Indiana's Data Management Systems

Presented at

Intergovernmental Meeting on Coal Combustion Materials

Golden, Colorado

April 15 - 16, 2002

CCW Disposal In Indiana

- Currently, there are 15 surface mines approved for CCW disposal
- Of the 15 mines, only 8 have had CCW disposed
- Presently, 4 mines are actively disposing
- 2 additional permits are presently in technical review

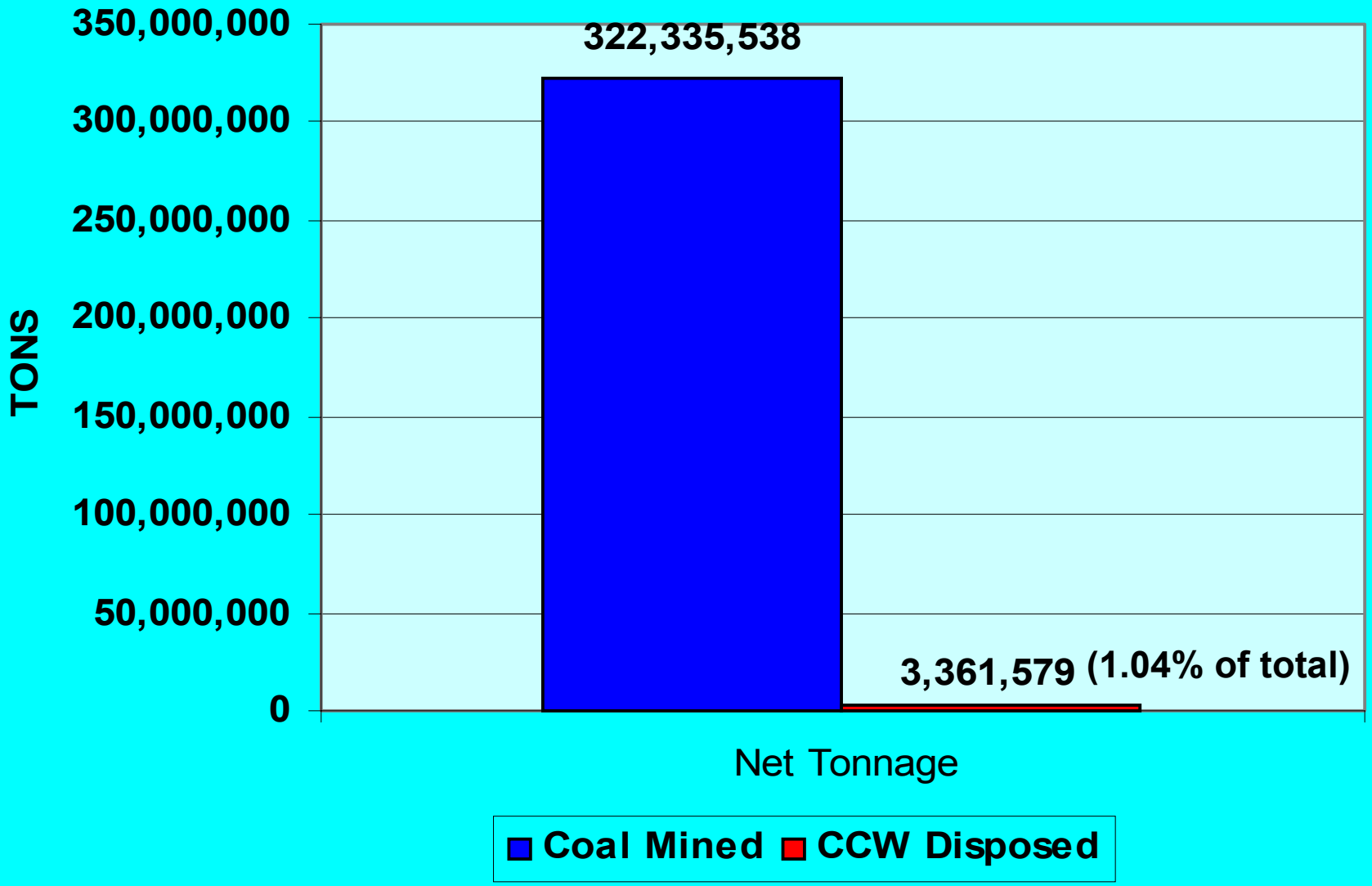
CCW Disposal In Indiana

- ***Memorandum 92-1***

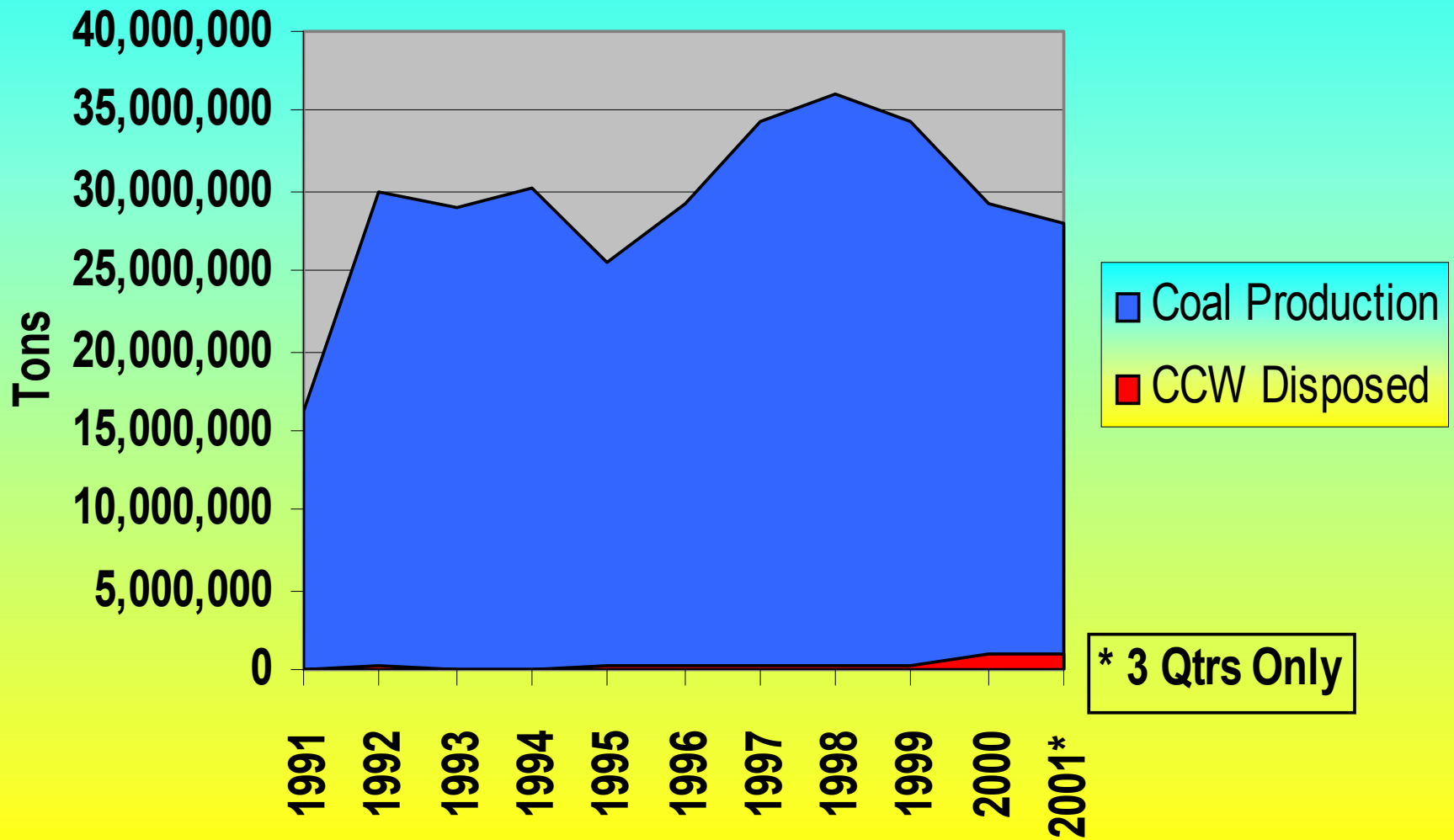
  Policy providing requirements for CCW disposal through existing authority of IC 14-34 & 312 IAC 25

  - New or significant revision to an existing permit **requiring public notice, opportunity for comments and appeals**
  - Approval by landowners where disposal is to take place
  - Disposal limited to CCW generated in Indiana or from the burning of Indiana coal
  - Extensive geologic and hydrogeologic characterization

Coal Mined and CCW Disposed at Mines in Indiana Since 1991



Coal Production and Coal Mine CCW Disposal




Surface
Spoil
CCW
Shale


Mine Advance
Highwall
CCW
Spoil
Subsoil

Indiana's CCW Database

Indiana's CCW Database

- **Initial bulk, 18-hr and 30-day leachate analyses are entered into the database once the CCW permit is approved**
- **During disposal bulk, 18-hr and 30-day leachate analyses submitted in the quarterly reports are entered into the database**

CCW Disposal In Indiana

- **CCW characterization for each waste stream/type**
  - **Bulk analysis:**

Al	Mn	F^-	pH
As	Hg	Fe	Pb
Ba	Ni	Na	Cl^-
Cd	Se	SO_4^{-2}	TDS
K	Zn	SO_3^{-2}	V
Cr	Ag	B	potential acidity
Cu	Mo	Mg	TOC

MPC calculation

Net neutralization potential

Neutralization potential

CCW Disposal In Indiana

- **18-hr and 30-day leachate analyses:**

Al	Mn	F^-	pH
As	Hg	Fe	Pb
Ba	Ni	Na	Cl^-
Cd	Se	SO_4^{-2}	TDS
K	Zn	SO_3^{-2}	V
Cr	Ag	B	TOC
Cu	Mo	Mg	MPC calculation

ASTM Method D3987-85 Shake Extraction of Solid Waste

CCW Disposal In Indiana

CCW leaching elements at concentrations exceeding ¼ RCRA standards cannot be disposed

CCW Disposal In Indiana

- **Baseline (minimum of 6 months)**
  - **Ground Water**

Al	Mn	F^-	pH (field)
As	Hg	Fe	pH (lab)
Ba	Ni	Na	Sp. Conductivity
Cd	Se	SO_4^{-2}	TDS
Ca	Zn	SO_3^{-2}	Alkalinity
Cr	Ag	B	Acidity
Cu	Mo	Mg	TOC
Pb	Cl^-	SWE	Cat/Anion Balance
Hardness			Temperature

CCW Disposal In Indiana

- **Surface Water**

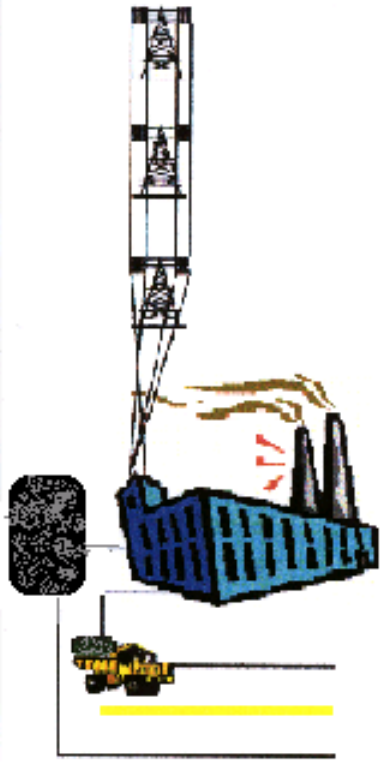
Al	**Mn**	**F^-**	**pH (field)**
As	**Hg**	**Fe**	**pH (lab)**
Ba	**Ni**	**Na**	**Sp. Conductivity**
Cd	**Se**	**SO_4^{-2}**	**TDS**
Ca	**Zn**	**SO_3^{-2}**	**Alkalinity**
Cr	**Ag**	**B**	**Acidity**
Cu	**Mo**	**Mg**	**TOC**
Pb	**Cl^-**	**TSS**	**Cat/An Balance**
Temperature			**Discharge rate**

FlyAsh Database Program

File Edit View Insert Format Records Tools Window Help

Flyash Main Menu

IDNR Flyash Project



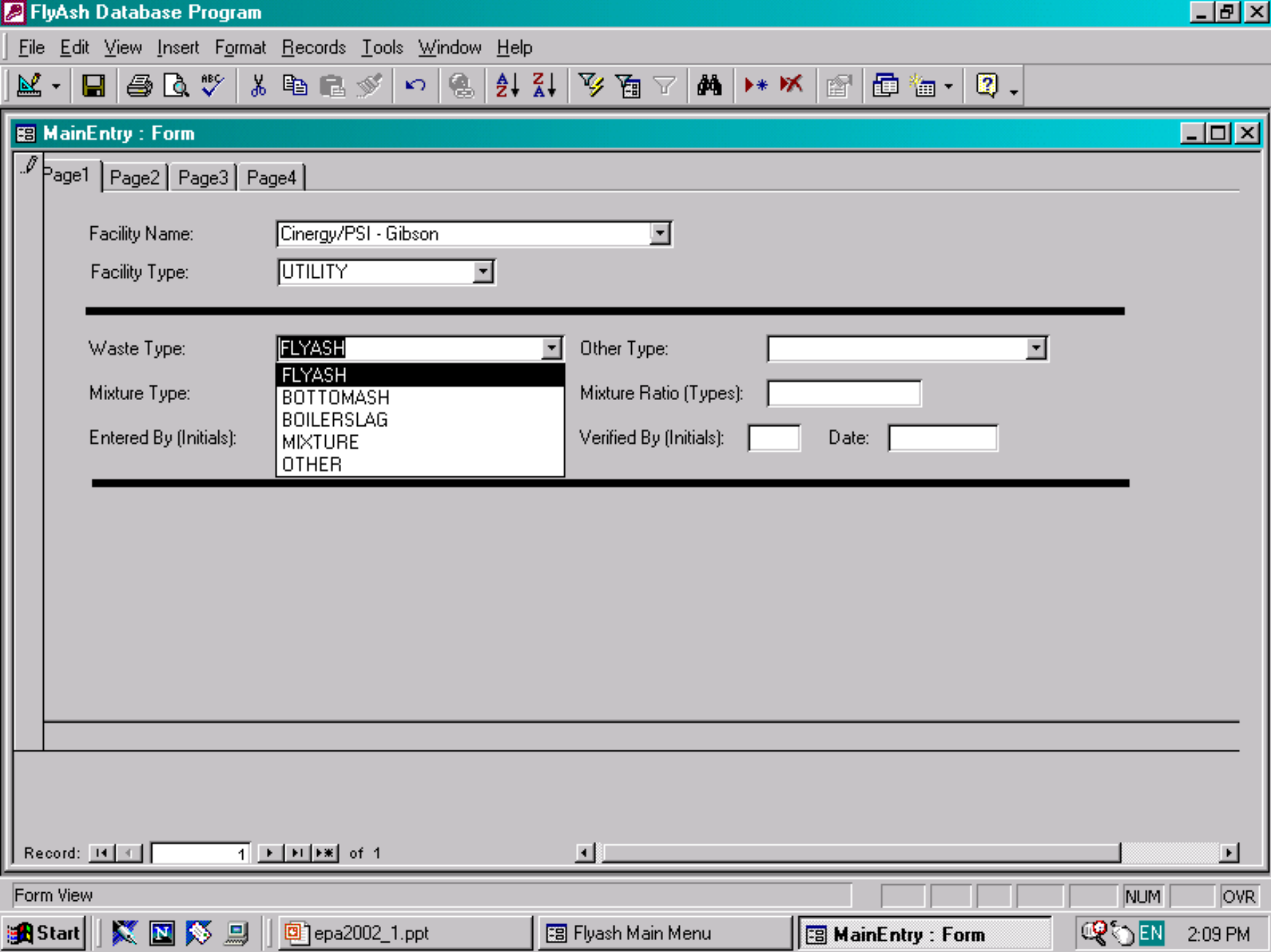
Indiana Department of Natural Resources

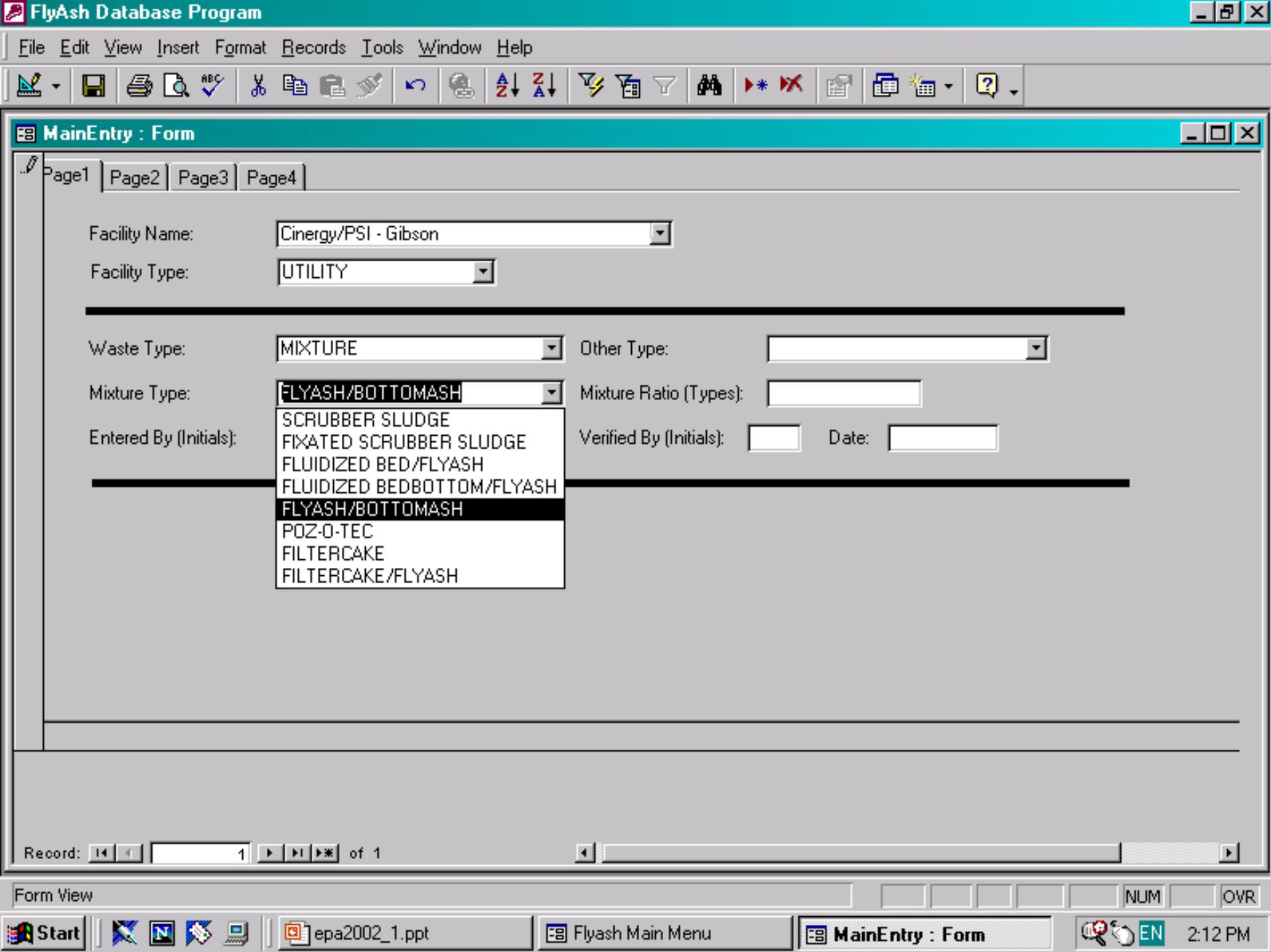
Divison of Reclamation

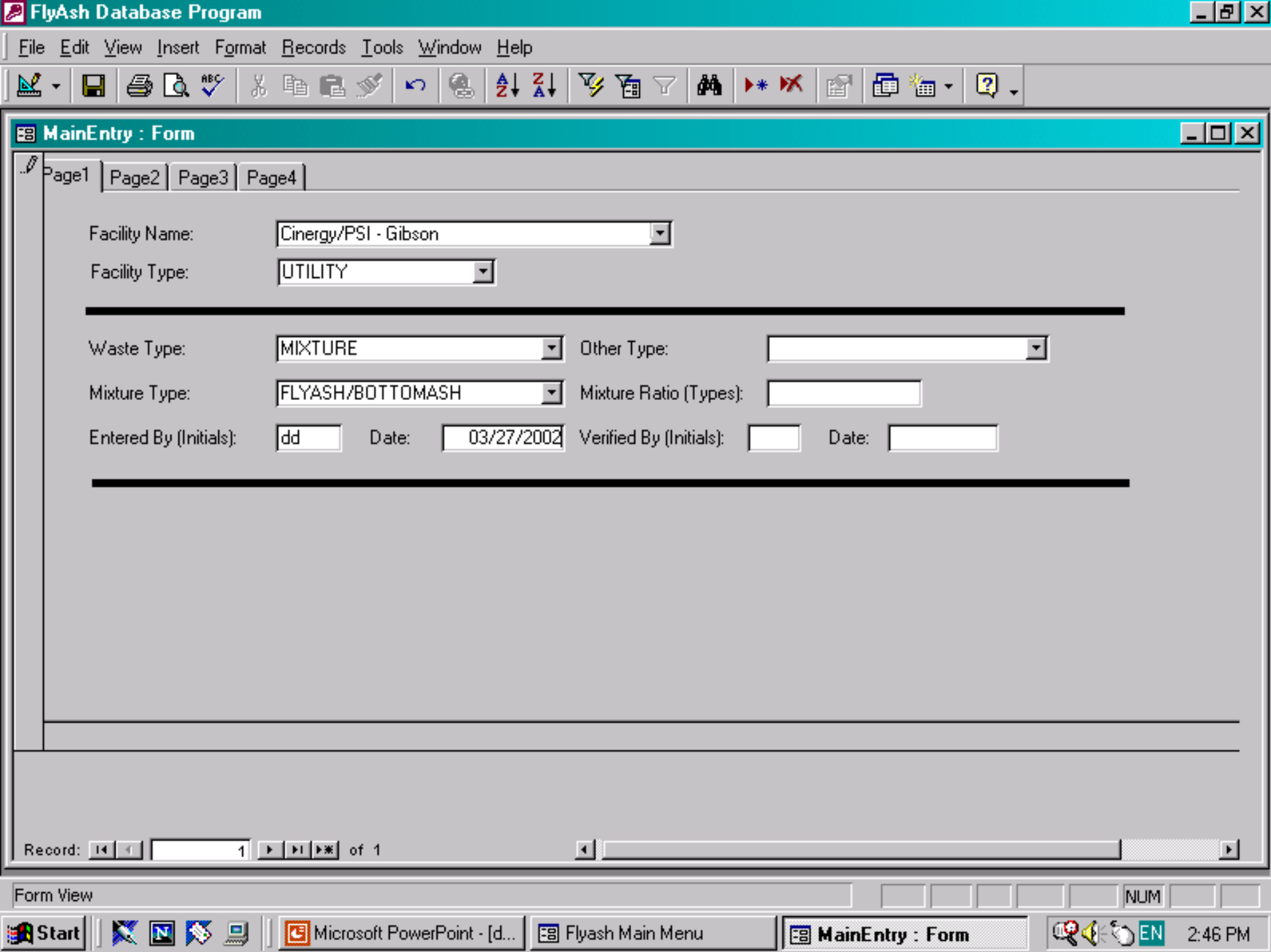
- Add New Analysis to Database
- Modify / Delete Analysis
- Report Menu
- Exit Flyash Program

