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Project Summary

National Ambient Volatile Organic Compounds (VOCs) Data Base Update

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The National Ambient Volatile Organic Compounds (VOCs) Data Base update is the result of an ongoing effort to gather, evaluate,and compile the measured concentrations of a large number of VOCs. Data on the observed concentrations of three hundred twenty (320) volatile organic compounds (VOCs) were compiled, critically evaluated, and assembled into a relational data base. Ambient (outdoor) measurements, indoor data, and data collected with personal monitors are included. The data are primarily from the period 1970-1987 and for locations within the United States. In order to compare data from many different sources, each concentration record in the data base represents the daily average for a single chemical, wherever feasible. The total data base contains more than 175,000 concentration records.

Summaries of the data distributions are tabulated in the report. The average, median and quartile values are given for each chemical measured in both the ambient and indoor site categories. Median values are also listed for each chemical for the eight specific site types included in the data report. The ambient site types are: remote, rural, suburban, urban, and source dominated. The indoor category of site types include residential indoor, workplace (non-industrial), and personal monitors.

The data have been assembled into a relational data base using dBASE III Plus, a commercially available data base management program. The data base is available on IBM PC-compatible diskettes. The report contains a complete description of the data base files and a guide describing the use of a prepared program for searching and maintaining the data base.

This Project Summary was developed by EPA's Atmospheric Sciences Research Laboratory, Research Triangle Park, NC, to announce key findings of the research project that is fully documented in a separate report of the same title (see Project Report ordering information at back).

Introduction

Over the last decade, concerns about exposure to potentially toxic chemicals in the atmosphere have contributed to a growing body of literature on concentrations of Volatile Organic Compounds (VOCs) in the environment. Knowledge of the ambient concentrations of VOCs is very useful to the Environmental Protection Agency (EPA), and, therefore, the first national ambient VOC data base was prepared for EPA and published in 1983.[1] That original data base critically evaluated and consolidated published data on ambient (i.e., outdoor) concentrations of 151 VOCs measured in the United States during the years 1970 to 1980.

The concerns about air toxics have persisted, and, as a result, the knowledge about environmental concentrations of VOCs has increased considerably in the intervening years. Much more information

is now available on VOCs in the environment. The 1983 national data base on VOCs has been updated to include both ambient and indoor VOC data for the years 1980 to 1987. The updated data base includes information on 320 VOCs. The chemicals included in the data base are listed in Table 1. The data were evaluated for quality by a rating and ranking scheme. The updated data base is available on IBM PC-compatible diskettes for use with dBASE III Plus, a commercially-available relational data base management system.

The objectives of the task to update the data base were:

1. Review EPA's existing VOC data base and correct any discrepancies found;
2. Identify newly-published and unpublished VOC data, critically evaluate the data, combine them with the previous data, analyze the resulting data base; and,
3. Provide the resulting VOC data base in a dBASE III Plus format(s) designed to facilitate searching, sorting, editing, analysis and other manipulations.

Procedures

Each of the major tasks involved in updating the data base are discussed briefly below. The principal elements are:

- Perform quality assurance (QA) checks of the original data set and convert it to a relational data base format;
- Conduct a literature search to obtain new data, including contacting individuals and organizations measuring VOCs to request additional or unpublished data;
- Develop criteria for critically evaluating (ranking and rating) the data base;
- Review reports, extract and critically evaluate data;
- Select an appropriate relational data base format and enter all the data;
- Assure the quality of the data base entries;
- Statistically analyze the data base.

Original Data Base: QA and Conversion

The original 1983 VOC data base contained comprehensive information on ambient levels of VOCs in the U.S. from 1970 to 1980. This data base was checked for erroneous entries, and converted to dBASE III Plus format to be included in the updated data base.

Literature Search/Obtain Data

A major on-line literature search was performed using the Chemical Abstracts data base of the DIALOG on-line system. The data base was searched for each of the 151 chemicals in the original data base by Chemical Abstract Service registry number combined with key words to limit retrievals to the ambient and indoor atmospheres in the U.S. during the years of interest (1980 to present).

