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### February-May 1993

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Environmental Research Briefs and Superfund Innovative Technology Summaries are also included to keep the research and technical community abreast of current research status resulting from EPA activities

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The following pages list titles of publications that are available. Project Summaries are subdivided by subject

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20024	Emission Factors for Iron and Steel Sources Criteria and Toxic Pollutants (EPA/S2-90/024)

20042	EPA Mobile Incineration Systems Modifications, Testing and Operations—February 1986 to June 1989 (EPA/600/S2-90/042)
20044	Emission Factors for Iron Foundries: Criteria and Toxic Pollutants (EPA/600/S2-90/044)
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21029	Sourcebook NO <sub>x</sub> Control Technology Data (EPA/600/S2-91/029)
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29065	Furnace Sorbent Reactivity Testing for Control of SO <sub>2</sub> Emissions from Illinois Coals (EPA/600/S2-89/065)
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30027	Evaluation of the Wake Effects on Plume Dispersion Using Video Image Analysis (EPA/600/S3-90/027)
30029	The Role of Biogenic Organics in the Southeast Ozone Problem Preliminary Assessments and Implications (EPA/600/S3-90/029)
30032	Preliminary Exposure Study to Determine the Effects of Acid Deposition on Coated Steel Substrates (EPA/600/S3-90/032)

30040	Summary Report for the National Atmospheric Deposition Program/National Trends Network (NADP/NTN) Site Visitation Program for the Period October 1987 through September 1988 (EPA/600/S3-90/040)	39023	Annual Report on Performance Audit Results for POHC Testing During RCRA Trial Burns (EPA/600/S3-89/023)
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39019	Evaluation of HCl Continuous Emission Monitors (EPA/600/S3-89/019)	39071	Air Quality Simulation Model Performance for One-Hour Averages (EPA/600/S3-89/071)
39020	A Review of Current Methods for Measuring Particulate Matter Including Condensables from Stationary Sources (EPA/600/S3-89/020)	39082	The Role of Grid-Based, Reactive Air Quality Modeling in Policy Analysis Perspectives and Implications, as Drawn from a Case Study (EPA/600/S3-89/082)
39022	Development and Validation of a Test Method for Acrylonitrile Emissions (EPA/600/S3-89/022)	40019	1987 Wet Deposition Temporal and Spatial Patterns in North America (EPA/600/S4-90/019)
		40032	Evaluation of a Remote Sensor for Mobile Source CO Emissions (EPA/600/S4-90/032)

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70001	Design Report Low-NO <sub>x</sub> Burner for Package Boilers (EPA/600/S7-90/001)	71001	A Self-Consistent Deutscher ESP Model (EPA/600/S7-91/001)
70002	A Low-NO <sub>x</sub> Strategy for Combusting High Nitrogen Fuels (EPA/600/S7-90/002)	71004	Technology for the Control of Particulates and Sulfur Oxides by Electrostatic Techniques (EPA/600/S7-91/004)
70003	A Model of Turbulent Diffusion Flames and Nitric Oxide Generation (EPA/600/S7-90/003)	71006	Development of Seasonal and Annual Biogenic Emissions Inventories for the U.S. and Canada (EPA/S7-91/006)
70005	Development of County-Level Wind Erosion and Unpaved Road Alkaline Emission Estimates for the 1985 NAPAP Emissions Inventory (EPA/600/S7-90/005)	71007	A Feasibility Study for the Coprocessing of Fossil Fuels with Biomass by the Hydrocarb Process (EPA/600/S7-91/007)
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70009	Comparison of West German and U.S. Flue Gas Desulfurization and Selective Catalytic Reduction Costs (EPA/600/S7-90/009)	79010	The 1985 NAPAP Emissions Inventory Development of Species Allocation Factors (EPA/600/S7-89/010)
70010	Emissions and Cost Estimates for Globally Significant Anthropogenic Sources of NO <sub>x</sub> , N <sub>2</sub> O, CH <sub>4</sub> , CO and CO <sub>2</sub> (EPA/600/S7-90/010)	79010a	The 1985 NAPAP Emissions Inventory Overview of Allocation Factors (EPA/600/S7-89/010a)
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70013	Assessment of Physical Coal Cleaning Practices for Sulfur Removal (EPA/600/S7-90/013)	79012	The 1985 NAPAP Emissions Inventory (Version 2). Development of the Annual Data and Modelers' Tapes (EPA/S7-89/012)
70014	Development and Selection of Ammonia Emission Factors for the 1985 NAPAP Emissions Inventory (EPA/600/S7-90/014)	79013	The 1985 NAPAP Emissions Inventory (Version 2). Development of the National Utility Reference File (EPA/600/S7-89/013)
70015	Costs for Advanced Coal Combustion Technologies (EPA/600/S7-90/015)	79014	Reporting of Selected EPA-Sponsored Form EIA-767 Data for 1985-1987 (EPA/600/S7-89/014)
70017	Technoeconomic Appraisal of Integrated Gasification Combined-Cycle Power Generation (EPA/600/S7-90/017)	80005	Technical Assistance Document for Sampling and Analysis of Toxic Organic Compounds in Ambient Air (EPA/600/S8-90/005)
70018	Assessment of Control Technologies for Reducing Emissions of SO <sub>2</sub> and NO <sub>x</sub> from Existing Coal-Fired Utility Boilers (EPA/600/S7-90/018)	80052	Evaluation of Emission Factors for Formaldehyde from Certain Wood Processing Operations (EPA/600/S8-90/052)
70019	Field Performance of Advanced Technology Woodstoves in Glens Falls, NY, 1988-89 (EPA/600/S7-90/019)	80060	A User-Friendly Data Entry Routine for the ESP Model (EPA/600/S8-90/060)
70020	LIMB Process Development Studies (EPA/600/S7-90/020)	80073	National- and State-Level Emissions Estimates of Radiatively Important Trace Gases (RITGs) from Anthropogenic Sources (EPA/600/S8-90/073)
70021	Retrofit Costs for SO <sub>2</sub> and NO <sub>x</sub> Control Options at 200 Coal-Fired Plants (EPA/600/S7-90/021)	80075	Assessment of the Controllability of Condensable Emissions (EPA/600/S8-90/075)