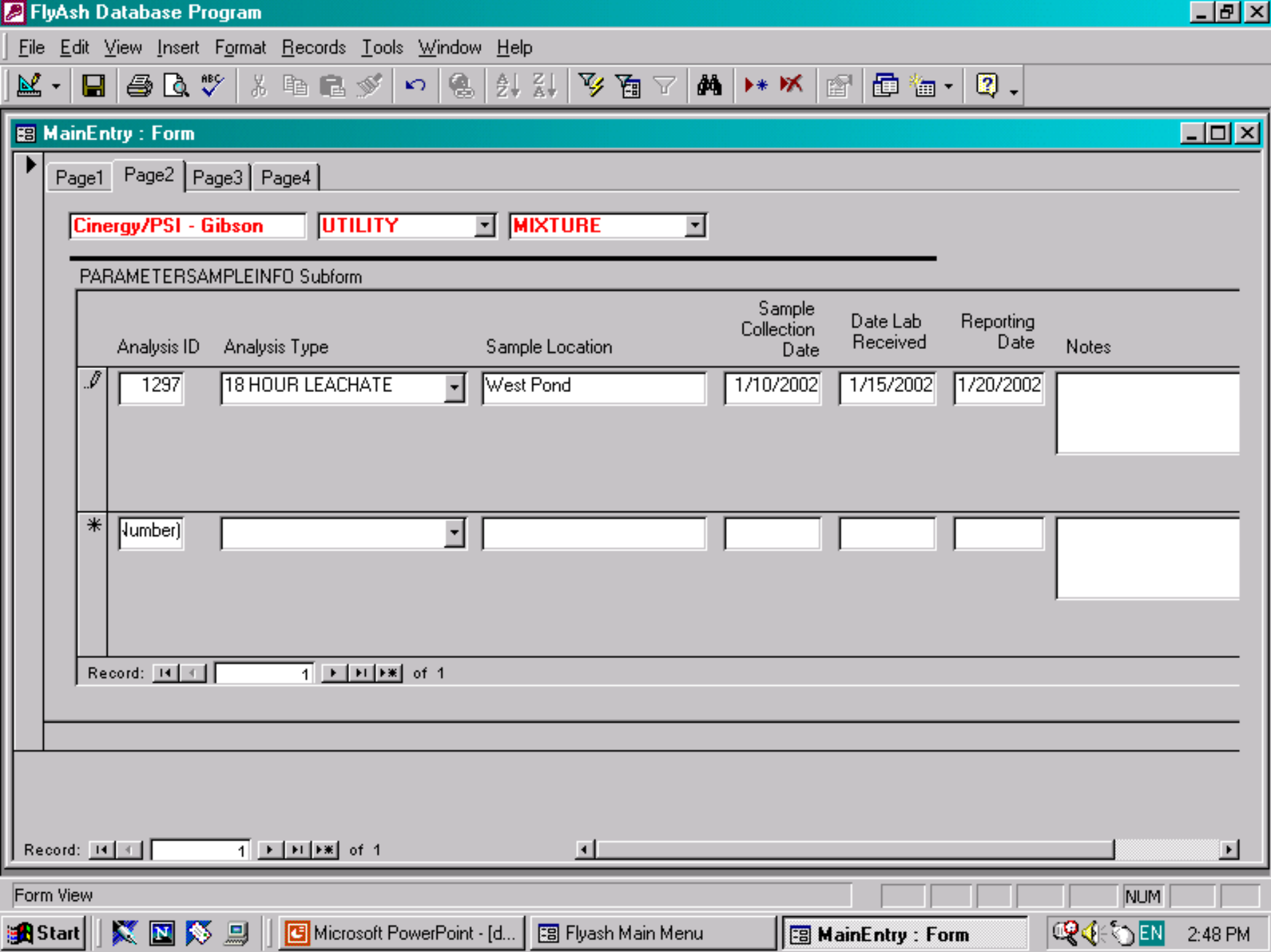
Form View FLTR NUM

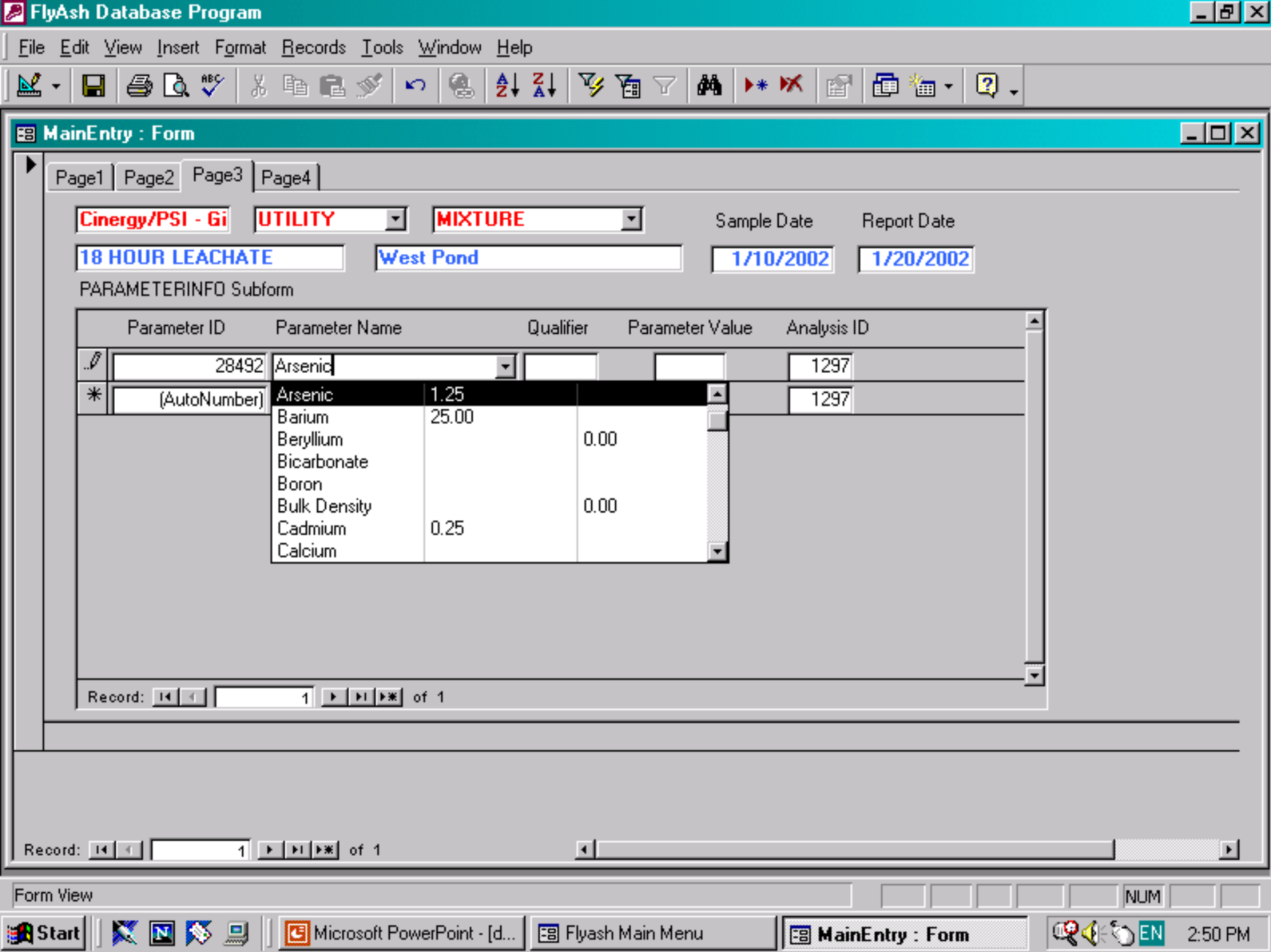
Start epa2002.ppt Flyash Main Menu MainEntry : Form EN 4:10 PM

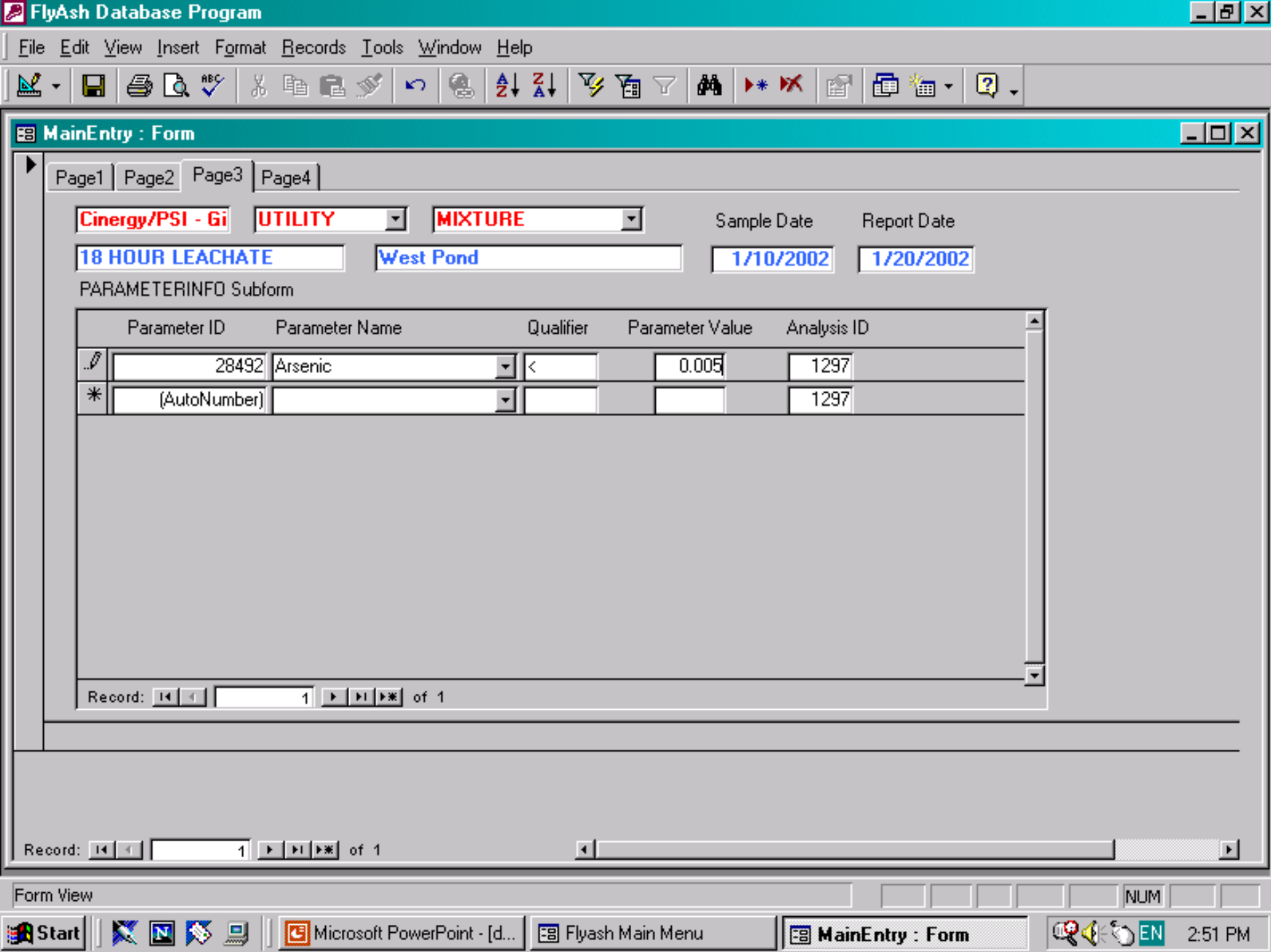

FlyAsh Database Program
File Edit View Insert Format Records Tools Window Help
MainEntry : Form
Page1 Page2 Page3 Page4
Facility Name:
Cinergy/PSI - Gibson
Facility Type:
UTILITY
Waste Type:
FLYASH
Other Type:
Mixture Type:
Mixture Ratio (Types):
Entered By (Initials):
Verified By (Initials):
Date:
FLYASH
BOTTOMASH
BOILERSLAG
MIXTURE
OTHER
Record: 1 of 1
Form View
NUM
OVR
Start
epa2002_1.ppt
Flyash Main Menu
MainEntry : Form
EN
2:09 PM

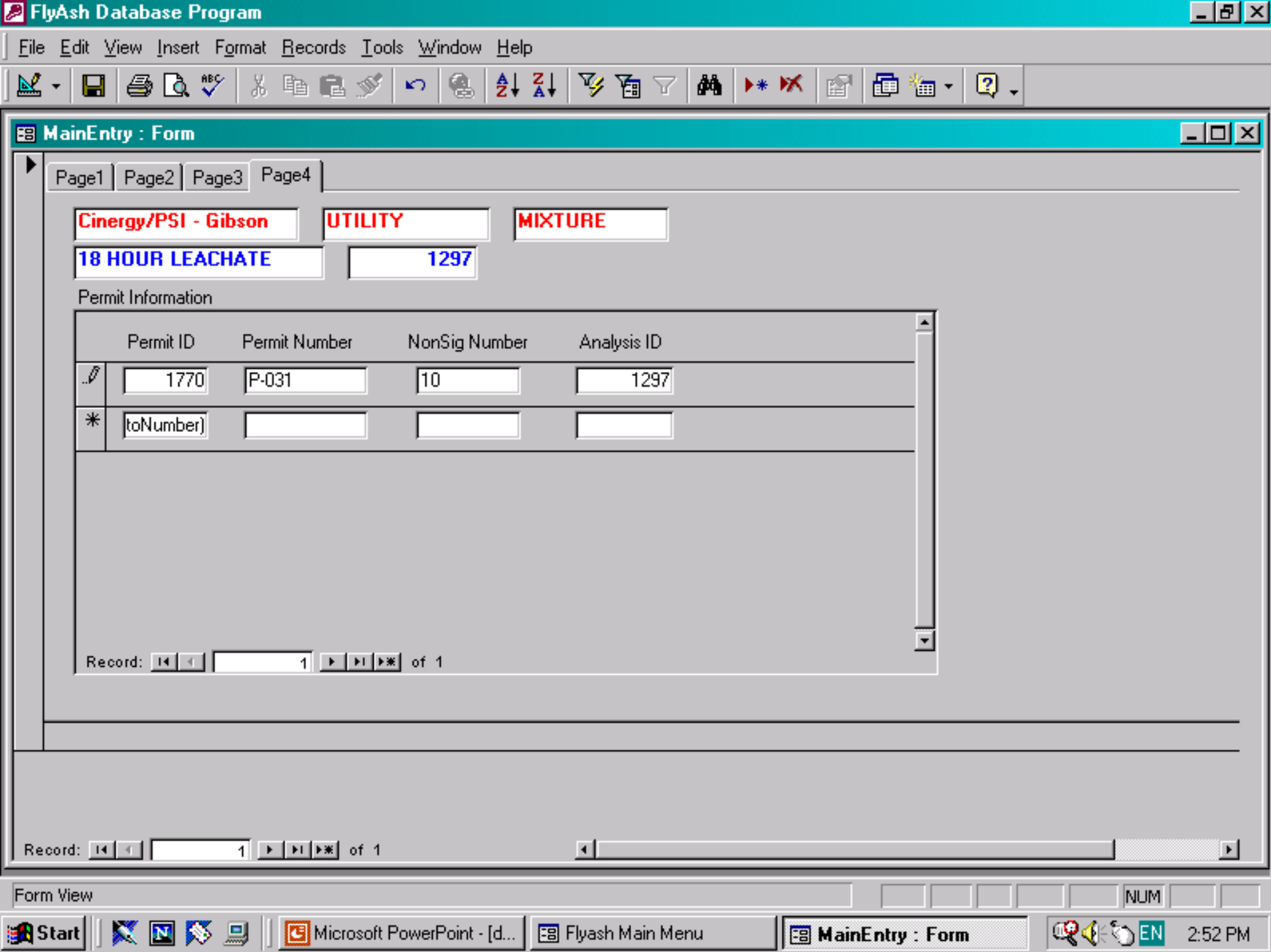

FlyAsh Database Program
File Edit View Insert Format Records Tools Window Help
MainEntry : Form
Page1 Page2 Page3 Page4
Facility Name: Cinergy/PSI - Gibson
Facility Type: UTILITY
Waste Type: MIXTURE
Other Type:
Mixture Type: FLYASH/BOTTOMASH
Mixture Ratio (Types):
Entered By (Initials):
Verified By (Initials):
Date:
SCRUBBER SLUDGE
FIXATED SCRUBBER SLUDGE
FLUIDIZED BED/FLYASH
FLUIDIZED BEDBOTTOM/FLYASH
FLYASH/BOTTOMASH
POZ-O-TEC
FILTERCAKE
FILTERCAKE/FLYASH
Record: 1 of 1
Form View
NUM
OVR
Start
epa2002_1.ppt
Flyash Main Menu
MainEntry : Form
EN
2:12 PM


FlyAsh Database Program
File Edit View Insert Format Records Tools Window Help
MainEntry : Form
Page1 Page2 Page3 Page4
Facility Name: Cinergy/PSI - Gibson
Facility Type: UTILITY
Waste Type: MIXTURE
Other Type:
Mixture Type: FLYASH/BOTTOMASH
Mixture Ratio (Types):
Entered By (Initials): dd
Date: 03/27/2002
Verified By (Initials):
Date:
Record: 1 of 1
Form View
NUM
Start
Microsoft PowerPoint - [d...
Flyash Main Menu
MainEntry : Form
EN
2:46 PM


FlyAsh Database Program
File Edit View Insert Format Records Tools Window Help
MainEntry : Form
Page1 Page2 Page3 Page4
Cinergy/PSI - Gibson
UTILITY
MIXTURE
PARAMETERSAMPLEINFO Subform
Analysis ID
Analysis Type
Sample Location
Sample Collection Date
Date Lab Received
Reporting Date
Notes
1297
18 HOUR LEACHATE
West Pond
1/10/2002
1/15/2002
1/20/2002
(Number)
Record: 1 of 1
Record: 1 of 1
Form View
NUM
Start
Microsoft PowerPoint - [d...
Flyash Main Menu
MainEntry : Form
EN
2:48 PM


FlyAsh Database Program
File Edit View Insert Format Records Tools Window Help
MainEntry : Form
Page1 Page2 Page3 Page4
Cinergy/PSI - Gi
UTILITY
MIXTURE
Sample Date
Report Date
18 HOUR LEACHATE
West Pond
1/10/2002
1/20/2002
PARAMETERINFO Subform
Parameter ID
Parameter Name
Qualifier
Parameter Value
Analysis ID
28492
Arsenic
1297
(AutoNumber)
1297
Arsenic 1.25
Barium 25.00
Beryllium 0.00
Bicarbonate
Boron
Bulk Density 0.00
Cadmium 0.25
Calcium
Record: 1 of 1
Record: 1 of 1
Form View
NUM
Start
Microsoft PowerPoint - [d...
Flyash Main Menu
MainEntry : Form
EN
2:50 PM


FlyAsh Database Program
File Edit View Insert Format Records Tools Window Help
MainEntry : Form
Page1 Page2 Page3 Page4
Cinergy/PSI - Gi
UTILITY
MIXTURE
Sample Date
Report Date
18 HOUR LEACHATE
West Pond
1/10/2002
1/20/2002
PARAMETERINFO Subform
Parameter ID
Parameter Name
Qualifier
Parameter Value
Analysis ID
28492
Arsenic
<
0.005
1297
(AutoNumber)
1297
Record: 1 of 1
Record: 1 of 1
Form View
NUM
Start
Microsoft PowerPoint - [d...
Flyash Main Menu
MainEntry : Form
EN
2:51 PM

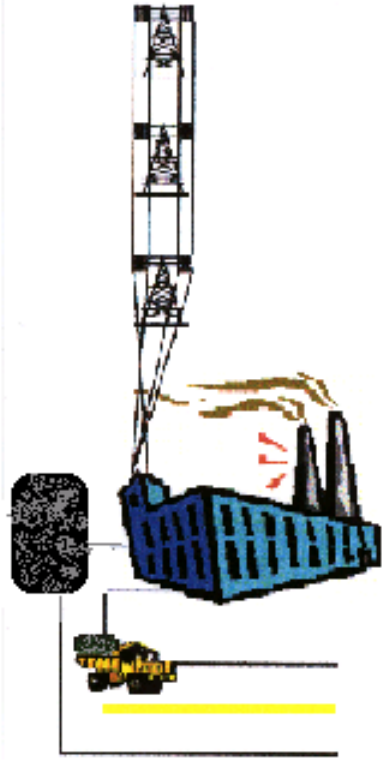

FlyAsh Database Program
File Edit View Insert Format Records Tools Window Help
MainEntry : Form
Page1 Page2 Page3 Page4
Cinergy/PSI - Gibson
UTILITY
MIXTURE
18 HOUR LEACHATE
1297
Permit Information
Permit ID
Permit Number
NonSig Number
Analysis ID
1770
P-031
10
1297
toNumber)
Record: 1 of 1
Record: 1 of 1
Form View
NUM
Start
Microsoft PowerPoint - [d...
Flyash Main Menu
MainEntry : Form
EN
2:52 PM

