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Report Abstracts Industrial Environmental Research Laboratory RTP





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January 1981

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IERL-RTP-1109			TECHNICAL REPORT DATA (Please read Instructions on the reverse before completing)		
1. REPORT NO. EPA-600/D-80-015		2.		3. RECIPIENT'S ACCESSION NO.	
4. TITLE AND SUBTITLE Industrial Environmental Research Brief: Reduction of Air Emissions from Benzene Storage Tanks				5. REPORT DATE December 1980	
				6. PERFORMING ORGANIZATION CODE	
7. AUTHOR(S) Arnold Gunther				8. PERFORMING ORGANIZATION REPORT NO.	
9. PERFORMING ORGANIZATION NAME AND ADDRESS Stop-Los Company 5 Lawrence Street Bloomfield, New Jersey 07003				10. PROGRAM ELEMENT NO. 1AB604	
				11. CONTRACT/GRANT NO. 68-02-3144	
12. SPONSORING AGENCY NAME AND ADDRESS EPA, Office of Research and Development Industrial Environmental Research Laboratory Research Triangle Park, NC 27711				13. TYPE OF REPORT AND PERIOD COVERED IARB; 5/79-5/80	
				14. SPONSORING AGENCY CODE EPA/600/13	
15. SUPPLEMENTARY NOTES IERL-RTP project officer is Bruce A. Tichenor, Mail Drop 62, 919/541-2547.					
16. ABSTRACT The report gives results of a project to determine the technical and economic feasibility of using flexible plastic membranes to control emissions emanating from benzene storage tanks. Emission rates and the expected life of the membranes were to have been established. A demonstration unit, previously built for EPA (to determine gasoline emissions), was refurbished and operated for benzene service. Results indicate that emission control of 99-plus %, when compared to uncontrolled tanks, can readily be achieved and that the life expectancy of the membranes is on the order of 20 years of continuous service. The installed cost of these devices for commercial-size applications was estimated and found to be competitive with conventionally used floating roofs.					
17. KEY WORDS AND DOCUMENT ANALYSIS					
a. DESCRIPTORS		b. IDENTIFIERS/OPEN ENDED TERMS		c. COSATI Field/Group	
Pollution Benzene Storage Tanks Plastics Membranes		Pollution Control Stationary Sources Plastic Membranes		13B 07C 13D 11I 11G	
18. DISTRIBUTION STATEMENT Release to Public		19. SECURITY CLASS (This Report) Unclassified		21. NO. OF PAGES 24	
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TECHNICAL REPORT DATA
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1. REPORT NO. EPA-600/2-80-077b		2.		3. RECIPIENT'S ACCESSION NO.	
4. TITLE AND SUBTITLE Treatability Studies of Pesticide Manufacturing Wastewaters: Dazomet				5. REPORT DATE	
				6. PERFORMING ORGANIZATION CODE	
7. AUTHOR(S) Edward Monnig, Ruth A. Zweidinger, and Mary Warner				8. PERFORMING ORGANIZATION REPORT NO.	
9. PERFORMING ORGANIZATION NAME AND ADDRESS Research Triangle Institute P.O. Box 12194 Research Triangle Park, North Carolina 27709				10. PROGRAM ELEMENT NO. C33B1B	
				11. CONTRACT/GRANT NO. 68-02-2688, Task 109	
12. SPONSORING AGENCY NAME AND ADDRESS EPA, Office of Research and Development Industrial Environmental Research Laboratory Research Triangle Park, NC 27711				13. TYPE OF REPORT AND PERIOD COVERED Task Final; 8-10/79	
				14. SPONSORING AGENCY CODE EPA/600/13	
15. SUPPLEMENTARY NOTES IERL-RTP project officer is David C. Sanchez, Mail Drop 62, 919/541-2547.					
16. ABSTRACT The report gives results of laboratory studies of the treatability of manufacturing wastewater from synthesis of the pesticide, dazomet. A tiered approach was taken: the lest costly and most available treatments were investigated first. Effluent from the manufacture of dazomet was tested for treatability by activated sludge systems when diluted to 1:100, 1:500, and 1:1000 in municipal wastewater. At 1:100, dazomet showed greater than 95% reduction after biological treatment; however, effluent COD levels were unacceptably high at an average of 160 mg/liter. At 1:500, effluent COD was much closer to the control effluent; however, nitrification of ammonia was severely hampered. At 1:1000, dazomet wastewater had a variable effect on nitrification while effluent COD levels were close to those of controls. It is recommended that dazomet wastewater be diluted to at least 1:1000 in municipal wastewater to minimize the negative effects on the nitrification of ammonia during the activated sludge treatment process.					