The search yielded a list of 2769 references of which 600 were reviewed for useful data.

In addition, unpublished or additional data which may have been too extensive for a journal article were sought from the scientific community. A survey form was developed and an Office of Management and Budget clearance obtained. The survey form was distributed to researchers who might have additional data. Data gathered through EPA sponsored programs were also obtained. A telephone follow-up of researchers was necessary to obtain adequate response.

Develop Data Assessment Criteria

To facilitate data evaluation, the data quality was judged and reported in the form of ranking and rating. Ranking, a multi-digit number gives a numerical value to each of three factors affecting data quality: (1) the appropriateness of the methodology, (2) the probable accuracy of the quantification, and (3) the available documentation. Ranking would be most useful for data evaluation by researchers familiar with VOC measurements. Rating, a single letter code, on the other hand,.is an overall measure of data quality. Rating is determined from the three ranking factors and their relative importance.

Extract and Critically Evaluate Data

All reports and papers received from researchers or obtained from the literature search were reviewed and evaluated for measurements of environmental concentrations of VOCs. The information was extracted from the useful reports and coded for data entry. Much of the information from EPA projects was already available on diskettes, which helped minimize data entry errors. Information relevant to the ranking and rating process was noted, and the critical evaluation of the data was accomplished with input from an advis[o]ry panel of experts.

Create Relational Data Base and Enter Values

A relational data base format was established, as shown in Table 2. The coded data from reports and EPA diskettes were entered into dBASE II Plus files. dBASE III Plus permits the specification of ranges of acceptable input values, which allows for immediate error checking and correction. The original data base contained approximately 18,000 concentration records. The updated data base includes more than 175,000.

Assure Quality of Data Base Entries

To assure the quality of the data entries, the following procedures were employed.

- Only experienced data entry personnel were used.
- Many of the data were obtained on diskettes and transferred directly into dBASE III Plus format.
- Simple error-checking techniques available in dBASE III+ were used as appropriate.
- All software was user-friendly and tested thoroughly before use.
- Scatterplots and other techniques for identifying "outliers" as potentially erroneous data were performed.
- More than 10% of the reports were independently reviewed by two analysts.
- The data were thoroughly reviewed by a panel of prominent researchers in this field.

Statistically Analyze the Data Base

The authors performed summary statistics on the master data file. The results are tabulated in the full project report.

Summary

Data on the measurement of three hundred twenty volatile organic chemical air pollutants has been assembled, critically evaluated, and organized into a versatile, relational data base. The project report and the data base are available for public distribution. The complete data base contains information on both outdoor and indoor measurements, but for convenience in manipulating the data the indoor and ambient data have been separated into two concentration files. The concentration file of ambie

ıeasurements contains more than .22,000 records on the listed chemicals. The indoor concentration file contains more than 52,000 records involving seventy-one chemicals.

The original VOC data base was widely used, and the new data base is expected to have even wider applications. Potential applications of the data base include screening level exposure assessments, pattern or trend analysis, input values for modeling studies, determination of available analysis methods, etc.

References

1. Brodzinsky, R. and H.B. Singh "Volatile Organic Chemicals in the Atmosphere: An Assessment of Available Data," (1988) Environmental Sciences Research Laboratory, U.S. EPA, Research Triangle Park, NC, EPA-600/3-83-027(A) (1983).

