MAROS 2.1 SOFTWARE TRAINING Introduction

The AFCEE Monitoring and Remediation Optimization System software (MAROS) is a collection of statistical and data visualization tools in one software package designed to aid stakeholders in developing efficient long-term groundwater monitoring programs.

The MAROS methodology is designed to organize large quantities of site data and focus analysis to reveal underlying trends in the data. By reviewing several lines of evidence on plume stability and predictability, the user can improve a groundwater monitoring network while maintaining adequate delineation of the plume. Different users will employ the tool in different ways and interpret the results from different viewpoints. Therefore, it is important to not only have a consensus conceptual site model before beginning the MAROS analysis, but to assess all of the MAROS results in conjunction with detailed knowledge of site conditions, regulatory framework, community issues, and other site specific situations.

The MAROS 2.1 Software Training Program presents an introduction to the MAROS 2.1 methodology. The Program is intended to provide users with the basic skills to begin site analysis and to understand the application of the methodology to various regulatory contexts.

Objectives of Training

The key objectives of the MAROS Software Training include familiarizing the user with typical applications, implementation and interpretation of the MAROS modules:

The Training Program consists of Activities illustrating different aspects and capabilities of the MAROS software. The MAROS 2.1 methodology is explained in general terms during this training. More detailed information is provided in the MAROS Manual and in references listed at the end of this training.

Upon completing this training, the user should be able to:

- Enter data into the software from both Excel files and Access archive files;
- Rank and choose COCs that control long-term monitoring decisions;
- Select time ranges to analyze data and consolidate large data sets;
- Determine the overall plume stability through trend analysis;
- Evaluate plume stability using moment analysis;
- Evaluate individual well concentration trends over time;
- Reduce, where possible, redundant wells without information loss
- Suggest locations for new wells for future sampling;
- Provide future sampling frequency recommendations while maintaining sufficient plume stability information;
- Evaluate risk-based site cleanup status using data sufficiency analysis.

Optional Activity 1

Download MAROS 2	.1
Download	1) Go to http://www.gsi-net.com/software/Maros.htm
	A link to the MAROS download site is also accessible from the AFCEE web site.
	2) Save MAROS_v2_1.exe file to a folder in Program Files.
	The MAROS download file is a zipped collection of Access, Excel and other files.
	 Double click MAROS_v2_1.exe, and unzip files to home file C:/AFCEE_MAROS_v2_1. 12 files will appear in the folder:
	AFCEE_MAROS.HLP MAROS_AccessImportTemplate.mdb MAROS_ConstituentList.xls MAROS_ERPIMS_Import_Template2000.mdb
	MAROS_Excerninport emplate.xis MAROS_v2_1.mdb ** MAROS_V2_1Manual.pdf xlsDelaunay2K.xls ** xlsLOETrendResults.xls ** xlsNewLocation.xls **
	** = File essential to MAROS program
Create Backup	4) Create a new folder, convenient to your data files.
	5) Copy the contents of the AFCEE_MAROS_v2_1 to the new folder. This will be your <i>working copy</i> of MAROS.
Prepare Site Data	6) Prepare the data for analysis.
	Open Excel file <i>AFCEEMAROS_ExampleData.xls</i> <i>The data format should match the templates exactly!</i> The constituents should be spelled exactly as in MAROS_ConstituentList.xls. Well location coordinates should be in units of feet (usually State Plane Coordinates). The Result field for non-detects is blank. All data should have detection limits (even if they are estimated).

ACTIVITY 2

Import Data	
E: Monitoring and Remediation Optimization System (MAROS)	1) Opening Screen
HQ Air Force Center for Environmental Excellence	·) •p•·····g••·•••
	Open MAROS_v2_1.mdb.
Optimization System (MAROS)	The User name and project name will
Software Tool Version: 2.0	appear on subsequent reports.
John J. Andre J. Andr	Choose 'Start'.
Data management tool for analyzing and optimizing groundwater monitoring programs.	
User Harne: Project Harne: Copyright © 2002, Air Force Center for Environmential Envillence	
Monitoring and Remediation Optimization System (MAROS)	2) Main Menu
Main Menu	
The Main Menu is the center of the MAROS interface. The user should step through the MAROS Analysis process by navigating through the options below. As individual steps of the process are completed, options to select become	The Main Menu screen will indicate
successively available.	available choice in Black and
Proceed Through Steps 1 - 5:	unavailable choice in Red.
Step 1. Data Management Allows data import of Excel and ERPIMS files, archiving current site	
data, and manual data addition. Step 2. Site Details	Choose 'Data Management'.
Enter details of the site including hydrogeologic parameters, source/tail well designation and constituents of concern.	
Plume Analysis Perform Data Consolidation, Statistical Trend Analysis, Spatial Moment	
(Optional) Step 4. Sampling Optimization	
Perform sempling optimization using statistical methods to determine the individual well redundancy and sampling frequency analysis.	
Step 5. MAROS Output View/print site specific summary reports and graphs	
Quit Help	
ES Monitoring and Remediation Optimization System (MAROS)	3) Data Management Menu
Data Management Menu	of Data Management Menu.
ine utatases Management menu atiows you to perform database operations such as importing, manual data addition and archiving. These operations are used initially to import ste data into the software in order to perform analysis. After you have performed the data analysis, you can archive your data file for future use.	Choose the option corresponding to
Select One Option:	type of file you want to import.
Import New Data	
Choose between importing ERPINS files or and Excel file in the standard MAROS format, import previously archived data files	Choose 'Import New Data' from the
Manual Data Addition To add individual Records to the MAROS underlying database for	menu options.
enalysis. Import MAROS Archive File Import previously archived MAROS files.	
Export MAROS Archive File	
future MAROS analyses.	
Main Menu Help	