FlyAsh Database Program

File Edit View Insert Format Records Tools Window Help

Flyash Main Menu

IDNR Flyash Project



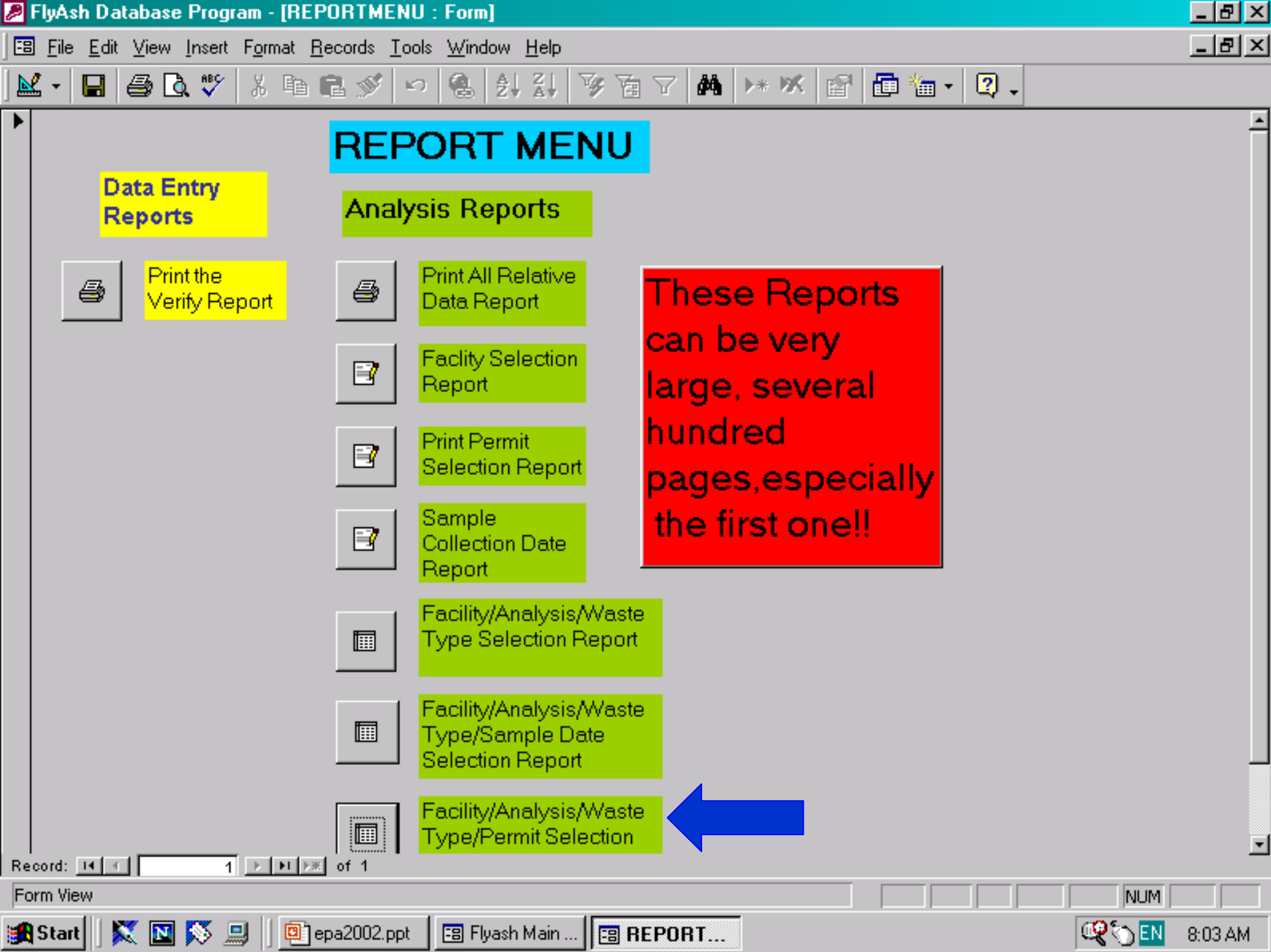
Indiana Department of Natural Resources

Divison of Reclamation

- Add New Analysis to Database
- Modify / Delete Analysis
- Report Menu
- Exit Flyash Program

Form View FLTR NUM

Start Microsoft PowerPoint - [ep... Flyash Main Menu EN 4:19 PM


FlyAsh Database Program - [REPORTMENU : Form]
File Edit View Insert Format Records Tools Window Help
REPORT MENU
Data Entry Reports
Print the Verify Report
Analysis Reports
Print All Relative Data Report
Faclity Selection Report
Print Permit Selection Report
Sample Collection Date Report
Facility/Analysis/Waste Type Selection Report
Facility/Analysis/Waste Type/Sample Date Selection Report
Facility/Analysis/Waste Type/Permit Selection
These Reports can be very large, several hundred pages,especially the first one!!
Record: 1 of 1
Form View
NUM
Start
epa2002.ppt
Flyash Main ...
REPORT...
EN
8:03 AM

FlyAsh Database Program - [Facility_PreCross_Input_Permit : Form]
File Edit View Insert Format Records Tools Window Help
Tahoma
8
Facility/Waste/Analysis Input Screen
For Date Period Cross Tab Report
Facility Name
IPL - Petersburg
Analysis Type
30 DAY LEACHATE
Waste Type
MIXTURE
Permit Number
S-321
If Waste Type = MIXTURE
Mixture Type
FILTERCAKE/FLYASH
If Waste Type = OTHER
OTHER TYPE
Run Selection Query
Run Selection Mixture Query
Run Selection Other Waste Query
Run Cross Tab Query
Run Selection CrossTab Mixture Query
Run Selection CrossTab Other Waste Query
Record: 1 of 1

FlyAsh Database Program - [Relative_Data_PreCross_Permit_Mixture_Crosstab : Crosstab Query]

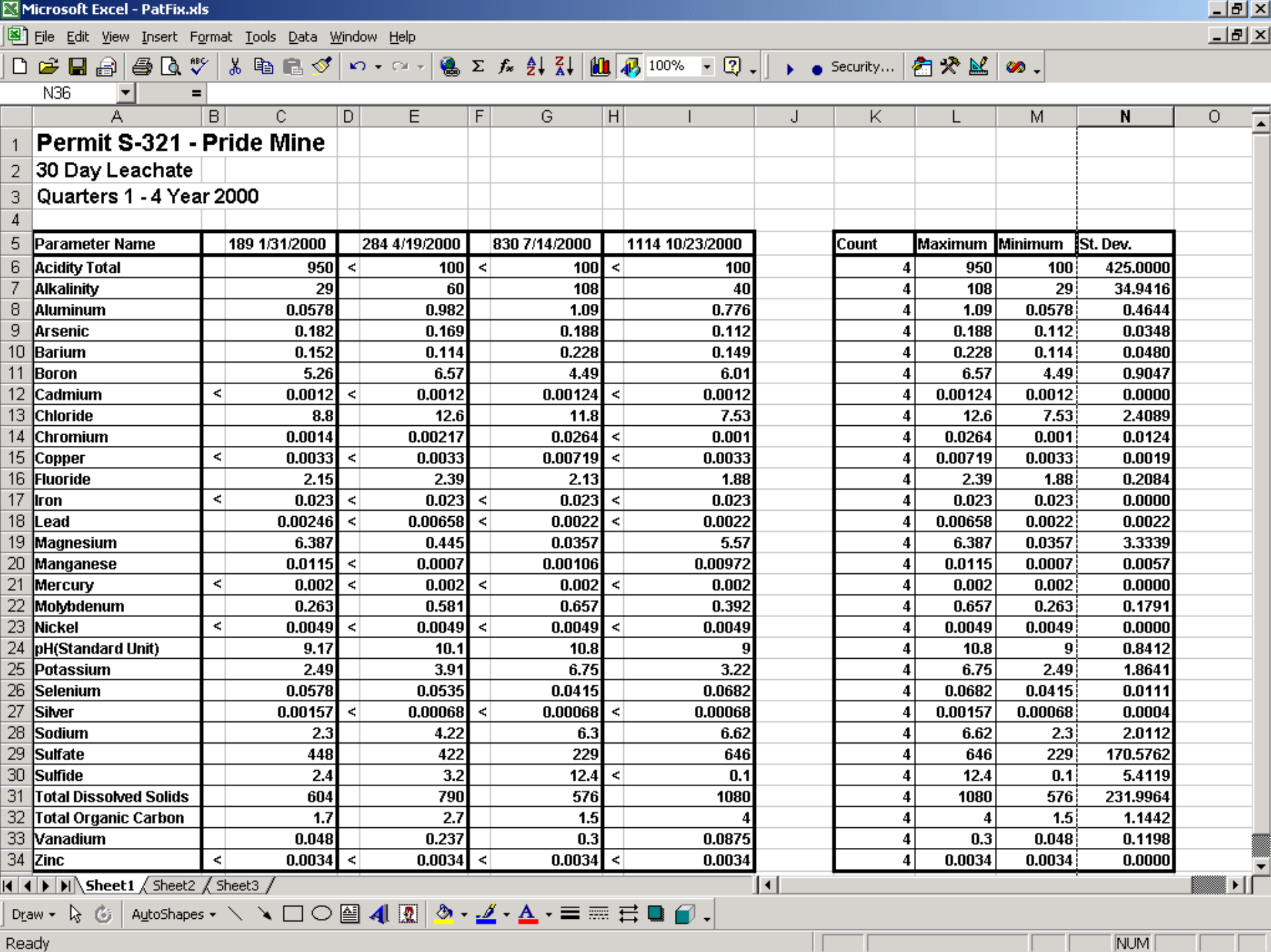
File Edit View Insert Format Records Tools Window Help

ParameterName	1114 10/23/200	1226 1/26/2001	1247 5/1/2001	165 11/24/1992	168 11/24/1992	174 8/24/1998	189 1/31/2000	198 1/31/2000	284 4/19/2000
Acidity	< 100	< 100	< 100						
Acidity as CaCO3				6	< 5	< 1			
Acidity Total							950	750	< 100
Alkalinity	40	67.6	60				29	58	60
Aluminum	0.776	1.36	1.26			0.16	0.0578	1.2	0.982
Arsenic	0.112	0.344	0.282	< 0.005	0.037	0.2	0.182	0.191	0.169
Barium	0.149	0.142	0.268	0.06	0.23	< 1	0.152	0.198	0.114
Boron	6.01	6.18	4.71	1.9	1.1	6.1	5.26	5.63	6.57
Cadmium	< 0.0012	< 0.0012	< 0.0012	< 0.005	< 0.005	< 0.005	< 0.0012	0.00139	< 0.0012
Chloride	7.53	22.6	17.5	10	23	< 10	8.8	19.6	12.6
Chromium	< 0.001	0.00716	0.00739	< 0.01	0.03	< 0.05	0.0014	0.0149	0.00217
Copper	< 0.0033	< 0.0033	< 0.0033	0.02	0.03	< 0.1	< 0.0033	0.00744	< 0.0033
Fluoride	1.88	1.74	1.95	4.7	0.76	3.6	2.15	1.65	2.39
Iron	< 0.023	< 0.023	< 0.023	0.02	0.05	< 0.1	< 0.023	< 0.023	< 0.023
Lead	< 0.0022	< 0.0022	< 0.0022	< 0.08	< 0.08	< 0.015	0.00246	< 0.0022	< 0.00658
Magnesium	5.57	0.808	0.576			9.5	6.87	0.553	0.445
Manganese	0.00972	0.00082	< 0.0007	0.05	0.01	0.088	0.0115	0.000801	< 0.0007
Mercury	< 0.002	< 0.0002	< 0.002	< 0.0005	< 0.0005	< 0.002	< 0.002	< 0.002	< 0.002
Molybdeum	0.392	0.606	0.54	< 0.1	0.3	0.19	0.263	0.484	0.581
Nickel	< 0.0049	< 0.0049	< 0.0049	< 0.01	< 0.1	< 0.1	< 0.0049	< 0.0049	< 0.0049
pH (Client)	9								
pH (Standard Unit)		9.91	9.95	6.8	11.02	7.76	9.17	10.5	10.1
Potassium	3.22	4.16	6.37			< 5	2.49	5.7	3.91
Selenium	0.0682	0.0586	0.0345	0.005	< 0.005	0.067	0.0578	0.0514	0.0535
Silicon Dioxide (%)									
Silver	< 0.00068	< 0.00068	< 0.00068	< 0.01	< 0.01	< 0.1	0.00157	0.00245	< 0.00068
Sodium	6.62	5.84	4.99	4.4	7.2	5.7	2.3	6.55	4.22
Sulfate	646	510	604	670	180	450	448	498	422
Sulfide	< 0.1	< 0.1	< 1	< 0.1	< 0.1	2.8	2.4	< 2.4	3.2
Total Dissolved Solids	1080	790	1020	1000	620	888	604	734	790
Total Organic Carbon	4	4.5	< 1	2.7	3.5	< 1	1.7	1.1	2.7
Vanadium	0.0875	0.245	0.174			< 0.5	0.048	0.226	0.237
Zinc	< 0.0034	< 0.0034	0.01	0.03	< 0.02	< 0.1	< 0.0034	< 0.0034	< 0.0034

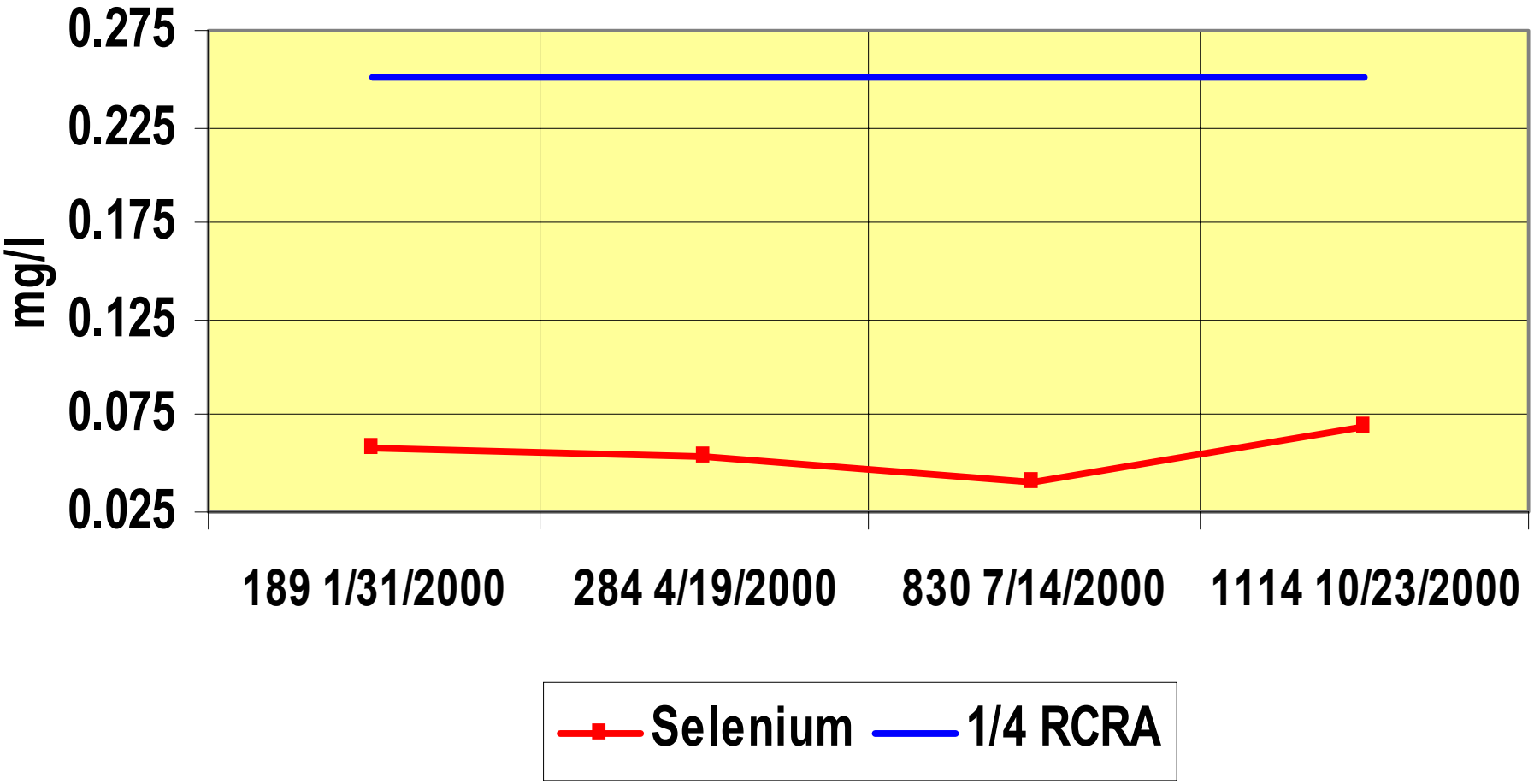
Record: 1 of 33

Datasheet View

NUM


Microsoft Excel - PatFix.xls
File Edit View Insert Format Tools Data Window Help
100%
Security...
N36
Permit S-321 - Pride Mine
30 Day Leachate
Quarters 1 - 4 Year 2000
Parameter Name | 189 1/31/2000 | 284 4/19/2000 | 830 7/14/2000 | 1114 10/23/2000 | Count | Maximum | Minimum | St. Dev.
Acidity Total | < 950 | < 100 | < 100 | < 100 | 4 | 950 | 100 | 425.0000
Alkalinity | 29 | 60 | 108 | 40 | 4 | 108 | 29 | 34.9416
Aluminum | 0.0578 | 0.982 | 1.09 | 0.776 | 4 | 1.09 | 0.0578 | 0.4644
Arsenic | 0.182 | 0.169 | 0.188 | 0.112 | 4 | 0.188 | 0.112 | 0.0348
Barium | 0.152 | 0.114 | 0.228 | 0.149 | 4 | 0.228 | 0.114 | 0.0480
Boron | 5.26 | 6.57 | 4.49 | 6.01 | 4 | 6.57 | 4.49 | 0.9047
Cadmium | < 0.0012 | < 0.0012 | 0.00124 | < 0.0012 | 4 | 0.00124 | 0.0012 | 0.0000
Chloride | 8.8 | 12.6 | 11.8 | 7.53 | 4 | 12.6 | 7.53 | 2.4089
Chromium | 0.0014 | 0.00217 | 0.0264 | < 0.001 | 4 | 0.0264 | 0.001 | 0.0124
Copper | < 0.0033 | < 0.0033 | 0.00719 | < 0.0033 | 4 | 0.00719 | 0.0033 | 0.0019
Fluoride | 2.15 | 2.39 | 2.13 | 1.88 | 4 | 2.39 | 1.88 | 0.2084
Iron | < 0.023 | < 0.023 | < 0.023 | < 0.023 | 4 | 0.023 | 0.023 | 0.0000
Lead | 0.00246 | < 0.00658 | < 0.0022 | < 0.0022 | 4 | 0.00658 | 0.0022 | 0.0022
Magnesium | 6.387 | 0.445 | 0.0357 | 5.57 | 4 | 6.387 | 0.0357 | 3.3339
Manganese | 0.0115 | < 0.0007 | 0.00106 | 0.00972 | 4 | 0.0115 | 0.0007 | 0.0057
Mercury | < 0.002 | < 0.002 | < 0.002 | < 0.002 | 4 | 0.002 | 0.002 | 0.0000
Molybdenum | 0.263 | 0.581 | 0.657 | 0.392 | 4 | 0.657 | 0.263 | 0.1791
Nickel | < 0.0049 | < 0.0049 | < 0.0049 | < 0.0049 | 4 | 0.0049 | 0.0049 | 0.0000
pH(Standard Unit) | 9.17 | 10.1 | 10.8 | 9 | 4 | 10.8 | 9 | 0.8412
Potassium | 2.49 | 3.91 | 6.75 | 3.22 | 4 | 6.75 | 2.49 | 1.8641
Selenium | 0.0578 | 0.0535 | 0.0415 | 0.0682 | 4 | 0.0682 | 0.0415 | 0.0111
Silver | 0.00157 | < 0.00068 | < 0.00068 | < 0.00068 | 4 | 0.00157 | 0.00068 | 0.0004
Sodium | 2.3 | 4.22 | 6.3 | 6.62 | 4 | 6.62 | 2.3 | 2.0112
Sulfate | 448 | 422 | 229 | 646 | 4 | 646 | 229 | 170.5762
Sulfide | 2.4 | 3.2 | 12.4 | < 0.1 | 4 | 12.4 | 0.1 | 5.4119
Total Dissolved Solids | 604 | 790 | 576 | 1080 | 4 | 1080 | 576 | 231.9964
Total Organic Carbon | 1.7 | 2.7 | 1.5 | 4 | 4 | 4 | 1.5 | 1.1442
Vanadium | 0.048 | 0.237 | 0.3 | 0.0875 | 4 | 0.3 | 0.048 | 0.1198
Zinc | < 0.0034 | < 0.0034 | < 0.0034 | < 0.0034 | 4 | 0.0034 | 0.0034 | 0.0000
Sheet1 Sheet2 Sheet3
Draw AutoShapes
Ready
NUM

S-321 Pride Mine - (Selenium)
Quarters 1 - 4, 2000
30 Day Leachate



Indiana's CCW Database

- **Data in the CCW Database are tracked by:**
  - **Facility / Generator**
  - **Waste type (flyash, bottom ash, etc.)**
  - **Analysis type (bulk, 18-hr, 30-day)**
  - **Analysis date**
  - **Permit number**

Indiana's CCW Database

- **Future features of the CCW Database:**
  - **Electronic transfer of data from labs via permittee**
  - **Selection of up to 10 parameter queries**
  - **Unsurpassed graphing and statistical capabilities**

Indiana's CCW Database
R:Base

R:BASE 6.1 - [N:\Mine\Mine.DAT]

Form - AshEdit

Forms Edit

EDIT FORM FOR FLY ASH DATA

Press Shift F8 to move into section below

Permit	S-168	Company	Black Beauty Coal Company
Revision Type	SIG	Mine	Miller Creek
Revision Numbe	6	County(s)	GREENE
Location	Approximately two miles northeast of Switz City		
Annual Disposal	1.1M yds		
Total volume to be disposed	12.12M yds		
Method(s)	Backfill and 1 Monofill-Spoil Depression		

Notes

1. Disposal request denied on nonsig 207 for Crawfordsville Electric and for Inland Steel due to outdated analyses. These will be handled as new nonsigs when the updated analyses are submitted. 2. Nonsig 206, approved 2-2-97, moved the ash storage area to the tipple. 3. Nonsig 228, approved 12-03-97, deleted monofill #1 and added monofill #2 plus noted new monitoring well 3A to replace well 3. 4. Nonsig 262 added new monitoring well 7A replacing monitoring well 7 after it was mined through. 5. Nsig 261, approved 2-24-99, installation of Well MW-7 replaces MW-1A. 6. Nsig 263, approved 04-12-99, Map showing location of New Well MW-7R, shown on map as 22MW-7. 7. Nsig#223, approved 5/20/97, adds disposal of coal fines (<1000 tons) from IU to CCW disposal plan. 8. Nsig #231, approved 8/6/97, revised Part IV.F. 9. Nsig#233, approved 9/17/97, log, etc for MW-7.

