



Environmental Protection Agency (EPA)



SBIR Phase I Solicitation

Mission



◆ EPA:

- Protect human health and the environment
 - air, water and land

◆ EPA SBIR:

- Develop and commercialize innovative environmental technologies needed by EPA regions, regulatory and compliance programs and States

SBIR Solicitation Schedule

◆ Annual Phase I Solicitation

- Open March 23, 2006
- Close May 24, 2006

SBIR Awards

◆ Phase I

- Proof of Concept
- \$70,000
- 6 months

◆ Phase II

- Develop Phase I technology with focus on commercialization
- Up to \$345,000 (with options)
- 24 months

Solicitation Topics for 2006

- ◆ Great Lakes (EPA Region V)
Environmental Problems
- ◆ Environmental Problems in
America's Heartland (EPA Region VII)
- ◆ Water and Wastewater Needs
(EPA Office of Water)
- ◆ Critical EPA Technology Needs
(Environmental Technology Council)

Great Lakes (EPA Region V) Environmental Problems

- ◆ Improving the Great Lakes
- ◆ Control of Air Pollution
- ◆ Monitoring and Remote Sensing
- ◆ Green Buildings

Improving the Great Lakes

- ◆ Clean-up of Contaminated Sediments
- ◆ Mercury Free Products
- ◆ Pharmaceuticals/Personal Care Products

Control of Air Pollution

◆ Small Air Pollution Sources

- Small Industrial Boilers
- Autobody and Painting Shops
- Restaurants

◆ Outdoor Wood-Fired Hydronic Heaters and New Fireplace Designs

◆ Coal Gasification

Monitoring and Remote Sensing

- ◆ Air Pollution Monitoring
 - PM, Semi-Volatiles, Nebulizers for Metals/PM
 - Benzene & 1,3 Butadiene, Mercury
 - Passive Air Sampling Devices

- ◆ Hazardous Waste Monitoring
 - CEMs, Groundwater, Leak Detection, DNAPL

- ◆ Remote Sensing
 - Facility Leaks
 - Fenceline Emissions

Green Buildings

- ◆ Green Building Materials
- ◆ Energy and Water Consumption
- ◆ Indoor Environmental Quality

Environmental Problems in America's Heartland (Region VII)

- ◆ Lead Mining & Mine Waste Management
- ◆ Lead Paint Detection and Removal
- ◆ Agriculture and Rural Community Needs
- ◆ Animal Feeding Operations

Lead Mining and Mine Waste Management

◆ Lead Mining

- Protective Covers, Reactive Barriers
- Passive Cleanup Technologies, Vacuums, Filters
- Beneficial Use of Contaminated Soil & Sediment

◆ Areawide Lead Soil Contamination

- In-Situ Methods, Phytoremediation, Roads and Yards

◆ Monitoring Technologies

Lead Paint

- ◆ Testing for Lead-Based Paint
- ◆ Detection of Lead in Paint Dust and Soil
- ◆ Stabilizing/Removal of Lead-Based Paint
- ◆ Cleaning Lead Contaminated Soil

Agriculture and Rural Community Needs

- ◆ Environmental Management of Air, Water and Soil
- ◆ Ethanol and Biodiesel Fuels
- ◆ Rural Community Improvement

Animal Feeding Operations

- ◆ Alternate uses, Better Residuals Management
- ◆ Reduced Discharges of Pathogens, Veterinary Pharmaceuticals, Estrogens & Androgens, Steroid Hormones
- ◆ Reduced Air Emissions of Ammonia, Methane, VOCs, Hydrogen Sulfide, PM and Pathogens
- ◆ Water, Groundwater and Soil Monitoring
- ◆ Waste-To-Energy Gasification Technologies

Water and Wastewater Needs

- ◆ Drinking Water Treatment & Monitoring
- ◆ Pollution Indicators for Beaches and Recreational Waters
- ◆ Water and Wastewater Management