Table 1. *Chemicals Included in the Data Base*

Data Base Chemical No.	Chemical Abstracts System Number	Chemical Name
1	??	7-METHYL-3-METHYLENE-1,6-OCTADIENE
2	??	DIPHENYL ETHER
3	??	CUMENE
4	??	BUTYNE
5	50-00-0	FORMALDEHYDE
6	55-18-5	N-ETHYL-N-NITROSOETHANAMINE
7	56-23-5	CARBON TETRACHLORIDE
8	59-89-2	4-NITROSOMORPHOLINE
9	62-53-3	ANILINE
10	62-75-9	DI METHYL NITROSAMINE
11	64-18-6	FORMIC ACID
12	64-67-5	DIETHYL ESTER SULFURIC ACID
13	67-64-1	ACETONE
14	67-66-3	CHLOROFORM
15	67-72-1	HEXACHLOROETHANE
16	71-43-2	BENZENE
17	71-55-6	1,1,1-TRICHLOROETHANE
18	74-82-8	METHANE
19	74-83-9	BROMOMETHANE
20	74-84-0	ETHANE
21	74-85-1	ETHENE
22	74-86-2	ACETYLENE
23	74-87-3	CHLOROMETHANE
24	74-88-4	IODOMETHANE
25	74-95-3	DIBROMOMETHANE
26	74-97-5	BROMOCHLOROMETHANE
27	74-98-6	PROPANE
28	74-99-7	1-PROPYNE
29	75-00-3	CHLOROETHANE
30	75-01-4	VINYL CHLORIDE
31	75-05-8	ACETONITRILE
32	75-07-0	ACETALDEHYDE
33	75-09-2	METHYLENE CHLORIDE
34	75-15-0	CARBON DISULFIDE
35	75-18-3	THIOBISMETHANE
36	75-21-8	ETHYLENE OXIDE
37	75-25-2	TRIBROMOMETHANE
38	75-27-4	BROMODICHLOROMETHANE
39	75-28-5	2-METHYLPROPANE
40	75-34-3	1,1-DICHLOROETHANE
41	75-35-4	1,1-DICHLOROETHENE
42	75-44-5	PHOSGENE
43	75-45-6	CHLORODIFLUOROMETHANE
44	75-56-9	PROPYLENE OXIDE
45	75-69-4	TRICHLOROFLUOROMETHANE

(continued)

Table 1. (Continued)

Data Base Chemical No.	Chemical Abstracts System Number	Chemical Name
46	75-71-8	DICHLORODIFLUOROMETHANE
47	75-73-0	TETRAFLUOROMETHANE
48	75-74-1	TETRAMETHYLPLUMBANE
49	75-83-2	2,2-DIMETHYLBUTANE
50	75-93-4	MONOMETHYLESTER SULFURIC ACID
51	75-97-8	3,3-DIMETHYL-2-BUTANONE
52	76-01-7	PENTACHLOROETHANE
53	76-13-1	1,1,2-TRICHLORO-1,2,2,-TRIFLUOROETHANE
54	76-14-2	1,2-DICHLORO-1,1,2,2-TETRAFLUOROETHANE
55	77-47-4	1,2,3,4,5,5-HEXACHLOROCYCLOPENTADIENE
56	77-78-1	DIMETHYL SULFATE
57	78-00-2	TETRAETHYLPLUMBANE
58	78-75-1	1,2-DIBROMOPROPANE
59	78-78-4	2-METHYLBUTANE
60	78-79-5	2-METHYL-1,3-BUTADIENE
61	78-87-5	1,2-DICHLOROPROPANE
62	78-93-3	2-BUTANONE
63	79-00-5	1,1,2-TRICHLOROETHANE
64	79-01-6	TRICHLOROETHENE
65	79-29-8	2,3-DIMETHYLBUTANE
66	79-34-5	1,1,2,2-TETRACHLOROETHANE
67	79-46-9	2-NITROPROPANE
68	79-92-5	2,2-DIMETHYL-3-METHYLENE-BICYCLO[2.2.1]-HEPTANE
69	80-56-8	2,6,6-TRIMETHYL-BICYCLO[3.1.1]-HEPT-2-ENE
70	87-61-6	1,2,3-TRICHLOROBENZENE
71	87-68-3	1,1,2,3,4,4-HEXACHLORO-1,3-BUTADIENE
72	90-12-0	1-METHYLNAPHTHALENE
73	91-20-3	NAPHTHALENE
74	91-22-5	QUINOLINE
75	91-57-6	2-METHYLNAPHTHALENE
76	93-55-0	1-PHENYL-1-PROPANONE
77	95-47-6	1,2-DIMETHYLBENZENE
78	95-48-7	2-METHYL PHENOL
79	95-49-8	1-CHLORO-2-METHYLBENZENE
80	95-50-1	1,2-DICHLOROBENZENE
81	95-63-6	1,2,4-TRIMETHYLBENZENE
82	95-93-2	1,2,4,5-TETRAMETHYLBENZENE
83	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE
84	96-14-0	3-METHYLPENTANE
85	96-22-0	3-PENTANONE
86	96-37-7	METHYLCYCLOPENTANE
87	98-82-8	(1-METHYLETHYL)-BENZENE
88	98-83-9	1-(METHYLETHENYL)-BENZENE
89	98-86-2	1-PHENYLETHANONE
90	98-95-3	NITROBENZENE

