

US EPA ARCHIVE DOCUMENT

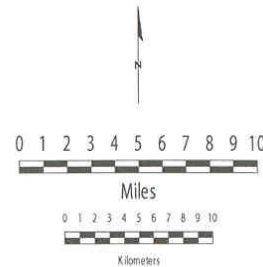
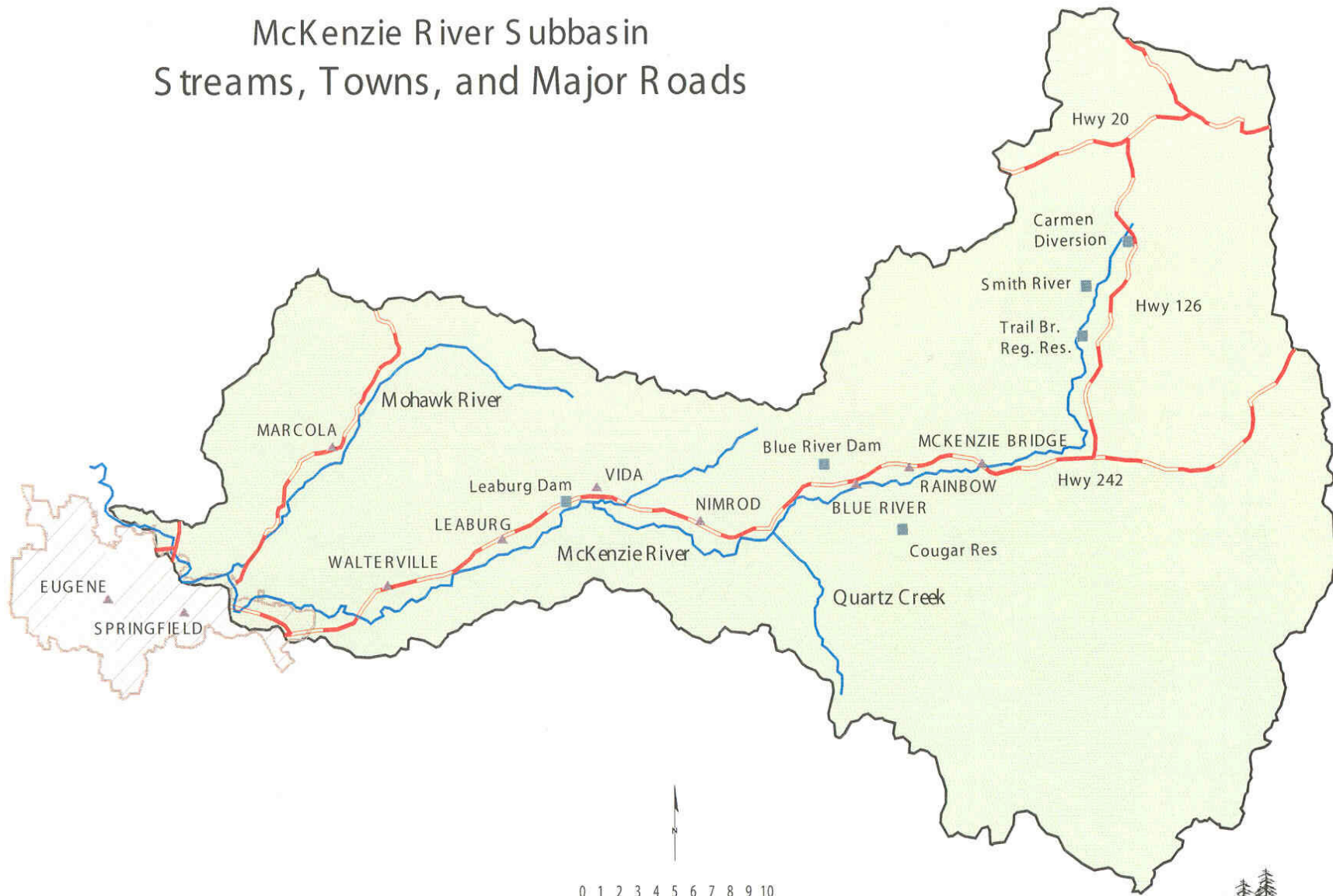
McKenzie Watershed Emergency Response