Drinking Water

◆ Detection and Better Measurement

- Cryptosporidium-like Organisms
- Pathogens, Algal Neurotoxins
- Organics and Inorganics

◆ Small System Treatment Methods

Pollution Indicators for Beaches

- ◆ Better Pathogen Detection Instruments
- ◆ Real-time or Near Real-Time Monitors
- ◆ Better Indicators of Enteric Pathogens

Water and WasteWater

- ◆ Source Water Protection
- ◆ On-Site and Decentralized Treatment
 - Identify Failed Septic Systems
- ◆ Water Conservation and Reuse
- ◆ CSOs and Stormwater
- ◆ Infrastructure Rehabilitation

Critical EPA Technology Needs

- ◆ Innovation in Manufacturing
- ◆ NanoTechnology
- ◆ Engine and Vehicle Emissions Reduction
- ◆ Solid and Hazardous Waste
- ◆ Homeland Security

Innovation in Manufacturing

◆ Green Process Changes

- Solvent Recovery
- Solvent-Free Production
- Better Catalysts

◆ Fragrances and Colorants

◆ Green Supplier Networks

NanoTechnology

- ◆ Nano-Coatings
- ◆ Nanoparticulate Catalysts
- ◆ Nanoporous Filters
- ◆ MEMS Monitors
- ◆ Nanomaterial Sensors

Engine and Vehicle Emissions

◆ Diesel Retrofits

- Construction Equipment
- NOx Reduction

◆ Fuel Additives for Gasoline Engines

◆ Non-Ethanol Non-Biodiesel BIOFUELS

◆ TEXAS TERC/NTRD/HARC Linkages

Solid and Hazardous Waste

◆ Hazardous Waste Management

- In-Situ and Ex-Situ Mercury Treatment
- PBT and PAHs

◆ Solid Waste Recycling

Homeland Security

◆ Building Decontamination

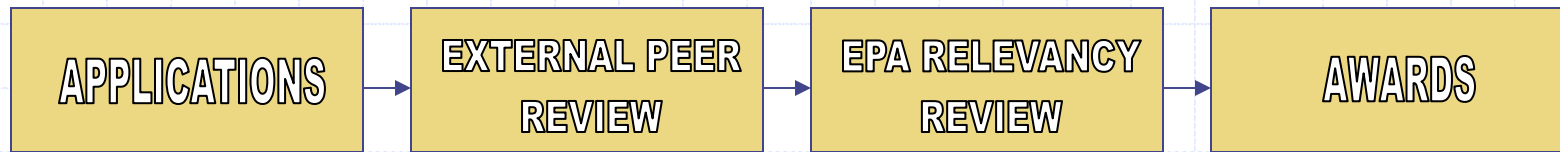
- Chlorine Dioxide Monitors
- Bio/Chem Cleanup

◆ Drinking Water and Wastewater

- Detecting Bio/Chem/Rad Contaminants
- Early Warning Smart Systems

◆ Emergency Response

Proposal Evaluation and Selection



External Peer Review

◆ Ratings:

- Excellent, Very Good, Good, Fair, Poor

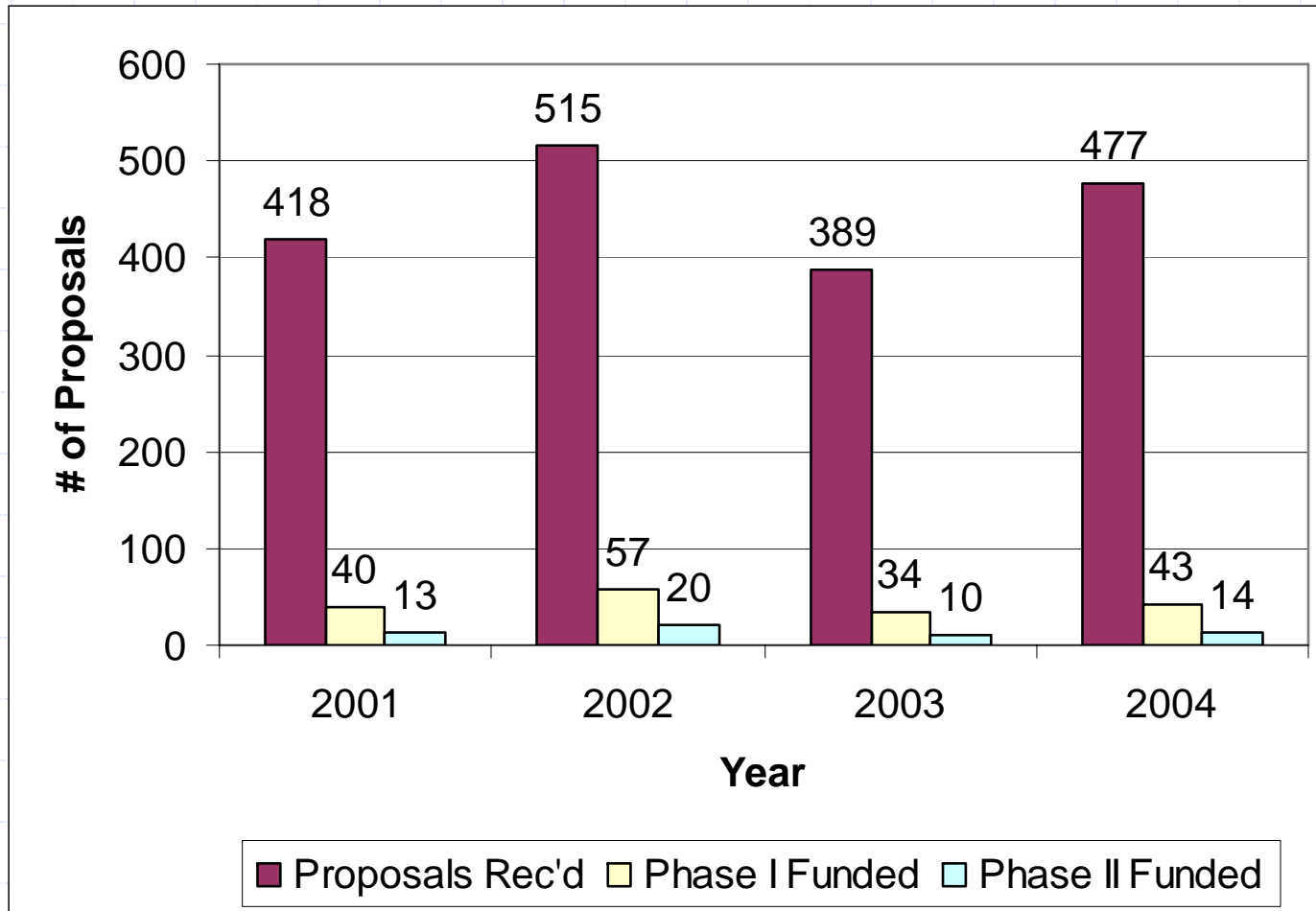
◆ Five Criteria:

- Scientific/Technical Quality and Soundness
- Uniqueness and Originality
- Cost Effectiveness and Environmental Benefit
- Qualifications of Team
- Commercialization Potential

Internal Relevancy Review

- ◆ EPA Internal Programmatic Review
- ◆ Review only those proposals rated Excellent and Very Good
- ◆ Evaluate Proposals on 3 Criteria:
 - EPA Needs and Program Priorities
 - Significant Environmental Benefits
 - Broad Application and Impact

Success Rate



2006 SBIR Timeline

- ◆ Phase I Solicitation Open
 - March 23 – May 24, 2006
- ◆ Peer Review - September 2006
- ◆ Relevancy Review - December 2006
- ◆ Phase I Contracts Awarded - February 2007
- ◆ Phase II Solicitation Open - July 2007
- ◆ Phase II Contracts Awarded - March 2008