(continued)

Table 1. (Continued)

Data Base Chemical No.	Chemical Abstracts System Number	Chemical Name
91	99-87-6	1-METHYL-4-(1-METHYLETHYL)-BENZENE
92	100-41-4	ETHYLBENZENE
93	100-42-5	ETHENYLBENZENE
94	100-44-7	(CHLOROMETHYL)-BENZENE
95	100-47-0	BENZONITRILE
96	100-52-7	BENZALDEHYDE
97	103-65-1	PROPYLBENZENE
98	104-51-8	BUTYLBENZENE
99	105-05-5	1,4-DIETHYLBENZENE
100	105-67-9	2,4-DIMETHYLPHENOL
101	106-42-3	1,4-DIMETHYLBENZENE
102	106-43-4	1-CHLORO-4-METHYLBENZENE
103	106-44-5	4-METHYLPHENOL
104	106-46-7	1,4-DICHLOROBENZENE
105	106-89-8	(CHLOROMETHYL)OXIRANE
106	106-93-4	1,2-DIBROMOETHANE
107	106-95-6	3-BROMO-1-PROPENE
108	106-97-8	BUTANE
109	106-98-9	1-8UTENE
110	106-99-0	1,3-BUTADIENE
111	107-02-8	2-PROPENAL
112	107-04-0	1-BROMO-2-CHLOROETHANE
113	107-05-1	3-CHLORO-1-PROPENE
114	107-06-2	1,2-DICHLOROETHANE
115	107-10-1	4-METHYL-2-PENTANONE
116	107-12-0	PROPANENITRILE
117	107-13-1	2-PROPENENITRILE
118	107-50-6	TETRADECAMETHYLCYCLOHEPTASILOXANE
119	107-83-5	2-METHYLPENTANE
120	107-87-9	2-PENTANONE
121	108-08-7	2,4-DIMETHYLPENTANE
122	108-31-6	2,5-FURANDIONE
123	108-38-3	1,3-DIMETHYLBENZENE
124	108-39-4	3-METHYLPHENOL
125	108-47-4	2,4-DIMETHYLPYRIDINE
126	108-48-5	2,6-DIMETHYLPYRIDINE
127	108-67-8	1,3,5-TRIMETHYLBENZENE
128	108-68-9	3,5-DIMETHYLPHENOL
129	108-70-3	1,3,5-TRICHLOROBENZENE
130	108-75-8	2,4,6-TRIMETHYLPYRIDINE
131	108-86-1	BROMOBENZENE
132	108-87-2	METHYLCYCLOHEXANE
133	108-88-3	TOLUENE
134	108-89-4	4-METHYLPYRIDINE
135	108-90-7	CHLOROBENZENE

(continued)

