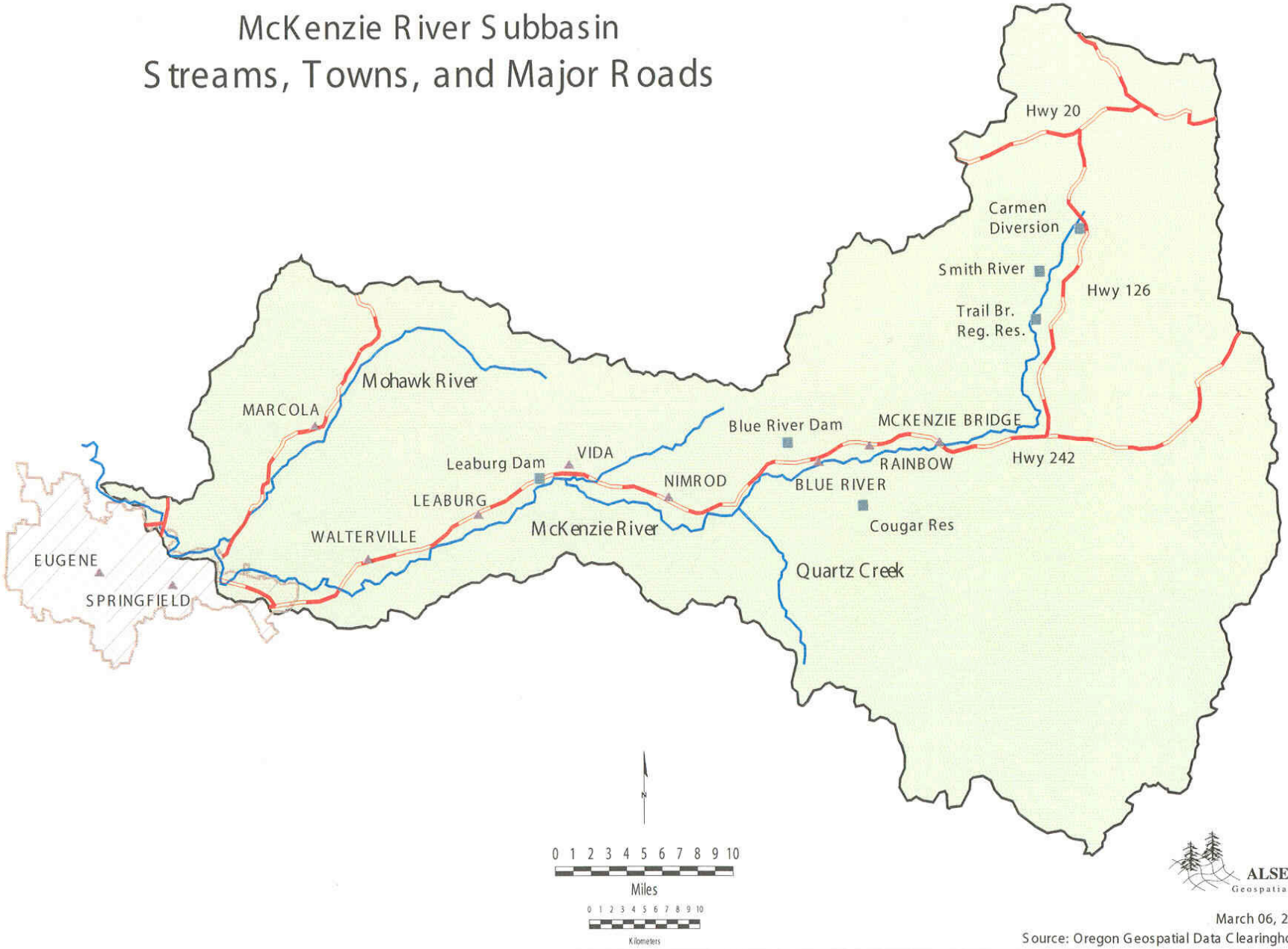
McKenzie Watershed Emergency Response

Karl Morgenstern, Eugene Water & Electric Board

Columbia River
Washington
Willamette Watershed
Portland
Salem
Willamette River
McKenzie Watershed
Oregon
Eugene
Springfield
Idaho
Pacific Ocean
McKenzie River
California

McKenzie River Subbasin
Streams, Towns, and Major Roads



ALSEA Geospatial, Inc.

March 06, 2001

Source: Oregon Geospatial Data Clearinghouse

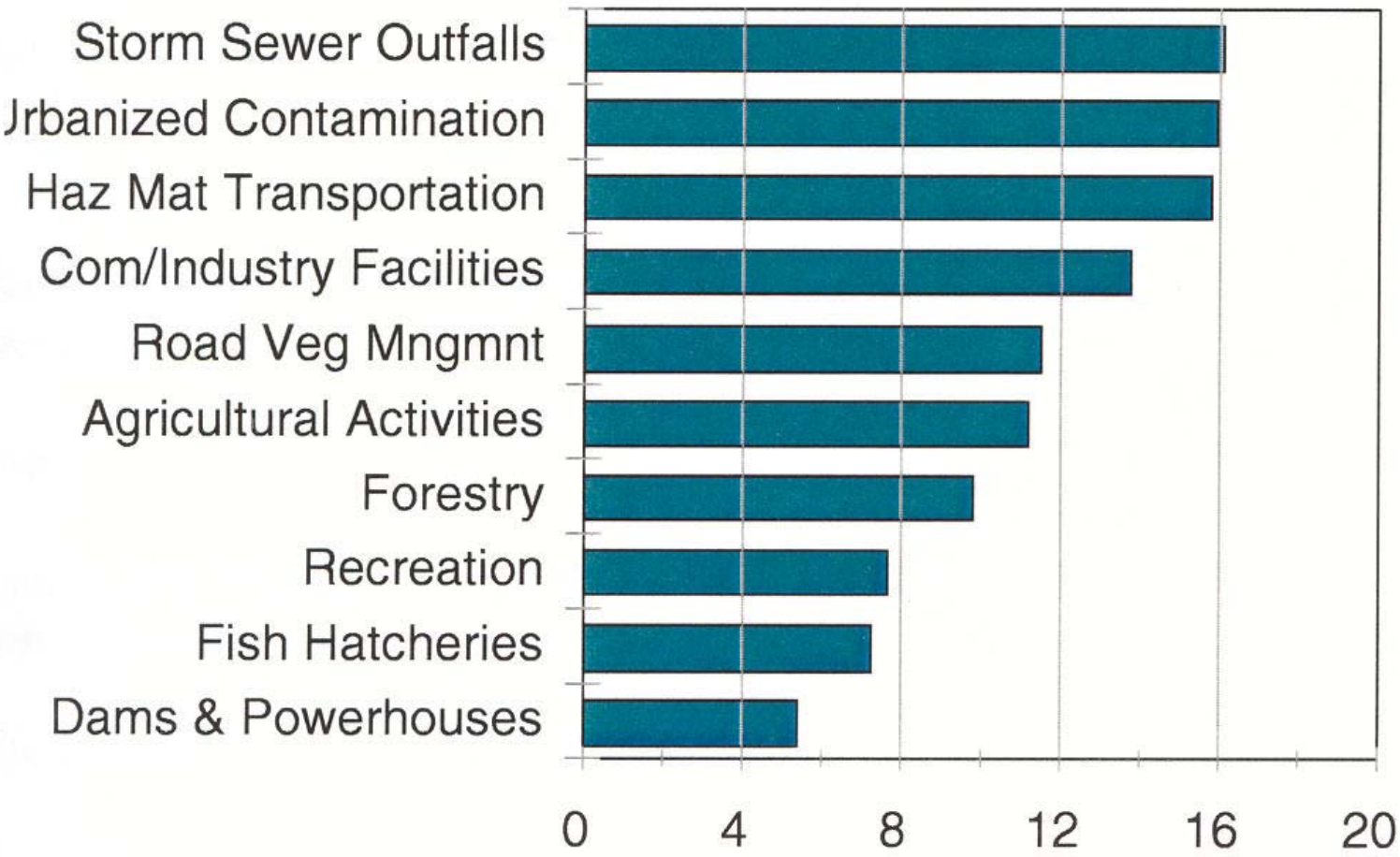
Why Is Watershed Emergency Response Important To EWEB?

- EWEB's water intake on river provides sole source of drinking water to over 200,000 people.
- Raw water treatment plant is located in watershed near intake.
- EWEB has three hydroelectric projects in McKenzie River watershed that provides 30-40% of electricity to Eugene area.

Source Protection Program Objective

- To measure the balance between watershed health and human use over time and to implement actions that maintain a healthy balance for production of exceptional water quality.

RISK CATEGORIES RANKED BY AVERAGE SCORE



Elements of Source Protection Program

- Comprehensive Monitoring
- Disaster Preparedness and Response
- Point Source Evaluation and Mitigation
- Nonpoint Source Evaluation and Mitigation
- Education and Research Assistance
- Land Acquisition
- Watershed Land Use Tracking and Management
- Public Outreach and Information Sharing

What Is MWERS?

Participating Agencies

- McKenzie Fire & Rescue
- McKenzie Watershed Council
- Mohawk Rural Fire
- Upper McKenzie Rural Fire
- Springfield Fire & Life Safety
- Springfield Public Works
- Springfield Environ Srvcs
- Eugene Fire & EMS
- Lane County Public Works
- Lane County Public Health
- Lane County Sheriff
- Springfield Utility Board
- Rainbow Water District
- Region 2 HazMat Team
- Lane Council of Governments
- Lane Air Pollution Authority
- Oregon DEQ
- Oregon Health Division
- Oregon DOT
- Oregon Fish & Wildlife
- Oregon State Police
- Oregon Water Master
- Weyerhaeuser
- US EPA
- Army Corps of Engineers
- US Forest Service
- US BLM

Objective of MWERS

- To recognize and be prepared for events that have a low likelihood of occurring, but would cause extensive problems to Eugene's water supply.