Waste Types:

387	Fly / Bottom Ash
391	Boiler Slag

Press SHIFT F8 to move to next page for Ash Sources

No editable data in this table

NUM 1:55 PM

FLY ASH DATA FOR A SINGLE PERMIT

Permit Number S-168 SIG 6

Company Name Black Beauty Coal Company

Mine Name Miller Creek

County(s) GREENE

Location Approximately two miles northeast of Switz City

ASH SOURCES

Company / Plant / City / State	Tons	If Applicable, Nonsignificant Revision
PSI, Gibson Station, Princeton, IN		
Quantum Chemical (Millennium/Equistar),, Tuscola, IL	20K yds/yr	NSIG 207
Ball State,, Muncie, IN	2K yds/yr	NSIG 207
Indiana University,, Bloomington, IN	7K to 8K yds/yr	NSIG 207
Crawfordsville EP&L,, Crawfordsville, IN	1.5K yds/yr	NSIG 227
Inland Steel,, Gary, IN	PENDING - 80K yds/yr	NSIG 207
General Motors,, Marion, IN	2.4K yds/yr	NSIG 211
Eli Lilly (Lafayette), Tippecanoe Lab, Shadeland, IN	6K to 8K yds/yr	NSIG 218
Eli Lilly, Clinton Lab, Clinton, IN	6K to 8K yds/yr	NSIG 226
AmerenCIPS, Hudsonville Power Station, Hudsonville, IL	75K yds/yr	NSIG 246
Weston Paper Company,, Terre Haute, IN	6K yds/yr	NSIG 252
Griffin Industries, Newberry Plant, Newberry, IN	DENIED - 3.6K tons/yr	NSIG 271
A.E. Staley, Sagamore (North) Plant, Lafayette, IN	6K tons/yr	NSIG 279
A.E. Staley, South Plant, Lafayette, IN	7K tons/yr	NSIG 279
No disposal,,, IN	00	

*** End of Report (Ashperm1)

Report Date: 01/28/2002

FLY ASH DISPOSAL TONNAGE FOR ONE YEAR

For The Year Of: 2000

For All Coal Companies Disposing Ash

Quarter 1

Permit	Company	Mine			Total Tons
P-031	Public Service, Indiana	Universal Ash			
Source: PSI		Wabash River Station	Terre Haute	IN	20,318.00
S-126	Solar Sources, Inc.	Prides Creek			
Source: PSI		Noblesville Station	Noblesville	IN	7,150.00
S-135	Black Beauty Coal Company	Viking			
Source: IP&L		Petersburg Station	Petersburg	IN	33,000.51
S-168	Black Beauty Coal Company	Miller Creek			
Source: Ball State			Muncie	IN	1,936.20
Source: Indiana University			Bloomington	IN	1,550.14
Source: Crawfordsville EP&L			Crawfordsville	IN	176.96
Source: Eli Lilly (Lafayette)		Tippecanoe Lab	Shadeland	IN	1,443.65
Source: Eli Lilly		Clinton Lab	Clinton	IN	2,166.57
Source: Weston Paper Company			Terre Haute	IN	1,953.98
Source: A.E. Staley		Sagamore (North) Plant	Lafayette	IN	346.30
Source: A.E. Staley		South Plant	Lafayette	IN	654.09
S-312	Foertsch Construction Co., Inc.	Little Sandy #10			
Source: IP&L (only approved source)		Petersburg Station	Petersburg	IN	52,029.00
S-318	Vigo Coal Company, Inc.	Cypress Creek Mine			
Source: Sigeco		Culley Station (Alcoa)	Evansville	IN	33,502.00
S-321	B.B. Mining, Inc.	Pride Mine			
Source: IP&L (SIG #1)		Petersburg Station	Petersburg	IN	94,941.40
					==========
				Total Tons Of Fly Ash Disposed For A Quarter:	251,168.80

Quarter 2

Permit	Company	Mine			Total Tons
P-031	Public Service, Indiana	Universal Ash			
Source: PSI		Wabash River Station	Terre Haute	IN	65,990.00
S-126	Solar Sources, Inc.	Prides Creek			

Report Date: 01/28/2002

FLY ASH DISPOSAL TONNAGE FOR ONE PERMIT

Permit: S-126
Company: Solar Sources, Inc.
Mine: Prides Creek

Year 1995

Quarter 1				Tonnage
Source: Hoosier Energy	Ratts Plant	Peterburg	IN	0.00
Source: PSI	Edwardsport Station	Edwardsport	IN	0.00
			Total Tons For The Quarter:	0.00

Quarter 2				Tonnage
Source: Hoosier Energy	Ratts Plant	Peterburg	IN	26,717.81
Source: PSI	Edwardsport Station	Edwardsport	IN	0.00
			Total Tons For The Quarter:	26,717.81

Quarter 3				Tonnage
Source: Hoosier Energy	Ratts Plant	Peterburg	IN	12,822.48
Source: PSI	Edwardsport Station	Edwardsport	IN	11,128.60
			Total Tons For The Quarter:	23,951.08

Quarter 4				Tonnage
Source: Hoosier Energy	Ratts Plant	Peterburg	IN	38,949.08
Source: PSI	Edwardsport Station	Edwardsport	IN	18,581.00
			Total Tons For The Quarter:	57,530.08

Total Tons Disposed For 1995 **108,198.97**

Year 1996

Quarter 1				Tonnage
Source: Hoosier Energy	Ratts Plant	Peterburg	IN	0.00
Source: PSI	Edwardsport Station	Edwardsport	IN	0.00
			Total Tons For The Quarter:	0.00

Quarter 2				Tonnage
Source: Hoosier Energy	Ratts Plant	Peterburg	IN	0.00
Source: PSI	Edwardsport Station	Edwardsport	IN	0.00
			Total Tons For The Quarter:	0.00

Quarter 3	Tonnage

Geographic Information Systems

Geographic Information Systems

- **Current GIS work:**
  - ✓ **Transferring coal mine permit boundaries onto topo maps and/or aerial photos**
  - ✓ **Transferring pertinent permit data (monitoring and residential wells, surface water monitoring points, bond release info, etc.) into system**
  - ✓ **Depicting CCW disposal locations within the mined areas**
  - ✓ **Application development (making system user-friendly)**
  - ✓ **Linking location data to database and spreadsheet info**

Scale 1: 1,069,638

480,353.
4,335,618.

View1

Residential Wells

Mine Installed Wells

Surface Monitoring

CCW Disposal Sites
- 1998/3
- 1998/4
- 1999/1
- 1999/2
- 1999/3
- 1999/4
- 2000/1
- 2000/2
- 2000/3
- 2000/4
- 2001/1
- 2001/2
- 2001/3

CCW Disposal Boundary

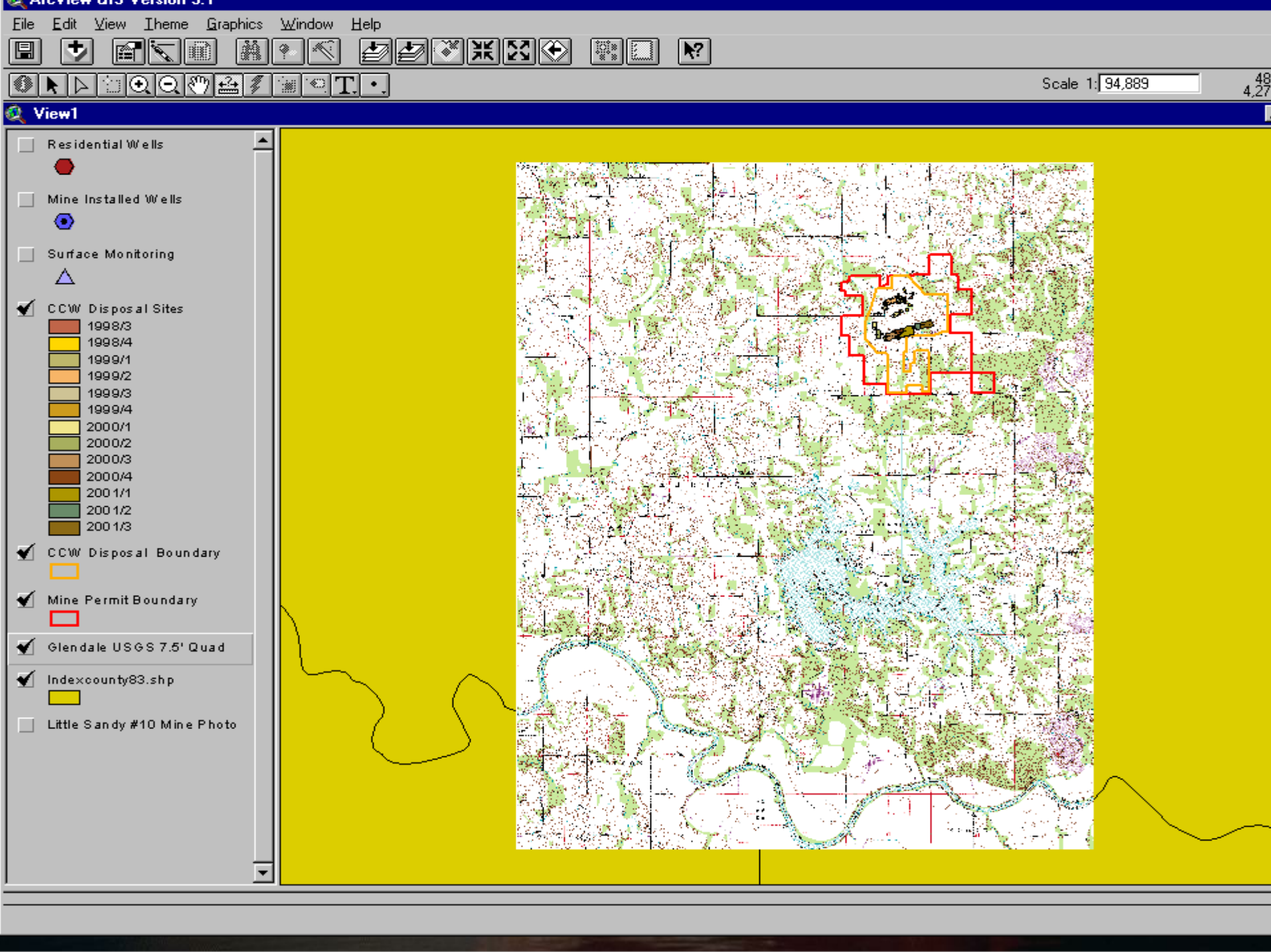
Mine Permit Boundary

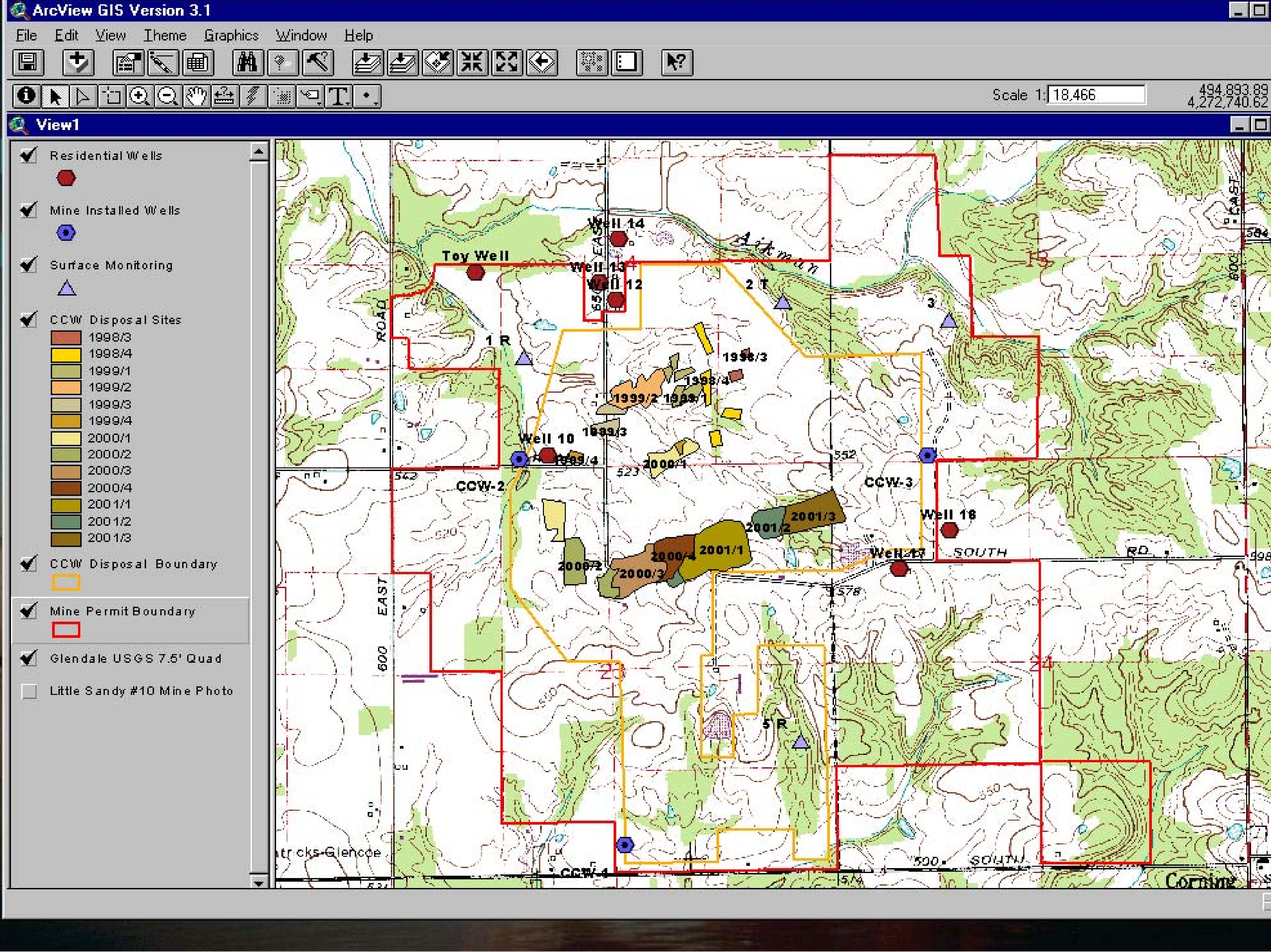
Glendale USGS 7.5' Quad

Indexcounty83.shp

Little Sandy #10 Mine Photo

nent Length: 40.31 mi Length: 40.31 mi


File Edit View Theme Graphics Window Help
Scale 1: 94,889
View1
Residential Wells
Mine Installed Wells
Surface Monitoring
CCW Disposal Sites
1998/3
1998/4
1999/1
1999/2
1999/3
1999/4
2000/1
2000/2
2000/3
2000/4
2001/1
2001/2
2001/3
CCW Disposal Boundary
Mine Permit Boundary
Glendale USGS 7.5' Quad
Indexcounty83.shp
Little Sandy #10 Mine Photo


ArcView GIS Version 3.1
File Edit View Theme Graphics Window Help
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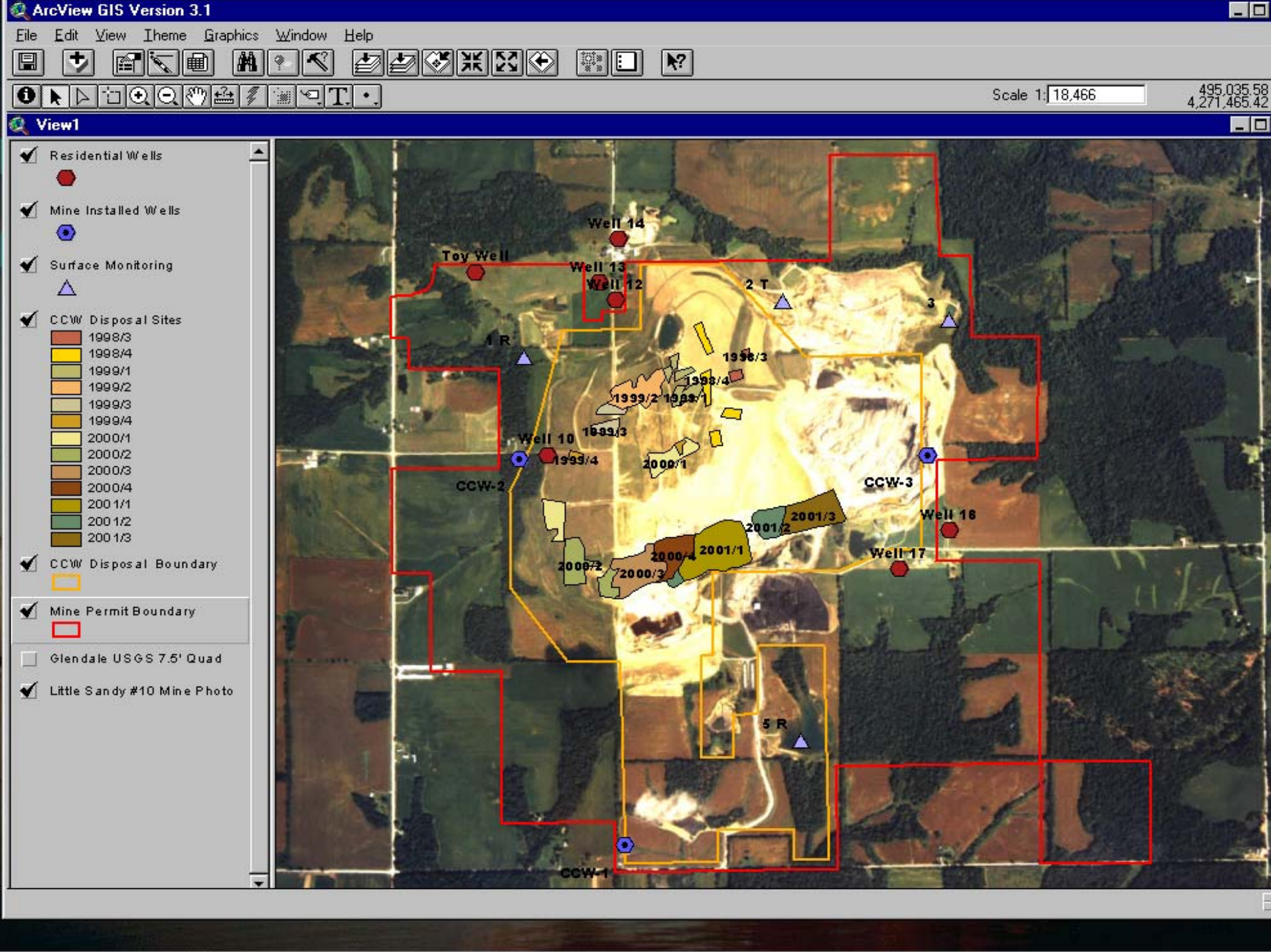
494,893.89
4,272,740.62
View1
Residential Wells
Mine Installed Wells
Surface Monitoring
CCW Disposal Sites
1998/3
1998/4
1999/1
1999/2
1999/3
1999/4
2000/1
2000/2
2000/3
2000/4
2001/1
2001/2
2001/3
CCW Disposal Boundary
Mine Permit Boundary
Glendale USGS 7.5' Quad
Little Sandy #10 Mine Photo
Well 14
Toy Well
Well 13
Well 12
2 T
3
1 R
Well 10
CCW-2
CCW-3
Well 16
Well 17
5 R
CCW-4
SOUTH
RD
Corning


ArcView GIS Version 3.1
File Edit View Theme Graphics Window Help
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4,271,465.42
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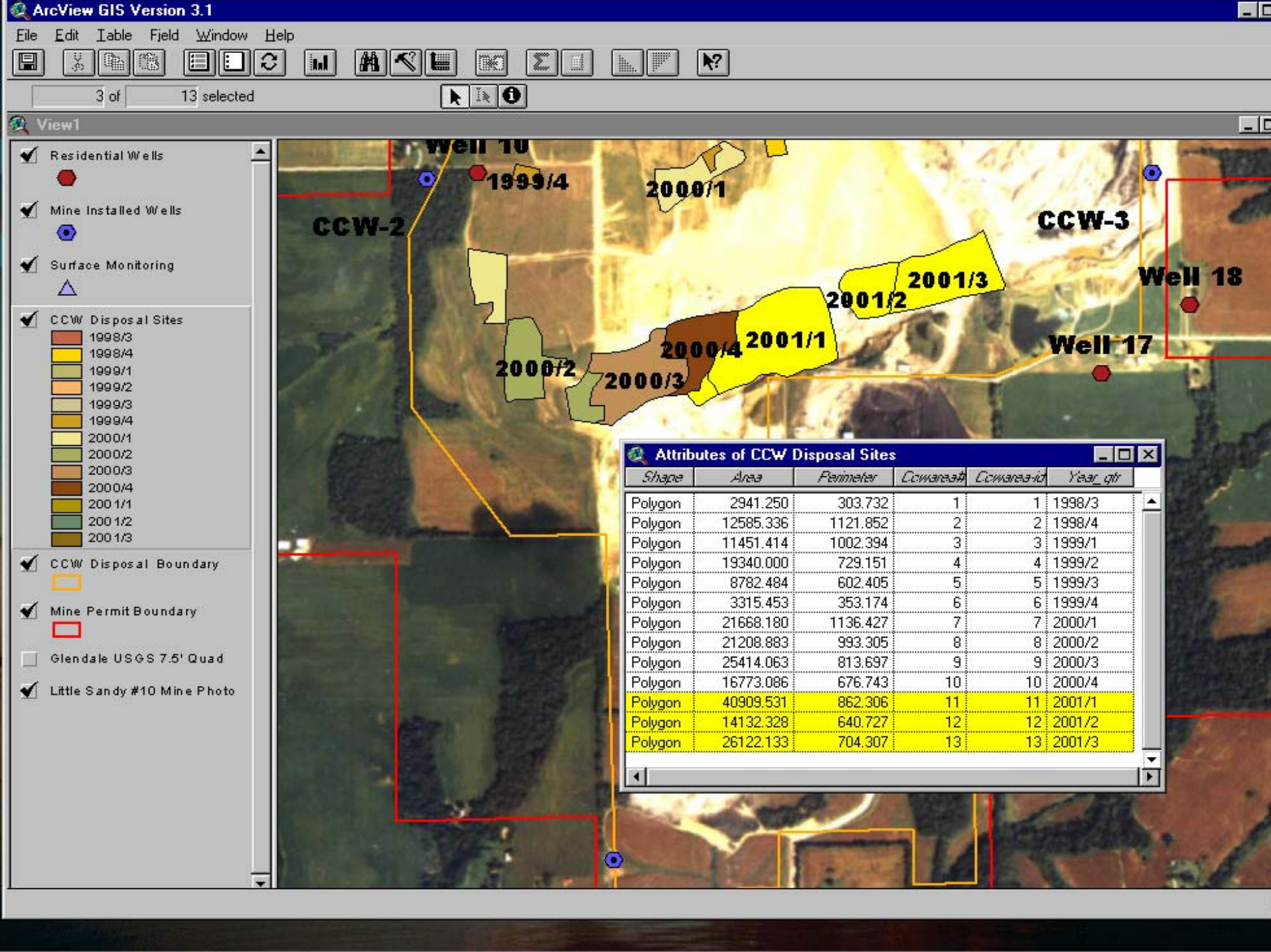
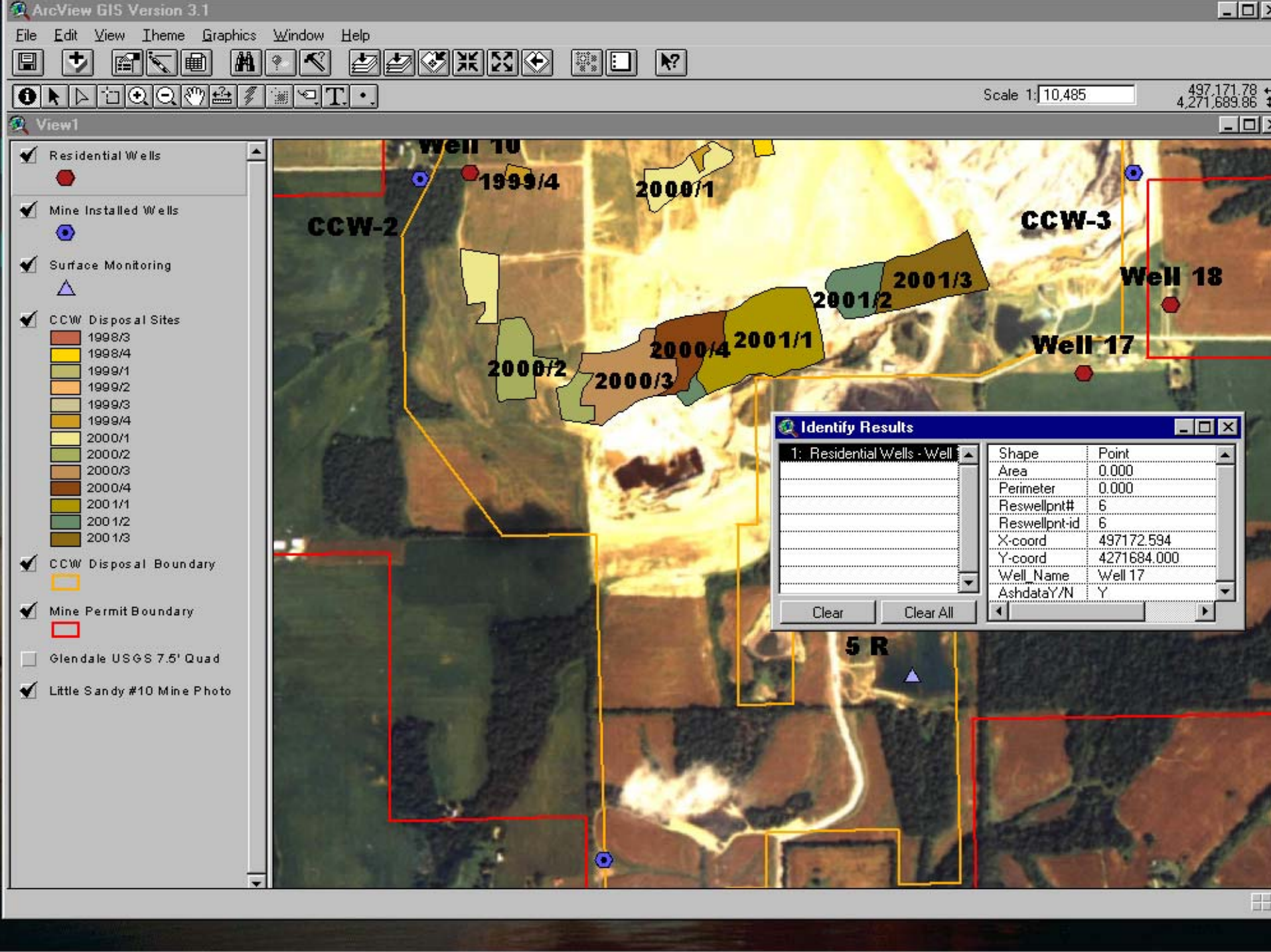
Residential Wells
Mine Installed Wells
Surface Monitoring
CCW Disposal Sites
1998/3
1998/4
1999/1
1999/2
1999/3
1999/4
2000/1
2000/2
2000/3
2000/4
2001/1
2001/2
2001/3
CCW Disposal Boundary
Mine Permit Boundary
Glendale USGS 7.5' Quad
Little Sandy #10 Mine Photo
Well 14
Toy Well
Well 13
Well 12
2 T
3
1 R
1998/3
1998/4
1999/2
1999/1
Well 10
1999/3
1999/4
2000/1
CCW-2
CCW-3
2001/3
2001/2
Well 16
2000/4
2001/1
Well 17
2000/2
2000/3
5 R
CCW-1