17. KEY WORDS AND DOCUMENT ANALYSIS					
a. DESCRIPTORS		b. IDENTIFIERS/OPEN ENDED TERMS		c. COSATI Field/Group	
Pollution Pesticides Waste Water Water Treatment Industrial Processes		Pollution Control Stationary Sources Dazomet		13B 06F 13H	
18. DISTRIBUTION STATEMENT Release to Public		19. SECURITY CLASS (This Report) Unclassified		21. NO. OF PAGES 40	
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TECHNICAL REPORT DATA
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1. REPORT NO. EPA-600/2-80-105		2. NTIS No. PB81-108003		3. RECIPIENT'S ACCESSION NO.	
4. TITLE AND SUBTITLE Volatilized Lubricant Emissions from Steel Rolling Operations				5. REPORT DATE May 1980	
				6. PERFORMING ORGANIZATION CODE	
7. AUTHOR(S) C.J. Mackus and K.N. Joshi				8. PERFORMING ORGANIZATION REPORT NO.	
9. PERFORMING ORGANIZATION NAME AND ADDRESS Pacific Environmental Services, Inc. 1930 14th Street Santa Monica, California 90404				10. PROGRAM ELEMENT NO. LAB604	
				11. CONTRACT/GRANT NO. 68-02-2606, Task 14	
12. SPONSORING AGENCY NAME AND ADDRESS EPA, Office of Research and Development Industrial Environmental Research Laboratory Research Triangle Park, NC 27711				13. TYPE OF REPORT AND PERIOD COVERED Final: 4/78-4/79	
				14. SPONSORING AGENCY CODE EPA/600/13	
15. SUPPLEMENTARY NOTES IERL-RTP project officer is John S. Ruppertsberger, Mail Drop 62, 919/541-2733.					
16. ABSTRACT The report gives results of a study of the volatilization of lubricants used in steel rolling. Data from nine steel mills were used to: define the volatilized portion of lubricants used in rolling; and prepare total oil, grease, and hydraulic material balances for actual and typical cold and hot rolling operations. Air Pollution from cold and hot rolling was estimated from data acquired from questionnaires, plant visits, and emission source sampling. Introductory and background information on steel rolling, lubrication practices, rolling mill lubricants, and rolling emulsion application techniques is also presented. Study results generally agree with those of a previous study which estimated that for a typical integrated steel plant, with a raw steel production capacity of 3.6 million metric tons per year, 6530 metric tons per year of oils, greases, and hydraulic fluids are used throughout the plant. Since about 83% of these lubricants are used in steel rolling and finishing, this study concentrated on these operations. For a typical cold strip mill, total hydrocarbon (HC) emissions were estimated to be 358 metric tons per year. Therefore, the total HC emission rate for all cold strip mills in the U.S. is an estimated 7160 metric tons per year. It was also estimated that for a typical hot strip mill, total HC emissions were 94.7 metric tons per year (2460 metric tons per year for all US hot strip mills).					
17. KEY WORDS AND DOCUMENT ANALYSIS					
a. DESCRIPTORS		b. IDENTIFIERS/OPEN ENDED TERMS		c. COSATI Field/Group	
Pollution Lubricants Hydraulic Fluids Steel Plants Rolling Mills Vaporizing		Pollution Control Stationary Sources Steel Rolling		13B 07C 11H 13I 07D	
18. DISTRIBUTION STATEMENT		19. SECURITY CLASS (This Report)		21. NO. OF PAGES	
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IERL-RTP-1120 TECHNICAL REPORT DATA <i>(Please read instructions on the reverse before completing)</i>		
1. REPORT NO. EPA-600/2-80-209	2.	3. RECIPIENT'S ACCESSION NO.
4. TITLE AND SUBTITLE Textile Warp Size Reclamation Using Thermal Precipitation		5. REPORT DATE
		6. PERFORMING ORGANIZATION CODE
7. AUTHOR(S) W.S. Perkins, R. P. Walker, and L.J. Hirth		8. PERFORMING ORGANIZATION REPORT NO.
9. PERFORMING ORGANIZATION NAME AND ADDRESS Auburn University Auburn, Alabama 36830		10. PROGRAM ELEMENT NO. 1BB610
		11. CONTRACT/GRANT NO. R805128
12. SPONSORING AGENCY NAME AND ADDRESS EPA, Office of Research and Development Industrial Environmental Research Laboratory Research Triangle Park, NC 27711		13. TYPE OF REPORT AND PERIOD COVERED Final; 3/77-12/79
		14. SPONSORING AGENCY CODE EPA/600/13
15. SUPPLEMENTARY NOTES IERL-RTP project officer Max M. Samfield is no longer with the EPA; for details contact Richard D. Stern, Mail Drop 62, 919/541-2547.		