🗉 Monitoring and Remediation Optimization System (MAROS)	4) Choose type of New Data to
Import New Data	Import:
To import a file, select the type of file to import (Excel Table or Access Table or Access ERPIMS). Next, choose the appropriate import option. Finally, select files to import into this database, by either typing in the correct inducement of the domains.	
To inpost ERPIdS test file:: Ensum that the source fidden contains the TES, RES, SAM and LDI data files. Type or select and the RES file to most all meeded lifes. ERPINAR Source fielden contains the TES, RES, SAM and LDI data files. Type or select the name of the Exod workhook. To inpost FRIFIGS Access tile:: Types or select the name of the Exod workhook. To inpost FRIFIGS Access TeS. To inpost FRIFIGS Access tile:: Types or select the name of the Exod workhook. To inpost FRIFIGS Access 2000 Table C ERPINAR Socies:: 2000 Table C ERPINAR Test File: D ERPINAR Access:: 2000 Table C ERPINAR Test File: D ERPINAR Socies:: 2000 Table C ERPINAR Test File: D ERPINAR Socies:: 2000 Table C ERPINAR Test File: D ERPINAR Socies:: 2000 Table C ERPINAR Test File: D ERPINAR Access:: 2000 Table C ERPINAR Test File: D ERPINAR Access:: 2000 Table C ERPINAR Test File: D ERPINAR Socies:: 2000 Table C ERPINAR Test File: D ERPINAR Socies:: 2000 Table C ERPINAR Test File: ERPINAR Test File: END ERPINE:: 2000 Table <td>If you were to import an Excel file do the following: Browse to the file you will be importing. Under Import Option choose 'Import New Data' Choose 'Import' button Confirmation box should appear. Click OK. Click 'Back' button on the Import menu.</td>	If you were to import an Excel file do the following: Browse to the file you will be importing. Under Import Option choose 'Import New Data' Choose 'Import' button Confirmation box should appear. Click OK. Click 'Back' button on the Import menu.
	5) Import Archive file created
E Monitoring and Demodistion Onlinitation Surtem (MADDE)	proviously in MAROS
Import MAPOS Archive File	An Archive file has already been
import indices dronie i de	All Alchive me has alleady been
Choose to append or replace the current data with the retrieved archive file.	file gradien in Activity 2 Step (2) you
Type in the full file path below, or use the trowse button to name or locate the appropriate folder. Please note that the folder name must end in "/".	file creation in Activity 3 Step 13), you
	can import it using this screen.
Proves	
Folder:	Browse to file.
Filename:	Choose
Retrieve]	AFCEEMAROS_ExampleArchive.mdb
C Append	
C Replace	Choose Retrieve with 'Replace' option.
I A M	
K Back	The 'Replace' option eliminates old data
	that may be in the database, and lets
	you start with a clean set of files.
	Choose 'Yes' then 'OK" in the dialog
	boxs.
	Choose 'Back' and then 'Main Menu' for
	the subsequent screens.
	I

Site Details	
II Monitoring and Remediation Optimization System (MAROS)	1) Main Menu
Main Menu	,
The Main Meru is the orefer of the MAROS interface. The user should step through the MAROS Analysis process by newpating through the options below. As individual steps of the process are completed, options to select become successively available.	Choose Step 2 Site Details.
Proceed Through Steps 1 - 5:	
Step 1. 🔲 Data Management	
Allows data import of Excel and ERPMS files, archiving current site data, and manual data addition. Step 2. Site Data lie	
Enter details of the site including hydrogeologic parameters, source/tail well designation and construents of concern.	
Step 3. Plume Analysis	
Analysis, and Enter External Phane Information.	
Comparing optimization using statistical methods to determine the Individual well redundancy and sampling continuation	
Step 5. MAROS Output	
Pure Hore and graphs	
88 Monitoring and Remediation Optimization System (MARIOS)	2) See site information:
Site Information Provide information regarding the current site.	State: Texas
General	Seepage Velocity 92
Piquet: Air Porce Bose Une Location: Boston State Massachusetts	Current plume width 150
Hydrogeology and Plume Information	Main Constituents BTEX
Seepage Velocity: 10 http://www.main.constituents: BTEX	Current plume length 270
Current Plume Viditr: 40 R Current Plume Length: 200 R Maximum Plume Length: 200 R GW Fluctuations: Yes V No	Current plume length 270
Source Information	Maximum plume length 270
Free-Phase Current Source No Durrent Site Treatment.	GW Fluctuations Yes
Down-gradient Information	Source Treatment In Situ
Distance from Source to Nearest: Distance from Edge of Tail to Nearest: Downgradient receptor: 2000 ft Downgradient receptor: 1800 it	Biodegradation
Downgradient property line: 2000 It Downgradient property line: 1800 It	Free Phase NAPL No
Help	Downgradient receptor 1000
	Downgradient property line 1000
Fil Monitoring and Remediation Optimization System (MAROS)	3) Sample Events
Sample Events	.,
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event name from the dop down busic by participant on power to control or control and the same for the same for the same of the dop down busic to the participant on the same powerk and an "effective date". The "effective date" will be used for plotting purposes as well as late data conception.	takes a few days. Here is where you
איזיי שאום עודויטאשאארו. דע כאוי ושווקאים פרכיזה, עראטעל עום במוקאים פייסיג השוום מהט נרגמוקס עום ומוקס.	can assign one date per sample overt
Sample Event Name:	Choose 'Auto Event'
Date Ranne: Effective Date:	Choose a name for your consult average
	Choose a name for your sample event
Sample Events in Database:	e.g. March 1990
10/04/1900 Sample Event 1 10/04/1900 11/17/1909 Sample Event 2 11/17/1909	
03/01/1/990 Sample Event 3 3/1/1/990 Event 4 5/01/1/990	Type in the date range for the event
H	03/01/1990 and 03/02/1990
C Back Next >>	
	Choose an effective date
	03/01/1990
	Choose 'OK'.
	Choose 'Next'.



El Monitoring and Remediation Optimization System (MAROS)	7) Rick Lovel Assessment
Risk Level Assessment	r j Risk Level Assessment
Choose from the list of generic Parkinsky Rendeldson Ceal (PRO) recommendations below or syou can effer your own PRPDs, Citck on the expericuted strategies to be used in delabaries comparisons to COC recommendations. Effer your own molfications to cleanue gasla under "custom gools" in mgA. Note: User entered cleanue strategies with supersorber chronic instratedus.	Choose 'TCEQ'.
Constituent Case Ho. Region 9 Region 3 TCEO Countern Goal + 1,1,3,2.11ERACE CROETHARE \$5200 4.18.04 4.18.04 118.01 1,2.20-0000000000000000000000000000000000	The User can choose a regulatory
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COPPER 7440500 1.4E+00 1.5E+00 1.2E+00 ETHYLEENZENE 100414 1.3E+00 7.0E+01	the software
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VYLINES, TOTAL 100000 72000 72000 72000 72000 VYLINES, TOTAL 100000 72000 12000	
	Choose 'Next' to see the risk ranking of
	COCs; choose 'Back' to return to the
Source Next >>> Help	program.
E Monitoring and Remediation Optimization System (MARIOS)	8) Constituents of Concern Decision
Constituents of Concern Decision	b) Constituents of Concern Decision
Below is a summarized list of COC recommendations from the evaluable dataset. The choices at the bottom of the screen allow a view of the process used to make the COC recommendation below. Enter up to \$ COCs for	
the ste in the bases to the right.	Explore the window.
Toxicity-based COCs Prevalence-based COCs Mobility-based COCs LEPO LEPO	
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ARUM COMPR 13.00CHLOROBENZENE TOLUDIE 13.00CHLOROBENZENE LDAO BENZENE IM	to the main Constituents of Concern
PERCHLORATE PERCHLORATE COPPER	Decision screen
For more information:	
Yosicity Prevalence Mobility	
*TNRCC PRG oiteria used. User-specified cleanup goals included in PRG oiteria.	
< Back Help	
07 Monitoring and Bernediation Optimization Systems (MARDIS)	9) Initial Data Table
	9) Initial Data Table
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7

