Appendix A: Database Definitions

WELL DATA
- TWDB_WELLS.DAT
- INCLUDE.WELLS
- AQ5.WELLS

NITRATE MEASUREMENT DATA
- TWDB_WELLS.NIT
- INCLUDE.NIT

PRECIPITATION DATA
- PREC.DAT
- STATION.MEAN

FERTILIZER SALES DATA
- NITRATE.USE

SOIL PARAMETER DATA
- STUDY.MAPU
- STUDY.COMP
- STUDY.LAYER

QUADRANGLE AQUIFER ASSOCIATIONS
- AQ_QUAD.DAT

DISCRETE PROBABILITIES RESULTS
- COUNTS.QUAD
- COUNTS.QUAD (extended for WUD data)
- BINO.QUAD

LOGNORMAL PROBABILITIES RESULTS
- LOGFIT.QUAD

QUAD PARAMETERS FOR REGRESSION
- PARAMS.QUAD

WUD NITRATE AND WELL DATA
- NIT.WRK
- POE.WRK

PWS-QUAD.PAT

MIDWEST NITRATE AND HERBICIDE DATA
- CONSTRUCTION
- QUALITY

WELL DATA

TWDB_WELLS.DAT

COLUMN	ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC
1	WELLNO	7	7	I	-
8	AQFCODE	8	8	C	-
16	FIPSCODE	3	3	I	-
19	LATITUDE	7	7	I	-
26	LONGITUDE	7	7	I	-
33	LOCMETHD	1	1	I	-
34	DEPTH	6	6	I	-
40	DEPMETH	1	1	C	-
41	ALTITUDE	5	5	I	-
46	ALTMETH	1	1	C	-
47	DRILLDATE	8	8	C	-
55	PRIMEUSE	1	1	C	-
**	REDEFINED ITEMS **				
1	QUAD_2.5M	5	5	I	-
1	QUAD_7.5M	4	4	I	-
1	QUAD_1D	2	2	I	-

INCLUDE.WELLS

COLUMN	ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC
1	WELLNO	7	7	I	-
8	AQFCODE	8	8	C	-
16	FIPSCODE	3	3	I	-
19	LATITUDE	7	7	I	-
26	LONGITUDE	7	7	I	-
33	LOCMETHD	1	1	I	-
34	DEPTH	6	6	I	-
40	DEPMETH	1	1	C	-
41	ALTITUDE	5	5	I	-
46	ALTMETH	1	1	C	-
47	DRILLDATE	8	8	C	-
55	PRIMEUSE	1	1	C	-
56	QUAD_OK	1	1	C	-
57	QUAD_ERR	1	1	C.....	-
58	MEAS	1	1	C	-
59	INCLUDE	1	1	C	-
**	REDEFINED ITEMS **				
1	QUAD_2.5M	5	5	I	-
1	QUAD_7.5M	4	4	I	-
1	QUAD_1D	2	2	I	-

```
AQ5.WELLS
COLUMN   ITEM NAME        WIDTH OUTPUT  TYPE N.DEC
    1  WELLNO                7      7     I      -
    8  AQF                   4      4     C      -
   12  AQFCODE               8      8     C      -
   20  FIPSCODE              3      3     I      -
   23  LATITUDE              7      7     I      -
   30  LONGITUDE             7      7     I      -
   37  LOCMETHD              1      1     I      -
   38  DEPTH                 6      6     I      -
   44  DEPMETH               1      1     C      -
   45  ALTITUDE              5      5     I      -
   50  ALTMETH               1      1     C      -
   51  DRILLDATE             8      8     C      -
   59  PRIMEUSE              1      1     C      -
   60  QUAD_OK               1      1     C      -
   61  QUAD_ERR              1      1     C      -
   62  MEAS                  1      1     C      -
   63  INCLUDE               1      1     C      -
     **  REDEFINED ITEMS  **
    1  QUAD_2.5M             5      5     I      -
    1  QUAD_7.5M             4      4     I      -

    1   QUAD_1D                    2        2        I         -
```