ArcView GIS Version 3.1
File Edit Table Field Window Help
3 of 13 selected
View1
Residential Wells
Mine Installed Wells
Surface Monitoring
CCW Disposal Sites
1998/3
1998/4
1999/1
1999/2
1999/3
1999/4
2000/1
2000/2
2000/3
2000/4
2001/1
2001/2
2001/3
CCW Disposal Boundary
Mine Permit Boundary
Glendale USGS 7.5' Quad
Little Sandy #10 Mine Photo
Well 10
1999/4
2000/1
CCW-2
CCW-3
Well 18
2001/3
2001/2
2001/1
2000/4
Well 17
2000/2
2000/3
Attributes of CCW Disposal Sites
Shape Area Perimeter Ccwarea# Ccwarea-id Year_qtr
Polygon 2941.250 303.732 1 1 1998/3
Polygon 12585.336 1121.852 2 2 1998/4
Polygon 11451.414 1002.394 3 3 1999/1
Polygon 19340.000 729.151 4 4 1999/2
Polygon 8782.484 602.405 5 5 1999/3
Polygon 3315.453 353.174 6 6 1999/4
Polygon 21668.180 1136.427 7 7 2000/1
Polygon 21208.883 993.305 8 8 2000/2
Polygon 25414.063 813.697 9 9 2000/3
Polygon 16773.086 676.743 10 10 2000/4
Polygon 40909.531 862.306 11 11 2001/1
Polygon 14132.328 640.727 12 12 2001/2
Polygon 26122.133 704.307 13 13 2001/3


ArcView GIS Version 3.1
File Edit View Theme Graphics Window Help
Scale 1: 10,485
497,171.78
4,271,689.86
View1
Residential Wells
Mine Installed Wells
Surface Monitoring
CCW Disposal Sites
1998/3
1998/4
1999/1
1999/2
1999/3
1999/4
2000/1
2000/2
2000/3
2000/4
2001/1
2001/2
2001/3
CCW Disposal Boundary
Mine Permit Boundary
Glendale USGS 7.5' Quad
Little Sandy #10 Mine Photo
Well 10
1999/4
2000/1
CCW-2
CCW-3
2001/3
2001/2
Well 18
2000/4
2001/1
Well 17
2000/2
2000/3
5 R
Identify Results
1: Residential Wells - Well
Shape Point
Area 0.000
Perimeter 0.000
Reswellpnt# 6
Reswellpnt-id 6
X-coord 497172.594
Y-coord 4271684.000
Well_Name Well 17
AshdataY/N Y
Clear
Clear All

Geographic Information Systems

- **Future GIS considerations:**
  - ✓ **GIS and spreadsheet charting working in tandem**
  - ✓ **Hydrology parameter contouring using additional GIS tools**
  - ✓ **Modeling with GIS and/or specialized hydrology software**