Scope of MWERS

- Hazardous material spills in the watershed
- Hazardous material releases from fixed facilities
- Terrorism incident response and preparedness
- Forest fire response and preparedness
- Natural disasters

GIS-Based Emergency Response

- MWERS currently addresses hazardous material spills and/or chemical releases from fixed facilities.
- Use HazMat preparedness as foundation for adding future “modules” /GIS applications
  - Terrorism Preparedness & Incident Response
  - Fire Hazard Assessment & Response
  - Natural Disasters (flood, volcanic, earthquake)

GIS Key to Response System

- Received ESRI Homeland Security grant in July 2002
  - ArcGIS (4 user license)
  - ArcPad (17 copies)
  - ArcPad Application Builder
  - ArcSDE
  - ArcIMS
  - Free training/ESRI data

Components of Response System

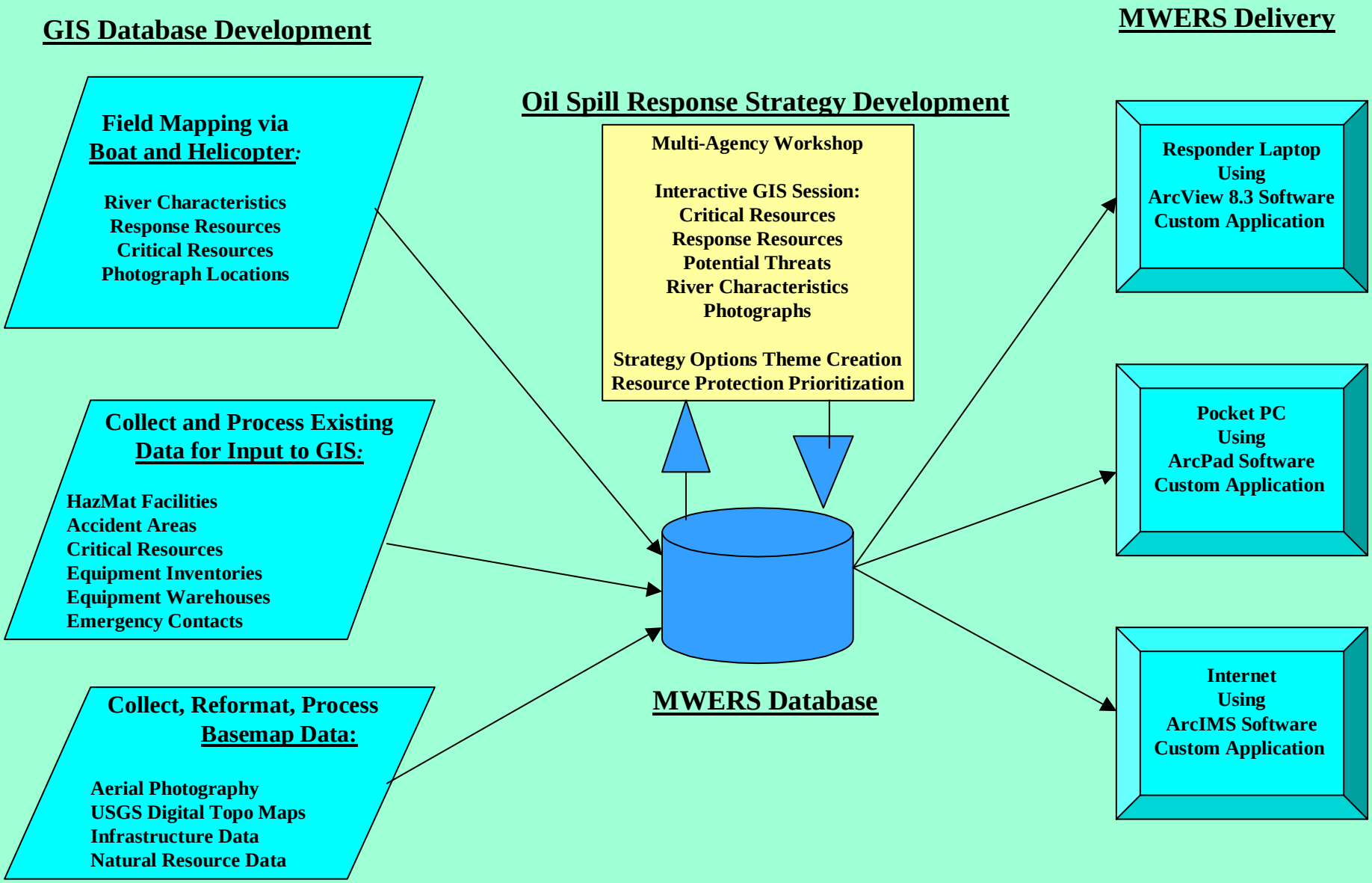
- Watershed Characteristics
- Threats to the Watershed
- Resources to be Protected
- Containment, booming, or other response strategies.
- Equipment inventory and other response resources.
- Communications Plan
- Training & Exercise

Type of Data Used in MWERS

- Base Map Images
- Infrastructure
- Response Resources
- Critical Resources
- HazMat Facilities/Threats
- Response Strategies
- Emergency Notification/Contacts
- Aerial Photo Library
- Chemical Library (CAMEO)

McKenzie Watershed Emergency Response System

Development and Delivery



Current Response Approach

- First responder arrives at scene
- Focus on assessing accident, injuries, material spilled, immediate dangers, traffic, etc.
- Confusion and uncertainty on how to address spilled material
- Other agencies start arriving at the scene, spill contractor called
- After 12-24 hours initial actions to stabilize spill are implemented
- 2-4 days later spill is stabilized and cleanup begins

Our Approach

- Provide first responders with the tools they need to avoid confusion and implement response actions to stabilize an incident within the initial hours of a spill or chemical release.

March 10, 2004 @ 1152 hours, MP 17.5 - Hwy 126

MWERS2-0.mxd - ArcMap - ArcView

File Edit View Insert Selection Tools Window Help

Editor Task: Create New Feature Target:

Insert Vertex Snapping... Set Selectable Layers...

Layers
- WR_Taxlot_Intersect
- Buffer_of_CedarCr_WaterR
- CedarCr_WaterRgts
- incident
- McGoo Spill_Population
- Incident Rings
- Strategies
- Critical Resources
  - Intakes
  - Public wells
  - SUB wells
  - Fish and Wildlife
  - Point of Diversion

Display Source

Drawing Arial 10

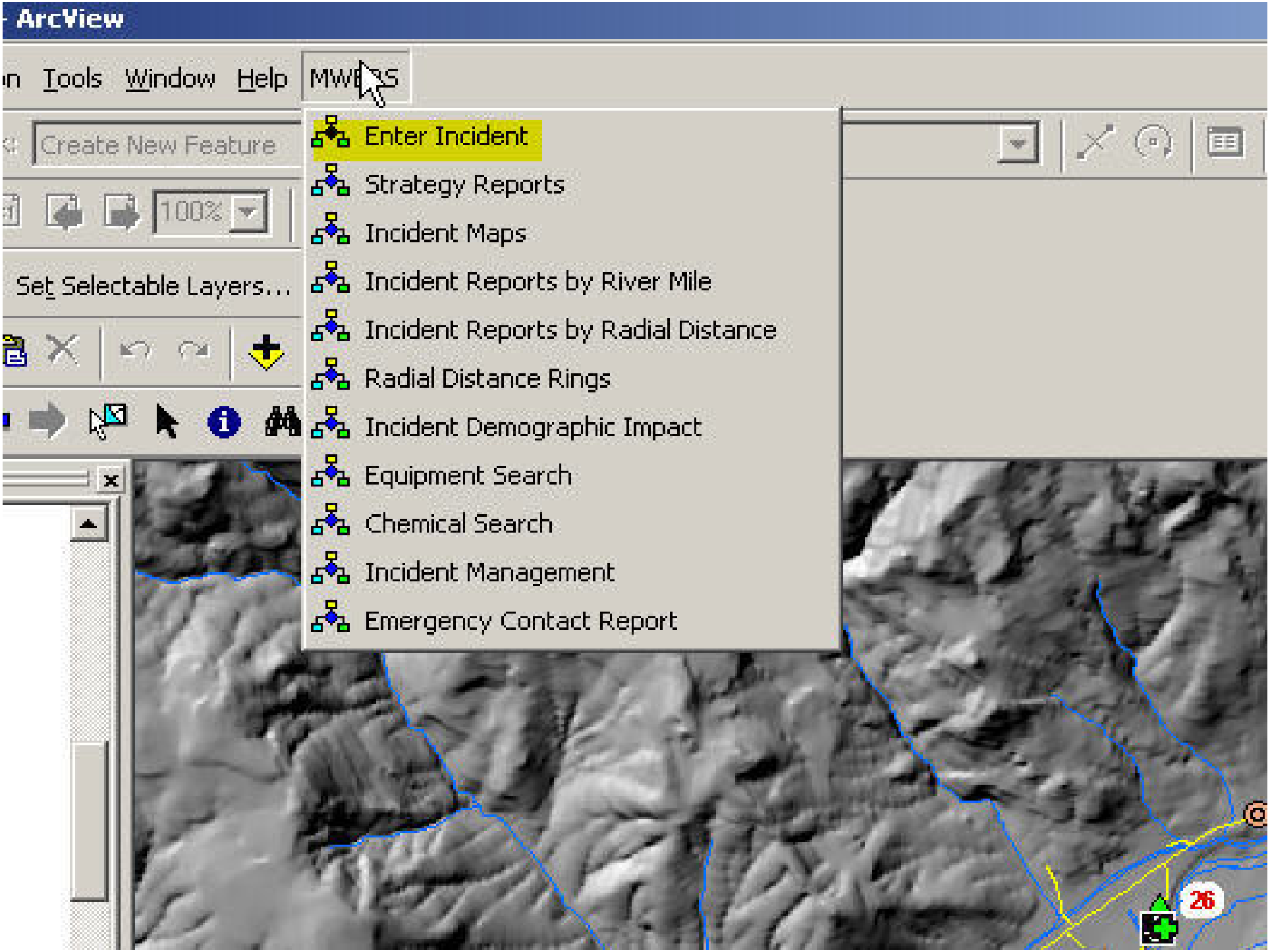
Welcome

Welcome to the McKenzie Watershed Emergency Response System

Please Enter Password: ****

OK EXIT

EWEB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Incident Reports by Radial Distance
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Incident Demographic Impact
Equipment Search
Chemical Search
Incident Management
Emergency Contact Report
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MWERS2-0.mxd - ArcMap - ArcView

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    - ATTRIBUTE
    - U
- Response Resources
  - warehouses
  - boatlaunch