16. ABSTRACT The report describes a novel method for reclaiming size based on precipitation of the size material by heating the desize washwater. The method uses hydroxypropyl cellulose (HPC) or hydroxypropyl methylcellulose (HPMC) which are soluble in cool water but insoluble in warm water. Reclaiming size would eliminate most of the BOD typically resulting from sizing and desizing. Since maximum system temperature with HPC is about 50 C, compared to 95 C for a conventional system, considerable energy is conserved. Strength and elongation of yarns sized with virgin HPC and with reclaimed HPC were not significantly different from those of yarns sized with the conventional size, polyvinyl alcohol (PVA), at similar add-on levels. Abrasion resistance of yarns sized with HPC was lower than that of yarns sized with PVA at similar add-on levels. Weaving of HPC-sized 50/50 polyester/cotton yarns in the laboratory was successful. In production weaving of percale sheeting, HPC accumulated on the shuttle caused poor weaving efficiency. The capital investment for reclaiming HPC using thermal precipitation is much lower than for reclaiming PVA using ultrafiltration. Operating costs for recovering HPC by thermal precipitation and for recovering PVA by ultrafiltration represent a savings over conventional sizing and desizing without reclaiming size.		
17. KEY WORDS AND DOCUMENT ANALYSIS		
a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
Pollution Cellulose Ethers Textile Industry Textile Finishing Sizing (Surface Treatment) Reclamation Precipitation (Chemstry) Water Treatment	Pollution Control Stationary Sources Thermal Precipitation Washwater Hydroxypropyl Cellulose Hydroxypropyl Methyl-cellulose	13B III 05C, 11E 13H 14G 07D
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	20. SECURITY CLASS (This page) Unclassified	22. PRICE

IERL-RTP-1121			TECHNICAL REPORT DATA (Please read Instructions on the reverse before completing)		
1. REPORT NO. EPA-600/2-81-001a		2.		3. RECIPIENT'S ACCESSION NO.	
4. TITLE AND SUBTITLE Environmental Assessment of the At-Sea Incineration of Liquid Silvex: Interim Report				5. REPORT DATE January 1981	
				6. PERFORMING ORGANIZATION CODE	
7. AUTHOR(S) D. G. Ackerman, L. L. Scinto, R. J. Johnson, T. L. Sarro, and R. Schofield				8. PERFORMING ORGANIZATION REPORT NO.	
9. PERFORMING ORGANIZATION NAME AND ADDRESS TRW, Environmental Engineering Division P.O. Box 13000 Research Triangle Park, North Carolina 27709				10. PROGRAM ELEMENT NO. CIYL1B	
				11. CONTRACT/GRANT NO. 68-02-3174, W.A. 2	
12. SPONSORING AGENCY NAME AND ADDRESS EPA, Office of Research and Development Industrial Environmental Research Laboratory Research Triangle Park, NC 27711				13. TYPE OF REPORT AND PERIOD COVERED Interim; 11/79-5/80	
				14. SPONSORING AGENCY CODE EPA/600/13	
15. SUPPLEMENTARY NOTES IERL-RTP project officer is David C. Sanchez, Mail Drop 62, 919/541-2547.					
16. ABSTRACT The report is an interim environmental assessment of the disposal of suspended liquid silvex herbicide formulations. Several alternative means of disposal, including no action, were evaluated. The evaluation led to the selection of at-sea incineration aboard a chemical waste incineration ship as the preferred alternative disposal action. The other alternatives were rejected because of undeveloped technology, adverse environmental impacts, high cost, or excessive disposal duration. The analyses presented in the report show that potential environmental impacts of the preferred and principal alternative disposal actions will be insignificant and transient. Impacts of potential accidents and malfunctions were considered, and means of mitigation are discussed.					
17. KEY WORDS AND DOCUMENT ANALYSIS					
a. DESCRIPTORS		b. IDENTIFIERS/OPEN ENDED TERMS		c. COSATI Field/Group	
Pollution Incinerators Herbicides Waste Disposal Assessments Ships Sea Water		Pollution Control Stationary Sources Silvex At-Sea Incineration Environmental Assessment		13B 06F 14B 13J 08J	
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IERL-RTP-1124			TECHNICAL REPORT DATA (Please read Instructions on the reverse before completing)		
1. REPORT NO. EPA-600/2-81-002		2.		3. RECIPIENT'S ACCESSION NO.	
4. TITLE AND SUBTITLE Response Factors of VOC Analyzers Calibrated with Methane for Selected Organic Chemicals				5. REPORT DATE January 1981	