Plume Analysis		
Data Consolidation		
Monitoring and Remediation Optimization System (MARDS) Main Menu	1) Main Menu	
Total Marku screens served at the code of the MAROS interface. The user should argue served at the more served argue should be depended. At individual integra of the process are should be processed and the more served argue should be depended. At individual integra of the processes are should be processed are should be processes are should be processed are should be processes are should be processes are should be processed are should be processes are should be processed are should be processes are should be processes are should be processed are should be processes are should be processed are should be processes are should be processes are should be processes are should be processed are should be processes are should be processed are should be processes are should be processed are should be processes are should be processes are should be processes are should be processes are should be processed are should be processes are should be processes are should be processed are should be processes. A processes are should be processed are should be procesed are should be processes are should be pr	From Main Menu choose 'Plume Analysis (Step 3).	
	2) Data Consolidation Step 3a	
Proceedings and Records about Dystamic about System (MARDS) Image: Control of Control	Choose 'Data Consolidation Step 3a.'	
Protocollar and Renneduction System (KMR05) X Data Reduction: Part 1 of 2 Price of Interest The current dataset contains data within the Iolowing tree interval. From: 10/4/1998 To: 12/19/1998 Specialy the period of interest below or leaves black & you would like to use all of the data. From: 10/4/1998 To: 12/19/1998 Data Consolidation Data Consolidation Choose the option to define the time period to consolidation Choose the option to define the time period to consolidation Choose the option to define the time period to consolidation Choose the option to define the time period to consolidation Choose the option to define the time period to consolidation Choose the option to define the time period to consolidation Choose the option to define the time period to consolidation Choose the option to define the time period to consolidation Choose the option to define the time period to consolidation Choose the option to define the time period to consolidation Choose the option to define the time period to consolidation Choose the option to define the time choose the option time dataset. Choose the option to define the time choose the option time dataset. Duatadg Choose the option to define	 3) Data Reduction Part 1 Note: If the User wants to limit time span for the analysis, the date range can be entered in the. 'Period of Interest' dialog box. The Tutorial dataset is small and does not require much consolidation. Choose 'Do not Perform Time Consolidation' Choose 'Median' 	

Monitoring and Remediation Optimization System (MAROS) Data Reduction; Part 2 of 2	4) Data Reduction Part 2
Select the lactors by which you would like to like it the deta. Image: Select the like it to like it the deta. Image: Select to like it	Choose 'Uniform Detection Limit' 'Average' Duplicates Trace values are 'Actual Values' Choose 'Next' and review the Reduced Data Table , then proceed to the Next screen.
El Hundtoring and Remediation Optimization System (MARDS) X Reduced Data Plot	5) Reduced Data Plot
Choose the well and chormical all concerning the bases below. The data for this initial and thermical will be plotted in the part.	 Choose a well. Choose the chemical 'Benzene'. Choose 'Graph'. Choose 'View Report' Note: Reports can be printed from the current window. They are also saved during the session, and can be printed at the end of the analysis. Hint: Reports can be printed to Adobe Acrobat and saved as pdf files!
Monitoring and Remediation Optimization System (MAROS)	6) Complete Data Consolidation
Data Consolidation Complete Your data has been reduced according to the parameters you entered. Your may now proceed to Step 3 b: Statistical Plume Analysis to analyze the trends in the groundwater data.	Close Report file and choose 'Next' on the Reduced Data Plot Data consolidation is complete; proceed to Step 3b.



Monitoring and Remediation Optimization System (MARDS)	4) Linear Regression Statistics
Linear Regression Statistics	
The Linear Regression Analysis is used for analyzing a single groundwater constituent, multiple constituents are analyzed separately. Each "sab" below shows the statistics for one constituent.	Explore the window.
See manual text or "Help" for description of trend determination method.	
BENZENE ETHYLBENZENE TOLUENE MYLENES, TOTAL	Choose 'Next'
Statistical Analysis Results. Last column is the result for the trend.	
Well S/T (mgL) Ln Slope COV in Trend Trend MM-1 S 3.8£-01 -1.4£-03 1.70 99.8% D	
MM-12 S 3.6E-02 -1.7E-03 1.59 100.0% D MM-13 S 1.7E-02 -1.5E-03 1.11 100.0% D	
00 MM/-14 S 9:5E-03 -1.0E-00 1.61 99.6% D MM/-15 S 5.0E-04 0.0E-00 0.00 100.0% S	
MW-2 T 2.38-02 -3,88-04 3.31 930% PO MW-3 T 6,96-02 -1,96-03 1.05 99.9% D V	
Note: Increasing (I): Probably Increasing (PI): Stable (5): Probably Decreasing (PD): Decreasing (D): No Trend (NT): Not Applicable (N/A): Source/Tail (S/T): CDV (Coefficient of Variation)	
C Back Next >> View Report Help	
Monitoring and Remediation Optimization System (MAROS)	5) Linear Regression Plot
Select a well and chemical below to graph. The concentration tiend result in the box	
below reliects the chemical and well chosen to be graphed. Select: Well MW-12 Chemical ETMTLBENZENE	Choose a well and a chemical.
Dete Graph Type	
shart and shart shart shart shart shart shart	Choose 'Graph'.
2.06.01 1.07.01 1.07.01 1.07.01 Graph	· ·
5 1.42-01 5 1.22-01 5 1.82-01 5 1.86-01 5 1.80	Choose 'Next'.
B 8.46-42 - Ln Slope:	
Sube-da	
99.2% COV:	
Linear Regression Trend: D 2.96	
(a), surgeouse (un)-due burnheard an C (< Back Next >> View Report Help	
Fit Menthering and Demonstration Content (MAROC)	
Trend Analysis Summary by Well	6) Irend Analysis Summary
The results from the Mann Kendall Analysis and Linear Repression Analysis for each CDC are	
shown in the data tables sheets below. To view the data trom each well for individual LUU's clicking on the "Tabs" at the top.	Explore screen.
BENZENE ETHYLBENZENE TOLUENE WYLENES, TOTAL	
Average COV Mann- Linear Well Hame S/T (mg1.) Residuals Kendall Regression	Choose 'Next'.
MV-15 S 5.0E-04 0.00 S S MV-14 S 9.5E-03 0.63 D D	
MV-13 S 17E-02 0.88 D D MV-12 S 38E-02 0.70 D D	
MV-0 T 6.8E-04 1.57 S S	
MW-6 T 5.0E-04 0.00 S S MW-5 T 1.1E+00 0.67 D D w	
Note: Increasing (I): Probably Increasing (PI): Stable (S): Probably Decreasing (PD): Decreasing (D): No Tared (NT): Not Analysis (NA): Source(Tail (ST))	
C Sack Next >> View Report Help	
🗑 Monitoring and Remediation Optimization System (MAROS)	7) Statistical Analysis Complete
Statistical Plume Analysis Complete	
	Choose 'Continue to Step 3c'.
Your the Mann-Kendall Trend Analysis and Linear Regression Analysis have been performed. You may now proceed to the Spatial Moment	
O Analysis.	
INT	