80083	The Regional Oxidant Model (ROM) User's Guide (EPA/600/S8-90/083)	92192	Emission Test Report OMSS Field Test on Carbon Injection for Mercury Control (EPA/600/SR-92/192)
80085	Landfill Air Emissions Estimation Model User's Manual (EPA/600/S8-90/085)	92197	Combustion Area Sources Data Sources (EPA/600/SR-92/197)
81002	Global Inventory of Volatile Organic Compound Emissions from Anthropogenic Sources (EPA/600/S8-91/002)	92201	Alternative VOC Control Technique Options for Small Rotogravure and Flexography Facilities (EPA/600/SR-92/201)
81009	A Data User's Guide to the Mountain Cloud Chemistry Project (EPA/600/S8-91/009)	<b>92208</b>	<b>Volatile Organic Sampling Train—Soot Interference Report (EPA/600/SR-92/208)</b>
81032	MOBILE4 Sensitivity Analysis (EPA/600/S8-91/032)	92209	Proceedings 1991 International Conference on Municipal Waste Combustion (EPA/600/SR-92/209)
81046	Feasibility and Approach for Mapping Radon Potentials in Florida (EPA/600/S8-91/046)	<b>92214</b>	<b>Development of Size-Specific Data from Particulate Control Technology Research Reports (EPA/600/SR-92/214)</b>
81051	Recommended Operating Procedure No. 23 Sampling and Analysis of Total Hydrocarbons from Sources by Continuous Emission Monitor (EPA/600/600/S8-91/051)	92221	Application of a Data-Assimilating Prognostic Meteorological Model to Two Urban Areas (EPA/600/SR-92/221)
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91007	Proceedings of Two Highway Vehicle Emission Inventory Workshops (EPA/600/S9-91/007)	92224	Review and Evaluation of Current Methods and User Needs for Other Stationary Combustion Sources (EPA/600/SR-92/224)
91015	Proceedings 1990 SO <sub>2</sub> Control Symposium (EPA/600/S9-91/015)	<b>92239</b>	<b>Revised Emissions Estimation Methodologies for Industrial, Residential, and Electric Utility Stationary Combustion Sources (EPA/600/SR-92/239)</b>
92006	Identification and Characterization of Missing or Unaccounted for Area Source Categories (EPA/600/SR-92/006)	<b>93019</b>	<b>Characterization of PM-10 Emissions from Antiskid Materials Applied to Ice and Snow-Covered Roadways (EPA/600/SR-93/019)</b>
92067	Sensitivity of Modeled Ozone Concentrations to Uncertainties in Biogenic Emissions (EPA/600/SR-92/067)	<b>93044</b>	<b>Characterization of Emissions from the Simulated Open-Burning of Non-Metallic Automobile Shredder Residue (EPA/600/SR-93/044)</b>
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92112	Protocols for Evaluating Oxidant Mechanisms for Urban and Regional Models (EPA/600/SR-92/112)	<b>93053</b>	<b>Evaluation of Portable Multisorbent Air Samplers for Use with an Automated Multitube Analyzer (EPA/600/SR-93/053)</b>
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92151	The National Atmospheric Deposition Program/National Trends Network (NADP/NTN) SITE Visitation Program (October 1989 through September 1990) (EPA/600/SR-92/151)	99036	Proceedings First Combined FGD and Dry SO <sub>2</sub> Control Symposium (EPA/600/S9-89/036)
92152	Summary Report for the National Atmospheric Deposition Program/National Trends Network (NADP/NTN) Site Visitation Program for the Period October 1988 through September 1989 (EPA/600/SR-92/152)	99046	Proceedings Seventh Symposium on the Transfer and Utilization of Particulate Control Technology (EPA/600/S9-89/046)
92157	Atlanta Ozone Precursor Monitoring Study Data Report (EPA/600/SR-92/157)		

- 99047 Flexible Regional Emissions Data System (FREDS) Documentation for the 1985 NAPAP Emissions Inventory (EPA/600/S9-89/047)
- 99062 Proceedings 1989 Joint Symposium on Stationary Combustion NO<sub>x</sub> Control, San Francisco, CA, March 6-9, 1989, Volumes 1 and 2 (EPA/600/S9-89/062)
- 99089 EPA/IFP European Workshop on the Emission of Nitrous Oxide from Fossil Fuel Combustion (EPA/600/S9-89/089)

## Biotechnology

- 20006 Enhanced Bioremediation Utilizing Hydrogen Peroxide as a Supplemental Source of Oxygen: A Laboratory and Field Study (EPA/600/S2-90/006)
- 20060 In-Situ Biotransformation of Carbon Tetrachloride Under Anoxic Conditions (EPA/600/S2-90/060)
- 21009 Nitrate for Bioremediation of an Aquifer Contaminated with Jet Fuel (EPA/600/S2-91/009)
- 39080 Structure Activity Relationships and Estimation Techniques for Biodegradation of Xenobiotics (EPA/600/S3-89/080)
- 81043 Protein Adducts for Exposure Monitoring: A Computerized Database (Software and User's Manual) (EPA/600/S8-91/043)
- 91001 Biological Remediation of Contaminated Sediments, with Special Emphasis on the Great Lakes (EPA/600/S9-91/001)

## Drinking Water

- 19006 The Isolation and Identification of Electrophilic Mutagens Produced During Chlorine Disinfection (EPA/600/S1-89/006)
- 20007 Separated Flow Conditions at Pipe Walls of Water Distribution Mains (EPA/600/S2-90/007)
- 20014 Composite Sampling for Detection of Coliform Bacteria in Water Supply (EPA/600/S2-90/014)
- 20030 Operation of Water Distribution Systems to Improve Water Quality (EPA/600/S2-90/030)
- 20036 Radon Removal Techniques for Small Community Public Water Supplies (EPA/600/S2-90/036)
- 20047 Radon Removal Using Point-of-Entry Water Treatment Techniques (EPA/600/S2-90/047)
- 20049 Radon Removal by POE GAC Systems Design, Performance and Cost (EPA/600/S2-90/049)
- 21011 Arsenic (III) and Arsenic (V) Removal from Drinking Water in San Ysidro, New Mexico (EPA/600/S2-91/011)
- 21018 Diaper Industry Workshop Report (EPA/600/S2-91/018)
- 21036 Effect of Bromide on Chlorination Byproducts in Finished Drinking Water (EPA/600/S2-91/036)

- 21048 Evaluation of the MIDDAS Systems for Designing GAC Adsorbers (EPA/600/S2-91/048)
- 21063 Radium Removal from Water by Manganese Dioxide Adsorption and Diatomaceous Earth Filtration (EPA/600/S2-91/063)
- 28014 A Selection Guide for Volatilization Technologies for Water Treatment (EPA/600/S2-88/014)
- 31016 Microbial Transformation Rate Constants of Structurally Diverse Man-Made Chemicals (EPA/600/S3-91/016)
- 49002 Experimental Design and Data Analysis Applicable to Assays for Monitoring Waterborne Viruses (EPA/600/S4-89/002)
- 92009 Standardized Costs for Water Supply Distribution Systems (EPA/600/SR-92/009)
- 92023 Reduction of Disinfection By-Product Precursors by Nanofiltration (EPA/600/SR-92/023)
- 92048 Removing Radium from Water by Plain and Treated Activated Alumina (EPA/600/SR-92/048)
- 92079 A Status Report on Planktonic Cyanobacteria (Blue-Green Algae) and their Toxins (EPA/600/SR-92/079)
- 92218 Use of Expert Systems in a Water Utility (EPA/600/SR-92/218)