Successful Proposals

- ◆ Meet agency priority needs
- ◆ Quantify environmental benefits
- ◆ Demonstrate innovation
- ◆ Have a strong technical abstract
- ◆ Have a realistic work plan
- ◆ Address technical evaluation criteria
- ◆ Show relationship to future research
- ◆ Address cost

Commercialization

- ◆ Provide Phase I Commercialization TA
- ◆ Require Commercialization Plan in Phase II proposal
- ◆ Offer two Options at Phase II:
 - Commercialization – Additional \$70,000 for 3rd party investment
 - Verification Testing – Additional \$50,000 for participation in EPA testing program

Compact Membrane Systems

◆ NOx Reduction in Diesel Engines

- Nitrogen-enriched air membrane
- Commercial fluoropolymer module operated over 1 million miles on 5 diesel trucks
- NOx reduction over 50 percent
- Excellent fouling resistance at high temp/pressure



◆ Partners with Praxair, Air Liquide, Caterpillar

◆ Markets: diesel trucks, locomotives, ships and ferries, retrofit for emergency diesel generators

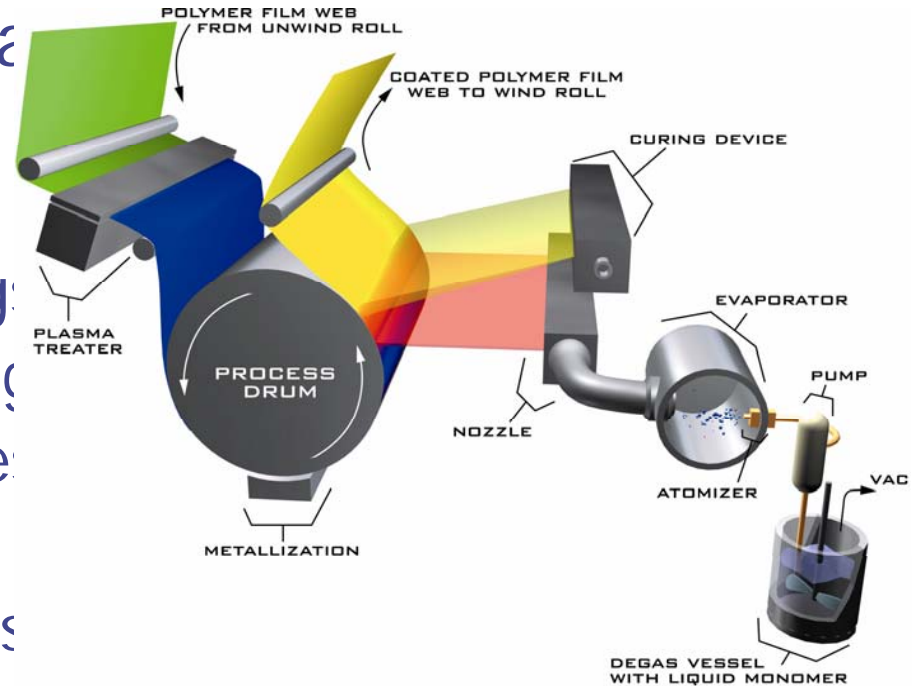
Sigma Technologies International

◆ Plastic packaging films that use water-based and solventless printing inks

- High-speed acrylate coating
- Inexpensive inline packaging
- Sells equipment and service
- Eliminates VOC emissions
- No hazardous solvent disposal

◆ 2 Spin-off Joint Ventures

◆ Customers include Frito-Lay and other food and beverage companies



SBIR Success Story - NITON

- ◆ Lead Paint Analyzer
 - Can detect lead in paint, in soil and on filters
- ◆ Industry standard for analysis of lead in paint
- ◆ Received R&D 100 Award
- ◆ Received Lead Tech Product of the Year Award
- ◆ Participated in ETV Program





Small Business Innovation Research

- ◆ Website www.epa.gov/ncer/sbir
- ◆ Contact Information
 - Program Director, Jim Gallup