Table 1. *(Continued)*

Data Base Chemical No.	Chemical Abstracts System Number	Chemical Name
136	108-94-1	CYCLOHEXANONE
137	108-95-2	PHENOL
138	108-99-6	3-METHYLPYRIDINE
139	109-06-8	2-METHYLPYRIDINE
140	109-66-0	PENTANE
141	109-67-1	1-PENTENE
142	109-70-6	1-BROMO-3-CHLOROPROPANE
143	109-97-7	1H-PYRROLE
144	109-99-9	TETRAHYDROFURAN
145	110-02-1	THIOPHENE
146	110-54-3	HEXANE
147	110-56-5	1,4-DICHLOROBUTANE
148	110-82-7	CYCLOHEXANE
149	110-83-8	CYLCOHEXENE
150	110-86-1	PYRIDINE
151	111-44-4	1,1'-OXYBIS(2-CHLOROETHANE)
152	111-65-9	OCTANE
153	111-66-0	1-OCTENE
154	111-76-2	2-BUTOXYETHANOL
155	111-84-2	NONANE
156	112-40-3	DODECANE
157	115-07-1	PROPENE
158	115-11-7	2-METHYL-1-PENTENE
159	115-11-7	2-METHYL-1-PROPENE
160	119-61-9	DIPHENYLMETHANONE
161	119-65-3	ISOQUINOLINE
162	120-82-1	1,2,4-TRICHLOROBENZENE
163	123-01-3	DODECYLBENZENE
164	123-38-6	PROPANAL
165	123-72-8	BUTANAL
166	123-86-4	BUTYL ACETATE
167	123-91-1	1,4-(DIOXANE)
168	124-11-8	1-NONENE
169	124-13-0	OCTANAL
170	124-18-5	DECANE
171	124-48-1	DIBROMOCHLOROMETHANE
172	126-99-8	2-CHLORO-1,3-BUTADIENE
173	127-18-4	TETRACHLOROETHENE
174	127-91-3	6,6-DIMETHYL-2-METHYLENE-BICYCLO[3.1.1]-HEPTANE
175	135-01-3	1,2-DIETHYLBENZENE
176	135-98-8	(1-METHYLPROPYL)-BENZENE
177	141-78-6	ACETIC ACID ETHYL ESTER
178	141-93-5	1,3-DIETHYLBENZENE
179	142-29-0	CYCLOPENTENE
180	142-82-5	HEPTANE

(continued)

Table 1. *(Continued)*

Data Base Chemical No.	Chemical Abstracts System Number	Chemical Name
181	144-19-4	2,2,4-TRIMETHYL-1,3-PENTANEDIOL
182	156-59-2	(Z)-1,2-DICHLOROETHENE
183	156-60-5	(E)-1,2-DICHLOROETHENE
184	287-92-3	CYCLOPENTANE
185	291-64-5	CYCLOHEPTANE
186	463-49-0	1,2-PROPADIENE
187	463-58-1	CARBON OXIDE SULFIDE
188	464-06-2	2,2,3-TRIMETHYLBUTANE
189	488-23-3	1,2,3,4-TETRAMETHYLBENZENE
190	496-78-6	2,4,5-TRIMETHYLPHENOL
191	513-35-9	2-METHYL-2-BUTENE
192	527-53-7	1,2,3,5-TETRAMETHYLBENZENE
193	527-60-6	2,4,6-TRIMETHYLPHENOL
194	538-68-1	PENTYLBENZENE
195	540-84-1	2,2,4-TRIMETHYLPENTANE
196	540-97-6	DODECAMETHYLCYCLOHEXASILOXANE
197	541-02-6	DECAMETHYLCYCLOPENTASILOXANE
198	541-05-9	HEXAMETHYLCYCLOTRISILOXANE
199	541-73-1	1,3-DICHLOROBENZENE
200	544-76-3	HEXADECANE
201	554-14-3	2-METHYLTHIOPHENE
202	556-67-2	OCTAMETHYLCYCLOTETRASILOXANE
203	556-68-3	HEXADECAMETHYLCYCLOOCTASILOXANE
204	562-49-2	3,3-DIMETHYLPENTANE
205	563-45-1	3-METHYL-1-BUTENE
206	563-46-2	2-METHYL-1-BUTENE
207	564-02-3	2,2,3-TRIMETHYLPENTANE
208	565-59-3	2,3-DIMETHYLPENTANE
209	565-75-3	2,3,4-TRIMETHYLPENTANE
210	576-26-1	2,6-DIMETHYLPHENOL
211	576-73-8	1,2,3-TRIMETHYLBENZENE
212	583-61-9	2,3-DIMETHYLPYRIDINE
213	584-94-1	2,3-DIMETHYLHEXANE
214	587-04-2	3-CHLOROBENZALDEHYDE
215	589-34-4	3-METHYLHEXANE
216	589-43-5	2,4-DIMETHYLHEXANE
217	589-81-1	3-METHYLHEPTANE
218	590-18-1	(Z)-2-BUTENE
219	591-76-4	2-METHYLHEXANE
220	592-13-2	2,5-DIMETHYLHEXANE
221	592-27-8	2-METHYLHEPTANE
222	592-41-6	1-HEXENE
223	593-45-3	OCTADECANE
224	594-18-3	DIBROMODICHLOROMETHANE
225	608-93-5	PENTACHLOROBENZENE