NITRATE MEASUREMENT DATA

TWDB_WELLS.NIT

COLUMN	ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC
1	WELLNO	7	7	I	-
8	MM_DATE	2	2	B	-
10	DD_DATE	2	2	B	-
12	YY_DATE	2	4	B	-
14	RELIABILITY_REM	2	2	C	-
16	COLLECT_AGENCY	2	2	C	-
18	Q71850_FLAG	1	1	C	-
19	Q71850_NITRATE	8	9	F	2
**	REDEFINED ITEMS **				
1	QUAD_2.5M	5	5	I	-
1	QUAD_7.5M	4	4	I	-
1	QUAD_1D	2	2	I	-

INCLUDE.NIT

COLUMN	ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC
1	WELLNO	7	7	I	-
8	MM_DATE	2	2	B	-
10	DD_DATE	2	2	B	-
12	YY_DATE	2	4	B	-
14	RELIABILITY_REM	2	2	C	-
16	COLLECT_AGENCY	2	2	C	-
18	Q71850_FLAG	1	1	C	-
19	Q71850_NITRATE	8	9	F	2
27	INCLUDE	1	1	C	-
28	NIT_ADJ	8	9	F	2
**	REDEFINED ITEMS **				
1	QUAD_2.5M	5	5	I	-
1	QUAD_7.5M	4	4	I	-
1	QUAD_1D	2	2	I	-

PRECIPITATION DATA

PREC.DAT

COLUMN	ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC
1	STATION_ID	5	5	I	-
6	STATION_NAME	23	23	C	-
29	YEAR	4	4	I	-
33	PREC	8	6	F	2
**	REDEFINED ITEMS	**			
1	UNIQUE	28	28	C	-

STATION.MEAN

COLUMN	ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC
1	STATION_ID	5	5	I	-
6	STATION_NAME	23	23	C	-
29	STATE	2	2	I	-
31	CNT_40	4	5	B	-
35	GAP_90	2	2	I	-
37	TOT_40	8	8	F	2
45	MEAN_40	8	18	F	6
53	DELTA-30-40	8	18	F	6
61	CNT_30	4	5	B	-
65	GAP_80	2	2	I	-
67	TOT_30	8	8	F	2
75	MEAN_30	8	8	F	2
**	REDEFINED ITEMS	**			
1	UNIQUE	28	28	C	-

FERTILIZER SALES DATA

NITRATE.USE

COLUMN	ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC
1	FIPSCNTY	3	3	I	-
4	NTOT86	8	18	F	6
12	NTOT86.USE	4	12	F	3
16	NTOT87	8	18	F	6
24	NTOT87.USE	4	12	F	3
28	NTOT88	8	18	F	6
36	NTOT88.USE	4	12	F	3
40	NTOT89	8	18	F	6
48	NTOT89.USE	4	12	F	3
52	NTOT90	8	18	F	6
60	NTOT90.USE	4	12	F	3
64	NTOT91	8	18	F	6
72	NTOT91.USE	4	12	F	3
76	NTOT86-91	8	18	F	6
84	NTOT86-91.USE	8	18	F	6
92	NUSE86-91.RNK	3	3	I	-
95	NTOT86-91.AVUSE	8	18	F	6

SOIL PARAMETER DATA

STUDY.MAPU

COLUMN	ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC
1	STSSAID	5	5	C	-
6	SSAID	3	3	C	-
9	MUSYM	5	5	C	-
14	MUID	7	7	C	-
21	MUNAME	109	109	C	-
130	MUKIND	1	1	C	-
131	MLRA	4	4	C	-
135	PRIMFML	2	2	C	-
137	MUAREA	8	18	F	2
145	MUACRES	6	6	I	-
151	SUM	2	3	B	-
153	AVTHK	8	6	F	2
161	AV-MAX-ORG	8	8	F	4
169	AV-MID-ORG	8	8	F	4
177	AV-MIN-ORG	8	8	F	2