Plume Analysis		
Moment Analysis		
Monitoring and Remediation Optimization System (MAROS) III X Plume Analysis Menu	1) Plume Analysis Menu	
The Plane Analysis Menu screen serves at the center of the Plane Analysis interface. The user should progressively step through the Plane Analysis process by newgating through the options displayed. As individual steps of the process are completed, options to select become successively available.	Choose 'Spatial Moment Analysis'.	
Proceed Through Steps 3a - 3e:		
Step 3e. Data Consolidation Deta reduction according to user entered options for assigning values for Jan Dr Bags as well as consolidating duplotes Step 36. Statistical Plume Analysis Home Versering factorial from a factorial		
Step 3c. Spatial Moment Analysis		
Spatial Moments Plane Analysis		
Step 3d. External Plume Information Empirical Rives of Thunk's and Modeling Plume Analysis: Data entry if data is available.		
Ship Je. MARUS Analysis Methodology to weight and consolidate (by weil and COC) relative days		
Z statute pare or a		
City was been and Denned Distance Delivery instance Contains (M1000)		
Moment Analysis Site Details	2) Moment Analysis Site Details	
In order to perform the moment analysis calculations, there is additional ale data that needs to be entered below. Choose to either enter a supported tabulated thickness of the acaite at each Vell by cicking on 'Valida's Statuated Thickness' (difficult agrouph) and there retaining the data is each well by choose to either the versal statuated Thickness' the acaite provided Allo, settler the Groundwater flow direction (degrees away itom the X-axis) and the approximate x and y coordinates of the score.	Choose '315 'SE' from the Groundwater Flow Direction drop down box.	
S. Approximate Lenter of Londoninant S. Approximate Lenter of Londonin C. Approximate Lenter of Londonin C. Variable Aquiler Saturated Trickness C. Variable	Enter '0.3' in the Porosity box.	
C Validle Source Location Source Source Source (MAV-15) Source Source (MAV-15) L Xeource Yource (MAV-15) 10 DENZEK 12 12 LIMULER 12 12	Enter 'Single Source' with $X = -1$ and $Y = -1$.	
VLDBES, TOTAL 12 12 MM-7 T TO MM-7 T TO V MM-7 T TO V C Back Next >> Help V Help V	Choose Uniform Saturated Thickness and enter '12' in the box.	
	Choose 'Next'	
🖺 Monitoring and Remediation Optimization System (MAROS)	3) Spatial Moment Analysis Results	
Spatial Moment Analysis Results		
The Monent Analysis is used for analyzing a single groundwater constituent, multiple constituents are analyzed separately. Each Tab' below shows the statistics for one constituent. See manual field of "Help" for description of noment analysis method.	Explore screen.	
[BENZENE ETHYLBENZENE TOLUENE XYLENES, TOTAL	Choose 'Next'	
Moment Analysis Results.		
Op Op<		
10/4/1988 1.1E-02 -15 -39 5 0 11/1/7/1989 4.1E-02 7 -17 1.299 11.517		
21 31/1/1990 6.66.00 54 -1 1,895 11,576 L 5/31/1/990 4.55.02 18 -19 797 2,568		
9/13/1990 8/25-03 25 -17 1,092 5,020 4/3/1991 2.65-02 17 -22 410 706 ▲		
Note: XC and YC are the Centers of Mass: Soc and Say are the Second Moments, which represent the plane spread, the Elifinated Mass is the Zero Moment.		
C Back Next >> View Report Help		





Plume Analysis	
External Plume Information	
Head using and Record advect Systemations Systems (SAMARS) Image: Same Systems (SAMARS) Plume Analysis Menu	1) Plume Analysis Menu
By the solution is the nonlinear solution is the solution. Solution is the	Choose External Plume Information Step 3d
External Plume Information: Modeling Results	2) Modeling Results
Select epiden:	If you have trend modeling results from an independent analysis, enter them here. Choose 'No separate modeling studies'. Choose 'Next'. Explore 'See Empirical Evidence' and
	choose 'Next'.
Monitoring and Remediation Optimization System (MAROS) External Plume Information Complete Your data has been writered to the modern and expension result. You reas now more effect to the MAROS Analysis to wind the Plane	3) External Plume Information Complete Continue to Step 3e.
Information and analyze the tered in the grandwate data for a second sec	