## Ecological Assessment

- 21043 Regional Assessment of Aquifer Vulnerability and Sensitivity in the Conterminous United States (EPA/600/S2-91/043)
- 31019 Preliminary Testing, Evaluation and Sensitivity Analysis for the Terrestrial Ecosystem Exposure Assessment Model (TEEAM) (EPA/600/S3-91/019)
- 31051 Forest Health Monitoring Plot Design and Logistics Study (EPA/600/S3-91/051)
- 39011 An Automated Monitoring System for Fish Physiology and Toxicology (EPA/600/S3-89/011)
- 41026 Example Environmental Assessment Report for Estuaries (EPA/600/S4-91/026)
- 92091 Statistical Approach to Predicting Chronic Toxicity of Chemicals to Fishes from Acute Toxicity Test Data (EPA/600/SR-92/091)

## Global Climate Change

- 21056 Manual for Non-CFC Aerosol Packaging Conversion from CFC to Hydrocarbon Propellants (EPA/600/S2-91/056)
- 29037 Potential Technologies for Collection and Destruction of CFCs, Halons and Related Compounds (EPA/600/S2-89/037)
- 29062 Aerosol Industry Success in Reducing CFC Propellant Usage (EPA/S2-89/062)

30026 Strategies for the Development of Climate Scenarios for Impact Assessment (EPA/600/S3-90/026)

30089 An Overview of Climate Information Needs for Ecological Effects Models (EPA/600/S3-90/089)

31070 Tropospheric Nitrogen The Influence of Anthropogenic Sources on Distributions and Deposition (EPA/600/S3-91/070)

31074 The Role of Climate in Forest Monitoring and Assessment A New England Example (EPA/600/S3-91/074)

71010 Experimental Investigation of PIC Formation in CFC Incineration (EPA/600/S7-91/010)

79011 Technologies for CFC/Halon Destruction (EPA/600/S7-89/011)

80071 Literature Review of Greenhouse Gas Emissions from Biogenic Sources (EPA/600/S8-90/071)

89042 Assessment of National and Regional Acid Deposition Precursor Emission Trends (EPA/600/S8-89/042)

91024 Proceedings EPA/NGA Workshop on Global Climate and State Actions, December 3-4, 1990 (EPA/600/S9-91/024)

92005 Greenhouse Gases from Small-scale Combustion in Developing Countries—A Pilot Study in Manila (EPA/600/SR-92/005)

92007 Demonstration of Fuel Cells to Recover Energy from Landfill Gas Phase I Final Report Conceptual Study (EPA/600/SR-92/007)

92017 The Performance of Chlorine-Free Binary Zeotropic Refrigerant Mixtures in a Heat Pump (EPA/600/SR-92/017)

92037 Development of an Empirical Model of Methane Emissions from Landfills (EPA/600/SR-92/037)

92116 Landfill Gas Energy Utilization Technology Options and Case Studies (EPA/600/SR-92/116)

92158 Energy Use of Ice Making in Domestic Refrigerators (EPA/600/SR-92/158)

92171 Mobile Air-Conditioning Recycling Manual (EPA/600/SR-92/171)

92242 **Evaluation of Nitrogen Oxide Emissions Data from TVA Coal-Fired Boilers (EPA/600/SR-92/242)**

93006 **Analysis of Acid Precipitation Samples Collected by State Agencies—Sampling Period January 1990-December 1990 (EPA/600/SR-93/006)**

93009 **Advanced Insulations for Refrigerator/Freezers: The Potential for New Shell Designs Incorporating Polymer Barrier Construction (EPA/600/SR-93/009)**

93020 **Rates of Reaction and Process Design Data for the Hydrocarb Process (EPA/600/SR-93/020)**

**93058 1991 Solar World Congress, Volumes 1 Through 4 (EPA/600/SR-93/058)**

## **Groundwater**

20002 A New Approach and Methodologies for Characterizing the Hydrogeologic Properties of Aquifers (EPA/600/S2-90/002)

20009 Denitrification in Nonhomogeneous Laboratory Scale Aquifers 1 Preliminary Model for Transport and Fate of a Single Compound (EPA/600/S2-90/009)

20022 A Feasibility Study of the Effectiveness of Drilling Mud as a Plugging Agent in Abandoned Wells (EPA/600/S2-90/022)

21010 Movement of Bacteria through Soil and Aquifer Sand (EPA/600/S2-91/010)

21014 Denitrification in Nonhomogeneous Laboratory Scale Aquifers 4. Hydraulics, Nitrogen Chemistry, and Microbiology in a Single Layer (EPA/600/S2-91/014)

21033 The Swelling Properties of Soil Organic Matter and Their Relation to Sorption of Non-Ionic Organic Compounds (EPA/600/S2-91/033)

21037 Chemicals Stored in USTs Characteristics and Leak Detection (EPA/600/S2-91/037)

21042 Modeling Multiphase Organic Chemical Transport in Soils and Ground Water (EPA/600/S2-91/042)

21044 Volumetric Leak Detection in Large Underground Storage Tanks (EPA/600/S2-91/044)

21047 Removal of DBCP from Groundwater Volume 2 Field Pilot Plant Operation (EPA/600/S2-91/047)

21062 A Model of Virus Transport in Unsaturated Soil (EPA/600/S2-91/062)

21064 Identification of Sources of Ground-Water Salinization Using Geochemical Techniques (EPA/600/S2-91/064)

21065 The RETC Code for Quantifying the Hydraulic Functions of Unsaturated Soils (EPA/600/S2-91/065)

31017 Sorption of Ionizable Organic Compounds to Sediments and Soils (EPA/600/S3-91/017)

31049 Temperature Scenario Development Using Regression Methods (EPA/600/S3-91/049)

40028 Field Comparison of Ground-Water Sampling Devices for Hazardous Waste Sites An Evaluation Using Volatile Organic Compounds (EPA/600/S4-90/028)

48001 Development of a Capillary Wick Unsaturated Zone Pore Water Sampler (EPA/600/S4-88/001)

48033 Geo-EAS (Geostatistical Environmental Assessment Software) User's Guide (EPA/600/S4-88/033)

60004 Laboratory Investigation of Residual Liquid Organics from Spills, Leaks, and the Disposal of Hazardous Wastes in Groundwater (EPA/600/S6-90/004)