Display Source

Drawing Arial 10

273.90 169.81 Miles

Incident Information

Enter Incident Information

Incident Name: McGoo Oil Trucking Spill

☑ Search for River Mile

Follow-up Event? ☐ Pete trucking

Date (mm/dd/yyyy): 03/10/2004 Time (24hr format): 11:54

Flow Rate: Med-High Flow 4500-7500 cfs

Comments: Accident at Hwy 126 MP 17.5, spilled approx. 1,400 gal oil

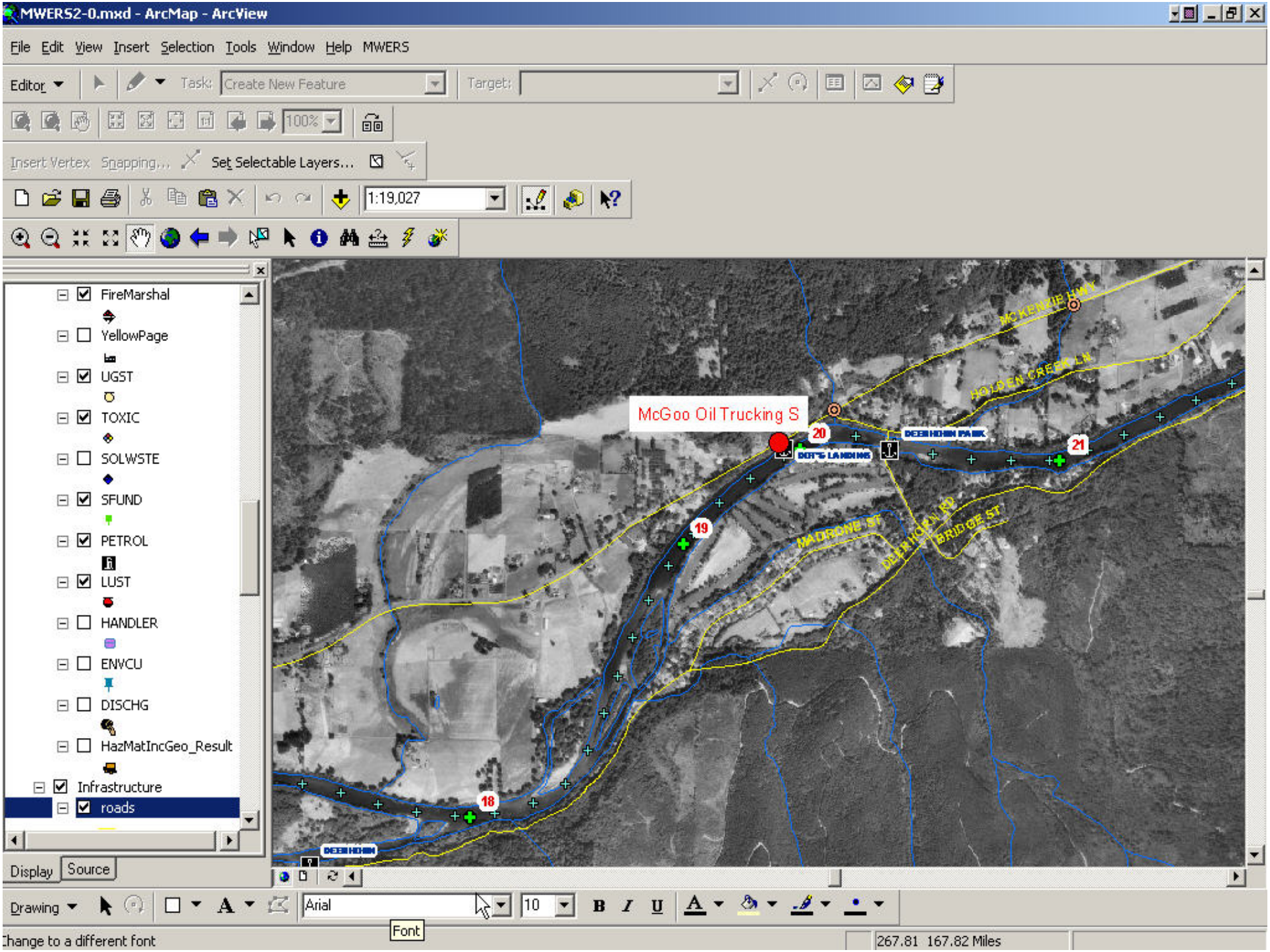
Incident Location Entry method

- ○ Lat/Long Decimal Degrees — Long ____ Lat ____
- ○ McKenzie River Mile — River Mile ____
- ◉ Road Mile — HWY 126 — Road Mile 17.5
- ○ Lat/Long Deg/Min/Sec — Long - ____ ____ ____ Lat ____ ____ ____
- ○ State Plane Coordinates — x ____ y ____

Enter Location directly on Map

Long -122.71964852 Lat 44.091585480 River Mile 26.9

Create Spill Feature | Cancel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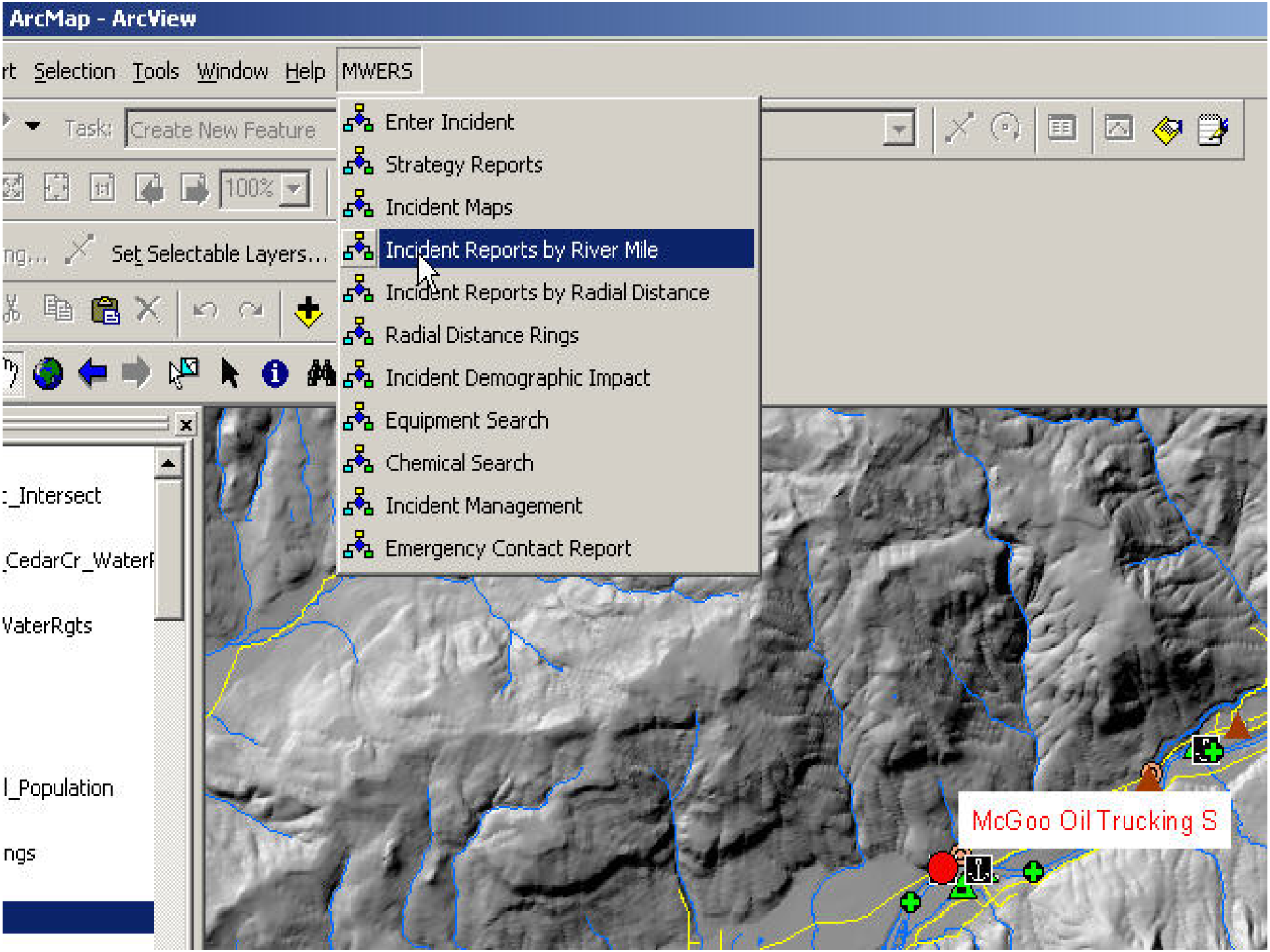
267.81 167.82 Miles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Chemical Search
Incident Management
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McGoo Oil Trucking S

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File Edit

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Display

Drawing

MWERS Report Viewer by River Mile

1. Choose a Report: Response Strategy Summary

2. Choose an Incident: McGoo Oil Trucking S

3. Enter Flow Estimate*: Med-High Flow 4500-7500 cfs *defaults to original estimate

4. Insert Map Image (optional)

Run the Report

Cancel

85% 1 of 2

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Preview

Response Strategy Summary Report

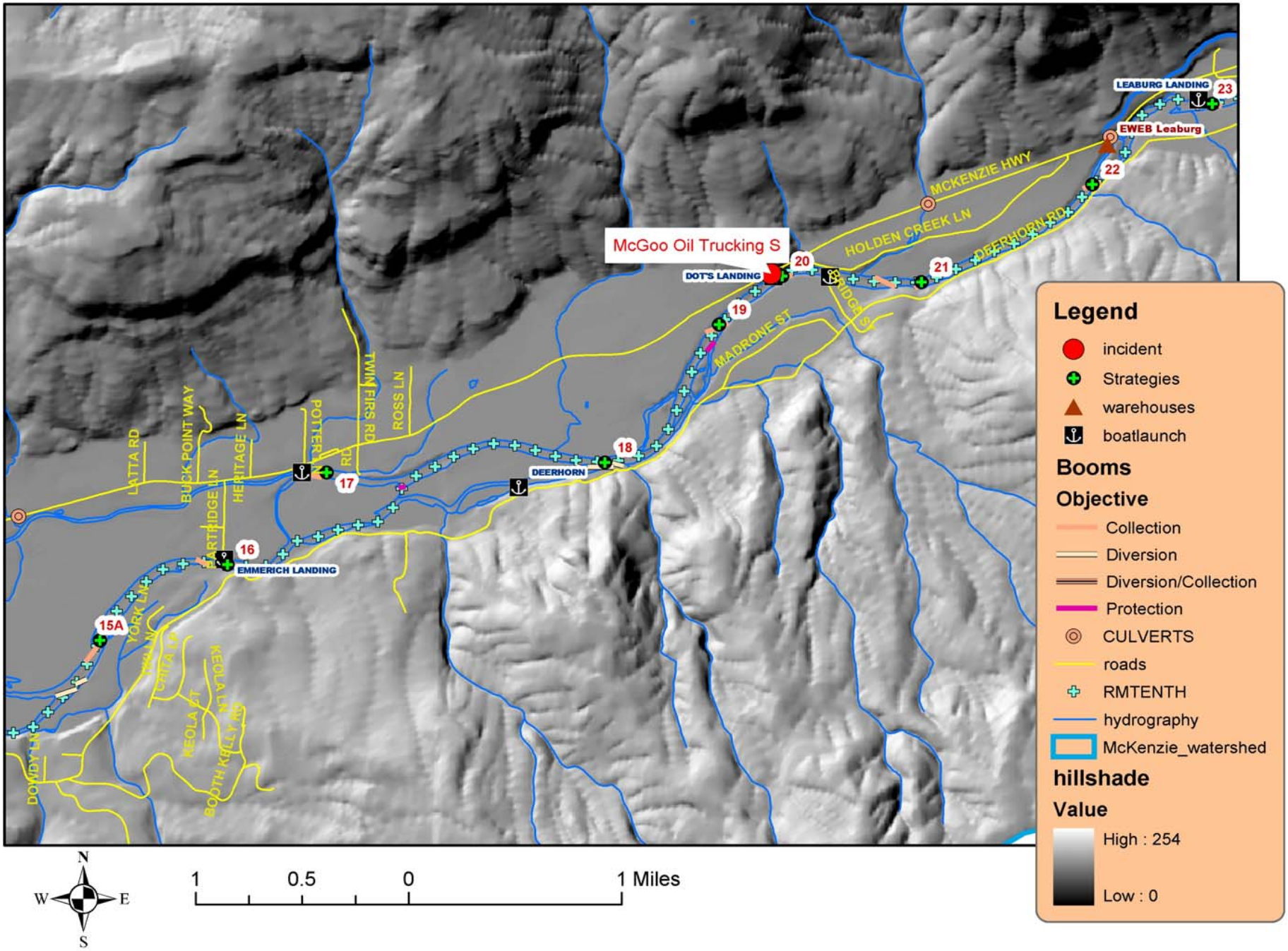
McGoo Oil Trucking S Time: 03/10/2004 11:54:00AM