Karl Morgenstern, Eugene Water & Electric Board





McKenzie River Subbasin Streams, Towns, and Major Roads



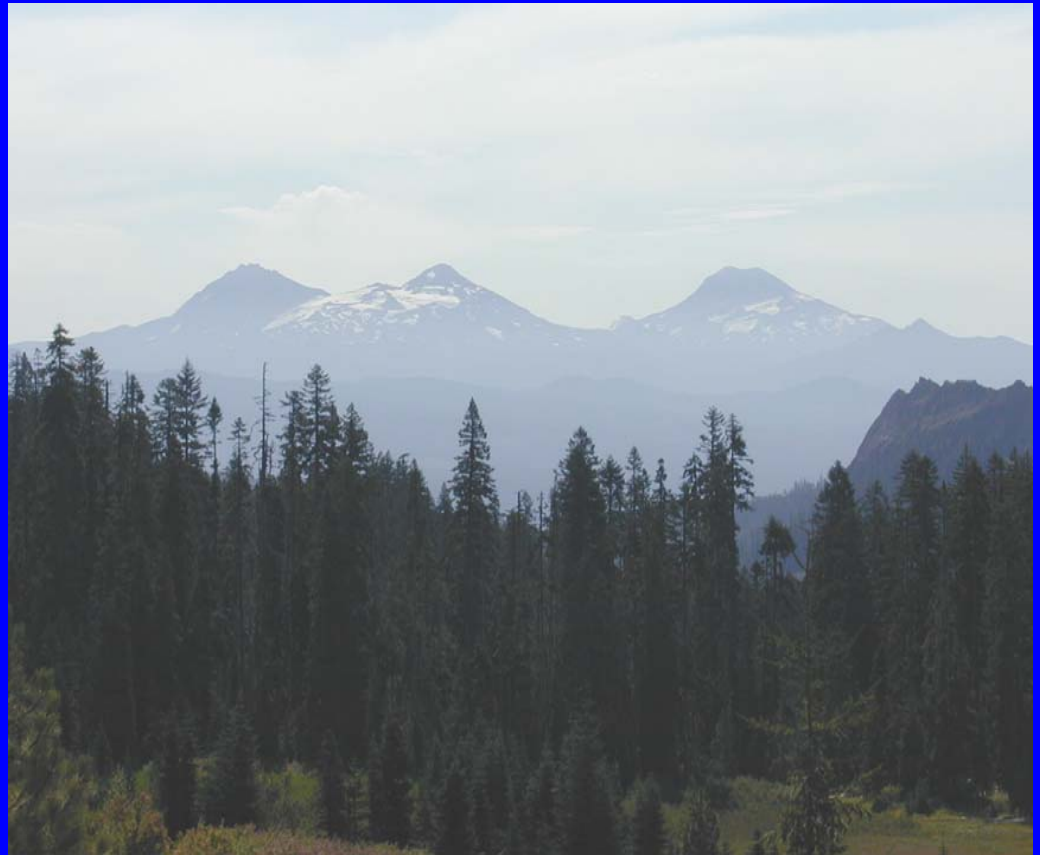
March 06, 2001
Source: Oregon Geospatial Data Clearinghouse

Why Is Watershed Emergency Response Important To EWEB?