	4) Results of Information Weighting
Results of Information Weighting	Explore screen and choose 'Nevt'
The results from the weighted statistical, modeling or empirical lines of evidence for each COC are shown in the sheets below.	Explore screen and choose Next.
DEFICIENT Weil Hume ST Teend Result More St St St St St St Stable (S) Plobably Decreasing PD): Directoring (D): No Teend (M): More Assing PD): Colspan="2">Bioder Increasing (P): Stable (S) Plobably Decreasing PD): Colspan="2">Directoring (D): No Teend (M): More Assing (P): Stable (S) Plobably Decreasing PD): Colspan="2">Directoring (D): No Teend (M): More Assing (P): Stable (S) Plobably Decreasing PD): Colspan="2">Directoring (D): No Teend (M): More Assing (P): Stable (S) Plobably Decreasing PD): Colspan="2">Colspan="2">Bioder (D): More Assing (P): Stable (S) Plobably Decreasing PD): Colspan="2">Colspan="2">Bioder (D): More Assing P): Stable (S) Plobably Decreasing P): Colspan="2">Colspan="2">Colspan="2">Bioder (D): More Assing P): Stable (S) Plobably Decreasing P): Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2"Colspa="2"Colspan="2"Colspan="2"Colspan="2"Colspan="2"Colspan="	
Monitoring and Remediation Optimization System (MAROS) Plane Information Consolidation Step 2.	5) Plume Information by Well Weighting
Plume Information by Well Weighting The senitr how the statistical modeling, or respirately lead of existing on Thorizon to the the tables. Choose to work weight of them refreq the weight is in the culture to the statistical Cold assets the statistical	Choose 'Do not Weight Wells'
Viet Binne Source T all Wreght • Mr.2 S Mr.2 S Mr.4 S Mr.5 S Mr.6 S Mr.7 S Mr.6 S Mr.7	This window allows the User to weight wells, by individual chemical or all chemicals.
MA-2 S Methon	Choose 'Next'.
Execution of the state of	
Monitoring and Remediation Optimization System (MAROS)	6) Monitoring System Category
Monitoring and Remediation Optimization System (MMIDS) Monitoring System Catagory Tail Tail Program Sport Program Program Dot of the system Catagory Tail Tail Tail Control of the system Catagories Extension Dot of the system Catagories Extension Program Dot of the system Catagories Dot of the system Catagories Extension Program Dot of the system Catagories Dot of the system Catagories <th>6) Monitoring System Category This window presents a graphic illustration of the results for Overall Statistics for the plume. Like the Reports, this window can be printed or printed to Acrobat as a pdf file for inclusion in larger reports. Choose 'Next'.</th>	6) Monitoring System Category This window presents a graphic illustration of the results for Overall Statistics for the plume. Like the Reports, this window can be printed or printed to Acrobat as a pdf file for inclusion in larger reports. Choose 'Next'.
Identification Optimization System (MAROS) Monitoring System Catagory Image: System Catagory	6) Monitoring System Category This window presents a graphic illustration of the results for Overall Statistics for the plume. Like the Reports, this window can be printed or printed to Acrobat as a pdf file for inclusion in larger reports. Choose 'Next'.
Image: State Stat	 6) Monitoring System Category This window presents a graphic illustration of the results for Overall Statistics for the plume. Like the Reports, this window can be printed or printed to Acrobat as a pdf file for inclusion in larger reports. Choose 'Next'. 7) MAROS Analysis Complete
Image: Distribution and Remediation Optimization System (MAROS) Image: Distribution of the state part of the	 6) Monitoring System Category This window presents a graphic illustration of the results for Overall Statistics for the plume. Like the Reports, this window can be printed or printed to Acrobat as a pdf file for inclusion in larger reports. Choose 'Next'. 7) MAROS Analysis Complete This screen concludes the initial 'Overall' Statistical analysis section of MAROS. Choose 'Continue to Step 4 or Step 5'.

Sampling Optimization		
Sampling Location Analysis		
Image:	1) Main Menu From Main Menu choose 'Sampling Optimization (Optional) Step 4'	
Image: Control of the control of th	 2) Sampling Optimization Menu Choose 'Option 1' Sampling Location Analysis. This module analyzes the network for redundant wells and for new locations that would better define the plume. 	
Monitoring and Remediation Optimization System (MARDS) X Well Redundancy Analysis: Delaunay Methodo Perform well redundancy analysis by using the Delaunay method to eleminate "bedradency analysis by using the Delaunay method to eleminate "bedradency" bootsome that have Slope Factor values lies than enten thretholds. Deform well redundancy analysis by using the Delaunay method to eleminate "bedradency" bootsome that have Slope Factor values lies than enten thretholds. Deform well redundancy analysis by using the Delaunay method to eleminate "bedraden thretholds. Deform lies to use of the targethod method to the method thretholds. Deform analysis Confirm Select the beginning and ending sampling events thou below. Image Event 16 To molyte a single sampling event to for analysis Image Event 16 Decourse to use the sample event analysis of endy on estanging event is to be depictore listed by the formation of the depictore listed within Microsoft Listers for mulpipe sampling event and the Listers for analysis of edge one sampling event and the Listers for analysis of edge one sampling event and the Listers for analysis of edge one sampling event analysis for edge one sampling event and the Listers fo	 3) Well Redundancy Analysis: Delaunay Method Under 'From' Choose Sample Event 10 and under 'To' choose Sample Event 16 from the drop-down box. Select 'Confirm'. Choose 'Access Module'. We will only be using 5 years of data for 	
	this analysis.	

Monitoring and Remediation Optimization System (MARDS) Access Module - Potential Locations Setup Sandle sociation will be determined from the following potential sandle to be done Sociation are detailed by CDC. You may acked some bocations the analysis by developing them You may also det nome locations to be memorable. Optimization parameters can be set in Options. BENCENE E S Coord IN S Coord Selected? Removable? Model 1020 200 2 20 2 20 2 Model 1020 200 2 20 2 Model 1020 200 Model 1 Model 1020 200 2 Model 1 Model 1020 200 2 Model 1 Model 1 Model 1 Model 1 Model 1 Model 1 Selected? whether or not to locked the well in analysis Teamorable? whether or not to locked the well in analysis Teamorable? whether or not to locked the well in analysis Teamorable? Wellow Model 2 Model 2 Model 2 Model 2 Model 3 Model 1 Model 3 Model 3 Model 3 Model 3 Model 3 Model 4 Model 4	 4) Access Module—Potential Locations Setup This screen allows you to select wells to be considered for removal and to select parameters for the Delaunay Analysis. Choose 'Options'.
Honitoring and Remediation Optimization System (MARIOS)	5) Redundancy Analysis Options
Option of the colsmication System (MARDS) Meditering and Remediation Optimization System (MARDS) Meditering and Remediation Optimization System (MARDS) Deparation of the optimization process are defined below. Choose values that note your identify the optimization are the fallowing areas in the fallowing area area in the fallowing area area area area area area area are	 This window allows the User to set the parameters for Well Elimination Decision. AR = Area Ratio and CR = Concentration Ratio. Set 'Inside Node Slope Factor' to 0.20. Do not change other parameters. Choose 'Back'. Choose 'Preliminary Analysis' from the Access Module Screen.
Image: Second Area Max SF Max SF Image: SF and the state of the second Area State of the	6) Slope Factor Values This screen presents the Minimum, Maximum and Average Slope Factor Values for each well for the COC chosen. Low slope factors (~0) indicate a well may be removed without loss of information. Look over the data. Find the wells with the lowest SF.
() Help	Choose Optimize by COC.