69002	Assessment of the Potential for Transport of Dioxins and Codisposed Materials to Groundwater (EPA/600/S6-89/002)	21016 –	Forced Air Ventilation for Remediation of Unsaturated Soils Contaminated by VOC (EPA/600/S2-91/016)
80004	Geostatistics for Waste Management A User's Manual for the GEOPACK (Version 1.0) Geostatistical Software System (EPA/600/S8-90/004)	21017	Migration of Hazardous Substances through Soils (EPA/600/S2-91/017)
80039	OASIS Parameter Estimation System for Aquifer Restoration Models—User's Manual Version 2.0 (EPA/600/S8-90/039)	21030	Waste Minimization Opportunity Assessment Naval Undersea Warfare Engineering Station, Keyport, WA (EPA/600/S2-91/030)
92219	<b>Measurement and Analysis of Adsistor and Figaro Gas Sensors Used for Underground Storage Tank Leak Detection (EPA/600/SR-92/219)</b>	21032	The Fate of Trace Metals in a Rotary Kiln Incinerator with a Single-Stage Ionizing Wet Scrubber (EPA/600/S2-91/032)
93011	<b>Quality Assurance and Quality Control in the Development and Application of Ground-water Models (EPA/600/SR-93/011)</b>	21040	Compatibility of Flexible Membrane Liners and Municipal Solid Waste Leachates (EPA/600/S2-91/040)
93021	<b>Laboratory Study on the Use of Hot Water To Recover Light Oily Wastes from Sands (EPA/600/SR-93/021)</b>	21045	Separation of Hazardous Organics by Low Pressure Reverse Osmosis Membranes—Phase II, Final Report (EPA/600/S2-91/045)
93022	<b>DNAPL Site Evaluation (EPA/600/SR-93/022)</b>	21049	A Comparative Evaluation of Two Extraction Procedures The TCLP and the EP (EPA/600/S2-91/049)
<b>Hazardous Waste/Contaminated Soils</b>		21058	Pilot-Scale Incineration of Contaminated Soil from the Purity Oil Sales and McColl Superfund Sites (EPA/600/S2-91/058)
20025	Relationship of Laboratory- and Field-Determined Hydraulic Conductivity in Compacted Clay Layer (EPA/600/S2-90/025)	21067	Evaluation of Five Waste Minimization Technologies at the General Dynamics Pomona Division Plant (EPA/600/S2-91/067)
20026	Treating Chlorinated Waste with the KPEG Process (EPA/600/S2-90/026)	28017	Factors in Assessing the Compatibility of FMLs and Waste Liquids (EPA/600/S2-88/017)
20029	Development of Data Base on Chemical Migration from Polymeric Material (EPA/600/S2-90/029)	28018	Oxidative Degradation of Organic Acids Conjugated with Sulfite Oxidation in Flue Gas Desulfurization (EPA/600/S2-88/018)
20032	Recovery of Metals Using Aluminum Displacement (EPA/600/S2-90/032)	29018	Evaluation of Solidified Residue from Municipal Solid Waste Combustors (EPA/600/S2-89/018)
20034	Biological Degradation of Cyanide by Nitrogen-Fixing Cyanobacteria (EPA/600/S2-90/034)	29021	Continuous Performance Monitoring Techniques for Hazardous Waste Incinerators (EPA/600/S2-89/021)
20035	Metal Recovery/Removal Using Non-Electrolytic Metal Recovery (EPA/600/S2-90/035)	29023	Synthetic Organic Compound Rejection by Nanofiltration (EPA/600/S2-89/023)
20039	Minimization and Control of Hazardous Combustion By-Products (EPA/600/S2-90/022)	29048	Experimental Investigation of Critical Fundamental Issues in Hazardous Waste Incineration (EPA/600/S2-89/048)
20041	Fundamental Approach to Service Life of Flexible Membrane Liners (FML's) (EPA/600/S2-90/041)	29056	The Morphology and Microchemistry of Solidified/Stabilized Hazardous Waste Systems (EPA/600/S2-89/056)
20043	The Fate of Trace Metals in a Rotary Kiln Incinerator with a Venturi/Packed Column Scrubber (EPA/600/S2-90/043)	29057	Stability of Lined Slopes at Landfills and Surface Impoundments (EPA/600/S2-89/057)
20055	Characterization and Treatment of Wastes from Metal-Finishing Operations (EPA/600/S2-90/055)	30006	Annual Report on Performance Audit Results for POHC Testing During RCRA Trial Burns — Status Report #2 (EPA/600/S3-90/006)
21002	Compilation of Information on Alternative Barriers for Liner and Cover Systems (EPA/600/S2-91/002)	30007	Validation of Emission Test Method for PCDD's and PCDF's (EPA/600/S3-90/007)
21008	Factors Controlling Minimum Soil Liner Thickness (EPA/600/S2-91/008)		
21012	Feasibility of Hydraulic Fracturing of Soil to Improve Remedial Actions (EPA/600/S2-91/012)		



30009	Laboratory and Field Evaluations of Methodology for Measuring Emissions of Chlorinated Solvents from Stationary Sources (EPA/600/S3-90/009)	78001	Fundamental Combustion Research Applied to Pollution Formation Volume II. Physics and Chemistry of Two-Phase Systems (EPA/600/S7-88/001)
30010	Efficiency of Dioxin Recovery from Fly Ash Samples During Extraction and Cleanup Process (EPA/600/S3-90/010)	78002	Fundamental Combustion Research Applied to Pollution Formation Volume III Support Studies. Measurement Studies (EPA/600/S7-88/002)
30031	Available Models for Estimating Emissions from Bioremediation Processes. A Review (EPA/600/S3-90/031)	78010	Testing of Toxicology and Emissions Sampling Methodology for Ocean Incineration of Hazardous Wastes (EPA/600/S7-88/010)
30033	Audit Materials for Semivolatile Organic Measurements During Hazardous Waste Trial Burns (EPA/600/S3-90/033)	78017	Mixture Effects in the Catalytic Oxidation of VOCs in Air (EPA/600/S7-88/017)
30052	A Chamber and Modeling Study to Assess the Photochemistry of Formaldehyde (EPA/600/S3-90/052)	78021	Kinetic Modeling of NO <sub>x</sub> Formation and Destruction and Combustibles Burnout (EPA/600/S7-88/021)
30094	Problem POHC Reference Directory (EPA/600/S3-90/094)	81039	Correlation of Florida Soil-Gas Permeabilities with Grain Size, Moisture, and Porosity (EPA/600/S8-91/039)
31071	Superfund Innovative Technology Evaluation, The Delaware SITE Study, 1989 (EPA/600/S3-91/071)	89080	POHCs and PICs Screening Protocol (EPA/600/S8-89/080)
40012	Proximity of Sanitary Landfills to Wetlands and Deepwater Habitats An Evaluation and Comparison of 1,153 Sanitary Landfills in 11 States (EPA/600/S4-90/012)	89102	MOUSE: A Computerized Uncertainty Analysis System (EPA/600/S8-89/102)
41011	Molecular Optical Spectroscopic Techniques for Hazardous Waste Site Screening (EPA/600/S4-91/011)	92035	Separation of Hazardous Organics by Low Pressure Membranes Treatment of Soil-Wash Rinse-Water Leachates (EPA/600/SR-92/035)
41029	Guide to Site and Soil Description for Hazardous Waste Site Characterization - Volume 1. Metals (EPA/600/S4-91/029)	92065	Pilot-Scale Evaluation of the Thermal Stability POHC Incinerability Ranking (EPA/600/SR-92/065)
41032	Measurement of Polycyclic Aromatic Hydrocarbons in Soils and Sediments by Particle-Beam/High-Performance/Liquid Chromatography/Mass Spectrometry (EPA/600/S4-91/032)	92068	Pilot-Scale Incineration of RCB-Contaminated Sediments from the New Bedford Harbor Hot Spot Superfund Site (EPA/600/SR-92/068)
48005	Screening of Semivolatile Organic Compounds for Extractability and Aqueous Stability by SW-846 Method 3510 (EPA/600/S4-88/005)	92069	Evaluation of the Chemical Resistance of Geotextiles, Geonets, and Pipe (EPA/600/SR-92/069)
48038	Production and Management of Small-Quantity-Generator Hazardous Waste in Florida (EPA/600/S4-88/038)	92096	Potential Reuse of Petroleum-Contaminated Soil A Directory of Permitted Recycling Facilities (EPA/600/SR-92/096)
49007	Biological Monitoring Systems for Hazardous Waste Sites (Production and Analysis of Analytical Reference Materials) (EPA/600/S4-89/007)	92124	Air Emissions from the Treatment of Soils Contaminated with Petroleum Fuels and Other Substances (EPA/600/SR-92/124)
50504	Development of Electro-Acoustic Soil Decontamination (ESD) Process for In Situ Applications (EPA/540/S5-90/004)	92128	Preparation of Soil Sampling Protocols Sampling Techniques and Strategies (EPA/600/SR-92/128)
60002	Pathogen Risk Assessment for Land Application of Municipal Sludge Volume I Methodology and Computer Model, Volume II User's Manual (EPA/600/S6-90/002)	92138	Higher Plant Accumulation of Organic Pollutants from Soils (EPA/600/SR-92/138)
71008	Waste Combustion System Analysis (EPA/600/S7-91/008)	92142	On-Site Engineering Report for the Low-Temperature Thermal Desorption Pilot-Scale Test on Contaminated Soil (EPA/600/SR-92/142)
		92170	Soil Vapor Extraction Column Experiments on Gasoline Contaminated Soil (EPA/600/SR-92/170)
		92173	A Technology Assessment of Soil Vapor Extraction and Air Sparging (EPA/600/SR-92/173)