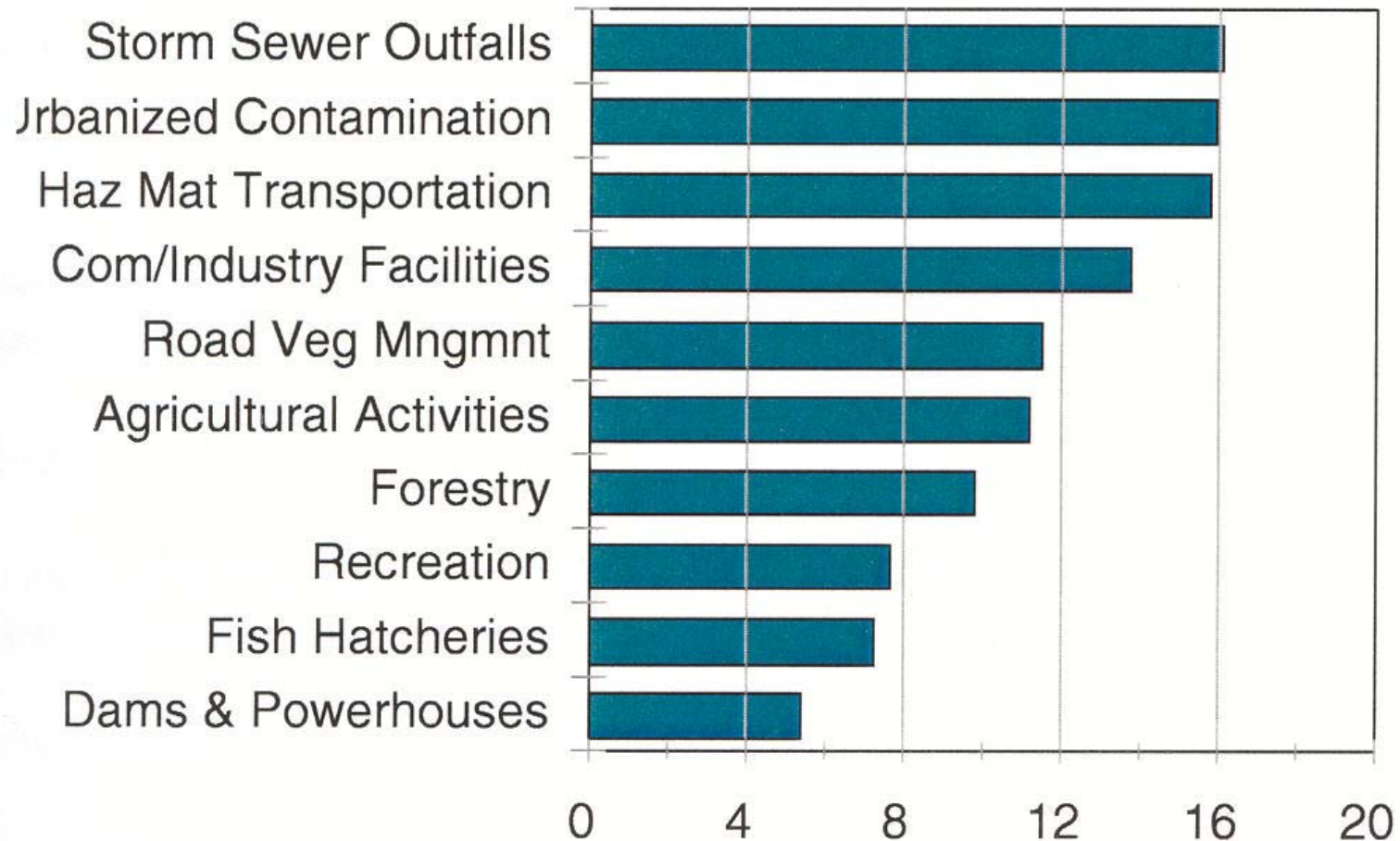
- EWEB's water intake on river provides sole source of drinking water to over 200,000 people.
- Raw water treatment plant is located in watershed near intake.
- EWEB has three hydroelectric projects in McKenzie River watershed that provides 30-40% of electricity to Eugene area.