				6. PERFORMING ORGANIZATION CODE	
7. AUTHOR(S) G. E. Brown, D.A. DuBose, W.R. Phillips, and G. E. Harris				8. PERFORMING ORGANIZATION REPORT NO.	
9. PERFORMING ORGANIZATION NAME AND ADDRESS Radian Corporation 8501 Mo-Pac Boulevard Austin, Texas 78759				10. PROGRAM ELEMENT NO. 1AB604	
				11. CONTRACT/GRANT NO. 68-02-3171, Task 1	
12. SPONSORING AGENCY NAME AND ADDRESS EPA, Office of Research and Development Industrial Environmental Research Laboratory Research Triangle Park, NC 27711				13. TYPE OF REPORT AND PERIOD COVERED Final; 11/79-9/80	
				14. SPONSORING AGENCY CODE EPA/600/13	
15. SUPPLEMENTARY NOTES IERL-RTP project officer is Bruce A. Tichenor, Mail Drop 62, 919/541-2547.					
16. ABSTRACT The report summarizes results of a laboratory study of the sensitivity of portable volatile organic compound (VOC) analyzers to a variety of organic chemicals. This type of analyzer is commonly used in monitoring for fugitive emissions: most previous work involved Century Systems OVA-108 or -128, or the J.W. Bacharach TLV Sniffer. The OVA-108 and TLV were used for testing in this study. The sensitivity of the analyzer was characterized by a response factor, defined as the ratio of the actual chemical concentration to the observed instrument response. Bag samples of known concentration were prepared by introducing a measured weight (or volume) of subject chemical into a Tedlar bag containing a known volume of hydrocarbon-free air. Such response factors were determined for 168 organic chemicals at a minimum of three concentrations. These data points were fitted to a predictive model to allow estimation of the instrument response at any concentration. Coefficients of the predictive equation for each chemical, as well as the fitted response factor at an actual concentration of 10,000 parts per million by volume (ppmv), are presented.					
17. KEY WORDS AND DOCUMENT ANALYSIS					
a. DESCRIPTORS		b. IDENTIFIERS/OPEN ENDED TERMS		c. COSATI Field/Group	
Pollution Analyzers Organic Compounds Volatility Responses Sensitivity		Pollution Control Stationary Sources VOC Analyzers		13B 14B 07C 20M 14G	
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TECHNICAL REPORT DATA <i>(Please read instructions on the reverse before completing)</i>		
1. REPORT NO. EPA-600/2-81-003	2.	3. RECIPIENT'S ACCESSION NO.
4. TITLE AND SUBTITLE Frequency of Leak Occurrence for Fittings in Synthetic Organic Chemical Plant Process Units		5. REPORT DATE January 1981
		6. PERFORMING ORGANIZATION CODE
7. AUTHOR(S) J. R. Blacksmith, G.E. Harris, and G. L. Langley		8. PERFORMING ORGANIZATION REPORT NO.
9. PERFORMING ORGANIZATION NAME AND ADDRESS Radian Corporation 8501 Mo-Pac Boulevard Austin, Texas 78759		10. PROGRAM ELEMENT NO. 1AB604
		11. CONTRACT/GRANT NO. 68-02-3171, Task 1
12. SPONSORING AGENCY NAME AND ADDRESS EPA, Office of Research and Development Industrial Environmental Research Laboratory Research Triangle Park, NC 27711		13. TYPE OF REPORT AND PERIOD COVERED Final; 11/79-9/80
		14. SPONSORING AGENCY CODE EPA/600/13
15. SUPPLEMENTARY NOTES IERL-RTP project officer is Bruce A. Tichenor, Mail Drop 62, 919/541-2547.		
16. ABSTRACT The report summarizes results of a study of the frequency of leak occurrence in the synthetic chemical manufacturing industry (SOCMI). The frequency of occurrence of fugitive emissions was determined by instrumental screening, defined as measurement of the concentration of volatile organic compounds (VOCs) as close as possible to the point of suspected leakage (e.g., the valve stem, pump seal). The screening value is the maximum repeatable VOC concentration detected for any given source expressed in parts per million by volume (ppmv). A total of 24 process units in the SOCMI were tested. The frequency of fugitive emissions sources with screening values equal to or greater than 10,000 ppmv was tabulated for all units combined, for each type of chemical process, and for each process unit.		
17. KEY WORDS AND DOCUMENT ANALYSIS		
a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
Pollution Processing Leakage Chemical Plants Organic Compounds Volatility	Pollution Control Stationary Sources Fugitive Emissions Synthetic Organic Chemicals	13B 13H 14G 07A 07C 20M
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TECHNICAL REPORT DATA
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1. REPORT NO. EPA-600/7-80-029d		2.		3. RECIPIENT'S ACCESSION NO.	