	7) Redundancy Results
Monitoring and Remediation Optimization System (MARDS)	, ,
Access Module - Results by COC	
Sampling locations for each COC are determined as shown in the following table. Those "redundant" sampling locations (tradiced as "Eliminated") are eliminated from the monitoring network. "Eliminated"	The screen indicates which wells could be
status can be interpreted here as stopping sampling for a certain COC at a certain sampling location.	romoved with no apparent loss of
BENZENE	removed with no apparent loss of
LociD ESCoord NSCoord SEvalue Eliminated?	information.
CTTS 13.0 -20.0 0.324	
MM-11 100.0 -100.0 0.453	
Ď M/4/13 85.0 23.0 0.171 ⊥	Explore the screen.
MM-14 102.0 20.0 0.109	
M/4-16 \$2.0 -40.0 0.096 ¥	
A M/62 -2.0 30.0 0.421	Choose 'Compare Across COCs'.
Eliminated? - whether or not the well is eliminated from the monitoring	
K (Compare Across COCs >> Help	
Most noise and Barowitation Potionization Suctaon (MARDE)	8) Redundancy Results—Across COCs
Access wodule - All-III-one Results	
The true sampling boconors are considering at LULL are determined as shown in the following table. A sampling location is eliminated only if it is eliminated for all LOC. "Eliminated" status can be intersteaded here as strooping anamics a caracta wall in the	I he screen indicates which wells could be
	removed with no apparent loss of
LociD E S Coord N S Coord Eliminated?	
MW-1 13.0 -20.0 U	information considering all of the COCs in
MM-12 100.0 -8.0	the analysis
Z MW-13 650 230 J	une analysis.
MW-14 102.0 2010 -	
MW-16 520 400 M	Explore the screen
MW-3 350 100	
MW4 550 -37.0 M	
Eliminated? - whether or not the well is abandoned from the monitoring network as a redundant well.	Choose 'Next'
CC Back Yew Report Next >> Help	
CCBack Yiew Report Next >> Help	
CO CONTRACTOR New Report Next >> Help	0) Well Sufficiency - New Locations
E Mentering and Remediation Optimization System (MARDS)	9) Well Sufficiency – New Locations
Image: State of the state o	9) Well Sufficiency – New Locations
CCC Elleck View Report Next >> Help Monitoring and Remediation Optimization System (MADOS) Well Sufficiency Analysis - New Locations Sugget possible new sampling budiens based on estimation uncertainly represented by Slage	9) Well Sufficiency – New Locations
Image: Contract of the standard strength Next >> Help Image: Monitoring and Remediation Optimization System (MADDS) X Image: Monitoring and Remediation System (MADDS) X	9) Well Sufficiency – New Locations The Delaunay Analysis is now used to
CCC Eleck View Report Next >> Help CCC Eleck View Report Next >> Help Monitoring and Remediation Optimization System (MARCO) X Well Sufficiency Analysis - New Locations Support possible new sampling buttions based on relination uncertainty represented by Slave Patter values. The sampling buttions based on relination uncertainty represented by Slave Patter values are used for this analysis. An EVCE, model used to frain the endyris.	9) Well Sufficiency – New Locations The Delaunay Analysis is now used to suggest possible locations for new wells.
Image: State State View Report Next >> Help Image: State State State Next >> Help	9) Well Sufficiency – New Locations The Delaunay Analysis is now used to suggest possible locations for new wells. This module uses Excel to visualize the
Image: State Stat	9) Well Sufficiency – New Locations The Delaunay Analysis is now used to suggest possible locations for new wells. This module uses Excel to visualize the
Image: Select Select Yiew Report Next >> Help Image: Next Selection Selectio	9) Well Sufficiency – New Locations The Delaunay Analysis is now used to suggest possible locations for new wells. This module uses Excel to visualize the results. The Excel file uses Macros to do
CCC Back Yiew Report Next >> Help Image: Second and Remediation Optimization System (MAROS) X Image: Second and Remediation Optimization System	9) Well Sufficiency – New Locations The Delaunay Analysis is now used to suggest possible locations for new wells. This module uses Excel to visualize the results. The Excel file uses Macros to do the analysis so the computer security
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Image: Note of the section of the	9) Well Sufficiency – New Locations The Delaunay Analysis is now used to suggest possible locations for new wells. This module uses Excel to visualize the results. The Excel file uses Macros to do the analysis, so the computer security setting should be 'Medium'. Other Excel
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Image: Non-State State Year Report Next >> Help Image: Non-State State Next >> Help Next >> Help Image: Non-State State Next >> Help Next >> Help Image: Non-State State Next >> Help Next >> Next >> Next >> Mental State Next >>	9) Well Sufficiency – New Locations The Delaunay Analysis is now used to suggest possible locations for new wells. This module uses Excel to visualize the results. The Excel file uses Macros to do the analysis, so the computer security setting should be 'Medium'. Other Excel applications should be closed before using
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View Report Next >> Itelp Image: State of the state of	9) Well Sufficiency – New Locations The Delaunay Analysis is now used to suggest possible locations for new wells. This module uses Excel to visualize the results. The Excel file uses Macros to do the analysis, so the computer security setting should be 'Medium'. Other Excel applications should be closed before using this module.
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Image: Note:	 9) Well Sufficiency – New Locations The Delaunay Analysis is now used to suggest possible locations for new wells. This module uses Excel to visualize the results. The Excel file uses Macros to do the analysis, so the computer security setting should be 'Medium'. Other Excel applications should be closed before using this module. Choose 'Benzene' as the COC.
Image: Distribution Mark Mark Mark Mark Mark Mark Mark Mark	 9) Well Sufficiency – New Locations The Delaunay Analysis is now used to suggest possible locations for new wells. This module uses Excel to visualize the results. The Excel file uses Macros to do the analysis, so the computer security setting should be 'Medium'. Other Excel applications should be closed before using this module. Choose 'Benzene' as the COC. Choose 'Analysis'.
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Bit CEBRER Yew Report Heat >> Help	 9) Well Sufficiency – New Locations The Delaunay Analysis is now used to suggest possible locations for new wells. This module uses Excel to visualize the results. The Excel file uses Macros to do the analysis, so the computer security setting should be 'Medium'. Other Excel applications should be closed before using this module. Choose 'Benzene' as the COC. Choose 'Analysis'. 10) Excel Dialog Box
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Sampling Optimization	
Sampling Frequency Analysis	
Worktwarg and Remediation Optimization (VMRDS) X Sampling Optimization for version optimization modyses, including sampling location federation for version optimization, and data sufficiency analysis. Choose in analysis from the meru below to proceed. Select One Option: (Option 3 can only be selected after running Option 2) Option 1. Sampling Location Analysis Binder Of the selected after running Option 2) Option 1. Sampling Frequency Analysis Option 2. Sampling Frequency Analysis Option 3. Data Sufficiency Analysis Sampling requency Analysis Sampling requency Analysis Caption 3. Data Sufficiency Analysis Sampling requency Analysis Sampling requency Analysis Subtical power analysis for midual wells and mid-based after data for the location Sampling requency Analysis Option 3. Data Sufficiency Analysis Sampling requency Analysis Sampling requency Analysis Sampling requency Analysis Sampling requency Analysis Main Meru Liption Itelp	1) Sampling Optimization Menu From the Sampling Optimization Menu Choose 'Sampling Frequency Analysis'. The Frequency Analysis Module recommends temporal sampling intervals based on a modified Cost Effective Sampling Algorithm.
Monitoring and Remediation Optimization System (MAR05) X	2) Sample Frequency Analysis:
Sampling Frequency Analysis Determine the sampling frequency for sampling locations by the Modified CDS institud, which is based in the Cut Effective Sampling by Ridley et al., from Lawrence Livennee National Lak. The frequency is determined by analysis, the moder cateriations brock of Cost and the analysis. However, the origing are used in the analysis are used are used are used are used in t	Under 'From' choose Sample Event 10 from the drop-down box. Under 'To' choose Sample Event 16. Choose 'Options.
Monstoring and Demodstrian Optimization System (H4005) Some Diago Execution and Apply Size	3) Sample Frequency Options
Setting into Frequency Analysis Setting Montoling and demendiation optimum (MAIDS) seed Classify the rate of change for a COC into three levels, "Low," Nedom," and "Holt". They represent the degree of change to built at the concentration of COC change over the bus period. The urit is Change Sold in mal. The urits for rate of change parameters are ingl/jew. find COC name Cleanup Goal Low Rate Medium Rate High Rate COT name Doos Doos Doos Doos Doos Doos	This window allows the User to choose the remedial goal and define significant rates of concentration change for each COC.
OLLAND COLLAND	Choose 'Set to default'. Choose 'Back'.
de Kelp Kelp Kelp	Select 'Confirm' from the Sampling Frequency Analysis menu.
	Choose 'Analysis'.