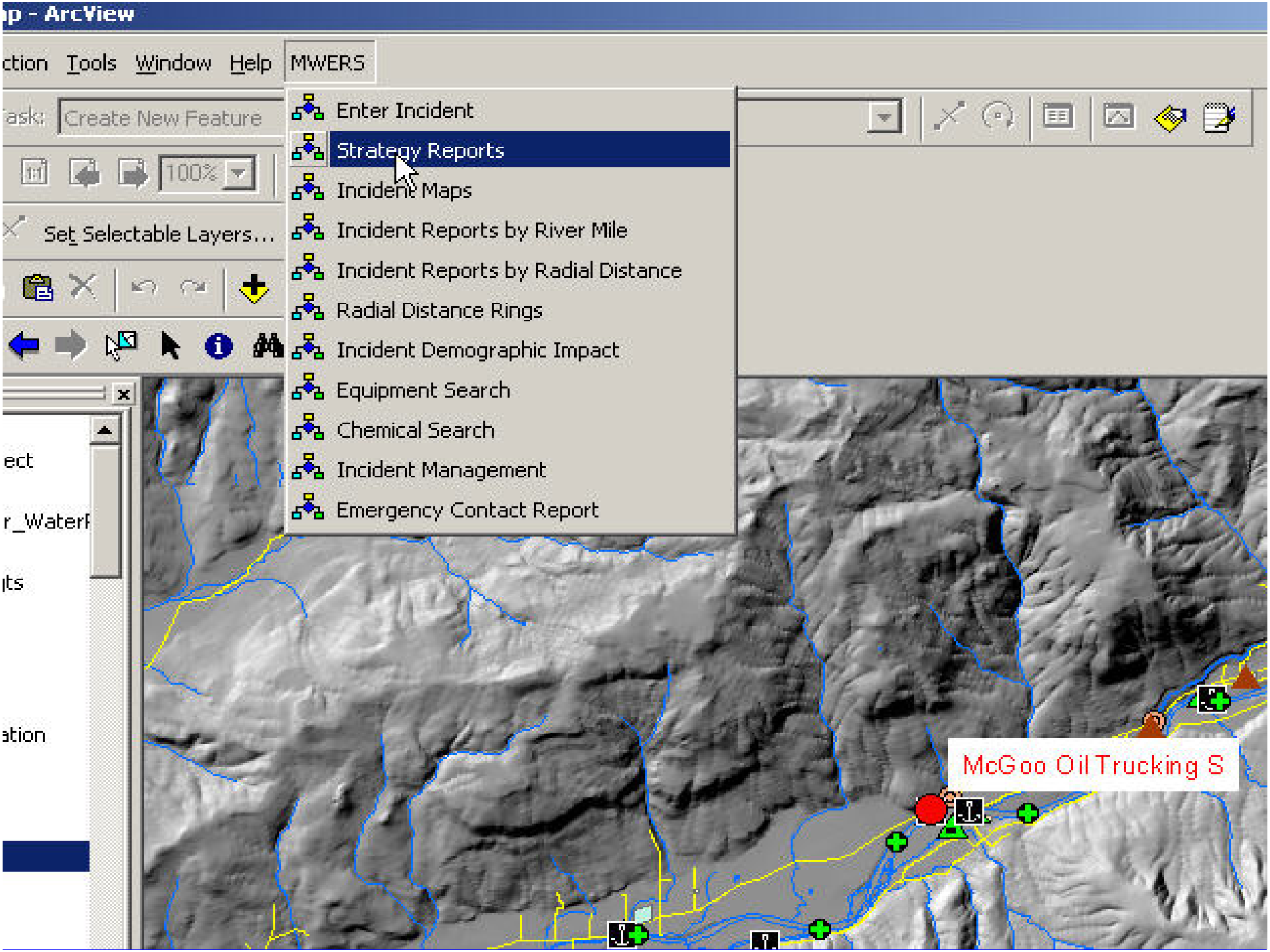
@River Measure: 27.00 River Flow: Med-High Flow 4500-7500 cfs

Strategy Number	Name	Critical Resource Protected	Response Objective	Location/Access	River Measure	Travel Time(mins)	Impact
20	Dot's Landing Area	Western Pond Turtle; Spawning gravels	Collection	44° 05' 29"N / 122° 43' 05"W Dot's Landing; Walterville Landing	26.95	1	3/10 - 11:55
19	Community of Deerhorn/McKenzie River Golf Course	Western Pond Turtle; Spawning gravels	Collection & Protection	44° 05' 15"N / 122° 42' 28"W Walterville landing; Dot's Landing	26.60	8	3/10 - 12:02
18	East End Goat Island/Deerhorn Landing Area	Western Pond Turtle; Numerous spawning gravels	Diversion	44° 04' 01"N / 122° 55' 34"W Walterville landing; Dot's Landing	25.70	26	3/10 - 12:20
17	Walterville Landing/Walterville Canal Head Gates	EWEB Walterville Canal; Numerous spawning gravels	Collection & Protection	44° 04' 36"N / 122° 45' 46"W Walterville landing	24.20	56	3/10 - 12:50
16	Partridge Drive/Emmerich Landing Area	Western Pond Turtle; Spawning gravels	Collection	44° 04' 12"N / 122° 46' 14"W Emmerich BR; Hendricks Park BR	23.70	66	3/10 - 13:00
15A	East End McNutt Island Area	Western Pond Turtle; Spawning gravels	Collection & Diversion	44° 03' 43"N / 122° 47' 01"W Hendricks Park BR; Emmerich Landing	22.80	84	3/10 - 13:18
15B	North Channel McNutt Island Area	Western Pond Turtle; Spawning gravels	Collection & Protection	44° 03' 51"N / 122° 47' 59"W Hendricks Park BR; Emmerich Landing	21.80	104	3/10 - 13:38
14	West End McNutt Island Area	Western Pond Turtle in side channels	Diversion/Collection	44° 03' 18"N / 122° 48' 32"W Hendricks Park BR; Emmerich Landing	21.22	116	3/10 - 13:49
13	Hendricks Bridge Area	Cedar Creek Head Gates/Intake; Western Pond Turtle	Diversion; Protection & Collection	44° 03' 22"N / 122° 49' 44"W Hendricks Park BR	20.30	134	3/10 - 14:08
12	Weaver Lane/Thurston Wellfield	SUB Thurston Wellfield; Western Pond Turtle	Protection	44° 03' 40"N / 122° 53' 57"W Bellinger Landing; Hendricks Park BR	16.30	214	3/10 - 15:28
11	Bellinger Landing Area	Western Pond Turtle in side	Collection		15.30	234	3/10 - 15:48

267.56 169.24 Miles

McGoo Spill Response Resources Map

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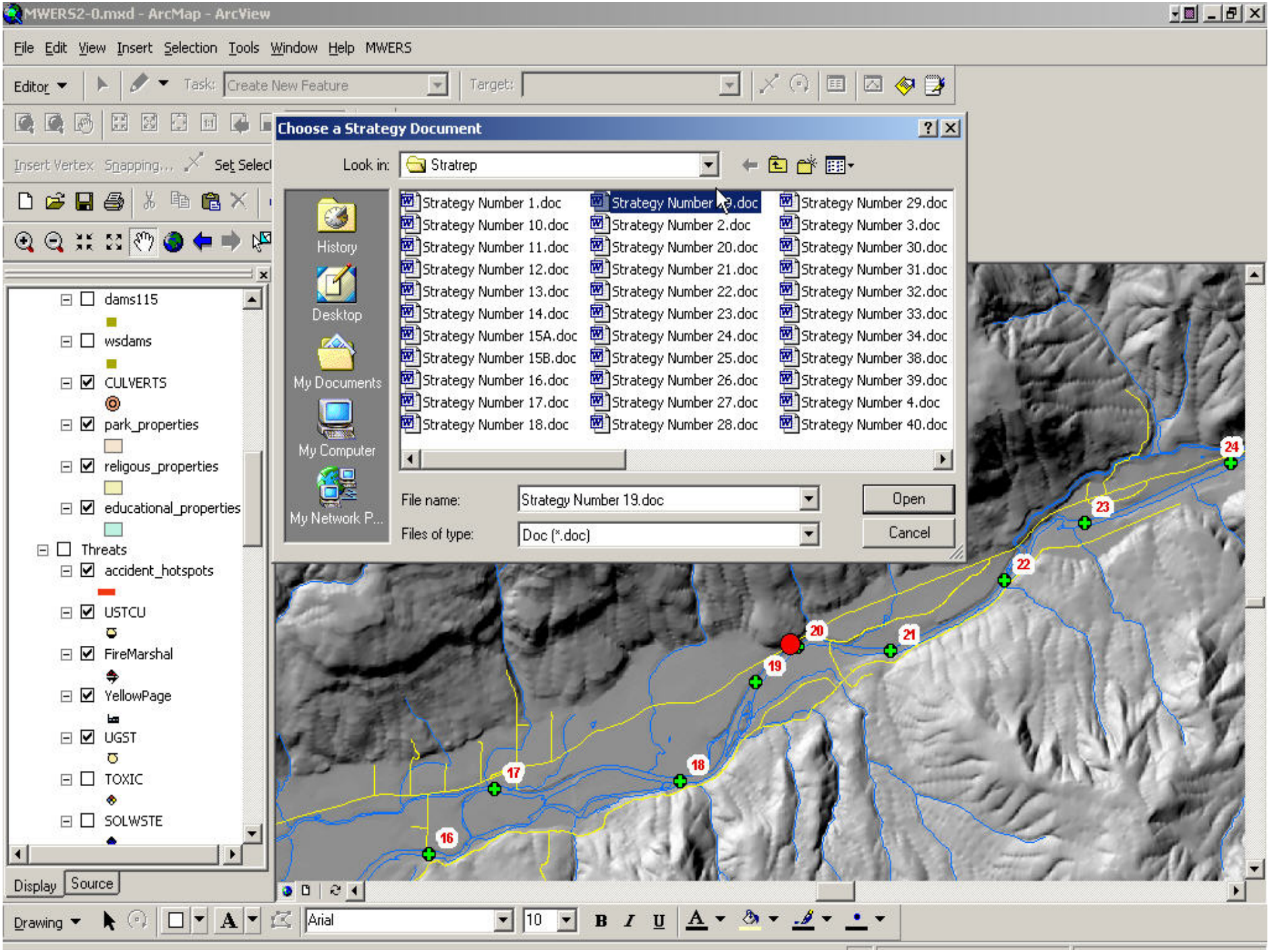
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Strategy Number 38.doc
Strategy Number 39.doc
Strategy Number 4.doc
Strategy Number 40.doc
File name: Strategy Number 19.doc
Files of type: Doc (*.doc)
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Strategy Number 19

Community of Deerhorn/McKenzie River Golf Course Area

Response Objectives:

- Collection
- Protection

Critical Resources to be Protected:

- Western pond turtle habitat in side channels along the south channel.
- Spawning area west of boom placement area.

Location:

- Community of Deerhorn/McKenzie River Golf Course area is located 2.4 miles west of Leaburg. McKenzie River Golf Course is along south bank of boom placement area and can be accessed by taking Holden Creek Lane off (south) of McKenzie Highway at mile post 17.6, cross bridge and golf course is to the west.
- North bank of boom placement area is approximately 550 feet south of McKenzie Highway milepost 17 behind residences.
- 44° 05' 15"N / 122° 43' 28"W

Description of Response Tactics:

- Deploy 700 feet of 4x4 or 6x6 hard boom with curtain from south bank at golf course and angle toward north bank behind residence for collection.
- At collection area protect shoreline with sorbent boom/pads and poly sheeting. Collect product with vac truck, skimmers, or other devices.
- Deploy 400 feet of 4x4 or 6x6 hard boom with curtain from south bank across south side channel and anchor west end of boom on island to protect critical habitat in side channel.