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

GIS Database Development

Field Mapping via Boat and Helicopter:

River Characteristics
Response Resources
Critical Resources
Photograph Locations

Collect and Process Existing Data for Input to GIS:

HazMat Facilities
Accident Areas
Critical Resources
Equipment Inventories
Equipment Warehouses
Emergency Contacts

Collect, Reformat, Process Basemap Data:

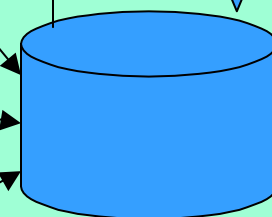
Aerial Photography
USGS Digital Topo Maps
Infrastructure Data
Natural Resource Data

Oil Spill Response Strategy Development

Multi-Agency Workshop

Interactive GIS Session:
Critical Resources
Response Resources
Potential Threats
River Characteristics
Photographs

Strategy Options Theme Creation
Resource Protection Prioritization



MWERS Database

MWERS Delivery

Responder Laptop
Using
ArcView 8.3 Software
Custom Application

Pocket PC
Using
ArcPad Software
Custom Application

Internet
Using
ArcIMS Software
Custom Application

Current Response Approach

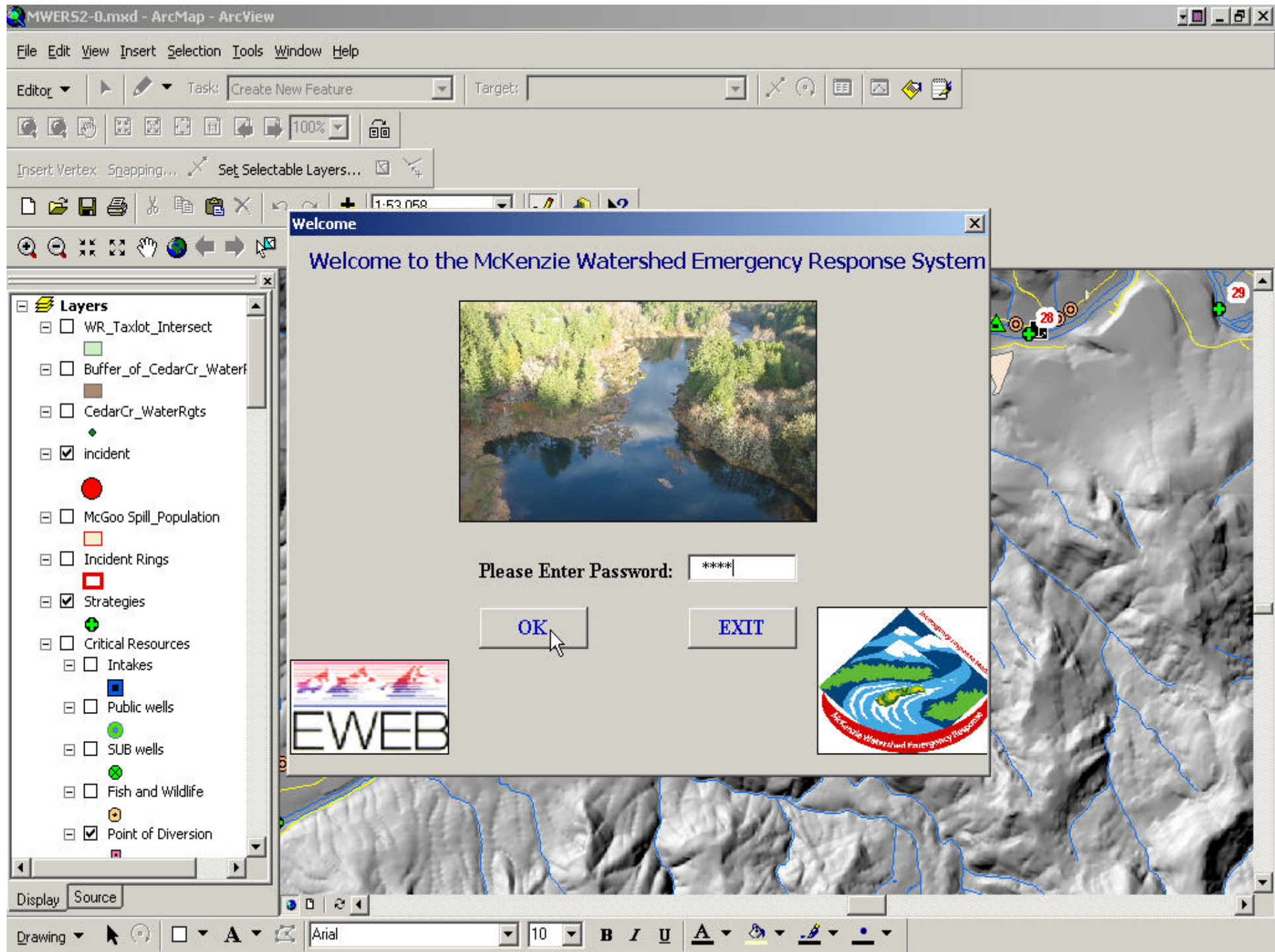
- First responder arrives at scene
- Focus on assessing accident, injuries, material spilled, immediate dangers, traffic, etc.
- Confusion and uncertainty on how to address spilled material
- Other agencies start arriving at the scene, spill contractor called
- After 12-24 hours initial actions to stabilize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