Samping Frequency Samping Frequency Samping Frequency Receipt Freq	Stimization System (MARI ing Frequency y is determined considering bol may 'is the final recommendati the frequency determined ba	DS) Recomm th recent and over ion sed on recent (sho	nendation Il trends, so t) period of sampling	-0×1 4 R) Sample Frequency ecommendations
NOLLYZIWUCO SNIL WYCH Name WYCH NAME WYCH WYCH NAME WYCH	a the frequency determined to sch monitoring well for a certa Sampling Frequency Arrowst	an OOC are listed bo Recent result Arreat Arreat Arreat Arreat Arreat Arreat Arreat Arreat Arreat Arreat Arreat Arreat Arreat Arreat Arreat Arreat	aloori Arrual	T n fi T c C N a a	This window presents the results of the modified CES analysis of sample requency. The 'Sampling Frequency column epresents the final frequency after onsidering recent and long-term trends. lote: All Frequency recommendations must be reviewed to check for non- letects, values below regulatory levels, and length of monitoring history.

Sampling Optimization		
Data Sufficiency Analysis		
Honordance and Zeneral defaults (submittations Synthesis (Industry) Sampling Optimization Menus The Sampling Cytheration Menus Is the water service spherications and years, relating sampling location determinations, using the sampler spherication, and date subforcers unitys. Once an endpoint with the maximum termination.	1) Sampling Optimization Menu	
Saled One Option: (Option 3 can only be elected after remaining Option 2) Option 1. Sampling Location Analysis Elected on Understand and the other back	The Data Sufficiency Analysis uses	
Opplor 2. Sampling Frequency Analysis Earding strend entrantion by the Middled CES method Opplor 1. Data Sufficiency Analysis Solided grows and/on the relational week in the regression of the Middle CES method Main Meser. Belg	rigorous statistical methods to confirm wells that have attained regulatory limits for cleanup and projects cleanup for the plume.	
() Next array and Extended on Optimization Systems (Match)	2) Data Sufficiency Analysis Menu	
The Data Suminication of Amazon and Amazon a	Choose 'Options'.	
Analysis 1: Power Analysis at Individual Wels Constant of theme of the distance what based on observed concentrations Analysis 2: Risk-based Power Analysis Extendent of this based to change based on vitat	The 'Options' menu allows the user to select parameters for the statistical analysis.	
coverified on presented to the complexics housday.		
Munitaring and Remediation Optimization System (MAROS) Data Sufficiency Analysis - Options	3) Data Sufficiency Options	
Define the Target Level (used in the individual well celarup status evaluation), Alpha Level Define the Target Level (used in the individual well celarup status evaluation), Alpha Level Under Status evaluation Level (used in the individual well celarup status evaluation), Alpha Level Define the Target Alpha Level COC name Clearup Gast (mg L) Level Power Level Define ting L) B0h/2DH 0.005 0.004 0.05 0.001 0.001	The User can choose the statistical parameters such as power and statistical significance values used in the analysis.	
	Choose 'Set to default'. Choose 'Back'.	
CCC Black: Set to Default Help	Choose 'Power Analysis at Individual Wells' from the Data Sufficiency Menu.	
et Mandarsky and Hernedidion (Scienciadian System (SMAIDS) 20 Individual Well Cleanup Status	4) Individual Well Cleanup Status	
This model and distances whether chances goals have been achieved at individual web. The user and votates to an either the yook anowarput increamended or compared data for any set and votates the either the yook anowarput increamended or compared data for any set and the set of the set washanded. This statistical govers and sepected samples net well also be calculated. 1. Select the type of data for clearnup status evaluation	Choose 'Yearly Averages'.	
Course of the second seco	Choose the data range for the analysis, 1991-1998.	
Select the beginning and ending sampling events from below: From: 1991 Tex 1999	Choose 'Analysis'.	
од ««Дакк Далануяв.22] Нер		

Individual Section (Section Section (Section Section Sect	5) Individual Well Cleanup Status Results Results of the sequential t-test to determine cleanup status of well. Choose 'Visualize'.
Individual Well Cleanup Status Visualization The well device status in individual well cleanup and the status visualization The well device status in individual well of the well stelet a CDC to gapt. Disbuton Assuration	6) Individual Well Cleanup Status
FE/253/K Normal 31 + ###1 Lognormal 46 - 50 + ###1 20	This screen shows the statistical results of each well in the monitoring system.
Binandwater Flow Direction:	Choose 'Back'.
Attained Cont. Sumpling +Not Attained +NC	Choose 'Optional Power Analysis' from the Cleanup Status Results Screen.
Montering and Remediation Optimization System (MARDS) X Individual Well Cleanup Status - Optional Power Analysis	7) Individual Well Cleanup Status—
The screen shows the power analysis results of whether the mean concentration of a well is significantly lower than the cleanup goal, based on the Student's treat on mean difference. Sample use in the number of concentration date in the time point elected by the sure Power of Test and Expected Sample Size.	Optional Power Analysis
Well Name Sample Significantly Power Expanded on summer to be often monoly or bypoundly databased Biological stress Sample stress The data are assumed to be often monoly or bypoundly databased Biological stress Sample stress The data are assumed to be often monoly or bypoundly databased Biological stress Sample stress The data are assumed to be often monoly or bypoundly databased Wild Name Sample Significantly Power Expanded are assumed to be often monoly or bypoundly databased Mivid 1 7 NO Significantly Significantly Monol Mivid 2 NO Significantly Significantly Nome Nome Mivid 3 NO Significantly Significantly Nome Nome Mivid 4 9 NO Significantly Nome Nome Mivid 5 0 Vis 1000 -0 Nome Nome	The Power Analysis estimates the number of samples needed to provide statistical support for attainment of the remedial goal.
Control Set Log WVC not conducted due to insufficient data. SFE: sample neon inprificantly exceeds cleanup gool	Choose 'Back' to return to the Individual Well Cleanup Status Results then choose 'Next'. Go to the Data Sufficiency
	Analysis Menu.
🗉 Menitoring and Remediation Optimization System (MAR05)	8) Data Sufficiency Menu
Data Sufficiency Analysis Menu https://www.analysis.com/ sufficiency/analysis.thms.some.stms.com/ sufficiency/analysis.thms.some.stms.com/ sufficiency/analysis.thms.some.stms.some.some.some.some.some.some.some.so	Choose 'Risk-based Power Analysis'.
Select Any Analysis to Proceed:	The Risk-Based Power Analysis analyzes
Analysis 1: Dever Analysis at Individual Wells Evaluation of clerup, status at individual well based on observed concentrations.	the well network to assess concentrations
Analysis 2: Risk-based Power Analysis Devlador of rolk based ster cleanse lased on vitual concertification projected to the comparison to analysis	at a downgradient Hypothetical Statistical Compliance Boundary.
C C C C C C C C C C C C C C C C C C C	