Access Areas:

- Closest down river access is Walterville Landing boat ramp (north bank of north channel around Goat island) at 2.3 miles west of the boom placement area via boat (or 2.1 miles by vehicle).
- Deerhorn boat ramp is also located down river along the south bank of the south channel around Goat Island approximately 1.3 miles via boat and 1.5 miles by vehicle off of Deerhorn Road.
- Closest up river access point is Dot's Landing boat ramp (north bank of river) 0.6 miles east on McKenzie Highway or 0.4 miles by boat at USGS river mile 31.3 or measured river mile 26.9.
- Access to north bank area is accessible at various areas behind residences. South bank is readily accessible from the golf course.

Staging Areas:

- Walterville Landing has some space for staging equipment and is a newly improved boat ramp.
- EWEB's Leaburg powerhouse complex (2.3 miles east on McKenzie Highway) is a potential equipment staging area that has open space to stage equipment, a nearby park for further staging, cabins for office space, water, electricity, and restrooms.
- Deerhorn Park is another close staging area with ample space, boat launch, and restrooms.
- Nearest equipment warehouse is EWEB's Leaburg Powerhouse (2.3 miles east on McKenzie Highway).

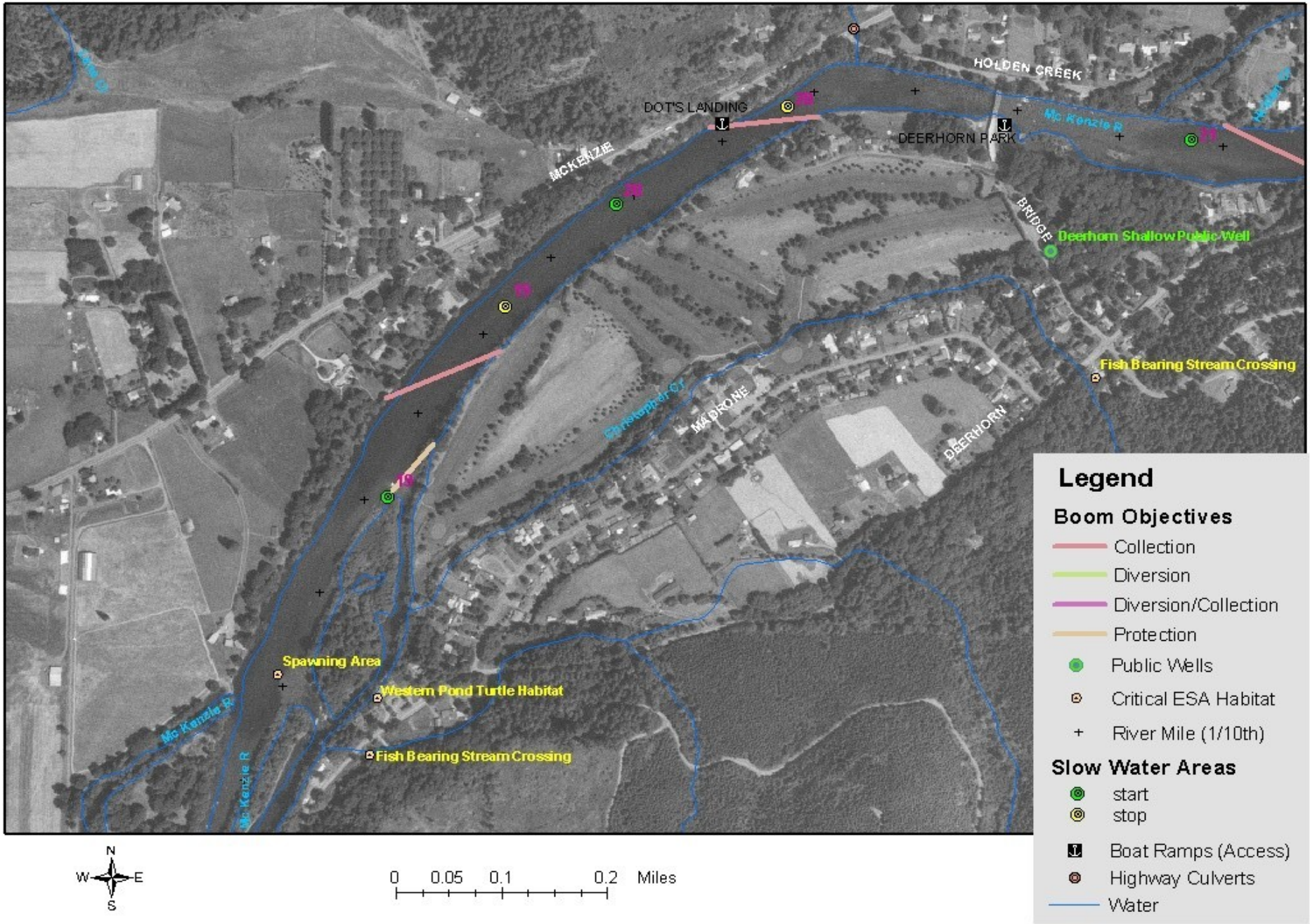
Watercourse Description:

- 1.5 m/s flow during high flow
- No data on depth
- River width = 275-350 feet
- No data on river bottom material.

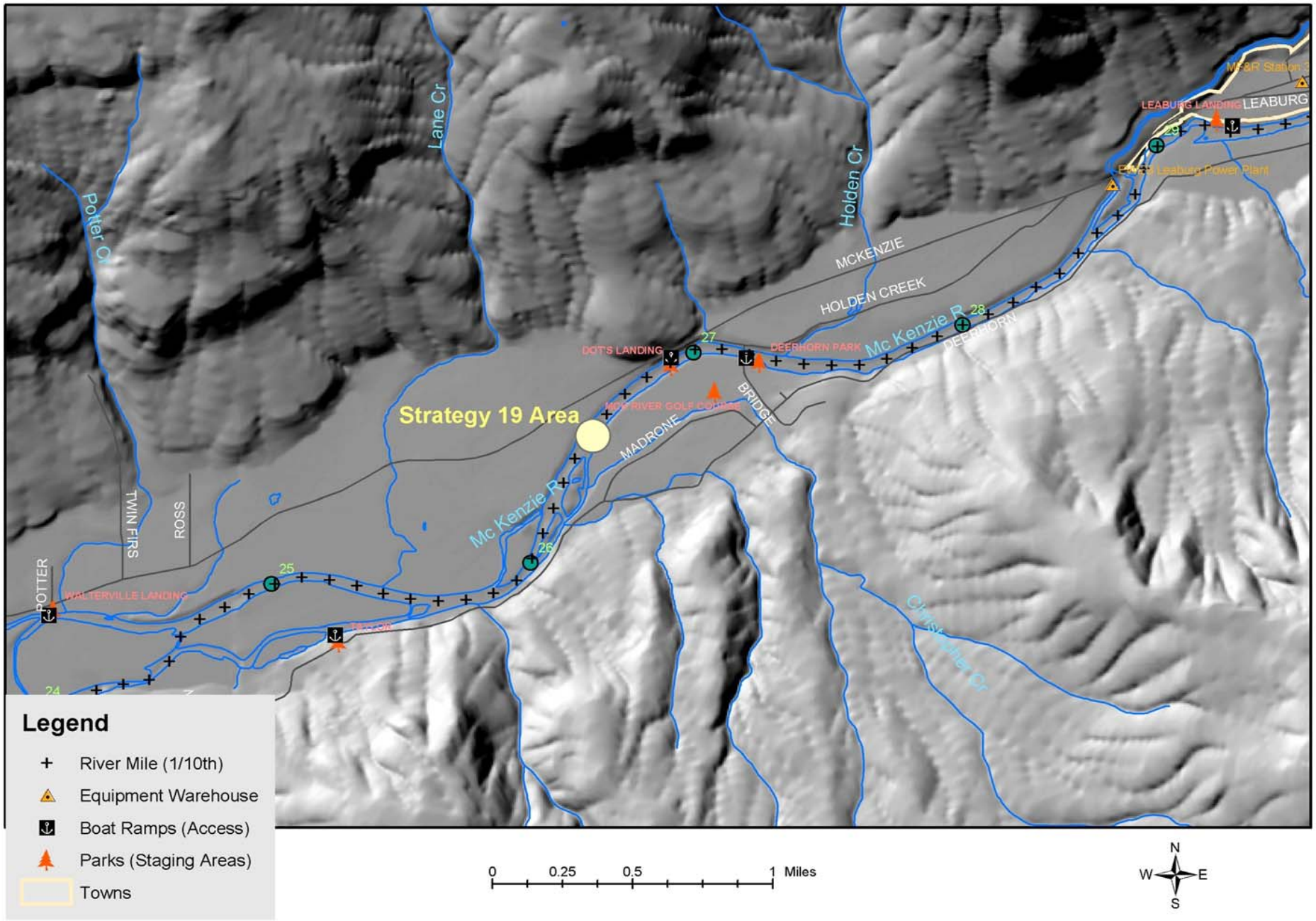
Equipment Needs:

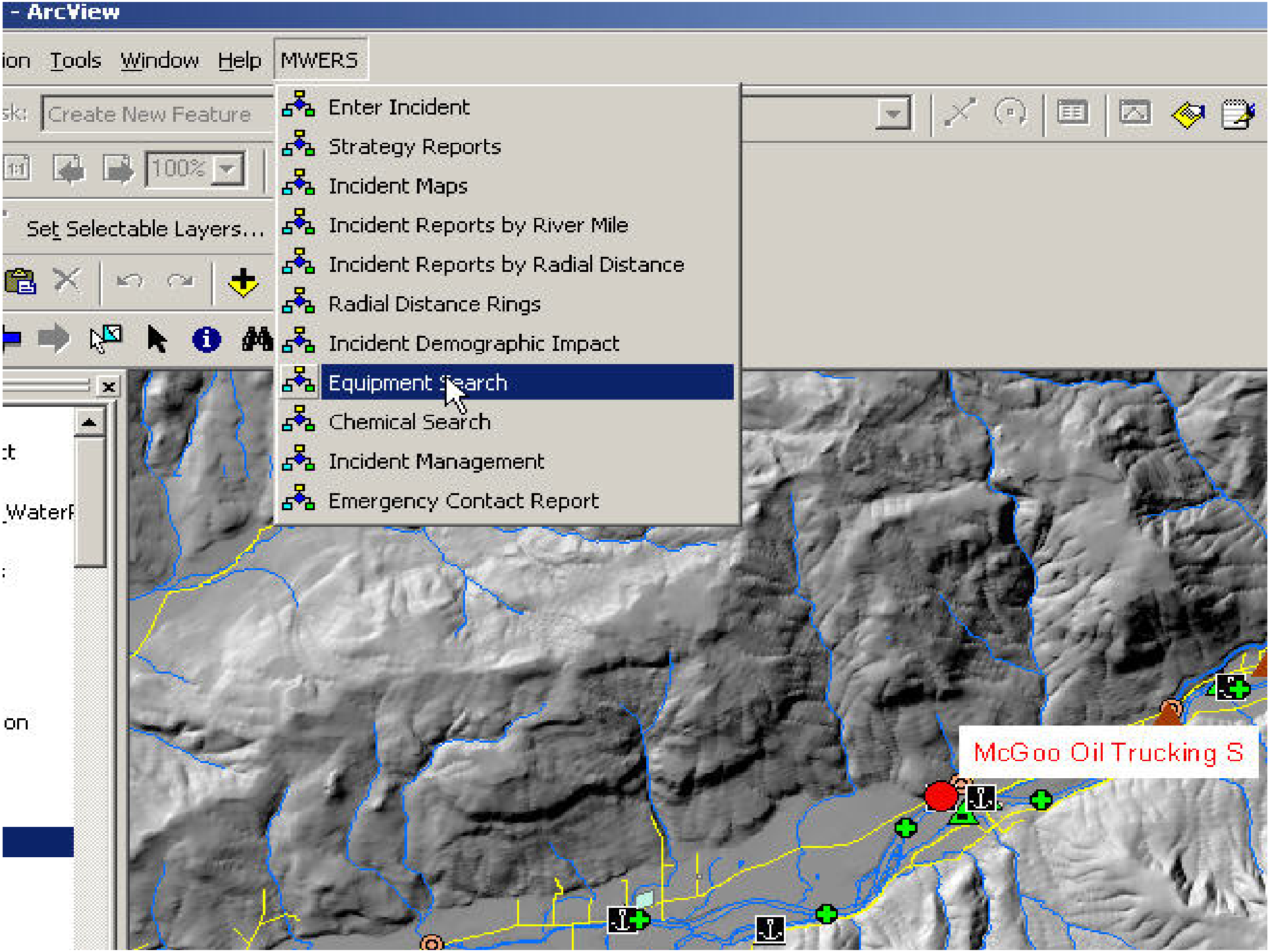
1100 feet 4x4 or 6x6 boom
400 feet sorbent boom (shoreline protection)
Multiple anchors & rope/cable for boom placement
400 feet x 50 feet of Poly sheeting (shoreline protection between diversion boom)
10 bales sorbent pads
2 cases drum liners (85 gallons)
2 Jet boats (at least) to set boom
2 generators
2 light racks
Decon equipment
Pressure washer
3-4 Containment basins (kiddie pools)

Strategy 19: Community of Deerhorn/McKenzie River Golf Course Area



Strategy 19: River Access & Equipment Staging Areas

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Incident Reports by Radial Distance
Radial Distance Rings
Incident Demographic Impact
Equipment Search
Chemical Search
Incident Management
Emergency Contact Report
McGoo Oil Trucking S

1. Choose Equipment

Select All

Clear All

- Oxygen / LEL Detector
- Pavement Breaker
- Pipe
- Pond Liner
- PPE
- Pressure Washer
- Pump Truck
- Pumps
- Radiation Detector

2. Choose an Incident: McGoo Oil Trucking S

3. Max Distance to incident: 15 miles

4. Insert Map Image (optional)

Warehouses

Select All

Clear All

- Springfield Public Works
- SUB
- LRAPA
- Dept. of Forestry
- ODFW Springfield
- Hayden Bridge Filtration Pl

Run the Report

Cancel

84% 1 of 2

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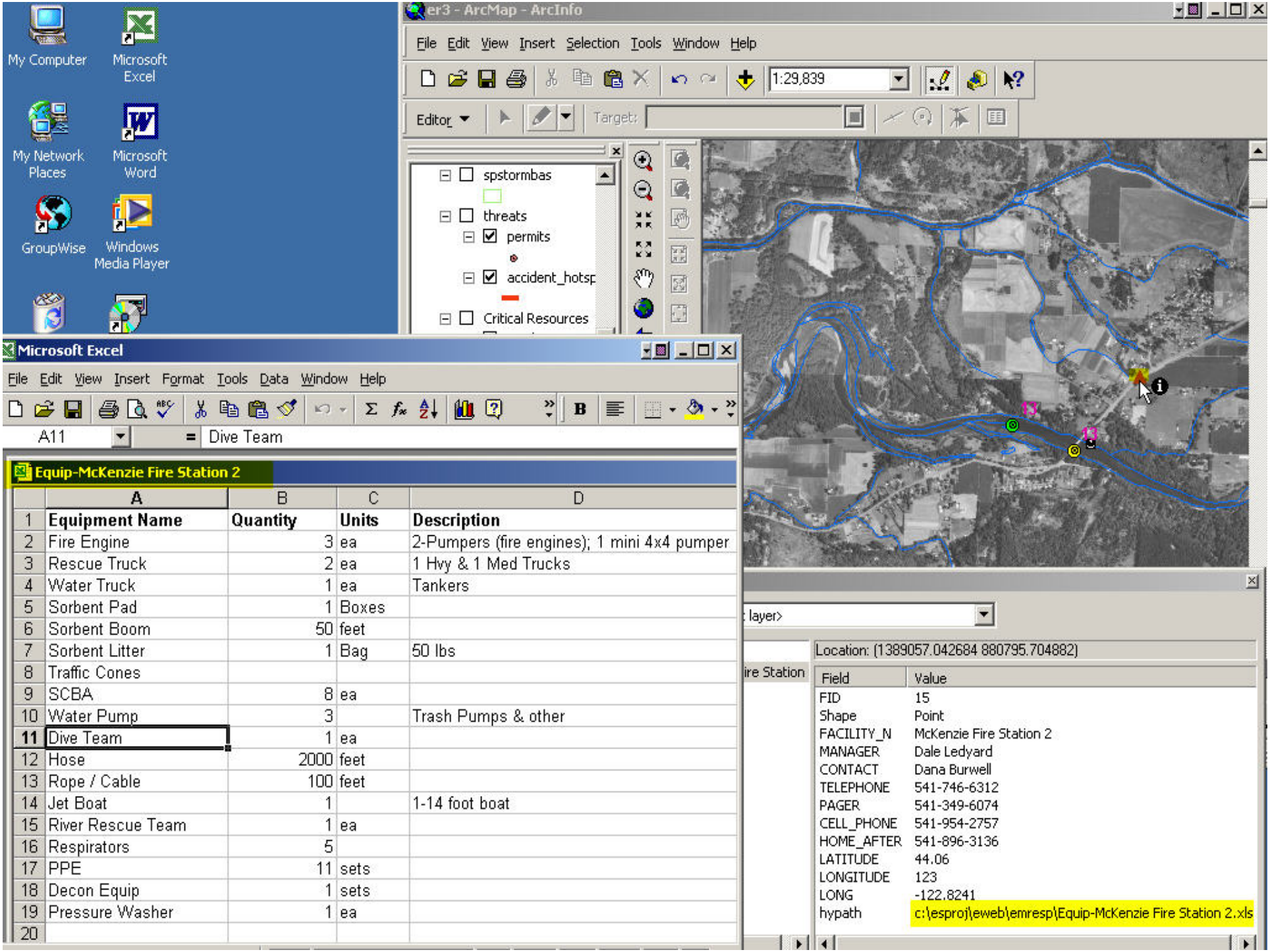
Preview

Equipment Request Search

McGoo Oil Trucking S Time: 03/10/2004 11:54:00AM

@River Measure: 27.00 Maximum Distance Search: 15miles

Warehouse	Address	Contact Person	Office Phone Cell Phone	Home Phone Pager	Quantity	Incident Distance
Backhoe						
EWEB Leaburg	Leaburg Power Plant Leaburg	Wilbanks, Jan	541-344-6311, x5548 541-954-1975	541-344-7098	1.00 ea	1.70
Leaburg Hatchery	90700 Fish Hatchery Road Leaburg	Wright, Tim	541-896-3294 541-517-5670	541-896-3543	1.00 ea	6.33
Rainbow Water	1550 42nd Avenue Springfield	Hanley, Tim	541-746-1676		1.00 ea	12.62
Springfield Public Works	225 5th Street Springfield	Ferschweiler, Greg	541-726-3761		1.00 ea	14.21
SUB	1001 Main Street Springfield	Rudkins, John	541-726-2396 541-501-8247		4.00 ea	14.81
Boat						
EWEB Leaburg	Leaburg Power Plant Leaburg	Wilbanks, Jan	541-344-6311, x5548 541-954-1975	541-344-7098	1.00 ea	1.70
McKenzie Hatchery	43863 Greer Leaburg	Kremers, Kurt	541-896-3513 541-915-1789	541-896-0448	1.00 ea	4.57
ODFW Springfield	3150 Main Street Springfield	Irish, Dick	541-726-3515, x25	541-998-1362	4.00 ea	13.34
Springfield Public Works	225 5th Street Springfield	Ferschweiler, Greg	541-726-3761		1.00 ea	14.21
Decon Equip						
McKenzie Fire Station 3	42870 Mckenzie Hwy Leaburg	Burwell, Dana	541-746-6312 541-954-2757	541-896-3136 541-349-6074	1.00 sets	2.47
McKenzie Fire Station 2	38929 Mckenzie Hwy WalterVille	Burwell, Dana	541-746-6312 541-954-2757	541-896-3136 541-349-6074	1.00 sets	5.62
McKenzie Fire Station 1	37814 Camp Creek Road Camp Creek	Burwell, Dana	541-746-6312 541-954-2757	541-896-3136 541-349-6074	1.00 sets	7.50



	A	B	C	D
1	**Equipment Name**	**Quantity**	**Units**	**Description**
2	Fire Engine	3	ea	2-Pumpers (fire engines); 1 mini 4x4 pumper
3	Rescue Truck	2	ea	1 Hvy & 1 Med Trucks
4	Water Truck	1	ea	Tankers
5	Sorbent Pad	1	Boxes	
6	Sorbent Boom	50	feet	
7	Sorbent Litter	1	Bag	50 lbs
8	Traffic Cones			
9	SCBA	8	ea	
10	Water Pump	3		Trash Pumps & other
11	Dive Team	1	ea	
12	Hose	2000	feet	
13	Rope / Cable	100	feet	
14	Jet Boat	1		1-14 foot boat
15	River Rescue Team	1	ea	
16	Respirators	5		
17	PPE	11	sets	
18	Decon Equip	1	sets	
19	Pressure Washer	1	ea	
20				