4. TITLE AND SUBTITLE EPA Utility FGD Survey: July - September 1980				5. REPORT DATE October 1980	
				6. PERFORMING ORGANIZATION CODE	
7. AUTHOR(S) M. Smith, M. Melia, N. Gregory, M. Groeber				8. PERFORMING ORGANIZATION REPORT NO. PN 3450-17	
9. PERFORMING ORGANIZATION NAME AND ADDRESS PEDCo Environmental, Inc. 11499 Chester Road Cincinnati, Ohio 45246				10. PROGRAM ELEMENT NO. C2KN1E	
				11. CONTRACT/GRANT NO. 60-02-3173, Task 17	
12. SPONSORING AGENCY NAME AND ADDRESS EPA, Office of Research and Development Industrial Environmental Research Laboratory Research Triangle Park, NC 27711				13. TYPE OF REPORT AND PERIOD COVERED Quarterly; 7-9/80	
				14. SPONSORING AGENCY CODE EPA/600/13	
15. SUPPLEMENTARY NOTES IERL-RTP Project Officer is Norman Kaplan, Mail Drop 61, 919/541-2556. The report supplements EPA-600/7-80-029a.					
16. ABSTRACT This report is the last of three supplements updating the October-December 1979 report (EPA-600/7-80-029a) and should be used in conjunction with it. The report, which is generated by a computerized data base system, presents a survey of operational and planned domestic utility flue gas desulfurization (FGD) systems, operational domestic particle scrubbers, and Japanese coal-fired utility boiler FGD installations. It summarizes information contributed by the utility industry, process suppliers, regulatory agencies, and consulting engineering firms. Domestic FGD systems are tabulated alphabetically by development status (operational, under construction, or in planning stages), utility company, process supplier, process and waste disposal practice. It presents data on boiler design, FGD system design, fuel characteristics, and actual performance. It includes unit by unit dependability parameters and discusses problems and solutions associated with the boilers and FGD systems. Process flow diagrams and FGD system economic data are appended.					
17. KEY WORDS AND DOCUMENT ANALYSIS					
a. DESCRIPTORS		b. IDENTIFIERS/OPEN ENDED TERMS		c. COSATI Field/Group	
Pollution Flue Gases Desulfurization Electric Utilities Waste Disposal Boilers		Maintenance Pollution Control Stationary Sources Utility Boilers		13B 21B 07A, 07D 15E 13A	
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TECHNICAL REPORT DATA (Please read Instructions on the reverse before completing)			
1. REPORT NO. EPA-600/7-80-067		3. RECIPIENT'S ACCESSION NO.	
4. TITLE AND SUBTITLE Behavior of Coal Ash Particles in Water: Trace Metal Leaching and Ash Settling		5. REPORT DATE March 1980	
7. AUTHOR(S) T. Y. J. Chu, B. R. Kim, and R. J. Ruane		6. PERFORMING ORGANIZATION CODE	
9. PERFORMING ORGANIZATION NAME AND ADDRESS Tennessee Valley Authority 1120 Chestnut Street, Tower II Chattanooga, Tennessee 34701		8. PERFORMING ORGANIZATION REPORT NO.	
12. SPONSORING AGENCY NAME AND ADDRESS EPA, Office of Research and Development Industrial Environmental Research Laboratory Research Triangle Park, NC 27711		10. PROGRAM ELEMENT NO. INE624A	
		11. CONTRACT/GRANT NO. EPA Interagency Agreement D5-E721	
		13. TYPE OF REPORT AND PERIOD COVERED Final; 5/75-11/79	
		14. SPONSORING AGENCY CODE EPA/600/13	
15. SUPPLEMENTARY NOTES IERL-RTP project officer is Michael C. Osborne, Mail Drop 62, 919/541-2547. TVA project director is H. B. Flora II.			
16. ABSTRACT The report gives results of a study of the behavior of coal ash particles in water, a study of importance to coal-fired power plants: at a 1000-MW plant, approximately 700 tons of ash residues (fly and bottom ashes) from coal burning must be disposed of daily. Dry or wet handling and disposal are used, depending on water availability, disposal site proximity, environmental regulations, and cost. Ash pond effluent limitations for suspended solids can be met by properly designing ash ponds or by modifying existing ponds. Because of high ash concentration during sluicing, 90% of fly ashes follow the hindered-zone settling behavior, and settle faster than those following discrete settling behavior. Chemical characteristics of ash pond effluents are affected by the ash material and the quantity and quality of sluicing water. TVA ash pond effluent pH varies from 3 to 12, depending on the content of SO _x and alkaline metal oxides in the ash and on the buffering capacity of the sluicing water. Alkaline pond water has a ratio of concentration (in terms of ng/l) of dissolved Ca to SO ₄ greater than 0.4. Trace metal leaching from the ashes depends on the concentration of each trace metal in the ash matrix, its chemical bonding in the ash, and the water pH. Trace metals in the ash pond effluents monitored quarterly under NPDES permits include As, Cd, Cr, Cu, Fe, Pb, Hg, Ni, Se, and Zn.			