Indiana's Water Database

Microsoft Access

File Edit View Insert Format Records Tools Window Help

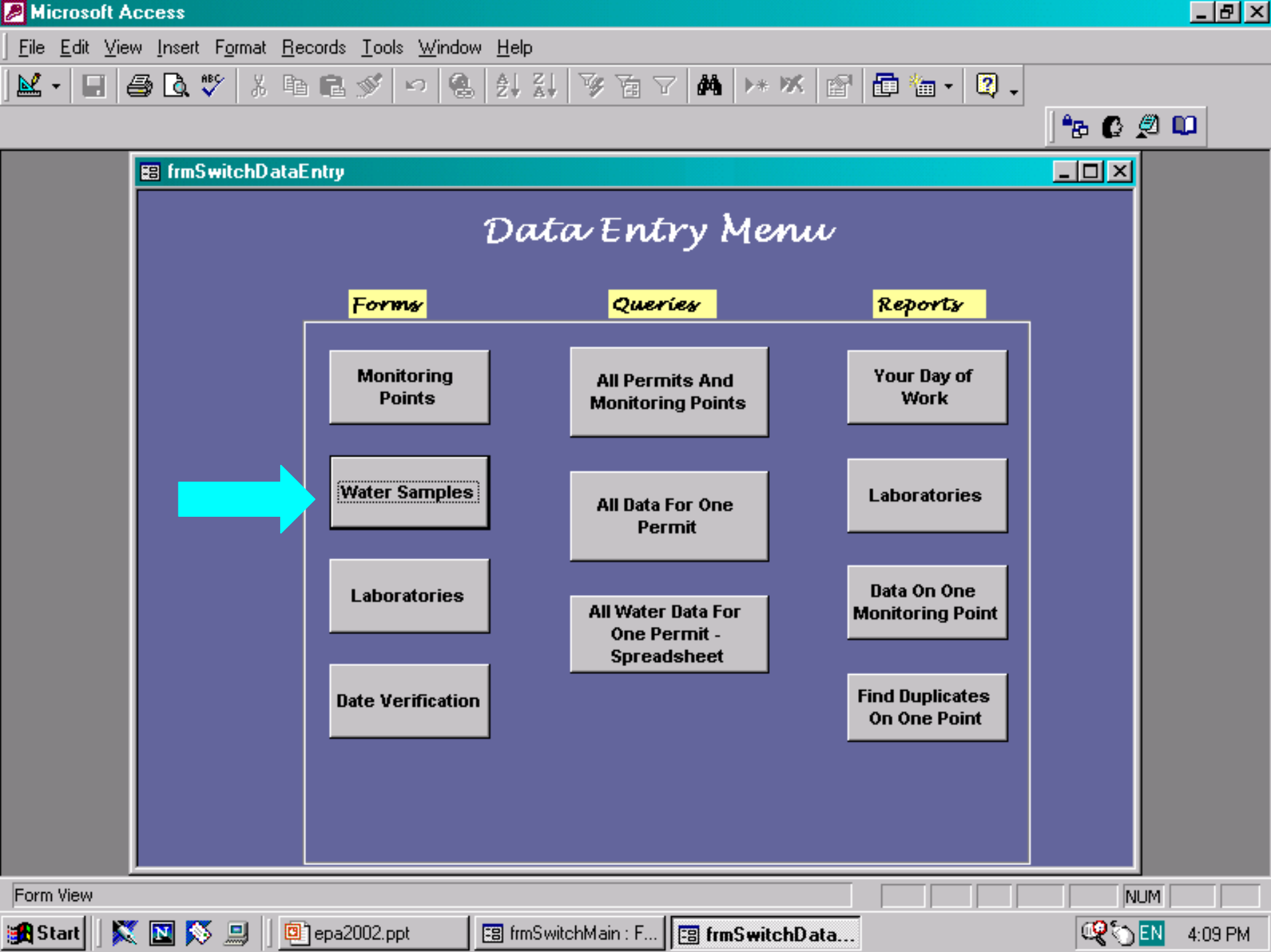
frmSwitchMain : Form

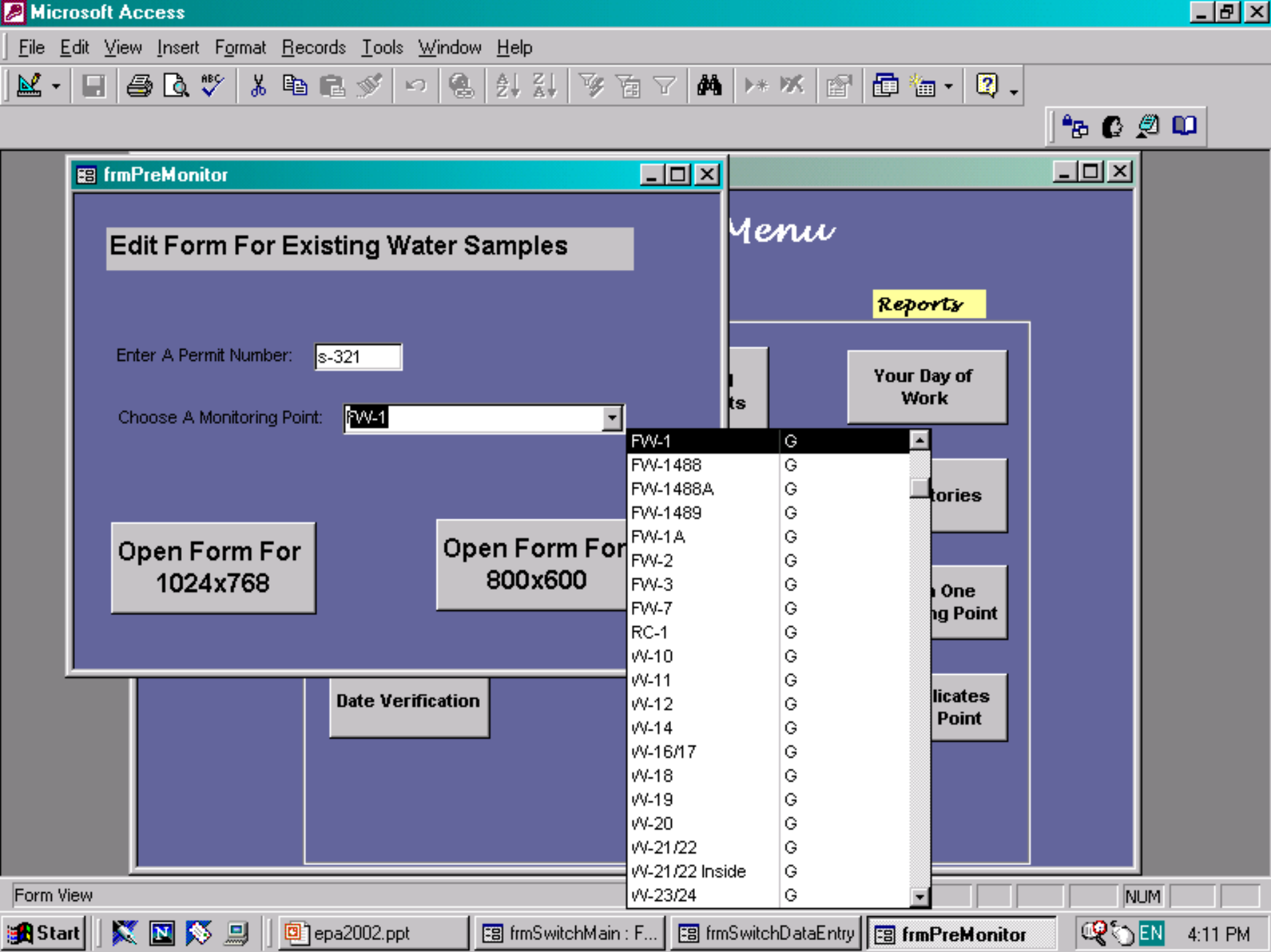
INDIANA DIVISION OF RECLAMATION

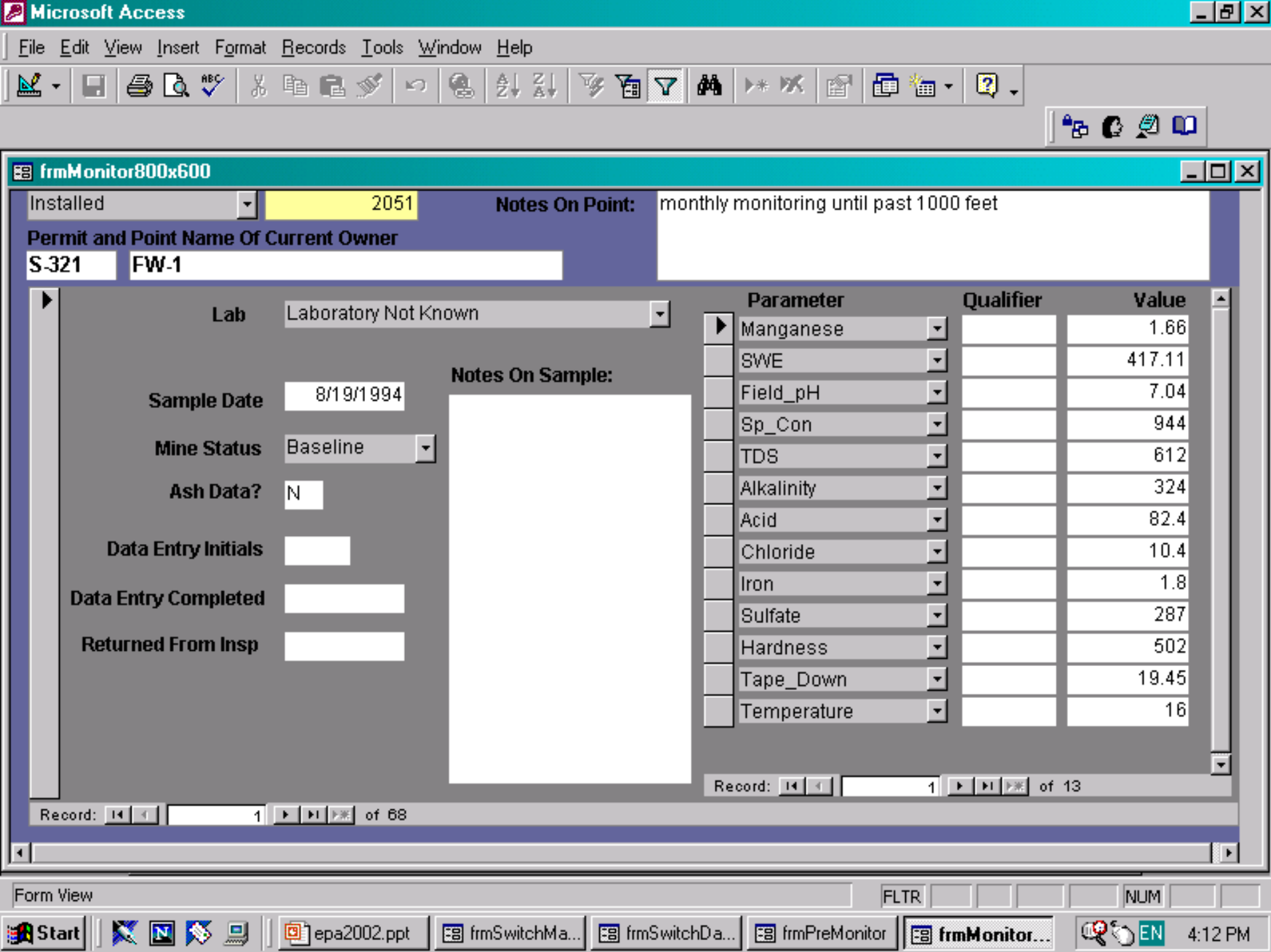
WATER DATABASE

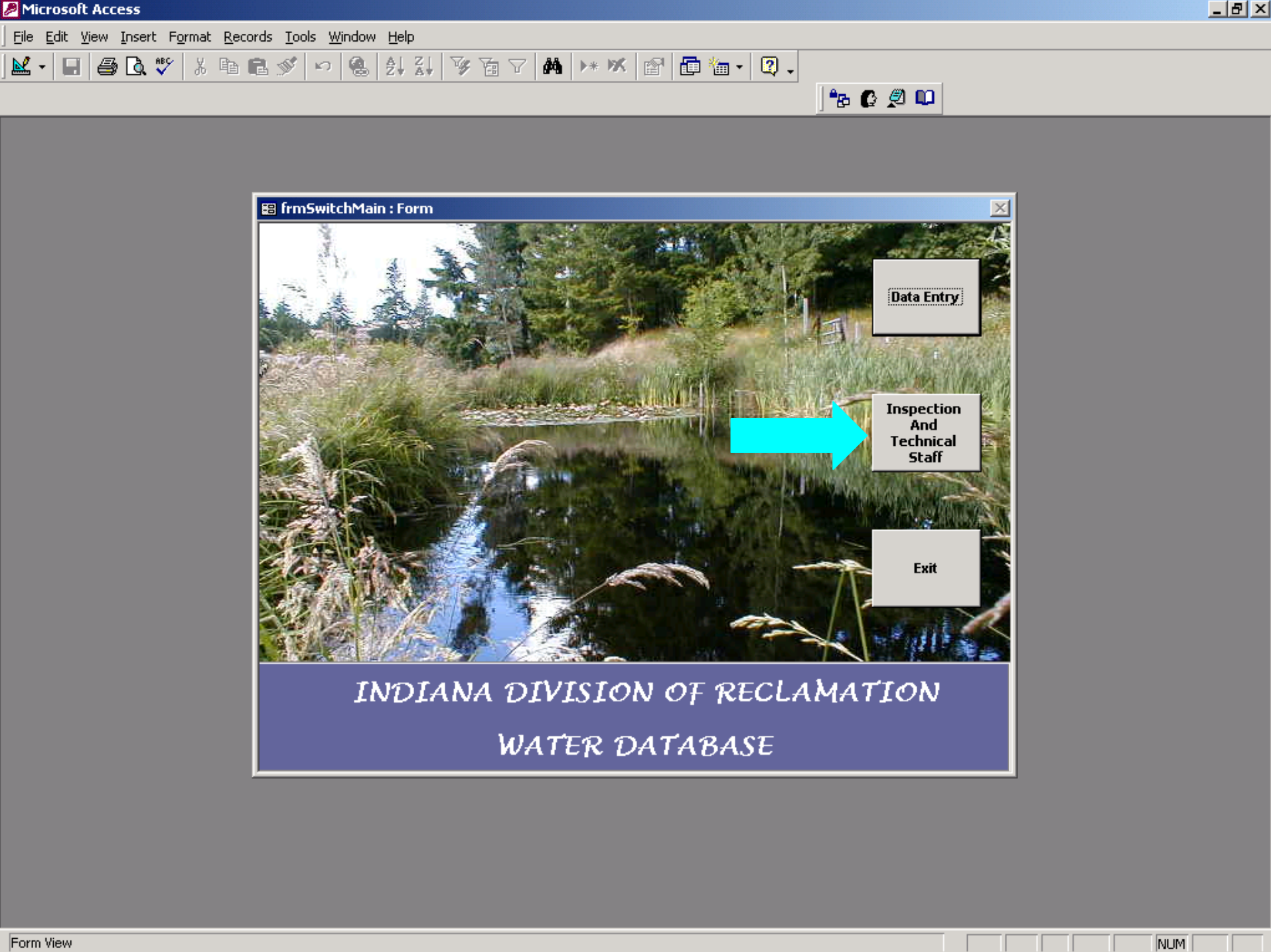
Form View

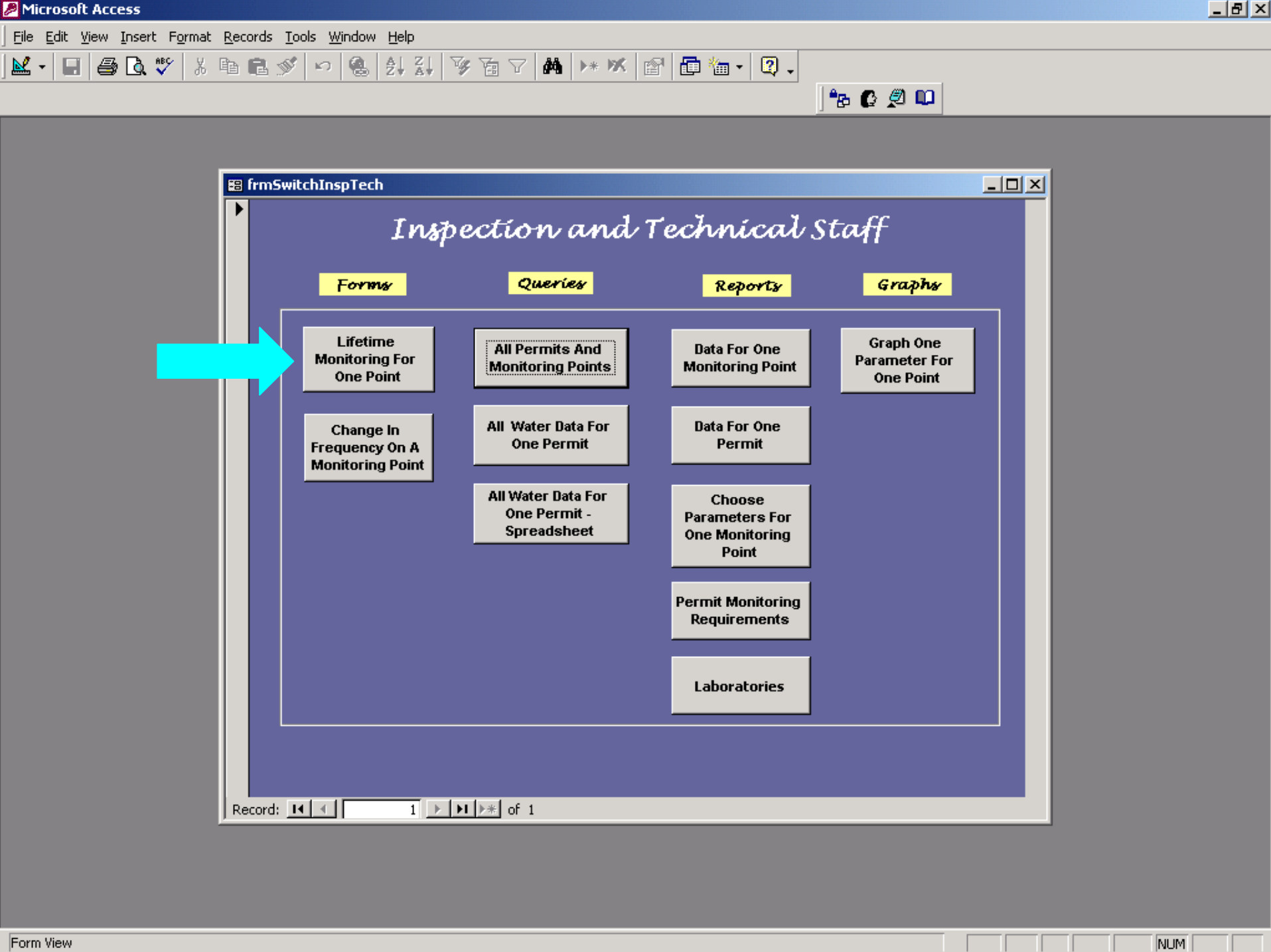
NUM

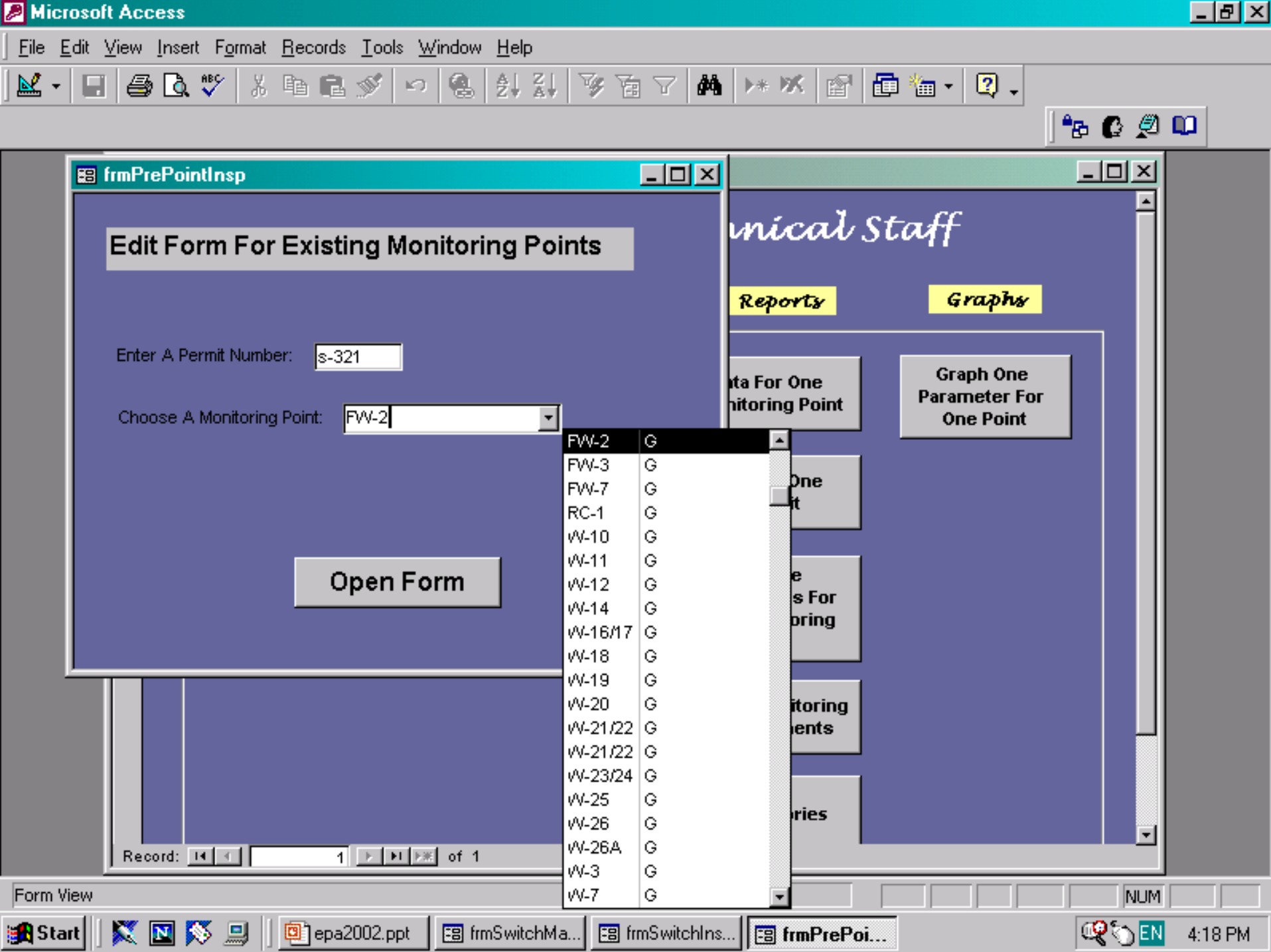

Microsoft Access
File Edit View Insert Format Records Tools Window Help
frmSwitchDataEntry
Data Entry Menu
Forms
Queries
Reports
Monitoring Points
Water Samples
Laboratories
Date Verification
All Permits And Monitoring Points
All Data For One Permit
All Water Data For One Permit - Spreadsheet
Your Day of Work
Laboratories
Data On One Monitoring Point
Find Duplicates On One Point
Form View
NUM
Start
epa2002.ppt
frmSwitchMain : F...
frmSwitchData...
EN
4:09 PM

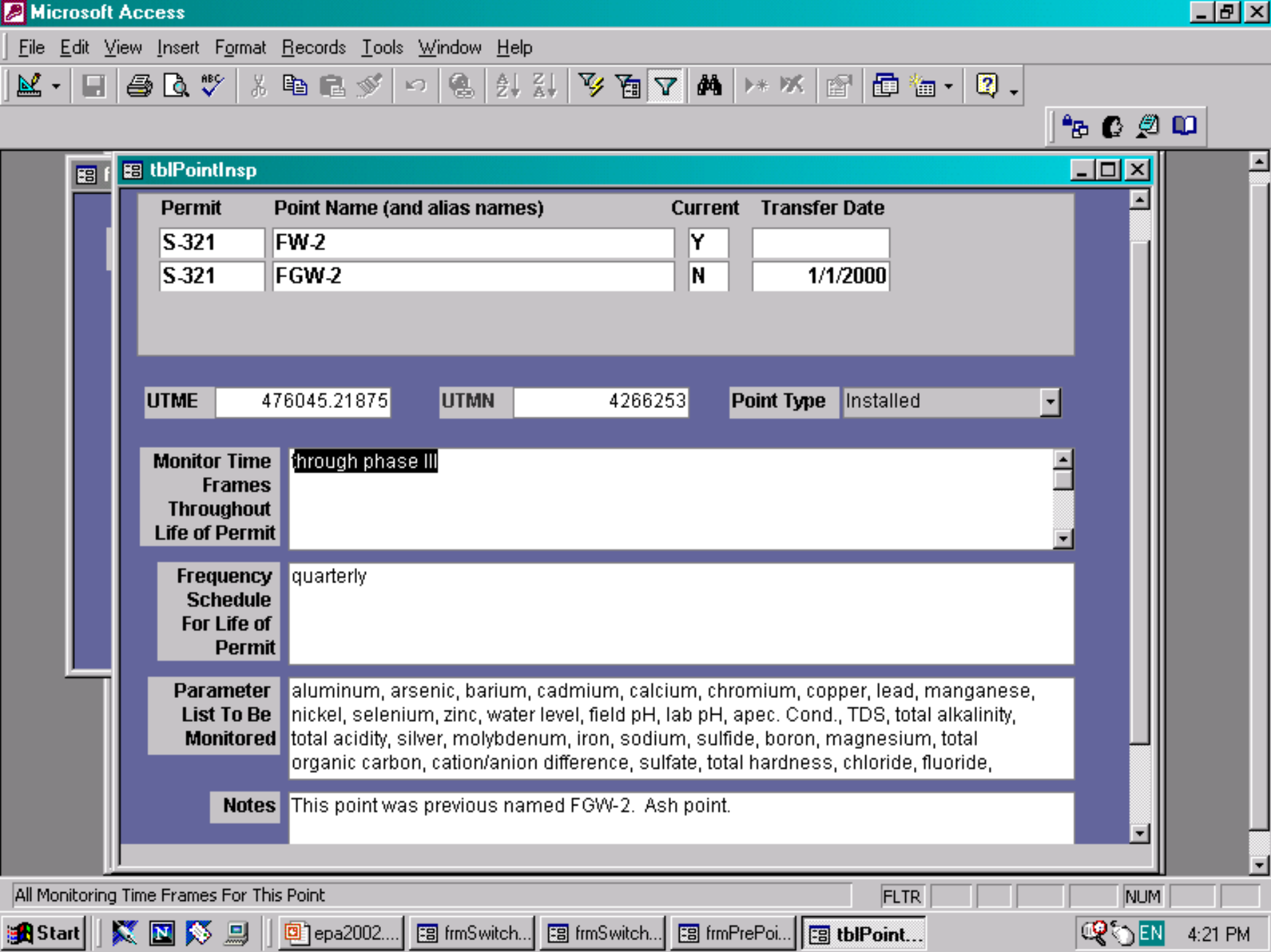

Microsoft Access
File Edit View Insert Format Records Tools Window Help
frmPreMonitor
Edit Form For Existing Water Samples
Enter A Permit Number:
s-321
Choose A Monitoring Point:
FW-1
Open Form For 1024x768
Open Form For 800x600
Date Verification
Menu
Reports
Your Day of Work
FW-1 G
FW-1488 G
FW-1488A G
FW-1489 G
FW-1A G
FW-2 G
FW-3 G
FW-7 G
RC-1 G
W-10 G
W-11 G
W-12 G
W-14 G
W-16/17 G
W-18 G
W-19 G
W-20 G
W-21/22 G
W-21/22 Inside G
W-23/24 G
Form View
NUM
Start
epa2002.ppt
frmSwitchMain : F...
frmSwitchDataEntry
frmPreMonitor
EN
4:11 PM

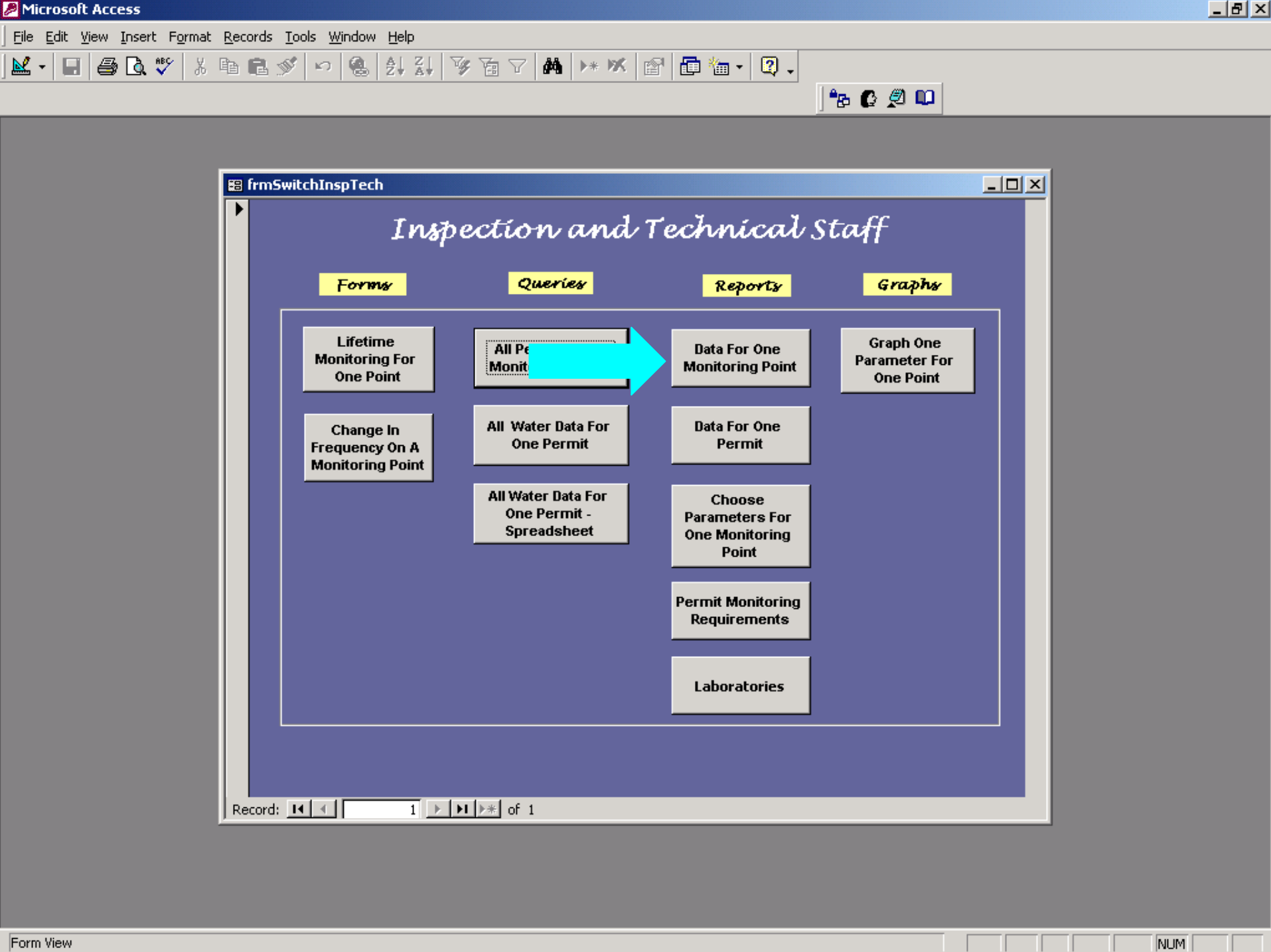

Microsoft Access
File Edit View Insert Format Records Tools Window Help
frmMonitor800x600
Installed
2051
Notes On Point:
monthly monitoring until past 1000 feet
Permit and Point Name Of Current Owner
S-321
FW-1
Lab
Laboratory Not Known
Notes On Sample:
Sample Date
8/19/1994
Mine Status
Baseline
Ash Data?
N
Data Entry Initials
Data Entry Completed
Returned From Insp
Parameter
Qualifier
Value
Manganese 1.66
SWE 417.11
Field_pH 7.04
Sp_Con 944
TDS 612
Alkalinity 324
Acid 82.4
Chloride 10.4
Iron 1.8
Sulfate 287
Hardness 502
Tape_Down 19.45
Temperature 16
Record: 1 of 13
Record: 1 of 68
Form View
FLTR
NUM
Start
epa2002.ppt
frmSwitchMa...
frmSwitchDa...
frmPreMonitor
frmMonitor...
EN
4:12 PM

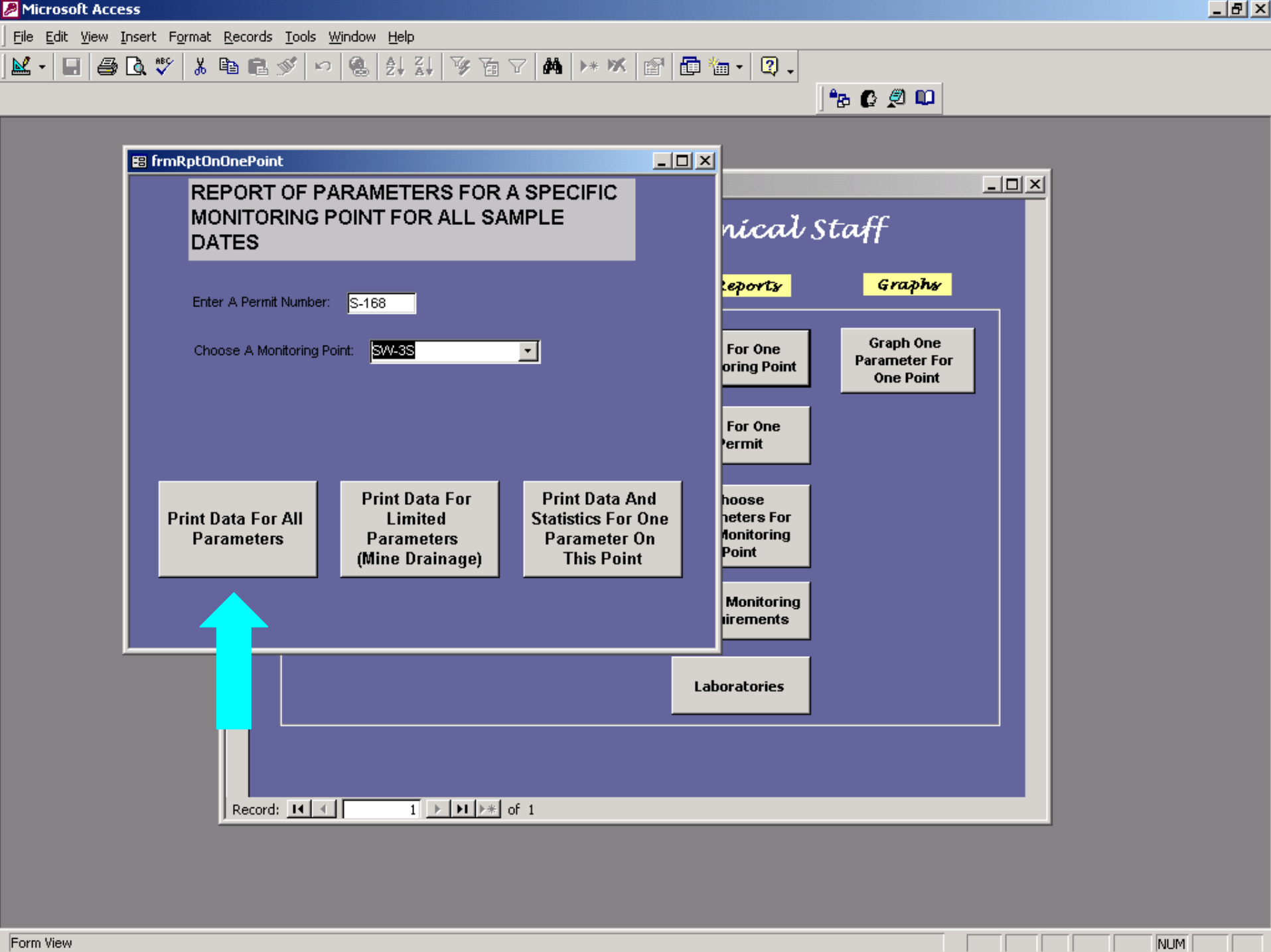

Microsoft Access
File Edit View Insert Format Records Tools Window Help
frmSwitchMain : Form
Data Entry
Inspection And Technical Staff
Exit
INDIANA DIVISION OF RECLAMATION
WATER DATABASE
Form View
NUM


Microsoft Access
File Edit View Insert Format Records Tools Window Help
frmSwitchInspTech
Inspection and Technical Staff
Forms
Queries
Reports
Graphs
Lifetime Monitoring For One Point
Change In Frequency On A Monitoring Point
All Permits And Monitoring Points
All Water Data For One Permit
All Water Data For One Permit - Spreadsheet
Data For One Monitoring Point
Data For One Permit
Choose Parameters For One Monitoring Point
Permit Monitoring Requirements
Laboratories
Graph One Parameter For One Point
Record: 1 of 1
Form View
NUM


Microsoft Access
File Edit View Insert Format Records Tools Window Help
frmPrePointInsp
Edit Form For Existing Monitoring Points
Enter A Permit Number:
s-321
Choose A Monitoring Point:
FW-2
Open Form
FW-2 G
FW-3 G
FW-7 G
RC-1 G
W-10 G
W-11 G
W-12 G
W-14 G
W-16/17 G
W-18 G
W-19 G
W-20 G
W-21/22 G
W-21/22 G
W-23/24 G
W-25 G
W-26 G
W-26A G
W-3 G
W-7 G
nical Staff
Reports
Graphs
Graph One Parameter For One Point
Record: 1 of 1
Form View
NUM
Start
epa2002.ppt
frmSwitchMa...
frmSwitchIns...
frmPrePoi...
EN
4:18 PM


Microsoft Access
File Edit View Insert Format Records Tools Window Help
tblPointInsp
Permit
Point Name (and alias names)
Current
Transfer Date
S-321
FW-2
Y
S-321
FGW-2
N
1/1/2000
UTME
476045.21875
UTMN
4266253
Point Type
Installed
Monitor Time Frames Throughout Life of Permit
through phase III
Frequency Schedule For Life of Permit
quarterly
Parameter List To Be Monitored
aluminum, arsenic, barium, cadmium, calcium, chromium, copper, lead, manganese, nickel, selenium, zinc, water level, field pH, lab pH, apec. Cond., TDS, total alkalinity, total acidity, silver, molybdenum, iron, sodium, sulfide, boron, magnesium, total organic carbon, cation/anion difference, sulfate, total hardness, chloride, fluoride,
Notes
This point was previous named FGW-2. Ash point.
All Monitoring Time Frames For This Point
FLTR
NUM
Start
epa2002...
frmSwitch...
frmSwitch...
frmPrePoi...
tblPoint...
EN
4:21 PM


Microsoft Access
File Edit View Insert Format Records Tools Window Help
frmSwitchInspTech
Inspection and Technical Staff
Forms
Queries
Reports
Graphs
Lifetime Monitoring For One Point
Change In Frequency On A Monitoring Point
All Pe
Monit
All Water Data For One Permit
All Water Data For One Permit - Spreadsheet
Data For One Monitoring Point
Data For One Permit
Choose Parameters For One Monitoring Point
Permit Monitoring Requirements
Laboratories
Graph One Parameter For One Point
Record: 1 of 1
Form View
NUM