(continued)

Table 1. *(Continued)*

Data Base Chemical No.	Chemical Abstracts System Number	Chemical Name
226	611-14-3	1-ETHYL-2-METHYLBENZENE
227	616-12-6	(E)-3-METHYL-2-PENTENE
228	616-43-3	3-METHYL-1H-PYRROLE
229	616-44-4	3-METHYLTHIOPHENE
230	619-99-8	3-ETHYLHEXANE
231	620-14-4	1-ETHYL-3-METHYLBENZENE
232	622-96-8	1-ETHYL-4-METHYLBENZENE
233	624-64-6	(E)-2-BUTENE
234	624-92-0	DIMETHYLDISULFIDE
235	625-27-4	2-METHYL-2-PENTENE
236	627-20-3	(Z)-2-PENTENE
237	627-42-9	1-CHLORO-2-METHOXYETHANE
238	629-50-5	TRIDECANE
239	629-59-4	TETRADECANE
240	629-62-9	PENTADECANE
241	629-78-7	HEPTADECANE
242	630-20-6	1,1,1,2-TETRACHLOROETHANE
243	636-41-9	2-METHYL-1H-PYRROLE
244	646-04-8	(E)-2-PENTENE
245	674-76-0	(E)-4-METHYL-2-PENTENE
246	691-38-3	(Z)-4-METHYL-2-PENTENE
247	693-89-0	1-METHYLCYCLOPENTENE
248	763-29-1	2-METHYL-1-PENTENE
249	871-83-0	2-METHYLNONANE
250	931-54-4	ISOCYANOBENZENE
251	933-98-2	1-ETHYL-2,3-DIMETHYLBENZENE
252	934-80-5	4-ETHYL-1,2-DIMETHYLBENZENE
253	1068-87-7	3-ETHYL-2,4-DIMETHYL PENTANE
254	1077-16-3	HEXYLBENZENE
255	1120-21-4	UNDECANE
256	1320-37-2	DICHLOROTETRAFLUOROETHANE
257	1333-41-1	METHYLPYRIDINE
258	1334-78-7	METHYLBENZALDEHYDE
259	1502-38-1	METHYLCYCLOOCTANE
260	1640-89-7	ETHYLCYCLOPENTANE
261	1678-91-7	ETHYLCYCLOHEXANE
262	1759-58-6	TRANS-1,3-DIMETHYL CYCLOPENTANE
263	1762-26-1	ETHYLTRIMETHYLPLUMBANE
264	1762-27-2	DIETHYLDIMETHYLPLUMBNANE
265	1762-28-3	TRIETHYLMETHYLPLUMBANE
266	1795-27-3	1A,3A,5A-TRIMETHYLCYCLOHEXANE
267	2049-94-7	(3-METHYLBUTYL)-BENZENE
268	2213-23-2	2,4-DIMETHYLHEPTANE
269	2216-30-0	2,5-DIMETHYLHEPTANE
270	2216-33-3	3-METHYLOCTANE

(continued)