- 92240 Pilot-Scale Incineration of Contaminated Sludges from the Bofors-Nobel Superfund Site (EPA/600/SR-92/240)
- 93028 Decision-Support Software for Soil Vapor Extraction Technology Application: Hyper-Ventilate (EPA/600/SR-93/028)
- 93036 Pilot-Scale Incineration of Contaminated Soils from the Chemical Insecticide Corporation Superfund Site (EPA/600/SR-93/036)
- 93047 Pilot-Scale Incineration of Contaminated Soils from the Drake Chemical Superfund Site (EPA/600/SR-93/047)
- 93051 Onsite Engineering Report for Solidification/Stabilization Treatment Testing of Contaminated Soils (EPA/600/SR-93/051)
- 93066 On-Site Engineering Report of the Slurry-Phase Biological Reactor for Pilot-Scale Testing on Contaminated Soil (EPA/600/SR-93/066)
- 93070 LDCRS Flow from Double-Lined Landfills and Surface Impoundments (EPA/600/SR-93/070)
- 93081 MULTIMED, the Multimedia Exposure Assessment Model for Evaluating the Land Disposal of Wastes—Model Theory (EPA/600/SR-93/081)
- 93082 A Subtitle D Landfill Application Manual for the Multimedia Exposure Assessment Model (MULTIMED) (EPA/600/SR-93/082)

## Health Assessment

- 21059 Improvement of PMN Review Procedures to Estimate Protective Clothing Performance, Executive Summary Report (EPA/600/S2-91/059)
- 29052 Assessing Chemical Releases and Worker Exposures from a Filter Press (EPA/600/S2-89/052)
- 29063 Exposure to Chemical Additives from Polyvinyl Chloride Polymer Extrusion Processing (EPA/600/S2-89/063)
- 60003 Methodology for Assessing Health Risks Associated with Indirect Exposure to Combustor Emissions (EPA/600/S6-90/003)
- 61004 Development of Risk Assessment Methodology for Municipal Sludge Incineration (EPA/600/S6-91/004)
- 61006 Preliminary Risk Assessment for Bacteria in Municipal Sewage Sludge Applied to Land (EPA/600/S6-91/006)
- 81007 Feasibility of Environmental Monitoring and Exposure Assessment for a Municipal Waste Combustor at Rutland, Vermont (EPA/600/S8-91/007)
- 81041 Health Effects Assessment Documents (EPA/600/S8-91/041)
- 81042 Updated Health Effects Assessment Documents (EPA/600/S8-91/042)

- 81045 Selection of Adduct-Forming Chemicals for Human Monitoring Studies (EPA/600/S8-91/045)
- 84001F Health Assessment Document for Hexachlorocyclopentadiene (EPA/600/S8-84/001F)
- 84015F Health Assessment Document for Chlorinated Benzenes (EPA/600/S8-84/015F)
- 88072 Health and Environmental Effects Profiles Fiscal Year 1984 (EPA/600/S8-88/072)
- 89068 Applications of an Exact NOAEL--Procedure for Dichotomous Data from Animal Experiments (EPA/600/S8-89/068)
- 92049 Permeation of Multifunctional Acrylates through Three Protective Clothing Materials (EPA/600/SR-92/049)
- 92064 Preliminary Risk Assessment for Viruses in Municipal Sewage Sludge Applied to Land (EPA/600/SR-92/064)
- 92072 Directory to Literature on Stool-Shed Viruses and Shellfish Illness Outbreaks and Virus Detection Methods (EPA/600/SR-92/072)

## Indoor Air Quality

- 20053 Evaluation of Two Cleaning Methods for the Removal of Asbestos Fibers from Carpets (EPA/600/S2-90/053)
- 21003 Assessment of Asbestos Removal Carried Out Using EPA Purple Book Guidance (EPA/600/S2-91/003)
- 21004 Asbestos Fiber Reentrainment During Dry Vacuuming and Wet Cleaning of Asbestos-Contaminated Carpet (EPA/600/S2-91/004)
- 31013 Two Indoor Air Exposure Modeling Studies CONTAM Modeling Results and Serial Correlation Effects (EPA/600/S3-91/013)
- 39055 Statistical Comparison of Results of Two Indoor Air Pilot Studies (EPA/600/S3-89/055)
- 40010 Compendium of Methods for the Determination of Air Pollutants in Indoor Air (EPA/600/S4-90/010)
- 41006 Time Spent in Activities, Locations, and Microenvironments (EPA/600/S4-91/006)
- 41025 Indoor Air Pollutants from Household Product Sources (EPA/600/S4-91/025)
- 70004 Characterization of Population and Usage of Unvented Kerosene Space Heaters (EPA/600/S7-90/004)
- 70006 Comparison of Measurement Techniques for Quantifying Selected Organic Emissions from Kerosene Space Heaters (EPA/600/S7-90/006)
- 70016 Investigation of Radon Entry and Effectiveness of Mitigation Measures in Seven Houses in New Jersey (EPA/600/S7-90/016)
- 80050 Testing of Indoor Radon Reduction Techniques in Central Ohio Houses Phase 2 (Winter 1988-1989) (EPA/600/S8-90/050)