International and Researchistics System (1994/05) Parameters for Risk-Based Power Analysis International Action of the risk based gover analysis. The use should gover be plane certain the second gover analysis. The use should gover be plane certain the second gover analysis. The use should gover be plane certain the second gover analysis. The use should gover be plane certain the second gover analysis. The use should gover be plane certain the second gover analysis. The use should gover be plane certain the second gover analysis. The use should gover be plane certain the second gover analysis. The use should gover be plane certain the second gover analysis. The use should gover be plane certain the second gover analysis. The second gover analysis and the second gover analysis. The second gover analysis and the second gover analysis. The second gover analysis and the second gover analysis. The second gover analysis and the second gover analysis. The second gover analysis and the second gover and the second gover analysis. The second gover analysis and the second gover analysis. The second gover analysis and the second gover analysis. The second gover analysis and the second gover analysis. The second gover analysis and the second gover analysis. The second gover analysis and the second gover analysis and the second gover analysis. The second gover analysis and the second gover analysis and the second gover analysis. The second gover analysis and the second gover analysis and the second gover and the second gover and the second gover analysis and the second gover and the second gover analysis and the second gover analysis and the second gover analysis and the second gover and the second gover and the second gover and the second gover analysis and the second gover analysis and the second gover analysis and the second gover analysis and	 9) Parameters for Risk-Based Power Analysis Check the groundwater flow angle, it should be 315. Distance to the downgradient receptor should be 1000.
Views Views	Include all sample events.
	Choose centerline wells: MW-1, MW-4, MW-11 and MW-15 Choose 'Analysis'
E: Monitoring and Remediation Optimization System (MAROS)	10) Plume Centerline Regression
Plume Centerline Regression Results memory of the second	Results
Sample Event Effective Date No. # Degransion Conflictent Image: First State Sample Event Effective Date No. # - Conflictent Image: First State Conflictent Conflictent Image: First State Conflictent Image: First State Conflictent Image: First State Conflictent Conflictent Image: First State Conflictent Conflictent Conflictent Conflictent Conflictent Conflictent	This screen displays the results of the regression of centerline wells for each sample event along with the confidence in the trend.
Sample Event 0 7/10/1991 4 4/0.004 /35 7/10/19 Sample Event 9 100/1991 4 -0.024009 81.7% # Note: when the number of wells is liss than 0, no negression is performed and all values are set to 0 1 7 #	Choose 'Next'.
C Back View Report Next >> Help	
g. Monitoring and Remediation Optimization System (MARDS)	11) Projected Concentrations
Concentration Regression – Projected Concentrations Concentration to mach sangle taxing we projected to the conceptore bound by if or upgrader to down and the regression start. The provide taxing by the regression start of the down and the regression start. The provide taxing by the regression start of the down and the regression start. The regression start of the down and the regression start. The regression start of the down and the regression start of the down and the regression start. The regression start of the down and the regression start of the down and the regression start. The regression start of the down and the regression start of the down and the regression start. The regression start of the down and the regressint start of the down and the regression start of the down	This screen shows results of projected concentrations at the receptor point calculated for each well and sample event using regression results from the previous screen. Explore the screen and choose 'Analysis'.
CONCENTION are given below for each sampling over d causing by DCC. The predicted concentration were been and by the soft of the DSC and the replected by the decision in the II of a 100 bits of the III. DSC and the soft of the DSC and the III. The DSC and the IIII. The DSC and the IIIII. The DSC and the IIII. The DSC and the IIII. The DSC and the IIIII. The DSC and the IIIIIII. The DSC and the IIIIIIIII. The DSC and the IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	This screen shows results of projected concentrations at the receptor point calculated for each well and sample even using regression results from the previo screen.Explore the screen and choose 'Analysi

Munitarence and Remediation Optimization System (MARDS) Risk-Based Power Analysis Results Risk-based power analysis multi are given below for each standing over described by CDC. Sangle See is the number of popiedre concentration al a containing over R. The sense rule target is whether the site cleans up all based on the popiedre concentrational is not at the considered bundle, Outs are assumed to be remained to sported and extend under bounders.	12) Risk-Based Power Analysis Results
BERZENE Sample Science Charmong Power Expected Annuclear Sample bend 2 13 Annuclear 1000 4/3 Annuclear Annuclear	The cleanup status refers to whether the plume cleanup goal (based on the projected concentrations) is met at the compliance boundary. Explore the screen and choose 'Next'. Choose 'Data Sufficiency Analysis Menu' Choose 'Back' Choose 'Main Menu'

MAROS Output				
1) Main Menu				
To see all of the reports generated, Choose 'MAROS Output Step 5' from the Main Menu.				
 2) MAROS Output Reports The User can View or Print MAROS Reports and Graphs from this screen. Reports and graphs are not saved with the Output or Archive files. Choose 'Export MAROS Analysis Results'. 				
 3) Export MAROS Analysis Results Browse for a file folder and choose a name for your Output file. Output files can be handled like any Access database to create tables. Note: Never confuse your Archive file with your Output file—if you try to import an Output file MAROS will crash. Choose 'Create'. 				

Monitoring and Remediation Optimization System (MARDS) Monitoring and Remediation Optimization System (Sorts/Graphs	4) Browse through the reports and graphs.
But with a set of the	View/Print r View/Print Graph r	The reports can be printed or saved as pdf files using Acrobat. <i>Hint: The underlying tables, forms and</i> <i>programming of MAROS can be viewed</i> <i>at any time by using the 'F11' function</i> <i>key.</i>