ArcView

File Tools Window Help

MWDMS

Create New Feature

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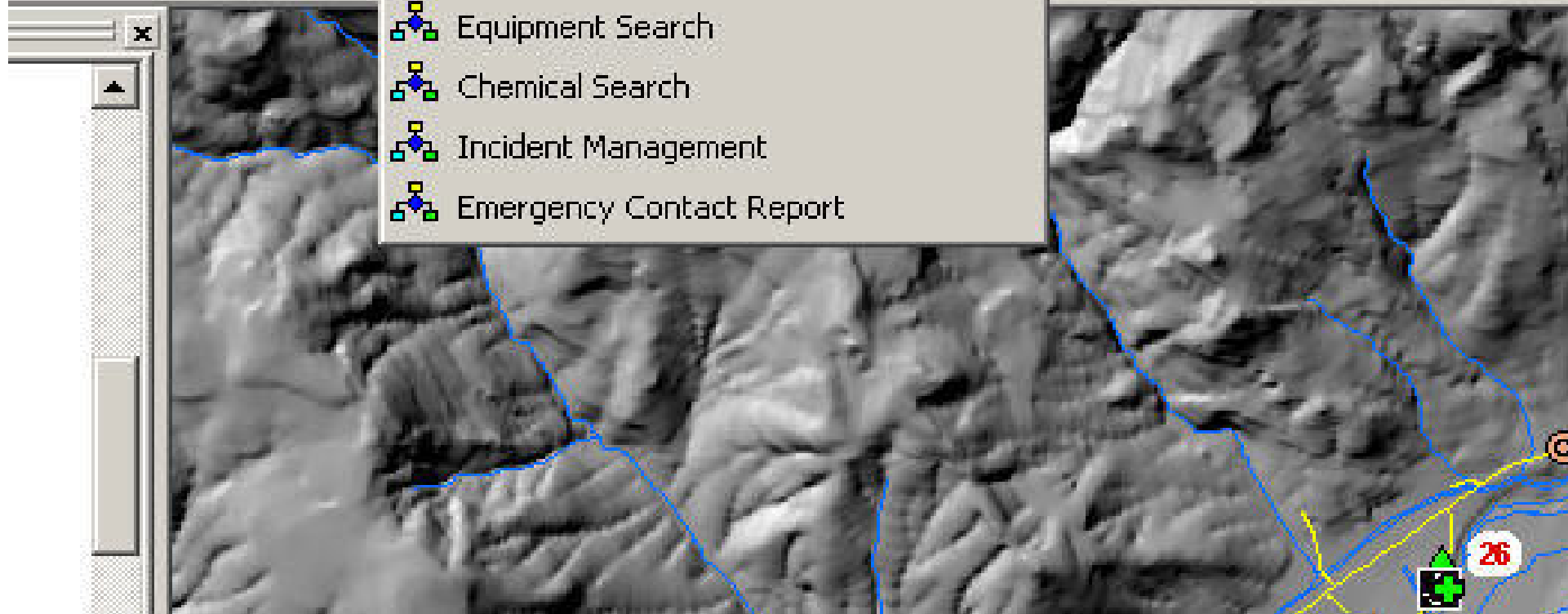
- Enter Incident
- Strategy Reports
- Incident Maps
- Incident Reports by River Mile
- Incident Reports by Radial Distance
- Radial Distance Rings
- Incident Demographic Impact
- Equipment Search
- Chemical Search
- Incident Management
- Emergency Contact Report