STUDY.COMP

COLUMN	ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC
1	STSSAID	5	5	C	-
6	MUID	7	7	C	-
13	SEQNUM	2	2	I	-
15	SOILTHK	8	18	F	6
23	MAX-ORG	8	8	F	2
31	MID-ORG	8	8	F	2
39	MIN-ORG	8	8	F	2
**	REDEFINED ITEMS	**			
6	MAPSEQ	9	9	C	-

STUDY.LAYER

COLUMN	ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC
1	STSSAID	5	5	C	-
6	MUID	7	7	C	-
13	SEQNUM	2	2	I	-
15	S5ID	6	6	C	-
21	LAYERNUM	1	1	I	-
22	LAYERID	2	2	I	-
24	LAYDEPL	2	2	I	-
26	LAYDEPH	2	2	I	-
28	BDL	4	4	N	2
32	BDM	5	5	N	3
37	BDH	4	4	N	2
41	OML	4	4	N	1
45	OMM	5	5	N	2
50	OMH	4	4	N	1
**	REDEFINED ITEMS	**			
6	MAPSEQ	9	9	C	-

QUADRANGLE AQUIFER ASSOCIATIONS

AQ_QUAD.DAT

COLUMN	ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC
1	QUAD_7.5M	4	4	I	-
5	EBFZ	1	1	I	-
6	CZWX	1	1	I	-
7	OGLL	1	1	I	-
8	SYMR	1	1	I	-
9	HMBL	1	1	I	-
10	AQ_CNT	1	1	I	-

DISCRETE PROBABILITIES RESULTS

COUNTS.QUAD

COLUMN	ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC
1	QUAD_7.5M	4	4	I	-
5	WELL_CNT	2	4	B	-
7	MEAS_CNT	2	4	B	-
9	DTCT_CNT	2	4	B	-
11	GT1_CNT	2	4	B	-
13	GT5_CNT	2	4	B	-
15	GT10_CNT	2	4	B	-
17	DTCT_PROB	8	8	F	6
25	GT1_PROB	8	8	F	6
33	GT5_PROB	8	8	F	6
41	GT10_PROB	8	8	F	6

COUNTS.QUAD (extended for WUD data)

COLUMN	ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC
1	QUAD_7.5M	4	4	I	-
5	WELL_CNT	2	4	B	-
7	MEAS_CNT	2	4	B	-
9	DTCT_CNT	2	4	B	-
11	GT1_CNT	2	4	B	-
13	GT5_CNT	2	4	B	-
15	GT10_CNT	2	4	B	-
17	DTCT_PROB	8	8	F	6
25	GT1_PROB	8	8	F	6
33	GT5_PROB	8	8	F	6
41	GT10_PROB	8	8	F	6
49	WUD_MEAS	2	4	B	-
51	WUD_GT1	2	4	B	-
53	WUD_GT5	2	4	B	-
55	WUD_GT10	2	4	B	-
57	WUD_DTCT	2	4	B	-
59	WDT_PROB	8	8	F	6
67	W1_PROB	8	8	F	6
75	W5_PROB	8	8	F	6
83	W10_PROB	8	8	F	6

BINO.QUAD

COLUMN	ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC
1	QUAD_7.5M	4	4	I	-
5	WELL_CNT	2	4	B	-
7	MEAS_CNT	2	4	B	-
9	DTCT_CNT	2	4	B	-
11	GT1_CNT	2	4	B	-
13	GT5_CNT	2	4	B	-
15	GT10_CNT	2	4	B	-
17	DTCT_PROB	8	8	F	6
25	DTCT_LO	8	6	F	4
33	DTCT_UP	8	6	F	4
41	GT1_PROB	8	8	F	6
49	GT1_LO	8	6	F	4
57	GT1_UP	8	6	F	4
65	GT5_PROB	8	8	F	6
73	GT5_LO	8	6	F	4
81	GT5_UP	8	6	F	4
89	GT10_PROB	8	8	F	6
97	GT10_LO	8	6	F	4
105	GT10_UP	8	6	F	4

