Y12P-016-XX	Mass Spectrometric Measurements of Organic Compounds Containing Deuterium	120,000
98-Y12P-020-XX	Feature-Based Manufacturing Process Automation	340,000
98-Y12P-021-XX	3-D Imaging in Machining, Inspection, Assembly	234,000
98-Y12P-022-XX	Electroforming	240,000
96-Y12P-999-XX	Laboratory Partnerships (Y-12 TPP Discretionary Funds)	110,890
Total for Non-HQ Directed Projects		4,195,678
93-MULT-020-XX-04	AMTEX Computer Aides Fabric Evaluation (CAFE)	705,859
93-MULT-101-D1-04	TEAM (Enterprise for Agile Manufacturing)	985,982
95-Y12P-001-XX	Intelligent Welding - INEL/GM	211,184
97-Y12P-008-XX	Advanced Manufacturing Roadmap	100,000
Total for HQ Directed Projects		2,003, 025¹⁴
Total GB0106 Funds		6,198,703

¹² Project 93-Y12P-001-XX, NMTP, funding for mortgaged projects only, projected from August Financial report.

¹³ Project 93-Y12P-003-XX, SBI, received \$1256K new BA and projected to receive \$94K in Carryover funds.

¹⁴ HQ Directed Projects funding level based planned FY98 DP funding and FY97 Carryover funds; carryover projected based on August Financial report.

APPENDIX 5 Y-12 ORGANIZATIONAL CHART (ABRIDGED)



APPENDIX 6 TECHNOLOGY SERVICES ORGANIZATIONAL CHART (ABRIDGED)