80061	Radon Mitigation Studies Nashville Demonstration (EPA/600/S8-90/061)	91026	Proceedings: The 1990 International Symposium on Radon and Radon Reduction Technology (EPA/600/S9-91/026)
80062	Interim Radon-Resistant Construction Guidelines for Use in Florida-1989 (EPA/600/S8-90/062)	91037	Proceedings: The 1991 International Symposium on Radon and Radon Reduction Technology (EPA/600/S9-91/037)
80070	Identification of Candidate Houses for North Florida Portion of the Florida Radon Mitigation Project (EPA/600/S8-90/070)	91044	Proceedings of the Workshop on Radon Potential Mapping Florida Radon Research Program (EPA/600/S9-91/044)
80072	Summary of EPA's Radon Reduction Research in Schools During 1989-90 (EPA/600/S8-90/072)	92008	Radon Pressure Differential Project, Phase I Florida Radon Research Program (EPA/600/SR-92/008)
80074	Classification of Materials as Potential Sources of Indoor Air Pollution (EPA/600/S8-90/074)	92010	Recommended HVAC Standard of the Florida Radon Research Program (EPA/600/SR-92/010)
80076	Testing of Indoor Radon Reduction Techniques in Basement Houses Having Adjoining Wings (EPA/600/S8-90/076)	92025	Indoor Air Quality Data Base for Organic Compounds (EPA/600/SR-92/025)
80081	Follow-Up Annual Alpha-Track Monitoring in 40 Eastern Pennsylvania Houses with Indoor Radon Reduction Systems (December 1988 - December 1989) (EPA/600/S8-90/081)	92027	Asbestos Concentrations Two Years after Abatement in Seventeen Schools (EPA/600/SR-92/027)
81010	Follow-Up Durability Measurements and Mitigation Performance Improvement Tests in 38 Eastern Pennsylvania Houses Having Indoor Radon Reduction Systems (EPA/600/S8-91/010)	92059	Natural Basement Ventilation as a Radon Mitigation Technique (EPA/600/SR-92/059)
81013	EXPOSURE Version 2, A Computer Model for Analyzing the Effects of Indoor Air Pollutant Sources on Individual Exposure (EPA/600/S8-91/013)	92090	Simplified Modeling of Air Flow Dynamics in SSD Radon Mitigation Systems for Residences with Gravel Beds (EPA/600/SR-92/090)
81014	Indoor Air Quality Simulator for Personal Computers (EPA/600/S8-91/014)	92094	Tests of Indoor Air Quality Sinks (EPA/600/SR-92/094)
81200	Parametric Analysis of the Installation and Operating Costs of Active Soil Depressurization Systems for Residential Radon Mitigation (EPA/600/S8-91/200)	92102	The Effects of Natural and Forced Basement Ventilation on Radon Levels in Single Family Dwellings (EPA/600/SR-92/102)
81206	Recommended Foundation Fill Materials Construction Standard of the Florida Radon Research Program (EPA/600/S8-91/206)	99006	Proceedings 1988 Symposium on Radon and Radon Reduction Technology (EPA/600/S9-89/006)
81208	Recommended Sub-slab Depressurization Systems Design Standard of the Florida Radon Research Program (EPA/600/S8-91/208)	99057	Proceedings of the Radon Diagnostics Workshop, April 14-17, 1987 (EPA/600/S9-89/057)
81210	Development of Alternate Performance Standard for Radon Resistant Construction Based on Short-term/ Long-term Indoor Radon Concentrations (EPA/600/S8-91/210)	92119	Modeling Radon Entry Into Florida Houses with Concrete Slabs and Concrete-Block Stem Walls, Florida Radon Research Program (EPA/600/SR-92/119)
81212	Standard Measurement Protocols, Florida Radon Research Program (EPA/600/S8-91/212)	92125	HVAC Systems in the Current Stock of U.S K-12 Schools (EPA/600/SR-92/125)
84003F	Airborne Asbestos Health Assessment Update (EPA/600/S8-84/003F)	92191	Guidance for Research House Studies of the Florida Radon Research Program (EPA/600/SR-92/191)
88098	Follow-Up Alpha-Track Monitoring in 40 Eastern Pennsylvania Houses with Indoor Radon Reduction Systems (Winter 1987-88) (EPA/600/S8-88/098)	92198	Recommended Performance Standard of the Florida Radon Research Program (EPA/600/SR-92/198)
89001	Radon Reduction and Radon Resistant Construction Demonstrations in New York (EPA/600/S8-89/001))	92207	Radon Mitigation Studies South Central Florida Demonstration (EPA/600/SR-92/207)
		93027	<b>Reference Manual for RASSMIT Version 2.1: A Sub-slab Depressurization System Design Performance Simulation Program (EPA/600/SR-93/027)</b>
		93043	<b>Radon Reduction and Radon-Resistant Construction Demonstrations in New York (EPA/600/SR-93/043)</b>

93052 Proceedings of the Indoor Radon Modeling Workshop, Florida Radon Research Program (EPA/600/SR-93/052)

## Industrial Wastewater

10006 Performance Evaluation at a Long-Term Food Processing Land Treatment Site (EPA/600/S1-90/006)

21041 Recovery of Metals from Sludges and Wastewaters (EPA/600/S2-91/041)

30039 Galvanized Steel—National Distribution Study (EPA/600/S3-90/039)

30054 Laboratory Method to Estimate Hydrogen Chloride Emission Potential Before Incineration of a Waste (EPA/600/S3-90/054)

30065 Sampling and Analysis of Butadiene at a Neoprene Plant (EPA/600/S3-90/065)

80049 Pulverized Coal Combustion Pollutant Formation and Control, 1970-1980 (EPA/600/S8-90/049)

90017 Control Technology Center, 1989, A Year of Growth and a Promising Future (EPA/600/S9-90/017)

## Municipal Solid Waste

21005 PROTOCOL - A Computerized Solid Waste Quantity and Composition Estimation System (EPA/600/S2-91/005)

21055 Analysis of Factors Affecting Methane Gas Recovery from Six Landfills (EPA/600/S2-91/055)

71002 Approach for Estimating Global Landfill Methane Emissions (EPA/600/S7-91/002)

81031 Methodology for Assessing Environmental Releases of and Exposure to Municipal Solid Waste Combustor Residuals (EPA/600/S8-91/031)

92024\* Construction, Monitoring, and Performance of Two Soil Liners (EPA/600/S-92/024)