LOGNORMAL PROBABILITIES RESULTS

LOGFIT.QUAD

COLUMN	ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC
1	QUAD_7.5M	4	4	I	-
5	MEAS_CNT	2	4	B	-
7	MED_NIT	8	7	F	3
15	MEANLOG	8	7	F	3
23	STDLOG	8	7	F	3
31	R2	8	7	F	4
39	T_STAT	8	6	F	2
47	F_STAT	8	7	F	2
55	STDERR	8	7	F	3
63	P_FSTAT	8	8	F	6
71	MP_DTCT	8	4	F	2
79	MP_1	8	4	F	2
87	MP_5	8	4	F	2
95	MP_10	8	4	F	2

QUAD PARAMETERS FOR REGRESSION

PARAMS.QUAD

COLUMN	ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC
1	QUAD_7.5M	4	4	I	-
5	SOILAREA	8	18	F	5
13	THKAR	8	18	F	5
21	OMMAR	8	18	F	5
29	AVSOILTHK	8	6	F	2
37	AVSOILOMM	8	10	F	4
45	PRECAREA	8	18	F	5
53	PRCAR	8	18	F	5
61	AVPREC	8	5	F	2
69	AVNIT86-91.USE	8	18	F	6
77	CTYAR	8	8	F	2
85	NITAR	8	8	F	2

WUD Nitrate And Well Data

NIT.WRK

COLUMN	ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC
1	PREFIX	3	3	C	-
4	LAB	5	5	I	-
9	DATECOLL	8	10	D	-
17	TIMECOLL	8	8	C	-
25	SYS-ID	7	7	C	-
32	POE	3	3	C	-
35	SYS_NAME	34	34	C	-
69	SYS_ADDR1	34	34	C	-
103	SYS_ADDR2	34	34	C	-
137	SYS_CITY	25	25	C	-
162	SYS_ZIP	9	9	C	-
171	TESTNO3	1	1	C	-
172	TESTNO2	1	1	C	-
173	TESTNO3NO2	1	1	C	-
174	NO3RESULTS	8	8	C	-
182	NO2RESULTS	8	8	C	-
190	NO3NO2RES	8	8	C	-
198	LABCOMMENT	40	40	C	-
238	SAMPLETYPE	1	1	C	-
239	COMMENT	20	20	C	-
259	LOCATION	34	34	C	-
293	ENTRYCODE1	3	3	C	-
296	ENTRYCODE2	3	3	C	-
299	ENTRYCODE3	3	3	C	-
302	ENTRYCODE4	3	3	C	-
305	ENTRYCODE5	3	3	C	-
308	SOURCE	34	34	C	-
342	OTHER	34	34	C	-
376	STATCODE	2	2	I	-
378	PRESERVED	1	1	I	-
379	DATEIN	8	10	D	-
389	QUAD_7.5M	4	4	I	-
393	NO3FL	1	1	C	-
394	NO3	4	6	F	2
497	NO2FL	1	1	C	-
498	NO2	4	6	F	2
402	NNFL	1	1	C	-
404	NO3NO2	4	6	F	2
**	REDEFINED ITEMS **				
25	SYSENT	10	10	C	-

POE.WRK

COLUMN	ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC
1	PWS-ID	7	7	C	-
8	POE	3	3	C	-
11	WATERSOURCE	10	10	C	-
21	QUAD_7.5M	4	4	I	-
**	REDEFINED ITEMS	**			
1	SYSENT	10	10	C	-