ERS2-0.mxd - ArcMap - ArcView

MWERS Report Viewer by River Mile

1. Choose a Report: Critical Resources Distance Sort

2. Choose an Incident: McGoo Oil Trucking S

3. Enter Flow Estimate*: Med-High Flow 4500-7500 cfs *defaults to original estimate

4. Insert Map Image (optional)

Run the Report

Cancel

85% 1 of 6

Preview

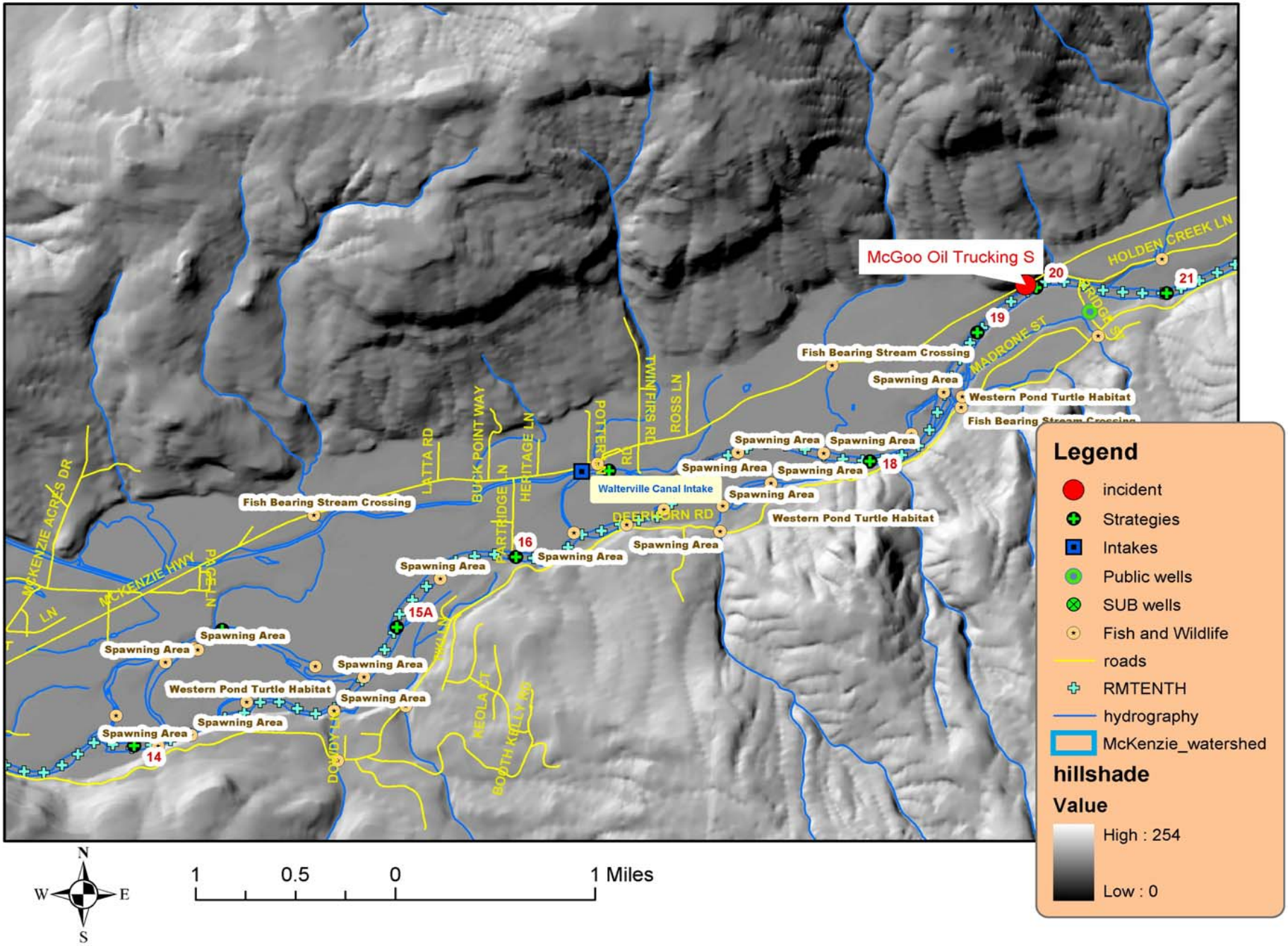
Critical Resources Report *sorted by distance*

McGoo Oil Trucking S Time: 03/10/2004 11:54:00AM

@River Measure: 27.00 River Flow: Med-High Flow 4500-7500 cfs

Critical Resource Priority	Description	Agency	Phone	Pager	Cell Phone	Home After	X/Longitude Y/Latitude	River Mile	Travel Time(mins)	Impact
Surface Water Intak										
Walterville Canal Intake		Eugene Water & El	541-344-6311, x554		541-954-1975	541-344-7098	122.750	24.07	59	3/10 - 12:52
Medium	River diversion for power generat		EWEB canal to power house				44.080			
Cedar Creek Headgates		Cedar Creek Asso	541-747-1946				122.840	19.45	151	3/10 - 14:25
Medium	River diversion to Cedar Creek		Manual operated headgates to Cedar Cree				44.060			
Keizer Slough		Weyerhaeuser Cor	541-554-6721		541-554-6721		122.950	12.31	294	3/10 - 16:47
Medium	River diversion to Keizer Slough		River diversion into Keizer Slough				44.060			
Weyerhaeuser Intake		Weyerhaeuser Cor	541-554-6721		541-554-6721		122.960	12.02	300	3/10 - 16:53
Medium	Industrial Intake on Keizer Sloug		20 million GPD industrial use				44.060			
Hayden Bridge Intake		Eugene Water & El	541-341-8552	541-341-7676	541-954-1118	541-461-6946	122.960	10.83	323	3/10 - 17:17
High	EWEB Municipal Intake		Municipal intake on river				44.070			
Smith Reservoir Inake		Eugene Water & El	541-344-6311, x553	541-689-5186 (hc	541-913-8279	541-341-8573	122.040	0.00	540	3/10 - 20:54
Medium	Intake for Power Generation		Intake via tunnel to power Plant				44.310			
Public Wells										
Marcola Well1		Rainbow Water Di	541-746-1676				-122.860	0.00	540	3/10 - 20:54
High	Shallow wells may be impacted from rive		City of Marcola shallow well				44.170			
Marcola Well3		Rainbow Water Di	541-746-1676				-122.860	0.00	540	3/10 - 20:54
High	Shallow wells may be impacted from rive		City of Marcola shallow well				44.170			
Marcola Well4		Rainbow Water Di	541-746-1676				-122.850	0.00	540	3/10 - 20:54
High	Shallow wells may be impacted from rive		City of Marcola shallow well				44.170			
Marcola Well5		Rainbow Water Di	541-746-1676				-122.850	0.00	540	3/10 - 20:54
High	Shallow wells may be impacted from rive		City of Marcola shallow well				44.180			
Sub Wells										
Thurston #1(Depth_ft: 70)		Springfield Utility E	541-744-3745			541-746-8451	368761.000	16.11	218	3/10 - 15:31
High	SUB municipal well		Shallow wells may be impacted from rive				31818.000			

McGoo Spill Critical Resources Map



MWERS2-0.mxd - ArcMap - ArcView

File Edit View Insert Selection Tools Window Help MWERS

Editor Task: Create New Feature Target:

47%

Insert Vertex Snapping... Set Selectable Layers...

1:15,470

Layers

Identify Results

Layers: <Top-most layer>

Fish and Wildlife

Spawning Area

Location: (1414651.018058 888583.920981)

Field	Value
FID	21
Shape	Point
CRITICAL_R	Spawning Area
RESOURCE_D	1 Redd @ RM 30.6
AGENCY_CON	Dick Irish, ODF&W
PHONE	541-726-3515, x25
PAGER	
CELL_PHONE	
HOME_AFTER	541-998-1362
LATITUDE	44.0834
LONGITUDE	122.7276
LONGTITUDE	-122.7276
INFO_SOURC	Based on 2002 aerial redd/spawning surve
Priority	Low
McK_RM	26.21
Agency	
24_Hour_Ph	
contact_id	9
cr_id	22

Point of Diversion

Display Source

McGoo Oil Trucking S

Drawing Arial 10

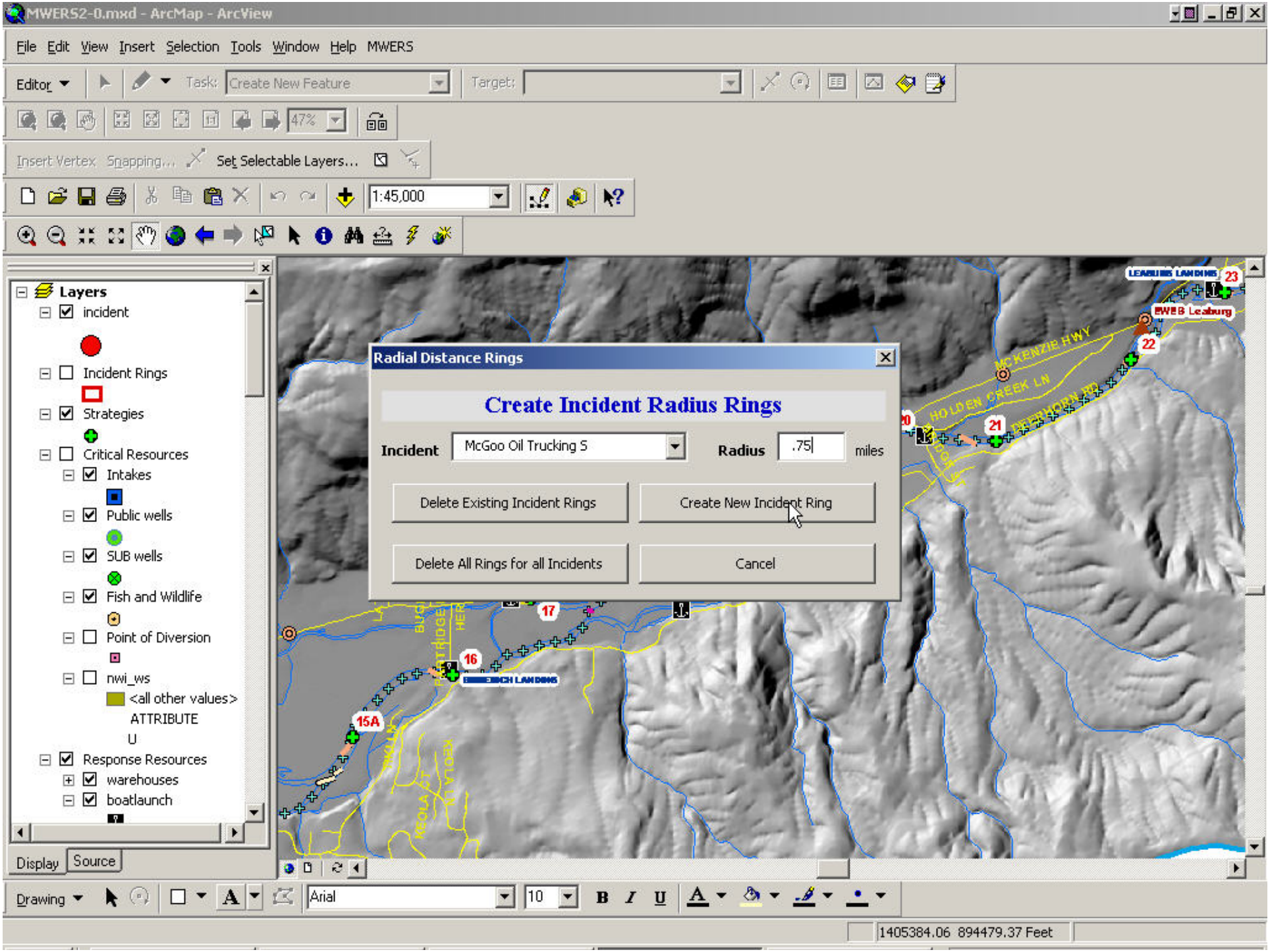
Response Status @ 1225 Hours

- Accident assessed, traffic stopped, material identified as waste oil, culvert plugged
- Driver died in accident
- Tow truck, HazMat team, ODOT response team in route
- Downstream critical resources alerted and estimated travel times provided
- Equipment found and in route to implement Strategies 19, 18, and 17.