92052 Proceedings: 1989 International Conference on Municipal Waste Combustion (EPA/600/SR-92/052)

92233 Evaluation of Source Term Initial Conditions for Modeling Leachate Migration from Landfills (EPA/600/SR-92/233)

## Municipal Wastewater

20012 Performance of Activated Sludge-Powdered Activated Carbon-Wet Air Regeneration Systems (EPA/600/S2-90/012)

20013 Treatability of RCRA Compounds in a BOD/Nitrification Wastewater Treatment System with Dual Media Filtration (EPA/600/S2-90/013)

20015 Technology Assessment of the Biological Aerated Filter (EPA/600/S2-90/015)

20016 Test and Evaluation of a Polymer Membrane Preconcentrator (EPA/600/S2-90/016)

20037 Effect of Recycling Thermophilic Sludge on the Activated Sludge Process (EPA/600/S2-90/037)

20038 Fuel-Efficient Sewage Sludge Incineration (EPA/600/S2-90/038)

21007 Emissions of Metals and Organics from Municipal Wastewater Sludge Incinerators (EPA/600/S2-91/007)

21013 Integrated Model for Predicting the Fate of Organics in Wastewater Treatment Plants (EPA/600/S2-91/013)

21046 Bench-Scale Evaluation of Ammonia Removal from Wastewater by Steam Stripping (EPA/600/S2-91/046)

28065 Oxygen Utilization in Activated Sludge Plants Simulation and Model Calibration (EPA/600/S2-88/065)

28072 Reductions of Enteric Microorganisms During Aerobic Sludge Digestion — Comparison of Conventional and Autoheated Digesters (EPA/600/S2-88/072)

29020 Development and Evaluation of a Rubber "Duck Bill" Tide Gate (EPA/600/S2-89/020)

29022 Cost and Performance of Membranes for Organic Control in Small Systems: Flagler Beach and Punta Gorda, Florida (EPA/600/S2-89/022)

40002 Multispectral Identification and Confirmation of Organic Compounds in Wastewater Extracts (EPA/600/S4-90/002)

41004 Multispectral Identification of Potentially Hazardous Byproducts of Ozonation and Chlorination. Part I, Studies of Chromatographic and Spectroscopic Properties of MX (EPA/600/S4-91/004)

49011 USEPA Method Study 35, SW-846 Method 3010: Acid Digestion of Aqueous Samples and Extracts for Total Metals for Analysis by Flame Atomic Absorption Spectroscopy (EPA/S4-89/011)

49015 USEPA Method Study 35, SW-846 Method 3005: Acid Digestion of Water for Total Recoverable or Dissolved Metals for Analyses by Flame Atomic Absorption (EPA/600/S4-89/015)

60001 Development of Risk Assessment Methodology for Surface Disposal of Municipal Sludge (EPA/600/S6-90/001)

61001 Preliminary Risk Assessment for Parasites in Municipal Sewage Sludge Applied to Land (EPA/600/S6-91/001)

68010	Qualitative Pathogen Risk Assessment for Ocean Disposal of Municipal Sludge (EPA/600/S6-88/010)	40023	Handbook of Methods for Acid Deposition Studies, Laboratory Analyses for Soil Chemistry (EPA/600/S4-90/023)
92003	Emissions of Metals, Chromium and Nickel Species, and Organics from Municipal Wastewater Sludge Incinerators (EPA/600/SR-92/003)	41013	Agroecosystem Monitoring and Research Strategy. Environmental Monitoring and Assessment Program (EPA/600/S4-91/013)
92117	Inorganic Chemical Characterization of Water Treatment Plant Residuals (EPA/600/SR-92/117)	41027	Watershed Characterization Using LANDSAT Thematic Mapper (TM) Satellite Imagery, Blackfoot River, Montana (EPA/600/S4-91/027)
92120	Total Hydrocarbon Emission Testing of Wastewater Sludge Incinerators (EPA/600/SR-92/120)	71005	Field Performance of Woodburning and Coalburning Appliances in Crested Butte During the 1989-1990 Heating Season (EPA/600/S7-91/005)
92184	Toxicity Reduction Evaluation: Case Histories at High Point and Fayetteville, North Carolina (EPA/600/SR-92/184)	92001	Documentation of AIRS AMS National Methodologies (EPA/600/SR-92/001)
92238	<b>Investigation of Inappropriate Pollutant Entries into Storm Drainage Systems: A User's Guide (EPA/600/SR-92/238)</b>	92104	ESPVI 4.0 Electrostatic Precipitator V-I and Performance Model User's Manual (EPA/600/SR-92/104)
<b>Non-Point Source Pollution Control</b>		92196	Effects of E-SO <sub>x</sub> Technology on ESP Performance (EPA/600/SR-92/196)
21057	The Liquid and Gaseous Fuel Distribution System (EPA/600/S2-91/057)	<b>Pesticides</b>	
21060	Review of Energy Efficiency of Refrigerator/Freezer Gaskets (EPA/600/S2-91/060)	20023	Pesticide Spray Penetration and Thermal Comfort of Protective Apparel for Pesticide Applicators (EPA/600/S2-90/023)
30018	Second Interim Report. Quality Assurance Support for the National Atmospheric Deposition Program and National Trends Network Monitoring Activities 1987-1990 (EPA/600/S3-90/018)	30003	Nonoccupational Pesticide Exposure Study (NOPES) (EPA/600/S3-90/003)
30024	Rocky Mountain Acid Deposition Model Assessment. ARM3 Model Performance Evaluation (EPA/600/S3-90/024)	30030	Field Evaluation of a High Volume Surface Sampler for Pesticides in Floor Dust (EPA/600/S3-90/030)
30028	Analysis of Acid Precipitation Samples Collected by State Agencies 1988 (EPA/600/S3-90/028)	<b>Pollution Prevention</b>	
30044	Impact of NADP/NTN Sampling Protocols on Winter Storm Estimates of Wet Deposition in Central Pennsylvania (EPA/600/S3-90/044)	20008	Users Guide for the Conversion of Navy Paint Spray Booth Particulate Emission Control Systems from Wet to Dry Operations (EPA/600/S2-90/008)
39002	Geographic Information System Documentation of Watershed Data for Direct/Delayed Response Project-Southern Blue Ridge Province Databases (EPA/600/S3-89/002)	20021	Preliminary Assessment of Life-Cycle Costs of Protective Clothing (EPA/600/S2-90/021)
39007	The National Atmospheric Deposition Program/National Trends Network (NADP/NTN) Site Visitation Program (October 1986 through September 1987) (EPA/600/S3-89/007)	20031	Waste Minimization Opportunity Assessment Fort Riley, Kansas (EPA/S2-90/031)
39009	Mountain Cloud Chemistry Project — Wet, Dry and Cloud Deposition (EPA/600/S3-89/009)	20046	Waste Minimization Opportunity Assessment Philadelphia Naval Shipyard (EPA/600/S2-90/046)
39012	Interim Report. Quality Assurance Support for the National Atmospheric Deposition Program and National Trends New Monitoring Activities: 1987-1990 (EPA/600/S3-89/012)	20048	Background Document on Clean Products Research and Implementation (EPA/600/S2-90/048)
40001	Direct/Delayed Response Project. Quality Assurance Report for Physical and Chemical Analyses of Soils from the Mid-Appalachian Region of the United States (EPA/600/S4-90/001)	20051	VOC Emission Reduction Study at the Hill Air Force Base Building 515 Painting Facility (EPA/600/S2-90/051)
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		21015	Approximate Multiphase Flow Modeling by Characteristic Methods (EPA/600/S2-91/015)