17. KEY WORDS AND DOCUMENT ANALYSIS			
a. DESCRIPTORS		b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
Pollution Water Coal Ashes Particles Leaching		Settling Waste Disposal Ponds Suspended Sediments Sluices	Pollution Control Stationary Sources Coal Ash Trace Metals
			13B 07B 21D 08H 21B 14B 07D, 07A
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TECHNICAL REPORT DATA <i>(Please read Instructions on the reverse before completing)</i>			
1. REPORT NO. EPA-600/7-80-143		2.	
4. TITLE AND SUBTITLE Chlorine Minimization/Optimization for Condenser Biofouling Control: Final Report		5. REPORT DATE August 1980	
7. AUTHOR(S) R. D. Moss, H. B. Flora, II, R. A. Hiltunen, and C. V. Seaman		6. PERFORMING ORGANIZATION CODE	
9. PERFORMING ORGANIZATION NAME AND ADDRESS TVA, Energy Demonstrations and Technology 1140 Chestnut Street, Tower II Chattanooga, Tennessee 37401		8. PERFORMING ORGANIZATION REPORT NO.	
12. SPONSORING AGENCY NAME AND ADDRESS EPA, Office of Research and Development Industrial Environmental Research Laboratory Research Triangle Park, NC 27711		10. PROGRAM ELEMENT NO. INE624A	
		11. CONTRACT/GRANT NO. Interagency Agreement EPA-1AG-D5-E721	
		13. TYPE OF REPORT AND PERIOD COVERED Final; 12/75-3/80	
		14. SPONSORING AGENCY CODE EPA/600/13	
15. SUPPLEMENTARY NOTES IERL-RTP project officer is J.W. Jones, MD-61, 919/541-2489. EPA-600/7-79-198 covers study phases I and II.			
16. ABSTRACT The report summarizes results of a chlorine minimization/optimization study for the control of biofouling on the surface of condenser tubes at TVA's John Sevier Plant from December 1975 to December 1978. The study concluded that: (1) chlorine feed is a function of inlet water temperature, chlorine demand, and certain water quality parameters; (2) chlorine consumption through the system and consumption of free chlorine across the condenser are directly related to chlorine feed rate; (3) chlorine feed rate at John Sevier could be lowered with no loss of condenser performance if a free residual concentration of 0.1-0.2 mg/l is maintained at the condenser outlet; (4) chlorination must be applied year around, regardless of inlet water temperature; (5) more frequent chlorination cycles of shorter duration are more efficient in controlling condenser performance than infrequent cycles of longer duration; (6) although chloroform, bromodichloromethane, and dibromochloromethane were found at the condenser inlet and outlet at John Sevier, their average concentrations were only 2% of the maximum allowed by Federal Water Quality Criteria; (7) chloroform and dibromochloromethane formation rates are directly related to chlorine feed rate; and (8) chlorination is site specific; i. e. , each plant must conduct its own minimization studies, if warranted. An included format assists in such studies.			
17. KEY WORDS AND DOCUMENT ANALYSIS			
a. DESCRIPTORS		b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
Pollution Chlorination Biodeterioration Cooling Water Fouling Prevention Water Quality Condenser Tubes Condensers Chlorine		Pollution Control Stationary Sources Biofouling	13B 07C 06A 13H, 13J 07A 13I 07B
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IERL-RTP-1111		TECHNICAL REPORT DATA (Please read instructions on the reverse before completing)	
1. REPORT NO. EPA-600/7-80-178	2. NTIS No. PB81-113003	3. RECIPIENT'S ACCESSION NO.	
4. TITLE AND SUBTITLE Addendum to: 'Environmental Assessment: Source Test and Evaluation Report--Chapman Low-Btu Gasification'		5. REPORT DATE September 1980	
7. AUTHOR(S) D.S. Lewis and G.C. Page		6. PERFORMING ORGANIZATION CODE	
9. PERFORMING ORGANIZATION NAME AND ADDRESS Radian Corporation P.O. Box 9948 Austin, Texas 78766		8. PERFORMING ORGANIZATION REPORT NO.	
12. SPONSORING AGENCY NAME AND ADDRESS EPA, Office of Research and Development Industrial Environmental Research Laboratory Research Triangle Park, NC 27711		10. PROGRAM ELEMENT NO. INE825	
		11. CONTRACT/GRANT NO. 68-02-3137, Task 3	
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15. SUPPLEMENTARY NOTES IERL-RTP project officer is James D. Kilgroe, Mail Drop 61, 919/541-2854. This is an addendum to report EPA-600/7-78-202 (NTIS PB 289940).			