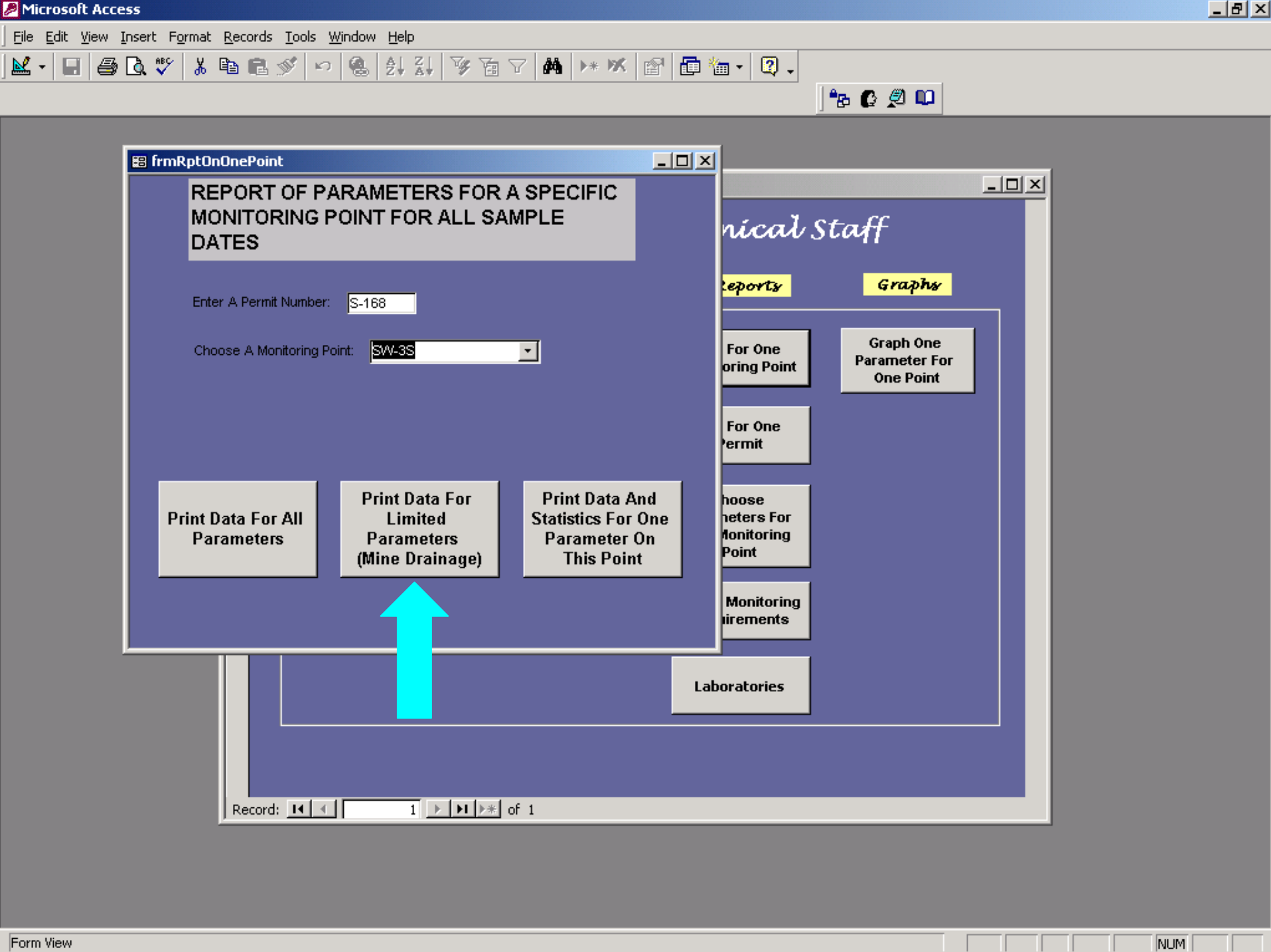

Microsoft Access
File Edit View Insert Format Records Tools Window Help
frmRptOnOnePoint
REPORT OF PARAMETERS FOR A SPECIFIC MONITORING POINT FOR ALL SAMPLE DATES
Enter A Permit Number:
S-168
Choose A Monitoring Point:
SW-3S
Print Data For All Parameters
Print Data For Limited Parameters (Mine Drainage)
Print Data And Statistics For One Parameter On This Point
nical Staff
eports
Graphs
For One oring Point
Graph One Parameter For One Point
For One ermit
hoose neters For Monitoring Point
Monitoring irements
Laboratories
Record: 1 of 1
Form View
NUM

rptOnOnePoint

Parameters For One Monitoring Point

Permit	Point	Sample Date	Acid	Alkalinity	Aluminum	Arsenic	Barium	Bicarb	Boron	Cadmium	Calcium	Carbon	Cat_Ion	Chloride	Chlorine	Chromiu	Copper	Field_pH	Flow	Fluoride
S-168	SW-3S																			
		6/5/1996	<10	290	1		0.084	200	0.19	0.0003	66			16		0.004	0.012			0.29
		7/7/1996																	0	
		8/6/1996																	0	
		9/30/1996	<10	456	94.85	0.029	0.372		0.648	<0.001	25.2			1.7		0.073	0.061	7.6		0.31
		10/9/1996	<10	125	3.95	<0.01	0.071		0.085	<0.001	30.2			2.4		<0.01	<0.01	6.9		<0.2
		1/14/1997	<1	148	5.47	<0.01	0.11		0.714	<0.001	140.7		37.4	3.5		<0.01	<0.01	7.1		0.24
		4/8/1997	<10	109	1.1	<0.01	0.05		0.11	<0.01	26		<17.8	3.7		<0.01	<0.01	7.6	0.25	<0.2
		10/6/1997																	0	
		1/26/1998	13	62	0.74	<0.005	0.06		0.2	<0.002	69			17		0.009	<0.005	7.5		<0.2
		6/22/1998	<10	77	0.94	<0.003	0.05		0.09	<0.002	27		6.6	17		<0.002	0.003	7.7		0.2
		8/26/1998																	0	
		10/13/1998																	0	
		2/22/1999	<10	62	3.2	0.006	0.05		0.05	<0.002	31		15.9	6.1		0.003	0.004	7.9	0	0.2
		5/4/1999	<10	140	0.88	<0.003	0.07		0.08	<0.002	49		7.4	10		0.002	0.003	8.1	0	0.3
		7/21/1999																	0	
		10/12/1999	<10	81	0.46	<0.002	0.03		0.12	<0.002	84		7.1	4		<0.002	<0.002	7.82		0.3
		3/10/2000	<10	100	1.7	<0.002	0.038		0.047	<0.002	51			8		<0.002	<0.002	8.87	0	8.07
		4/18/2000	<10	87	1	<0.002	0.045		<0.02	<0.002	33			7		<0.002	<0.002	6.98	1.2	<0.2
		8/11/2000	<1	110	0.897	0.003	0.049		0.122	<0.002	35				12	<0.002	<0.002	7.8	0.01	<0.2
		11/17/2000	<1	87	2.1	<0.002	0.061		0.089	<0.002	38			12		<0.002	<0.002	8.7	0	<0.2
		2/20/2001	35	83	2.3	<0.002	0.04		0.004	<0.002	30			11		<0.002	<0.002	7.22	1	<0.2
		4/18/2001																	0	
		5/1/2001	85	144	1.42	<0.002	0.02		0.02	<0.002	51.3			14.2		<0.002	<0.002	8.61	0	0.28

Page: 1


Microsoft Access
File Edit View Insert Format Records Tools Window Help
frmRptOnOnePoint
REPORT OF PARAMETERS FOR A SPECIFIC MONITORING POINT FOR ALL SAMPLE DATES
Enter A Permit Number:
S-168
Choose A Monitoring Point:
SW-3S
Print Data For All Parameters
Print Data For Limited Parameters (Mine Drainage)
Print Data And Statistics For One Parameter On This Point
nical Staff
eports
Graphs
For One oring Point
Graph One Parameter For One Point
For One ermit
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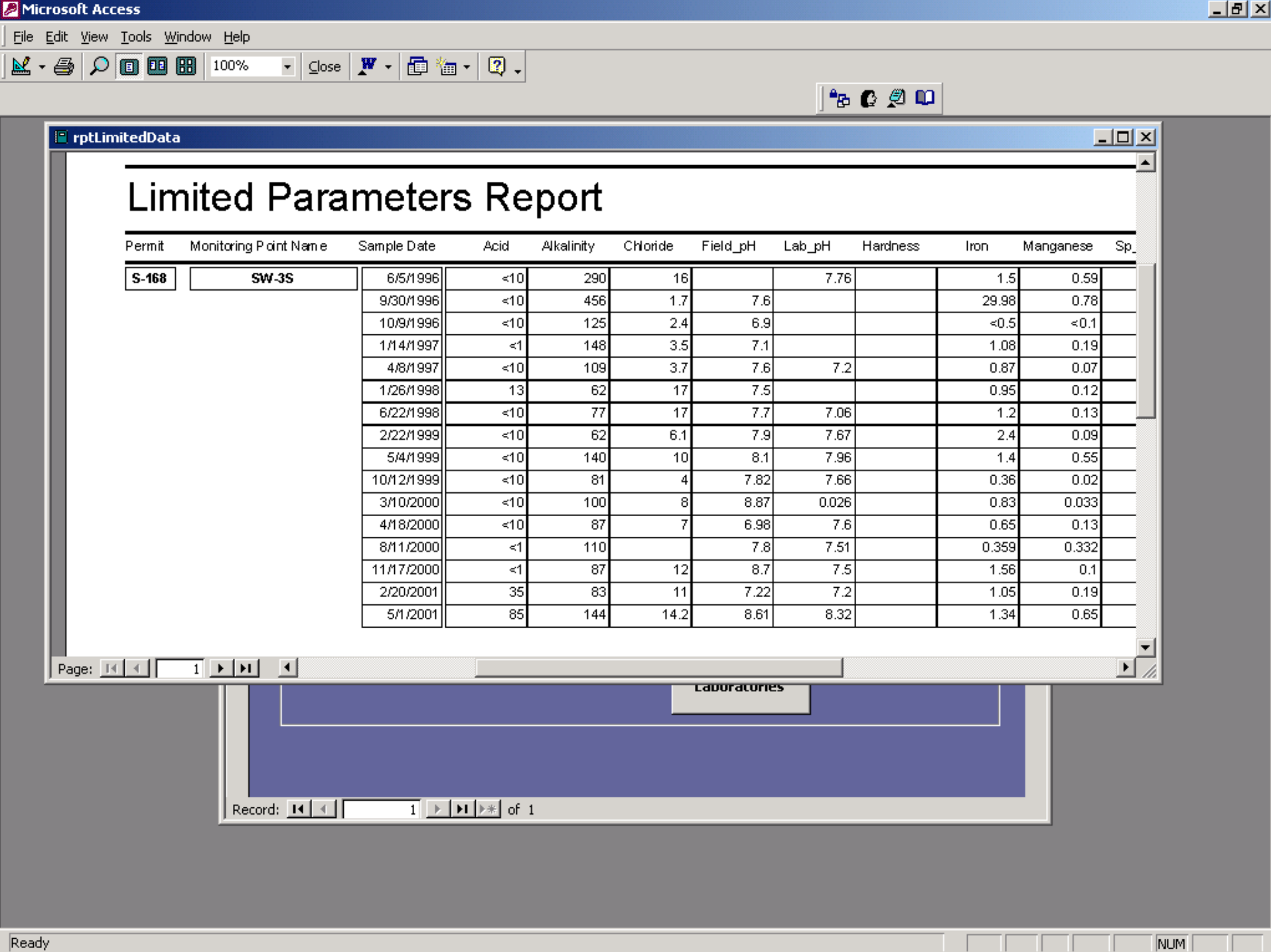
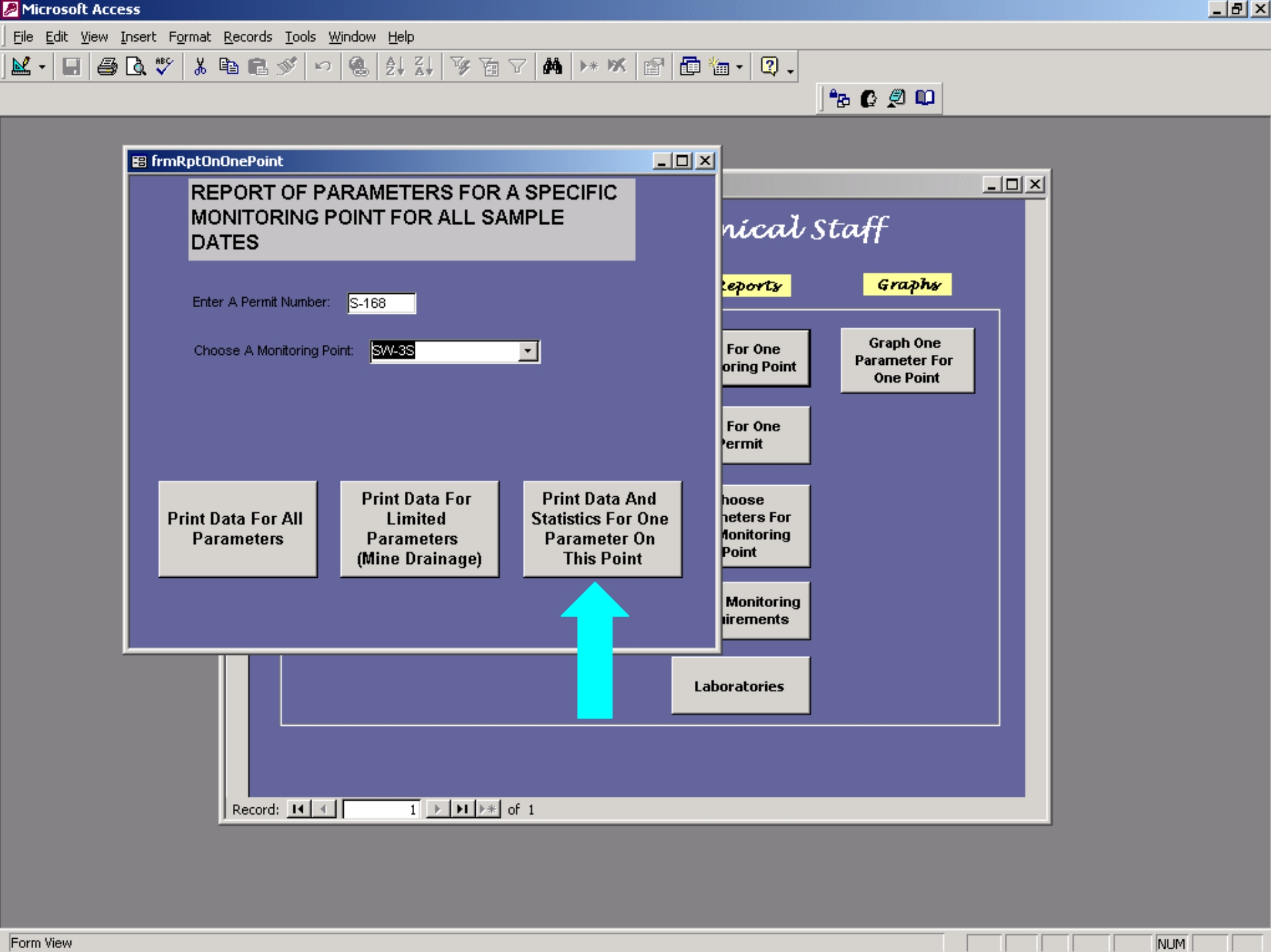
Monitoring irements
Laboratories
Record: 1 of 1
Form View
NUM


Microsoft Access
File Edit View Tools Window Help
100%
Close
rptLimitedData
Limited Parameters Report
Permit
Monitoring Point Name
Sample Date
Acid
Alkalinity
Chloride
Field_pH
Lab_pH
Hardness
Iron
Manganese
Sp_
S-168
SW-3S
6/5/1996 <10 290 16 7.76 1.5 0.59
9/30/1996 <10 456 1.7 7.6 29.98 0.78
10/9/1996 <10 125 2.4 6.9 <0.5 <0.1
1/14/1997 <1 148 3.5 7.1 1.08 0.19
4/8/1997 <10 109 3.7 7.6 7.2 0.87 0.07
1/26/1998 13 62 17 7.5 0.95 0.12
6/22/1998 <10 77 17 7.7 7.06 1.2 0.13
2/22/1999 <10 62 6.1 7.9 7.67 2.4 0.09
5/4/1999 <10 140 10 8.1 7.96 1.4 0.55
10/12/1999 <10 81 4 7.82 7.66 0.36 0.02
3/10/2000 <10 100 8 8.87 0.026 0.83 0.033
4/18/2000 <10 87 7 6.98 7.6 0.65 0.13
8/11/2000 <1 110 7.8 7.51 0.359 0.332
11/17/2000 <1 87 12 8.7 7.5 1.56 0.1
2/20/2001 35 83 11 7.22 7.2 1.05 0.19
5/1/2001 85 144 14.2 8.61 8.32 1.34 0.65
Page: 1
Laboratories
Record: 1 of 1
Ready
NUM


Microsoft Access
File Edit View Insert Format Records Tools Window Help
frmRptOnOnePoint
REPORT OF PARAMETERS FOR A SPECIFIC MONITORING POINT FOR ALL SAMPLE DATES
Enter A Permit Number:
S-168
Choose A Monitoring Point:
SW-3S
Print Data For All Parameters
Print Data For Limited Parameters (Mine Drainage)
Print Data And Statistics For One Parameter On This Point
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For One oring Point
Graph One Parameter For One Point
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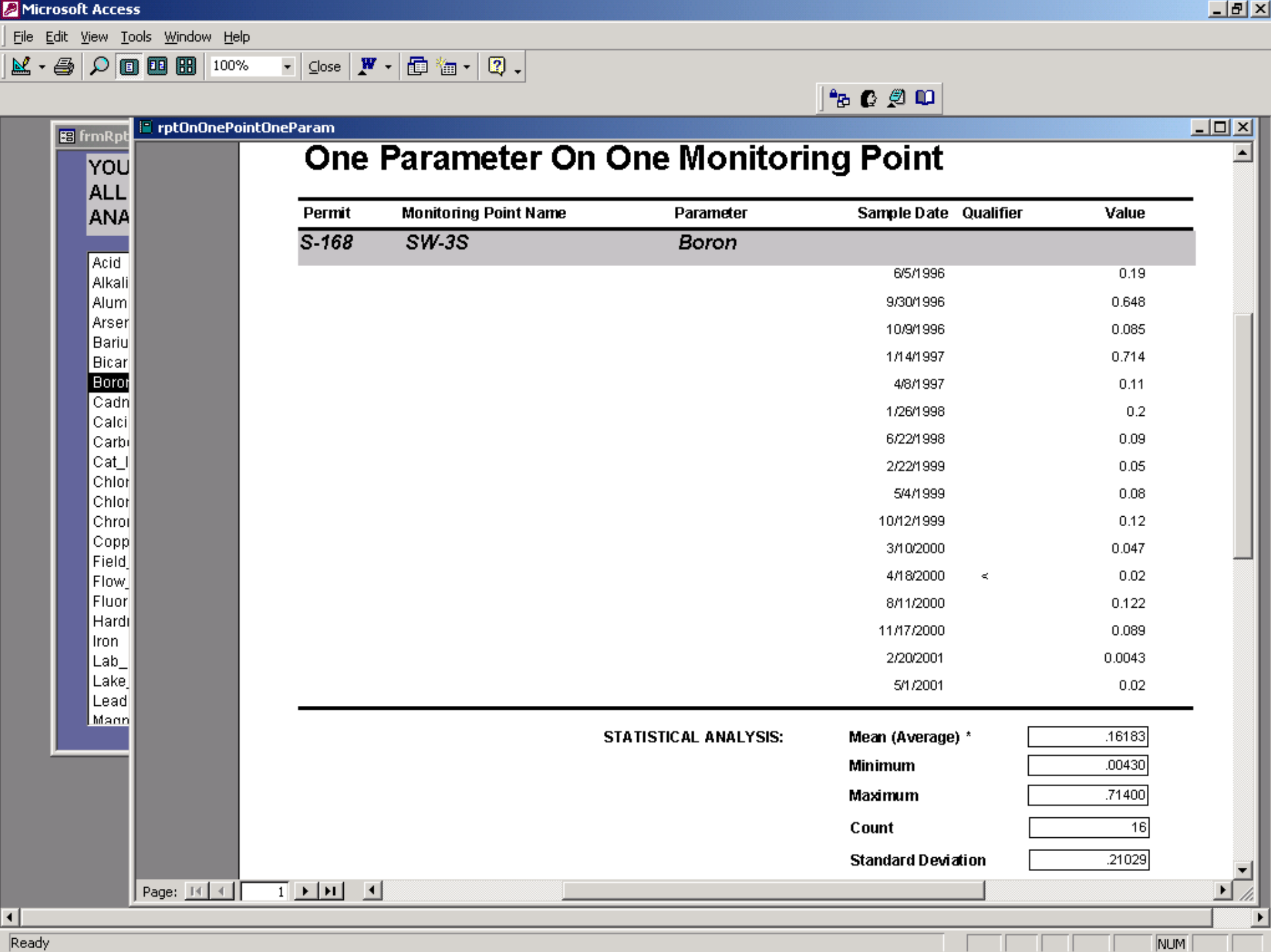
Monitoring irements
Laboratories
Record: 1 of 1
Form View
NUM