21024	Hospital Pollution Prevention Case Study (EPA/600/S2-91/024)	92114	Modifications to Reduce Drag Out at a Printed Circuit Board Manufacturer (EPA/600/SR-92/114)
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59503	Technology Evaluation Report SITE Program Demonstration Test, Terra Vac In Situ Vacuum Extraction Systems, Groveland, Massachusetts (EPA/540/S5-89/003)	30047	Validation of Emission Sampling and Analysis Test Method for PCDDs and PCDFs II (EPA/600/S3-90/047)
59504	Technology Evaluation Report. SITE Program Demonstration Test, International Waste Technologies In Situ Stabilization/Solidification, Hialeah, Florida (EPA/540/S5-89/004)	30048	Development of a Sampling Procedure for Large Nitrogen-and Sulfur-Bearing Aerosols (EPA/600/S3-90/048)
59505	Technology Evaluation Report. SITE Program Demonstration Test, Solidtech, Inc Morganville, New Jersey (EPA/540/S5-89/005)	30049	Measurements of Exhaled Breath Using a New Portable Sampling Method (EPA/600/S3-90/049)
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19006	20060	21059	30028	39002	41006	70004	80053	89068	92067	92201	99047
	20062	21060	30029	39007	41009	70005	80056	89069	92068	92207	99057
20001	21002	21061	30030	39009	41011	70006	80060	89080	92069	92208	99062
20002	21003	21062	30031	39010	41012	70007	80061	89083	92072	92209	99089
20003	21004	21063	30032	39011	41013	70008	80062	89102	92078	92214	
20006	21005	21064	30033	39012	41014	70009	80065		92079	92218	89M009
20007	21007	21065	30038	39015	41018	70010	80069	90017	92083	92219	90M017
20008	21008	21066	30039	39019	41019	70011	80070	90054	92084	92221	91M015
20009	21009	21067	30040	39020	41025	70012	80071	90058	92089	92222	91M016
20012	21010	28014	30044	39022	41026	70013	80072	91001	92090	92224	91M017
20013	21011	28017	30046	39023	41027	70014	80073	91007	92091	92226	91M018
20014	21012	28018	30047	39024	41028	70015	80074	91015	92094	92233	91M019
20015	21013	28065	30048	39025	41029	70016	80075	91019	92096	92238	91M020
20016	21014	28072	30049	39026	41032	70017	80076	91023	92102	92239	91M021
20019	21015	29004	30051	39027	48001	70018	80081	91024	92104	92240	91M022
20020	21016	29006	30052	39028	48005	70019	80083	91025	92106	92242	91M023
20021	21017	29008	30054	39032	48006	70020	80085	91026	92112	92245	91M024
20022	21018	29018	30055	39036	48029	70021	80086	91037	92114	92251	91M025
20023	21021	29020	30056	39040	48030	70022	80087	91044	92115	93004	92S025
20024	21022	29021	30057	39044	48033	71001	81002	91047	92116	93006	92S026
20025	21023	29022	30058	39051	48034	71002	81007	92001	92117	93008	92S027
20026	21024	29023	30059	39055	48038	71004	81009	92003	92118	93009	92S028
20029	21025	29024	30064	39056	49002	71005	81010	92005	92119	93011	92S029
20030	21027	29033	30065	39057	49007	71006	81013	92006	92120	93015	92S030
20031	21028	29037	30088	39058	49010	71007	81014	92007	92124	93019	92S031
20032	21029	29043	30089	39062	49011	71008	81031	92008	92125	93020	92S032
20034	21030	29048	30091	39066	49015	71009	81032	92009	92127	93021	92S033
20035	21031	29052	30093	39068	49018	71010	81036	92010	92128	93022	92S034
20036	21032	29056	30094	39071	49021	78001	81039	92014	92138	93027	92S035
20037	21033	29057	30097	39080	49022	78002	81041	92017	92141	93028	92S036
20038	21035	29062	31002	39082		78010	81042	92023	92142	93032	92S037
20039	21036	29063	31004		50504	78017	81043	92024	92143	93036	92S039
20041	21037	29065	31005	40001	59503	78021	81045	92024*	92145	93043	92S040
20042	21038	29066	31013	40002	59504	79008	81046	92025	92151	93044	92S041
20043	21039		31015	40008	59505	79010	81050	92027	92152	93045	92S042
20044	21040	30001	31016	40010	59512	79010a	81051	92031	92157	93047	92S043
20046	21041	30003	31017	40011		79010b/c	81052	92032	92158	93048	92S044
20047	21042	30005	31018	40012	60001	79010d/e	81200	92035	92159	93051	92S045
20048	21043	30006	31019	40015	60002	79011	81206	92037	92169	93052	92S046
20049	21044	30007	31020	40019	60003	79012	81208	92039	92170	93053	92S047
20050	21045	30008	31033	40021	60004	79013	81210	92048	92171	93057	92S048
20051	21046	30009	31045	40022	61001	79014	81211	92049	92173	93058	92S049
20052	21047	30010	31049	40023	61004		81212	92050	92184	93066	92S050
20053	21048	30013	31050	40024	61006		84001F	92052	92187	93070	92S051
20054	21049	30017	31051	40026	68010	80004	84003F	92053	92188	93075	92S052
20055	21054	30018	31052	40027	69002	80005	84015F	92057	92191	93081	92S053
20056	21055	30024	31065	40028		80039	88072	92058	92192	93082	92S054
20057	21056	30025	31070	40032	70001	80049	88098	92059	92196	99006	92S055
20058	21057	30026	31071	40034	70002	80050	89001	92064	92197	99036	92S056

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92S057	92S063	895M001	895S001	895S008	905S007	915S007	915M007	925M002	925M015	925S002	935M502
92S058	92S064	895M003	895S003	895S011	915S001	915M001	915M007	925M008	925M019	925S015	935M503
92S059	93S002	895M005	895S004	895S012	915S003	915M002	915M009	925M010	925M075	925S017	935M504
92S060	93S004	895M008	895S004A	905S002	915S005	915M003	925F011	925M011	925M078	925S080	935M505
92S061		895M011	895S005	905S005	915S006	915M005	925M001	925M014	925M079	935M501	935S507
92S062	885S002	895M012	895S007								

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