16. ABSTRACT The report contains detailed organic analysis data on six streams, trace element and organic data on the solid waste leachates, and trace element data on the feed coal, all of which were not included in the original report, EPA-600/7-78-202. Samples from six streams were analyzed to provide a detailed organic characterization of emissions and potential fugitive emissions from an operating Chapman low-Btu gasifier using Virginia bituminous coal. The streams were: coal feeder vent discharge, separator vent discharge, separator liquor, separator tar, gasifier ash, and cyclone dust. All streams except the ash and dust contained organic compound concentrations of concern to health when evaluated using SAM/IA methodology. Phenols in the separator vent discharge and liquor and fused polycyclics in the coal feeder vent discharge and the separator tar were of greatest concern. When compared to screening data, potential effects were lower, but relative ranking of streams was essentially unchanged. The ash and dust were subjected to leachate extraction tests using the RCRA method and deionized water. No organics were found in the leachates. Concentrations of trace elements in the RCRA and deionized water leachates were different, but were found to have low potential for causing adverse health or ecological effects.			
17. KEY WORDS AND DOCUMENT ANALYSIS			
a. DESCRIPTORS		b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
Pollution	Wastes	Pollution Control	13B
Assessments	Leaching	Stationary Sources	14B 07D/07A
Coal Gasification	Dust	Environmental Assessment	13H 11G
Tests	Aerosols	Chapman Process	14G 07C
Evaluation	Tars	Trace Elements	07C
Organic Compounds	Phenols		
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1. REPORT NO. EPA-600/7-81-003a	2.	3. RECIPIENT'S ACCESSION NO.	
4. TITLE AND SUBTITLE Emissions Assessment of Conventional Stationary Combustion Systems: Volume III. External Combustion Sources for Electricity Generation		5. REPORT DATE January 1981	
		6. PERFORMING ORGANIZATION CODE	
7. AUTHOR(S) C. C. Shih, R. A. Orsini, D. G. Ackerman, R. Moreno, E. L. Moon, L. L. Scinto, and C. Yu		8. PERFORMING ORGANIZATION REPORT NO.	
9. PERFORMING ORGANIZATION NAME AND ADDRESS TRW Environmental Engineering Division One Space Park Redondo Beach, California 90278		10. PROGRAM ELEMENT NO. C9KNIC	
		11. CONTRACT/GRANT NO. 68-02-2197	
12. SPONSORING AGENCY NAME AND ADDRESS EPA, Office of Research and Development Industrial Environmental Research Laboratory Research Triangle Park, NC 27711		13. TYPE OF REPORT AND PERIOD COVERED Final;	
		14. SPONSORING AGENCY CODE EPA/600/13	
15. SUPPLEMENTARY NOTES IERL-RTP project officer is Michael C. Osborne, Mail Drop 62, 919/541-3996. Vols. I and II are EPA-600/7-79-029b and -029c.			
16. ABSTRACT The report characterizes multimedia emissions from external combustion sources for electricity generation. Study results indicate that external combustion sources for electricity generation contribute significantly to the nationwide emissions burden. Flue gas emissions of NO _x , SO ₂ , and particulate matter from these sources account for approximately 50, 57, and 25%, respectively, of these pollutant emissions from all stationary sources. Additionally, flue gas emissions of sulfates and several trace elements from coal- and oil-fired utility boilers also require further attention. POM compounds in flue gas emissions are mostly naphthalene, phenanthrene, and pyrene. However, dobenz(a,h)anthracene and possibly benzo(a)pyrene, both active carcinogens, were detected at a limited number of coal-fired sites. A second major source of air emissions is vapors and drifts from cooling towers. Air emissions of Cl, Mg, P, and sulfates from mechanical draft cooling towers were found to be comparable to flue gas emissions of these pollutants from oil-fired utility boilers. The multiple use of water in steam-electric plants results in wastewater streams from several operations. Overall, concentrations of Fe, Mg, Mn, Ni, and P are at levels that may be harmful. Average organic levels ranged from 0.01 mg/l for ash pond effluents to 6.0 mg/l for boiler blowdown. No POMs were detected.			
17. KEY WORDS AND DOCUMENT ANALYSIS			
a. DESCRIPTORS		b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
Pollution Leakage Assessments Waste Water Combustion Electric Power Generation Flue Gases Processing		Pollution Control Stationary Sources Environmental Assess- Fugitive Emissions	13B 14I 14B 21B 10A 13H
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IERL-RTP-1122		TECHNICAL REPORT DATA (Please read Instructions on the reverse before completing)	