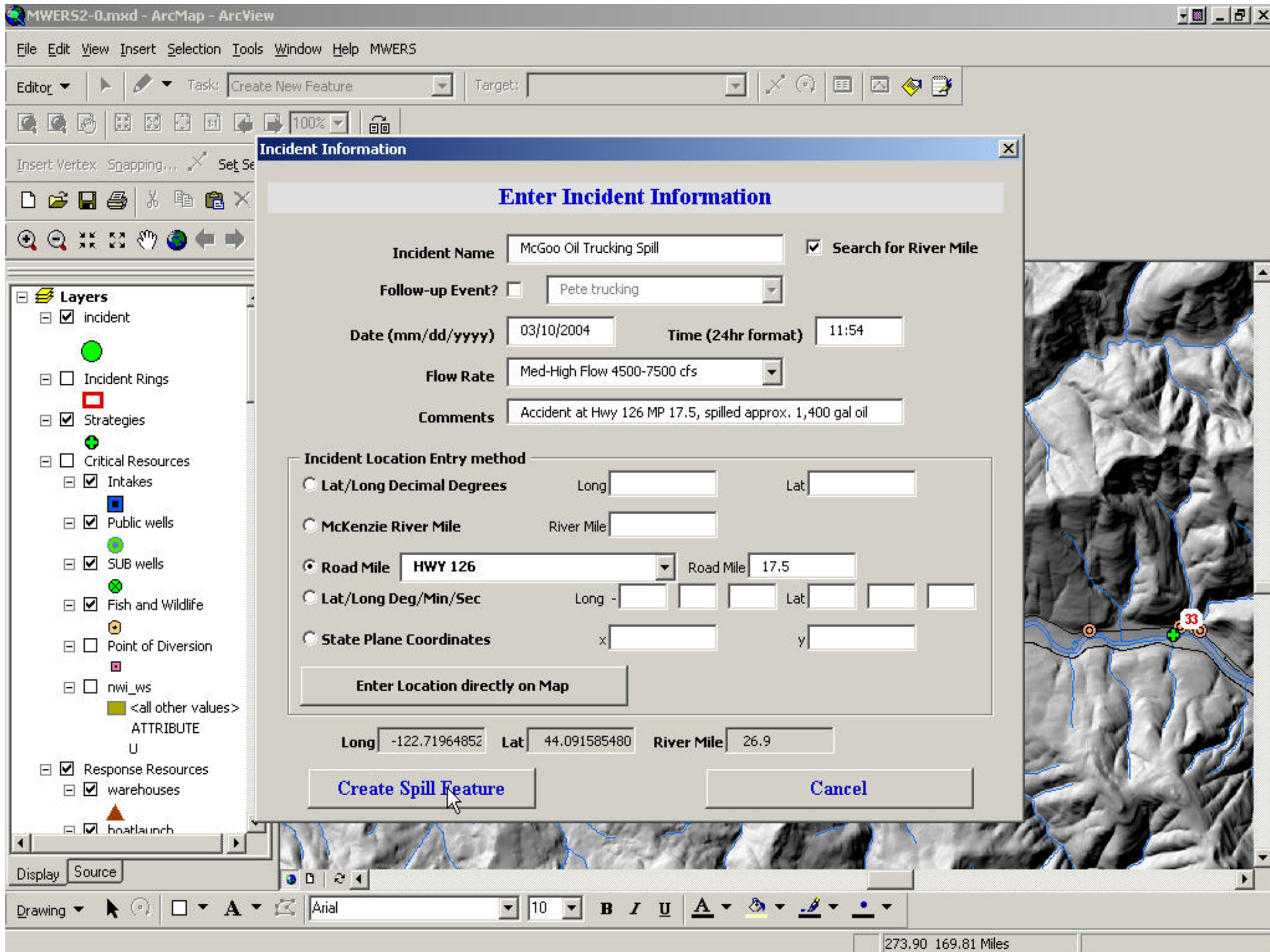
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