1235 Hours

1240 Hours

1300 Hours


MWERS2-0.mxd - ArcMap - ArcView
File Edit View Insert Selection Tools Window Help MWERS
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Task: Create New Feature
Target:
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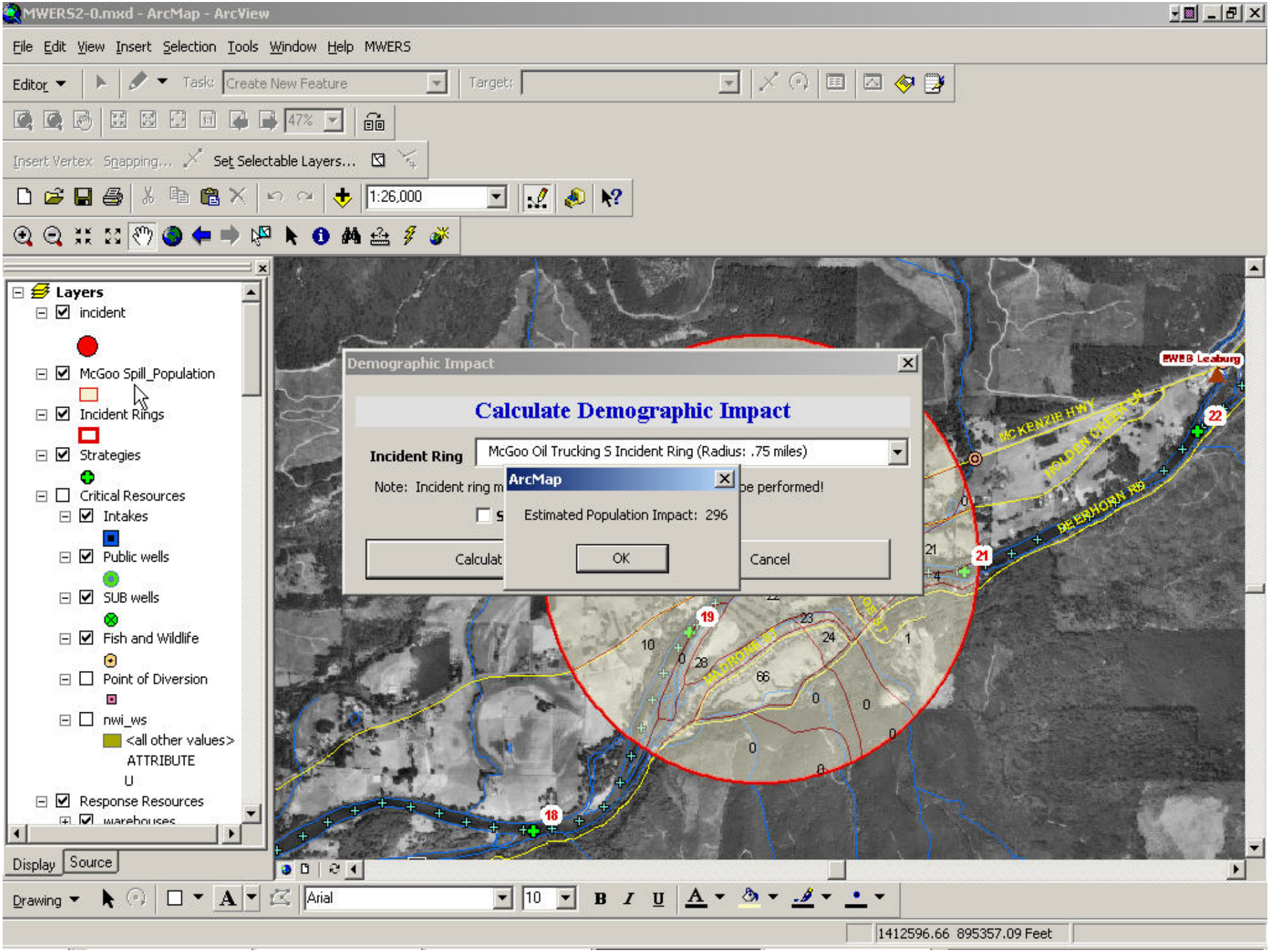
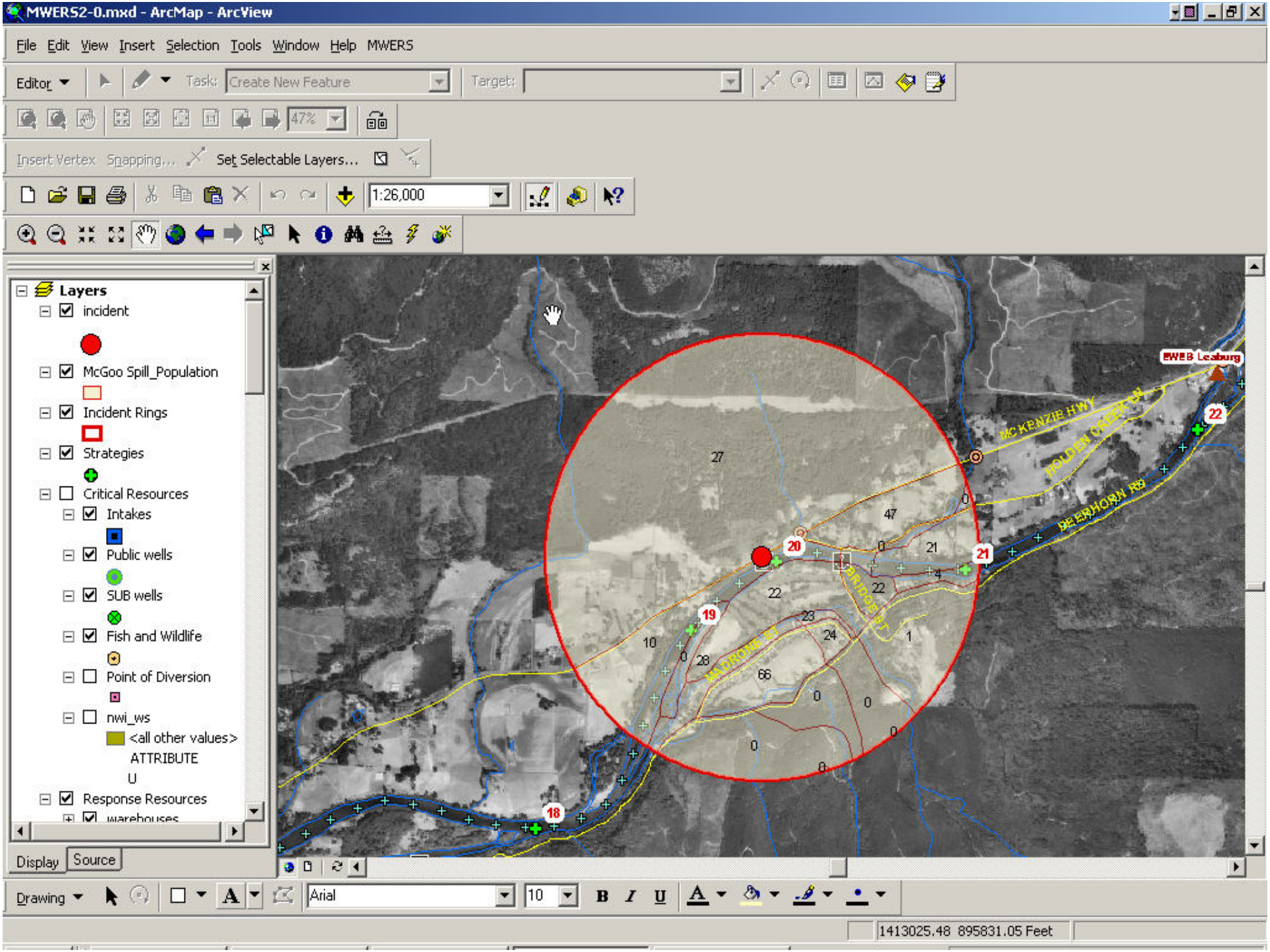
Set Selectable Layers...
1:45,000
Layers
incident
Incident Rings
Strategies
Critical Resources
Intakes
Public wells
SUB wells
Fish and Wildlife
Point of Diversion
nwi_ws
<all other values>
ATTRIBUTE
U
Response Resources
warehouses
boatlaunch
Display
Source
Radial Distance Rings
Create Incident Radius Rings
Incident
McGoo Oil Trucking S
Radius
.75
miles
Delete Existing Incident Rings
Create New Incident Ring
Delete All Rings for all Incidents
Cancel
MCKENZIE HWY
HOLDEN CREEK LN
DEERHORN RD
LEABURG LANDING
WEB Leaburg
Drawing
Arial
10
1405384.06 894479.37 Feet


MWERS2-0.mxd - ArcMap - ArcView
File Edit View Insert Selection Tools Window Help MWERS
Editor
Task: Create New Feature
Target:
Insert Vertex Snapping...
Set Selectable Layers...
1:26,000
Layers
incident
McGoo Spill_Population
Incident Rings
Strategies
Critical Resources
Intakes
Public wells
SUB wells
Fish and Wildlife
Point of Diversion
nwi_ws
<all other values>
ATTRIBUTE
U
Response Resources
Display
Source
Demographic Impact
Calculate Demographic Impact
Incident Ring
McGoo Oil Trucking S Incident Ring (Radius: .75 miles)
Note: Incident ring m
be performed!
Calculat
Cancel
ArcMap
Estimated Population Impact: 296
OK
EWEB Leaburg
MCKENZIE HWY
BEERHORN RD
Drawing
Arial
10
1412596.66 895357.09 Feet


MWERS2-0.mxd - ArcMap - ArcView
File Edit View Insert Selection Tools Window Help MWERS
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Task: Create New Feature
Target:
47%
Insert Vertex Snapping... Set Selectable Layers...
1:26,000
Layers
incident
McGoo Spill_Population
Incident Rings
Strategies
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Point of Diversion
nwi_ws
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ATTRIBUTE
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Response Resources
warehouses
Display
Source
EWEB Leaburg
MC KENZIE HWY
HOLDEN CREEK LN
BEERHORN RD
BRIDGE ST
MADRONE ST
Drawing
Arial
10
1413025.48 895831.05 Feet

1445 Hours

1620 Hours

What Actually Happened

- Truck spilled 5,800 gallons bunker oil into Yaquina River
- Over 12 hours to start initial spill response
- Problems finding boom, could not get to site (located upriver, highway closure)
- 2-3 days passed before real cleanup started
- Delay caused bunker to sink as tar balls
- Large area impacted, $1.2 million cleanup

MWERS Role in a Response

- Used by first responders during the emergent phase of a spill (<24 hours).
- Allows quick deployment of an effective response by first responders to stabilize a spill and minimize damage until additional resources can be mobilized.
- After emergent phase of spill, MWERS can be integrated and used as part of ICS/Unified Command in Planning Division, Situations Unit.

Other Uses of GIS-Based Plan

- Excellent for multi-agency planning efforts
- Identify spill/chemical release “hot spots”
- Determine equipment staging areas
- Makes design of drills/exercises easy
- Good foundation for other emergency response planning efforts
- Easy to update and distribute new data and information.

McKenzie – EWEB's Life Blood