1. REPORT NO. EPA-600/7-81-003b		3. RECIPIENT'S ACCESSION NO.	
4. TITLE AND SUBTITLE Emissions Assessment of Conventional Stationary Combustion Systems: Volume IV. Commercial/Institutional Combustion Sources		5. REPORT DATE January 1981	
7. AUTHOR(S) N. F. Surprenant, P. Hung, R. Li, K. T. McGregor, W. Piispanen, and S. M. Sandberg (GCA/Technology Div., 213 Burlington Rd, Medford, MA 01730)		6. PERFORMING ORGANIZATION CODE	
9. PERFORMING ORGANIZATION NAME AND ADDRESS TRW, Inc. One Space Park Redondo Beach, California 90278		8. PERFORMING ORGANIZATION REPORT NO. GCA-TR-79-62-G	
12. SPONSORING AGENCY NAME AND ADDRESS EPA, Office of Research and Development Industrial Environmental Research Laboratory Research Triangle Park, NC 27711		10. PROGRAM ELEMENT NO. EHE624A	
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		13. TYPE OF REPORT AND PERIOD COVERED Final; 9/76-12/80	
		14. SPONSORING AGENCY CODE EPA/600/13	
15. SUPPLEMENTARY NOTES IERL-RTP project officer is Michael C. Osborne, MD-62, 919/541-3996. Vols. I and II are EPA-600/7-79-029b and -029c.			
16. ABSTRACT The report characterizes air emissions from commercial/institutional external combustion sources and reciprocating engines and is the fourth of a series of five project reports characterizing emissions from conventional combustion sources. This characterization was based on a critical examination of existing data, followed by a modified Level 1 sampling and analysis approach to resolve data gaps. The major deviation from Level 1 procedures was the additional of GC/MS analysis for polycyclic organic matter (POM). Tests were conducted at 22 external and six internal combustion sites. Results of the environmental assessment indicate that air emissions from these sources represent a potential environmental hazard. Emissions of criteria pollutants, except for CO, from most of the source categories tested are environmentally significant. Particulate, SO ₄ , and SO ₃ emissions from the coal- and wood-fired sources are also significant. In addition, emissions of several trace elements are of concern: Al, Ba, Be, Ca, Cl, Co, Cr, Cu, F, Fe, K, Li, Na, Ni, P, Pb, Si, and V from coal-fired external combustion sources; Ni from distillate oil sources; and Ni, Cl, Cr, and V from residual oil sources. Several potentially hazardous POM compounds were tentatively identified in the emissions from solid-fuel-fired sources, particularly from one wood-fired stoker tested.			
17. KEY WORDS AND DOCUMENT ANALYSIS			
a. DESCRIPTORS		b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
Pollution		Pollution Control	13B
Assessments		Stationary Sources	14B
Combustion		Environmental Assessment	21B
Reciprocating Engines		Commercial Systems	21G
Flue Gases		Institutional Systems	
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1. REPORT NO. EPA-600/9-80-054		2. NTIS No. PB81-113052	
4. TITLE AND SUBTITLE Proceedings: EPA/Industry Forum on Coal Liquefaction (October 1979)		3. RECIPIENT'S ACCESSION NO.	
		5. REPORT DATE September 1980	
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7. AUTHOR(S) Dorothy G. Weatherby, Editor		8. PERFORMING ORGANIZATION REPORT NO.	
9. PERFORMING ORGANIZATION NAME AND ADDRESS Hittman Associates, Inc. 9190 Red Branch Road Columbia, Maryland 21045		10. PROGRAM ELEMENT NO. C2GNIE	
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		14. SPONSORING AGENCY CODE EPA/600/13	
15. SUPPLEMENTARY NOTES IERL-RTP project officer is D. Bruce Henschel, Mail Drop 61, 919/541-4112.			
16. ABSTRACT The proceedings document presentations made at the EPA/Industry Forum on Coal Liquefaction, October 23 and 24, 1979, in Chicago. The forum brought together representatives of government and industry with the goal of sharing information and increasing cooperation between the two groups. Following an overview of EPA's activities in the area of synthetic fuels, standards-setting procedures, activities, and plans relating to coal liquefaction were discussed for air emissions, solid wastes, and liquid effluents. EPA permit procedures were summarized for coal liquefaction plants. EPA's research and development activities in coal liquefaction were described, as were plans and activities of EPA's Industrial Environmental Research Laboratory (RTP) in coal liquefaction. State government participation in coal liquefaction development was discussed for Kentucky and Illinois. Industry plans in the area of coal liquefaction were presented by representatives of several firms actively involved in development and use of the technology: Exxon Research and Engineering Co., Ralph M. Parsons Co., Hydrocarbon Research, Inc., Mobil Research and Development Corp., Texas Eastern Corp., and Fluor Corp.			
17. KEY WORDS AND DOCUMENT ANALYSIS			
a. DESCRIPTORS		b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
Pollution Coal Liquefaction		Pollution Control Stationary Sources Synthetic Fuels	13B 21D 07D
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		20. SECURITY CLASS (This page) Unclassified	22. PRICE