Table 1. *(Continued)*

Data Base Chemical No.	Chemical Abstracts System Number	Chemical Name
271	2216-34-4	4-METHYLOCTANE
272	2278-22-0	ACETYL NITRO PEROXIDE
273	2532-58-3	CIS-1,3-DIMETHYL CYCLOPENTANE
274	2807-30-9	2-PROPOXY ETHANOL
275	3522-94-9	2,2,5-TRIMETHYLHEXANE
276	3737-00-6	3-BROMO-1-CHLORO-1-PROPENE
277	4050-45-7	(E)-2-HEXENE
278	4461-48-7	4-METHYL-2-PENTENE
279	4885-02-3	DICHLOROMETHOXYMETHANE
280	5796-89-4	NITRO-1-OXOPROPYLPEROXIDE
281	5989-27-5	(R)-1-METHYL-4-(1-METHYLETHENYL)-CYCLOHEXENE
282	5989-54-8	(S)-1-METHYL-4-(1-METHYLETHENYL)-CYCLOHEXENE
283	6443-92-1	(Z)-2-HEPTENE
284	7642-04-8	(Z)-2-OCTENE
285	7642-09-3	(Z)-3-HEXENE
286	7688-21-3	(Z)-2-HEXENE
287	10061-01-5	(Z)-1,3-DICHLORO-1-PROPENE
288	10061-02-6	(E)-1,3-DICHLORO-1-PROPENE
289	12002-48-1	TRICHLOROBENZENE
290	13269-52-8	(E)-3-HEXENE
291	13466-78-9	3,7,7-TRIMETHYLBICYCLO[4.1.0]HEPT-3-ENE
292	14686-13-6	(E)-2-HEPTENE
293	17301-94-9	4-METHYLNONANE
294	17700-09-3	TETRACHLOROBENZENE
295	25167-67-3	BUTENE
296	25167-93-5	CHLORONITROBENZENE
297	25321-22-6	DICHLOROBENZENE
298	25323-30-2	DICHLOROETHENE
299	25619-60-7	TETRAMETHYL BENZENE
300	26446-77-5	BROMOPROPANE
301	26952-23-8	DICHLORO-1-PROPENE
302	27134-26-5	CHLOROBENZENEAMINE
303	27195-67-1	DIMETHYLCYCLOHEXANE
304	27900-75-0	DICHLORONITROBENZENE
305	28699-88-9	DICHLORONAPHTHALENE
306	28729-52-4	DIMETHYLCYCLOPENTANE
307	28807-97-8	BROMOMETHYLBENZENE
308	29224-55-3	ETHYL DIMETHYL BENZENE
309	29733-70-8	TETRACHLOROMETHYLBENZENE
310	29797-40-8	DICHLOROMETHYLBENZENE
311	30025-33-3	BENZENEDICARBOXALDEHYDE
312	30498-63-6	TRIMETHYLCYCLOHEXANE
313	30583-33-6	TRICHLOROMETHYLBENZENE
314	30677-34-0	ETHYLMETHYLCYCLOHEXANE
315	32368-69-7	BENZOYL NITRO PEROXIDE

(continued)

Table 1. *(Continued)*

Data Base Chemical No.	Chemical Abstracts System Number	Chemical Name
316	34652-54-5	BROMOCHLOROPROPANE
317	55162-35-1	1,1-DIBROMO-2-CHLOROPROPANE
318	55880-77-8	PENTACHLORO-1,3-BUTADIENE
319	67708-83-2	DIBROMOCHLOROPROPANE
320	79504-02-2	BROMOPENTACHLOROETHANE

Table 2. *dBASE III Plus File Structure*

CONCENTRATION FILE	METHODS FILE
Reference Number	Reference Number
Site Number	Site Number
Chemical Number	Chemical Number
Concentration (in parts per billion)	Sampling Method
Relative Standard Deviation	Analysis Method
Number of Samples	Minimum Quantifiable Level
Sampling Duration	
Maximum Concentration	SITE FILE
Minimum Concentration	Reference Number
Start Date	Site Number
Start Time	Site Type
Stop Date	Latitude
Stop Time	Longitude
Hours Between Sampling and Analysis	Site Address
Number of Samples Less Than The Minimum Quantifiable Level	City
	State
Comments	SAROAD Number
Ranking	
Rating	
	REFERENCE FILE
	Reference Number
	Chemicals Measured
	Principal Investigator
	Authors
	Title
	Citation
	Year
	Number of Data Records
	Objective

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The complete report consists of paper copy and diskettes, entitled "National Ambient Volatile Organic Compounds (VOCs) Data Base Update,"
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