Microsoft Access
File Edit View Tools Window Help
100%
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YOU
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ANA
Acid
Alkali
Alum
Arser
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Bicar
Boron
Cadn
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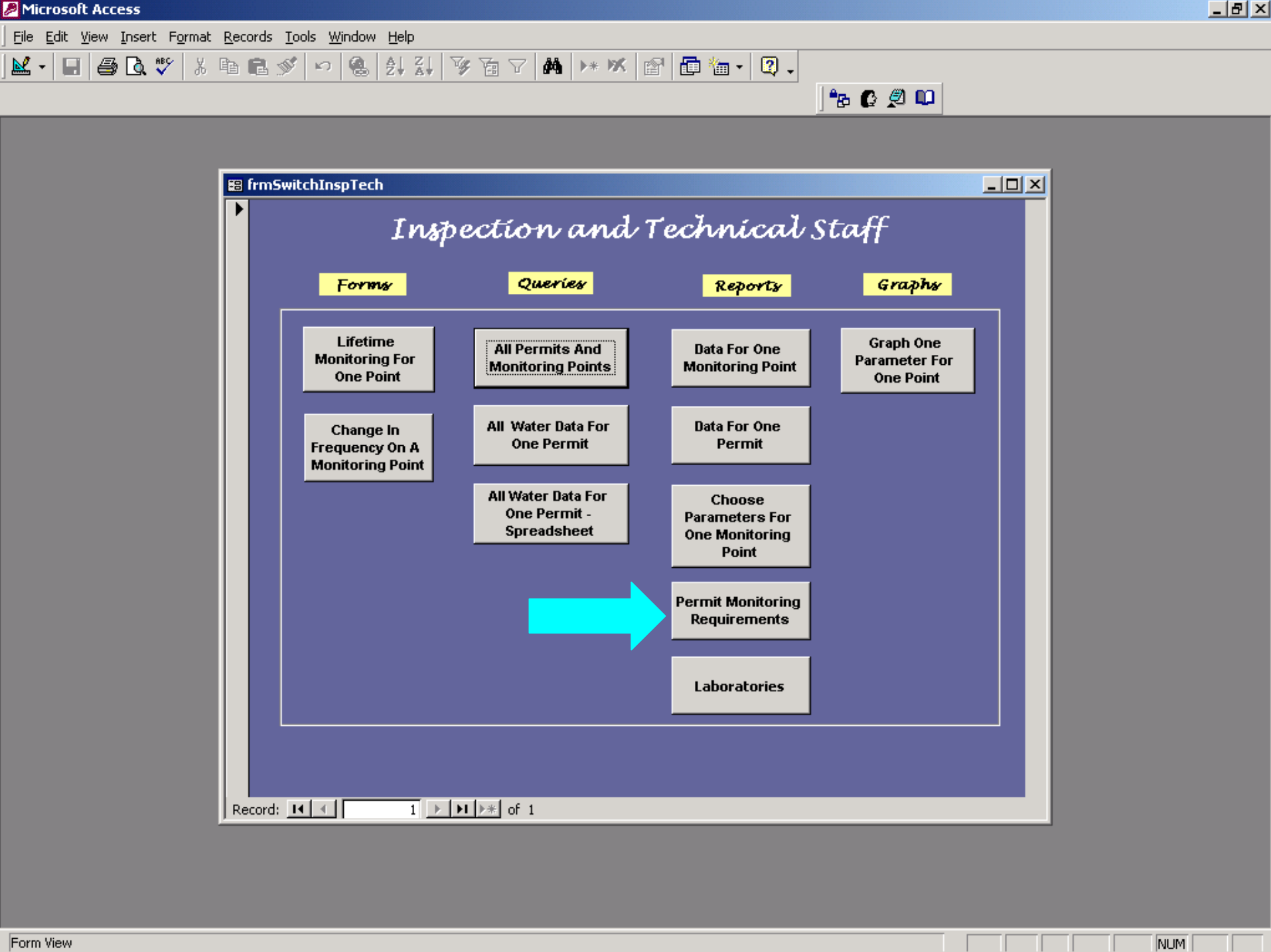
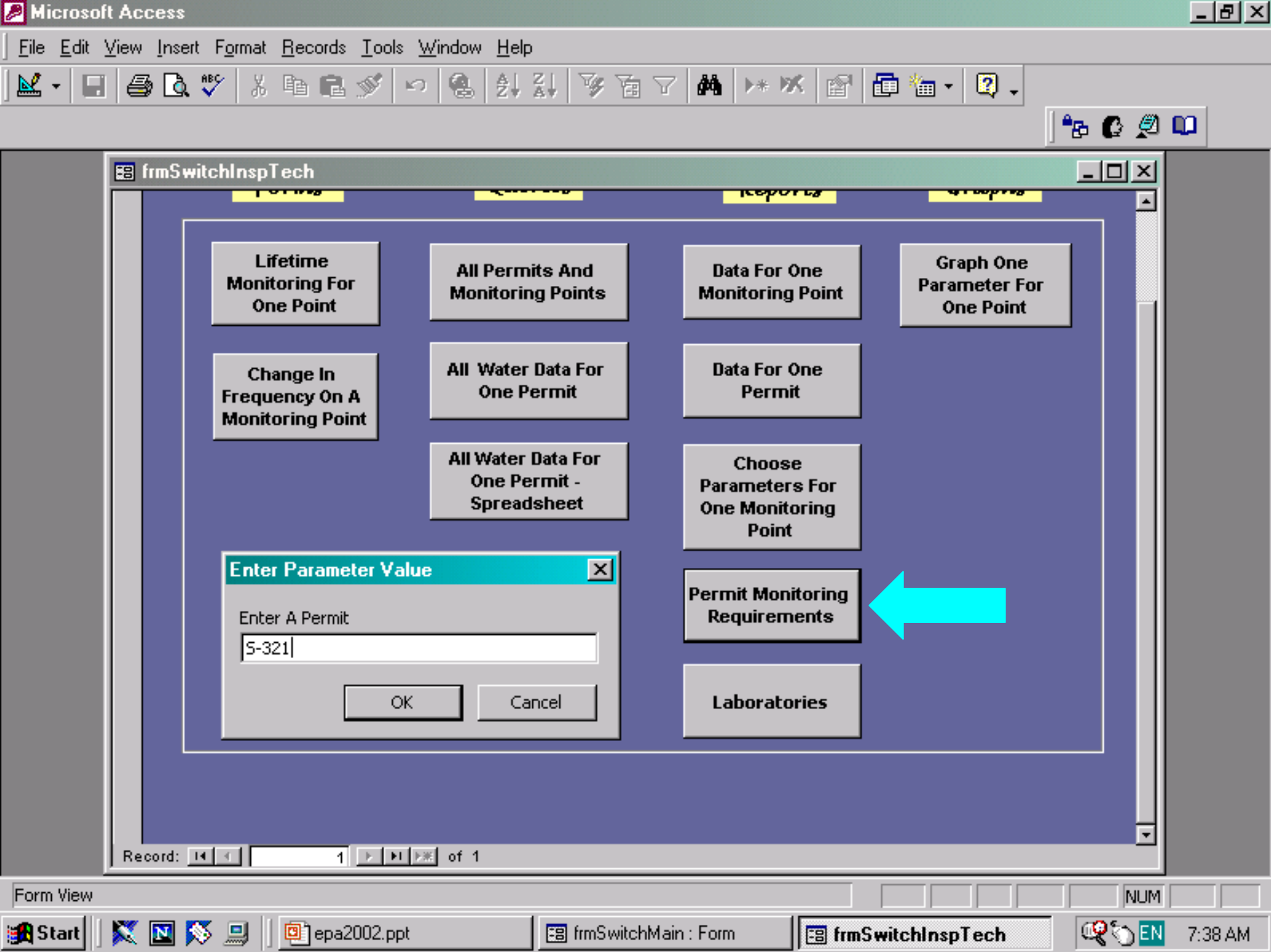
Carb
Cat_I
Chlor
Chlor
Chro
Copp
Field_
Flow_
Fluor
Hardi
Iron
Lab_
Lake_
Lead
Magn
rptOnOnePointOneParam
One Parameter On One Monitoring Point
Permit
Monitoring Point Name
Parameter
Sample Date
Qualifier
Value
S-168
SW-3S
Boron
6/5/1996 0.19
9/30/1996 0.648
10/9/1996 0.085
1/14/1997 0.714
4/8/1997 0.11
1/26/1998 0.2
6/22/1998 0.09
2/22/1999 0.05
5/4/1999 0.08
10/12/1999 0.12
3/10/2000 0.047
4/18/2000 < 0.02
8/11/2000 0.122
11/17/2000 0.089
2/20/2001 0.0043
5/1/2001 0.02
STATISTICAL ANALYSIS:
Mean (Average) * .16183
Minimum .00430
Maximum .71400
Count 16
Standard Deviation .21029
Page: 1
Ready
NUM


Microsoft Access
File Edit View Insert Format Records Tools Window Help
frmSwitchInspTech
Inspection and Technical Staff
Forms
Queries
Reports
Graphs
Lifetime Monitoring For One Point
Change In Frequency On A Monitoring Point
All Permits And Monitoring Points
All Water Data For One Permit
All Water Data For One Permit - Spreadsheet
Data For One Monitoring Point
Data For One Permit
Choose Parameters For One Monitoring Point
Permit Monitoring Requirements
Laboratories
Graph One Parameter For One Point
Record: 1 of 1
Form View
NUM


Microsoft Access
File Edit View Insert Format Records Tools Window Help
frmSwitchInspTech
Lifetime Monitoring For One Point
All Permits And Monitoring Points
Data For One Monitoring Point
Graph One Parameter For One Point
Change In Frequency On A Monitoring Point
All Water Data For One Permit
Data For One Permit
All Water Data For One Permit - Spreadsheet
Choose Parameters For One Monitoring Point
Enter Parameter Value
Enter A Permit
S-321
OK
Cancel
Permit Monitoring Requirements
Laboratories
Record: 1 of 1
Form View
NUM
Start
epa2002.ppt
frmSwitchMain : Form
frmSwitchInspTech
EN
7:38 AM

Microsoft Access

File Edit View Tools Window Help

rptMonitor

Monitoring Schedule For Permit S-321

Point Name: 001 **Point Type:** Basin S

Time Frame	through phase III
Frequency	undetermined
Parameter List	
Notes	NOT YET CONSTRUCTED

Point Name: 002 **Point Type:** Basin S

Time Frame	THROUGH PHASE III
Frequency	UNDETERMINED
Parameter List	
Notes	NOT YET CONSTRUCTED

Point Name: 003 **Point Type:** Basin S

Time Frame	THROUGH PHASE III
Frequency	UNDETERMINED
Parameter List	
Notes	NOT YET CONSTRUCTED

Point Name: 004 **Point Type:** Basin S

Time Frame	through phase III
Frequency	quarterly
Parameter List	aluminum, arsenic, barium, cadmium, calcium, chromium, copper, lead, manganese, nickel, selenium, zinc, water level, field pH, lab pH, spec. Cond., TDS, total alkalinity, total acidity, silver, molybdenum, iron, sodium, sulfide, boron, magnesium, total organic carbon, cation/anion difference, sulfate, total hardness, chloride, fluoride, bicarbonate, potassium, mercury, vanadium and temp
Notes	Only testing for CCW parameters started in 2000, prior to that it was only tested for NPDES parms

Point Name: 171-S04 **Point Type:** Domestic G

Time Frame	when active mining is within 1000 feet
Frequency	monthly until past 1000 feet, then quarterly through phase III
Parameter List	field pH, temp., water level, total acidity, total alkalinity, spec. cond., TDS, iron, manganese, sulfate, chloride and total hardness
Notes	BILL AMS domestic well, monthly monitoring, activity within 1000' feet

Page: 1

Ready NUM

Notes

Point Name: CMW-02 **Point Type: Installed** **G**

Time Frames	through phase III
Frequency	quarterly
Parameter List	aluminum, arsenic, barium, cadmium, calcium, chromium, copper, lead, manganese, nickel, selenium, zinc, water level, field pH, lab pH, apec. Cond., TDS, total alkalinity, total acidity, silver, molybdenum, iron, sodium, sulfide, boron, magnesium, total organic carbon, cation/anion difference, sulfate, total hardness, chloride, fluoride, bicarbonate, potassium, mercury, vanadium and temp.
Notes	ASH POINT

Point Name: CMW-02A **Point Type: Installed** **G**

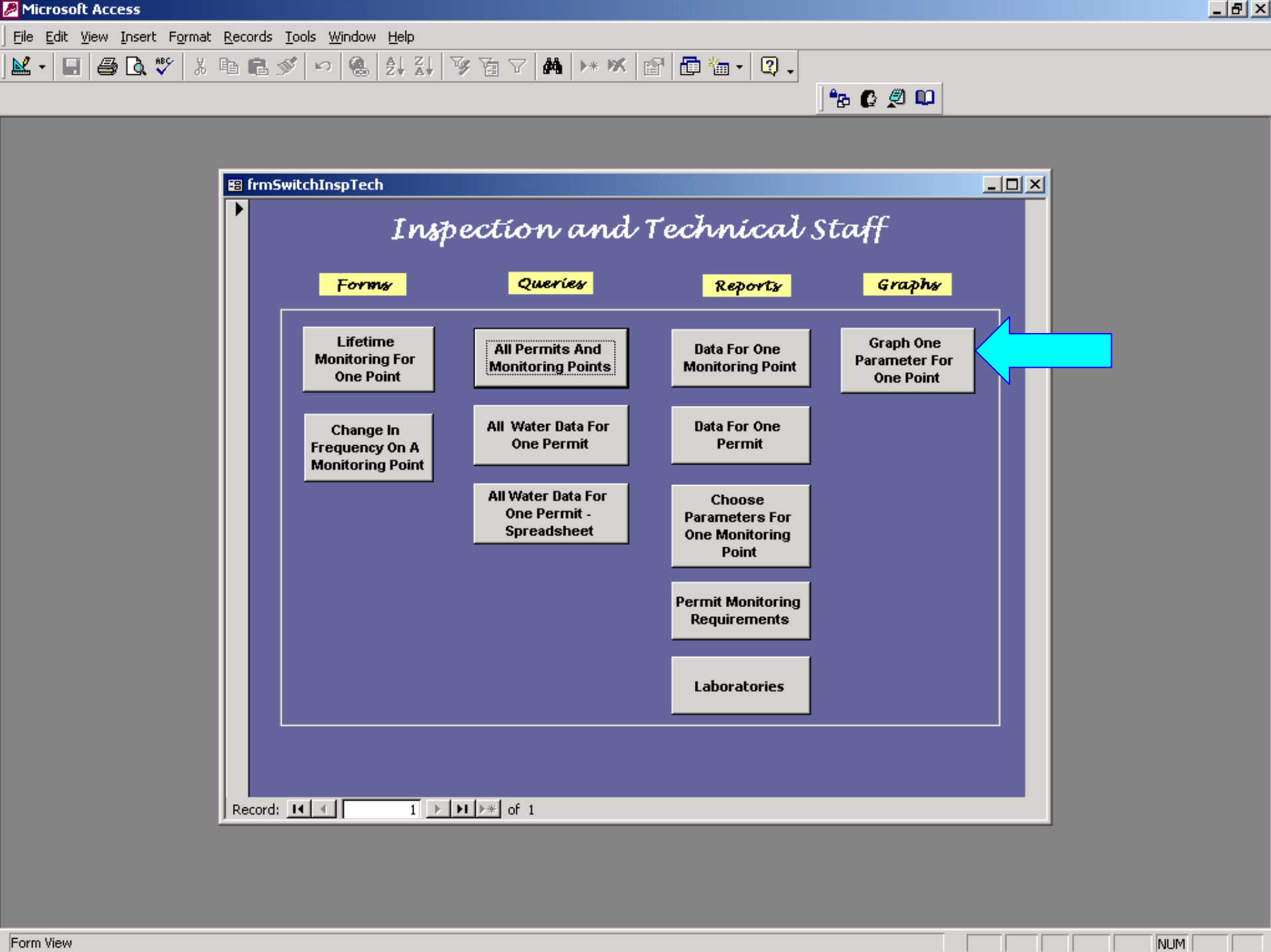
Time Frames	THROUGH PHASE III RELEASE
Frequency	QUARTERLY
Parameter List	aluminum, arsenic, barium, cadmium, calcium, chromium, copper, lead, manganese, nickel, selenium, zinc, water level, field pH, lab pH, apec. Cond., TDS, total alkalinity, total acidity, silver, molybdenum, iron, sodium, sulfide, boron, magnesium, total organic carbon, cation/anion difference, sulfate, total hardness, chloride, fluoride, bicarbonate, potassium, mercury, vanadium and temp.
Notes	ASH POINT.

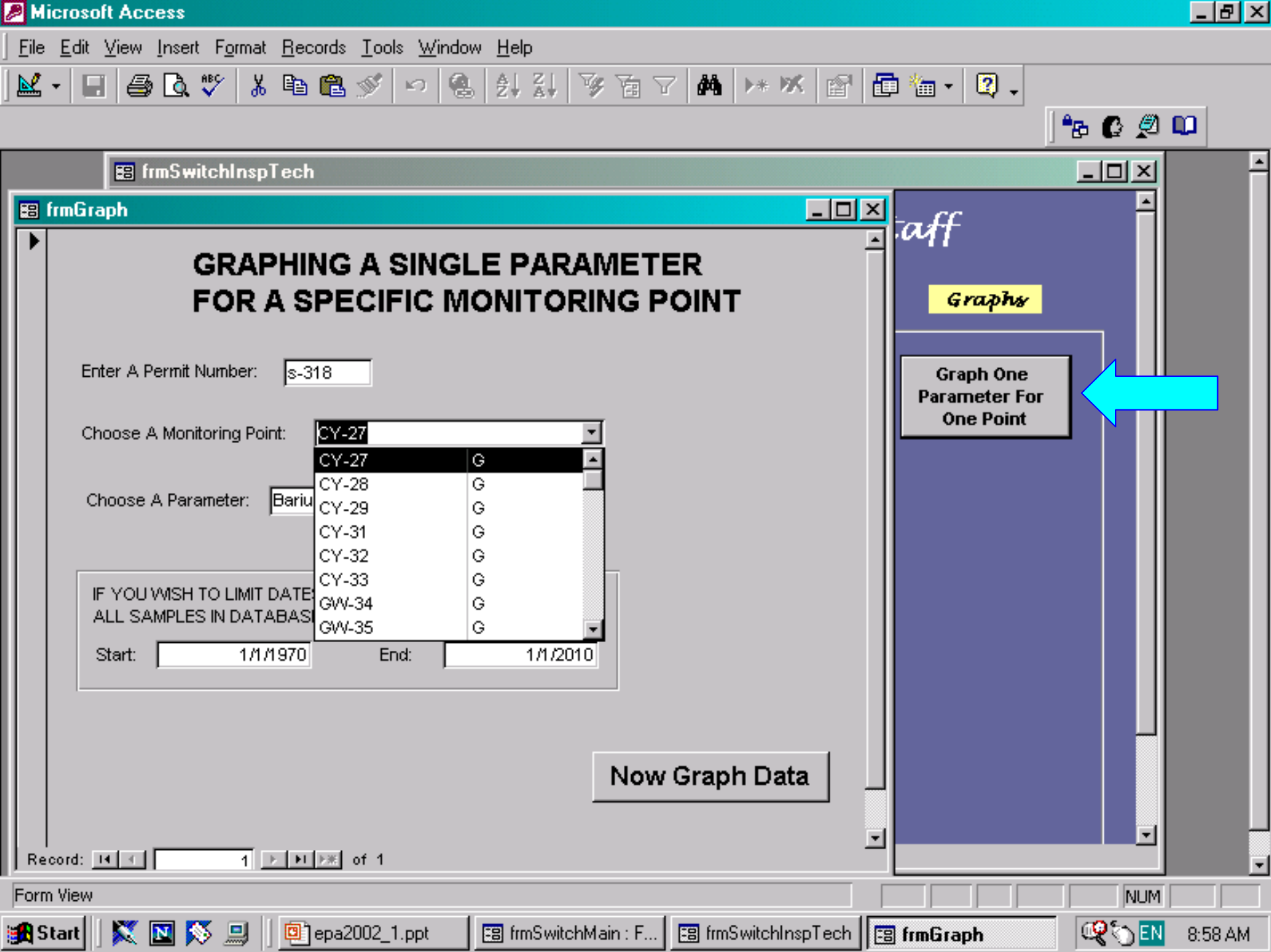
Point Name: CMW-03 **Point Type: Installed** **G**

Time Frames	THROUGH PHASE III RELEASE
Frequency	QUARTERLY - ONE ASH BASELINE PRIOR TO ASH DISPOSAL
Parameter List	aluminum, arsenic, barium, cadmium, calcium, chromium, copper, lead, manganese, nickel, selenium, zinc, water level, field pH, lab pH, apec. Cond., TDS, total alkalinity, total acidity, silver, molybdenum, iron, sodium, sulfide, boron, magnesium, total organic carbon, cation/anion difference, sulfate, total hardness, chloride, fluoride, bicarbonate, potassium, mercury, vanadium and temp.
Notes	ASH POINT. NOT INSTALLED YET AS OF 12/12/01.

Point Name: CMW-03A **Point Type: Installed** **G**

Time Frames	THROUGH PHASE III RELEASE


Microsoft Access
File Edit View Insert Format Records Tools Window Help
frmSwitchInspTech
Inspection and Technical Staff
Forms
Queries
Reports
Graphs
Lifetime Monitoring For One Point
Change In Frequency On A Monitoring Point
All Permits And Monitoring Points
All Water Data For One Permit
All Water Data For One Permit - Spreadsheet
Data For One Monitoring Point
Data For One Permit
Choose Parameters For One Monitoring Point
Permit Monitoring Requirements
Laboratories
Graph One Parameter For One Point
Record: 1 of 1
Form View
NUM


Microsoft Access
File Edit View Insert Format Records Tools Window Help
frmSwitchInspTech
frmGraph
GRAPHING A SINGLE PARAMETER
FOR A SPECIFIC MONITORING POINT
Enter A Permit Number:
s-318
Choose A Monitoring Point:
CY-27
CY-27 G
CY-28 G
CY-29 G
CY-31 G
CY-32 G
CY-33 G
GW-34 G
GW-35 G
Choose A Parameter:
Bariu
IF YOU WISH TO LIMIT DATE
ALL SAMPLES IN DATABAS
Start:
1/1/1970
End:
1/1/2010
Now Graph Data
Record:
1
of 1
taff
Graphs
Graph One Parameter For One Point
Form View
NUM
Start
epa2002_1.ppt
frmSwitchMain : F...
frmSwitchInspTech
frmGraph
EN
8:58 AM

Microsoft Excel - ExcelGraph.XLT

File Edit View Insert Format Tools Chart Window Help

"Parameter: ...

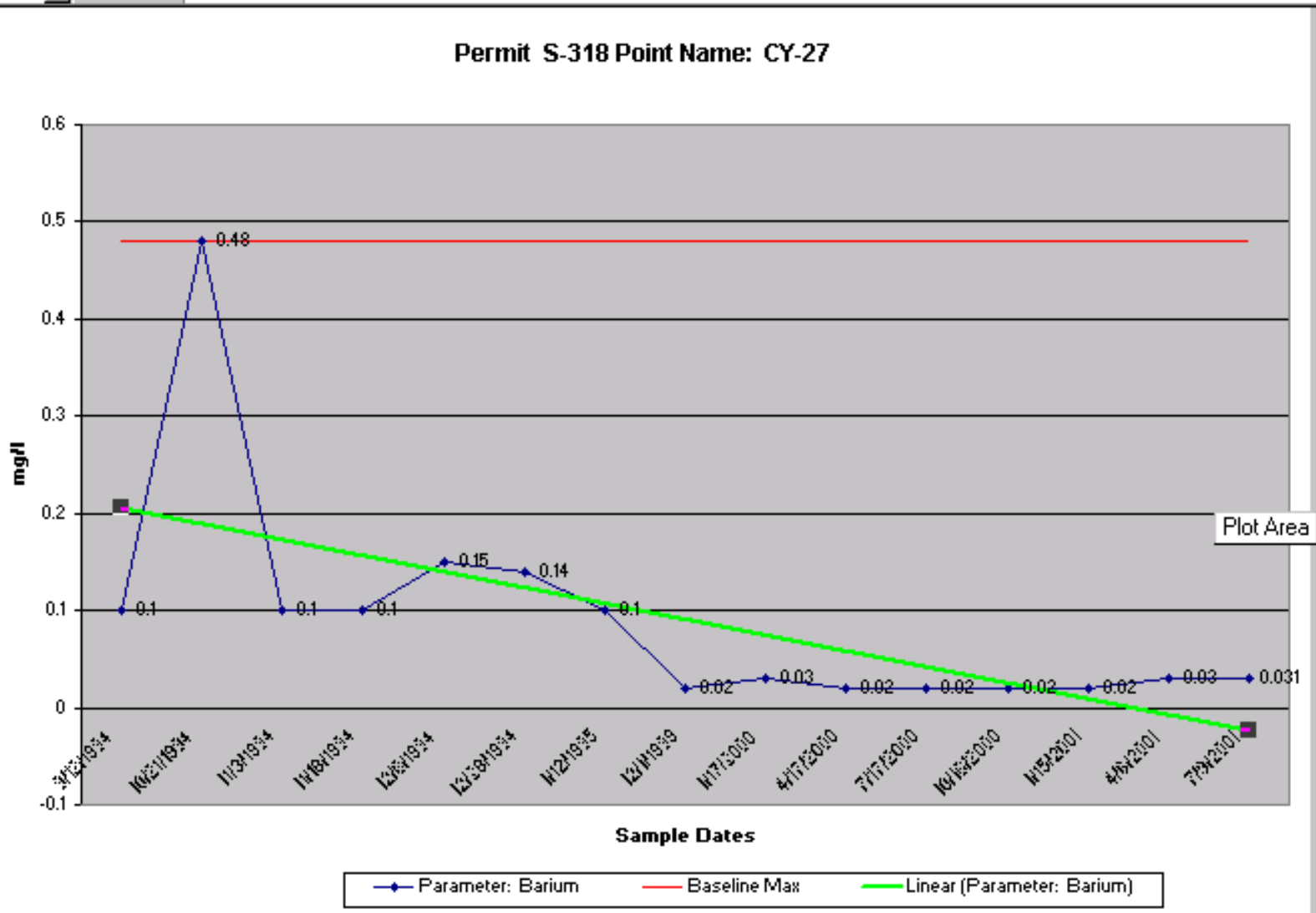


Chart1 qryGraph

Ready

NUM

Start epa2002_1.... frmSwitchMa... frmSwitchIns... frmGraph Microsoft ... EN 3:56 PM

Indiana's Water Database

- **Future features of the Water Database:**
  - ✓ **More statistical analyses**
  - ✓ **Addition of Indiana's Ground Water Quality Standards**
  - ✓ **Improved graphing capabilities**
  - ✓ **Add programming to capture and report on missing samples based on monthly, quarterly or annual frequencies**