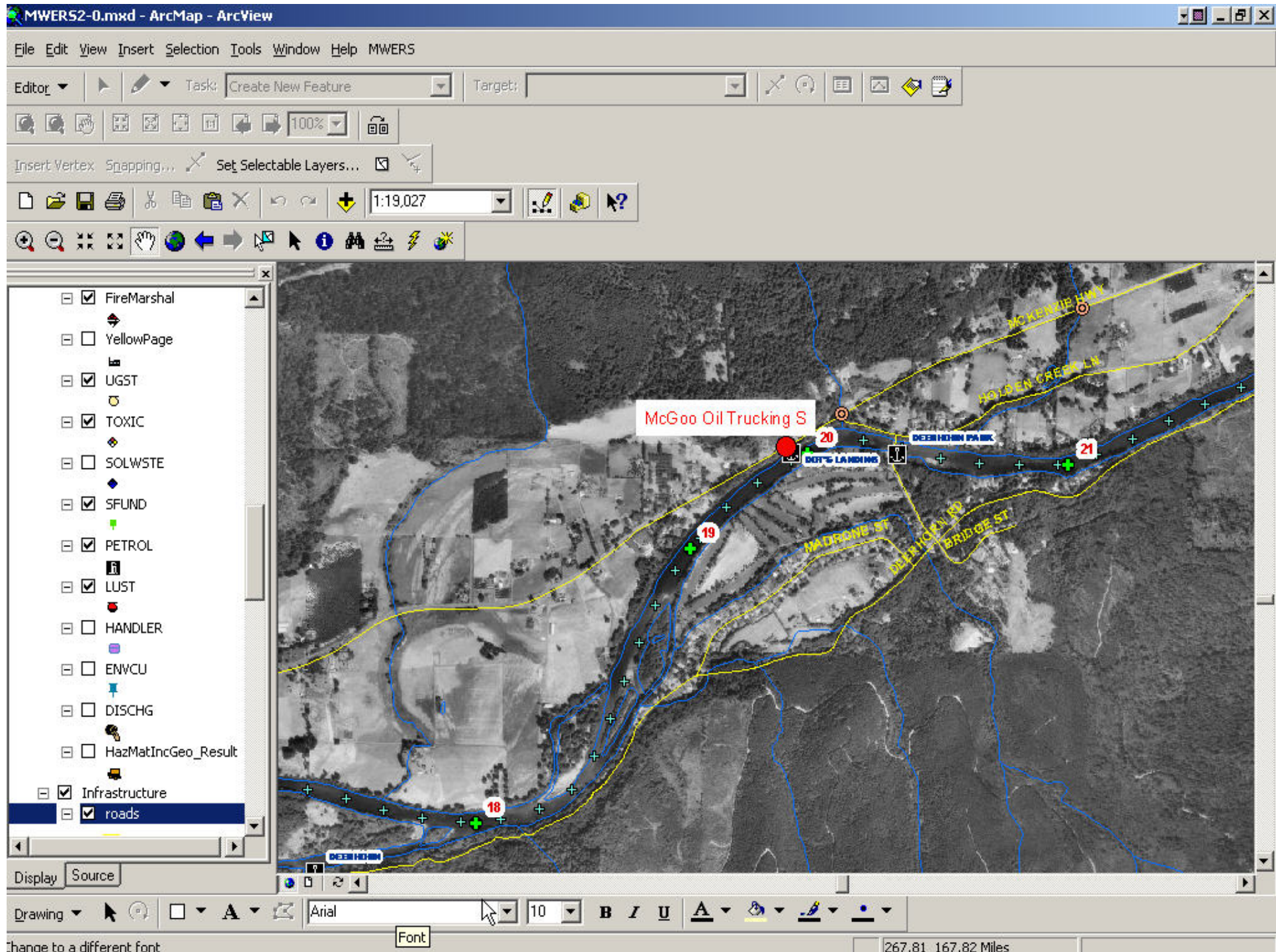
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ArcMap - ArcView