PWS-QUAD.PAT

COLUMN	ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC
1	AREA	8	18	F	5
9	PERIMETER	8	18	F	5
17	PWS-QUAD#	4	5	B	-
21	PWS-QUAD-ID	4	5	B	-
25	PWS#	4	5	B	-
29	PWS-ID	4	5	B	-
33	PWSID	7	7	C	-
40	POE	3	3	C	-
43	WATERSOURCE	10	10	C	-
53	OWNERSDES	15	15	C	-
68	STATEWELL	7	7	C	-
75	LATITUDE	6	6	C	-
81	LONGITUDE	7	7	C	-
88	LOCACC	1	1	C	-
89	LOCAGEN	1	1	C	-
90	LOCMETH	10	10	C	-
100	DATUM	2	2	C	-
102	SPATREF	1	1	C	-
103	FIPS	3	3	C	-
106	QUADS	8	8	C	-
114	WELLSTAT	1	1	C	-
115	DEPTHAGEN	1	1	C	-
116	DEPTHSOURC	1	1	C	-
117	AQUIFER	8	8	C	-
125	AQUIAGEN	1	1	C	-
126	AQUIFMETH	1	1	C	-
127	AQUITYPE	1	1	C	-
128	AQUIPORO	1	1	C	-
129	REMARKS	1	1	C	-
130	INITIALS	3	3	C	-
* 133	QUADS_7.5#	4	5	B	-
* 137	QUADS_7.5-ID	4	5	B	-
* 141	QUAD_7.5M	4	4	I	-
**	REDEFINED ITEMS	**			
33	SYSENT	10	10	C	-

*—item added by overlying with coverage quads_7.5

MIDWEST NITRATE AND HERBICIDE DATA

CONSTRUCTION

COLUMN	ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC
1	SITE_ID	5	5	C	-
6	LATITUDE	4	8	B	-
10	LONGITUDE	4	8	B	-
14	CONST_YEAR	4	4	I	-
18	WELL_DEPTH	2	4	B	-
20	OPEN_INT_TOP_DPH	2	4	B	-
22	OPEN_INT_BOT_DPH	2	4	B	-
24	PRIMARY_USE	1	1	C	-
25	AQ_CLASS	1	1	C	-
26	AQ_TYPE	1	1	C	-
27	AQ_MATERIAL	8	8	C	-
35	DPTH_AQ_TOP	2	4	B	-

QUALITY

COLUMN	ITEM NAME	WIDTH	OUTPUT	TYPE	N.DEC
1	SITE_ID	5	5	C	-
6	DUP_FLAG	1	1	C	-
7	SAMPLE_DATE	8	10	D	-
15	WATER_LEV_FLAG	1	1	C	-
16	WATER_LEVEL	2	4	B	-
18	SPEC_COND	2	4	B	-
20	PH	4	5	F	1
24	DISS_O	4	5	F	1
28	NITRITE_FLAG	1	1	C	-
29	NITRITE	4	6	F	2
33	NITRITE+ATE_FLAG	1	1	C	-
34	NITRITE+NITRATE	4	6	F	2
38	NITRATE	4	6	F	2
42	AMMONIUM_FLAG	1	1	C	-
43	AMMONIUM	4	6	F	2
47	PHOSPHORUS_FLAG	1	1	C	-
48	PHOSPHORUS_ORTHO	4	6	F	2
52	ALACHLOR_FLAG	1	1	C	-
53	ALACHLOR	4	6	F	2
57	ATRAZINE_FLAG	1	1	C	-
58	ATRAZINE	4	6	F	2
62	CYANAZINE_FLAG	1	1	C	-
63	CYANAZINE	4	6	F	2
67	D_E_ATRZN_FLAG	1	1	C	-
68	DEETHYLATRAZINE	4	6	F	2
72	D_IPL_ATRZN_FLAG	1	1	C	-
73	DEISOPROPYLATRZN	4	6	F	2
77	METOLACHLOR_FLAG	1	1	C	-
78	METOLACHLOR	4	6	F	2
82	METRIBUZIN_FLAG	1	1	C	-
83	METRIBUZIN	4	6	F	2
87	PROMETON_FLAG	1	1	C	-
88	PROMETON	4	6	F	2
92	SIMAZINE_FLAG	1	1	C	-
93	SIMAZINE	4	6	F	2