File Selection Tools Window Help

MWERS

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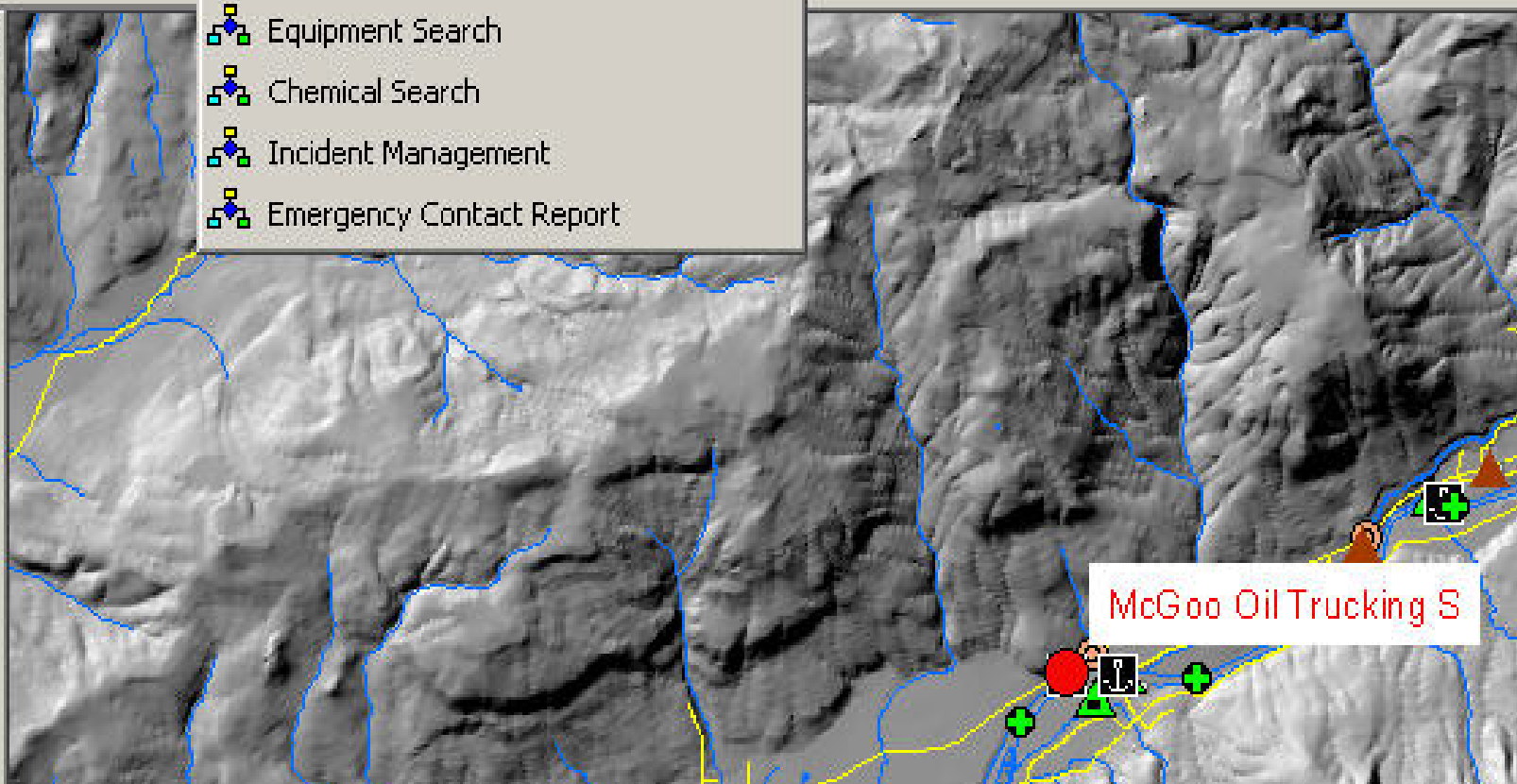
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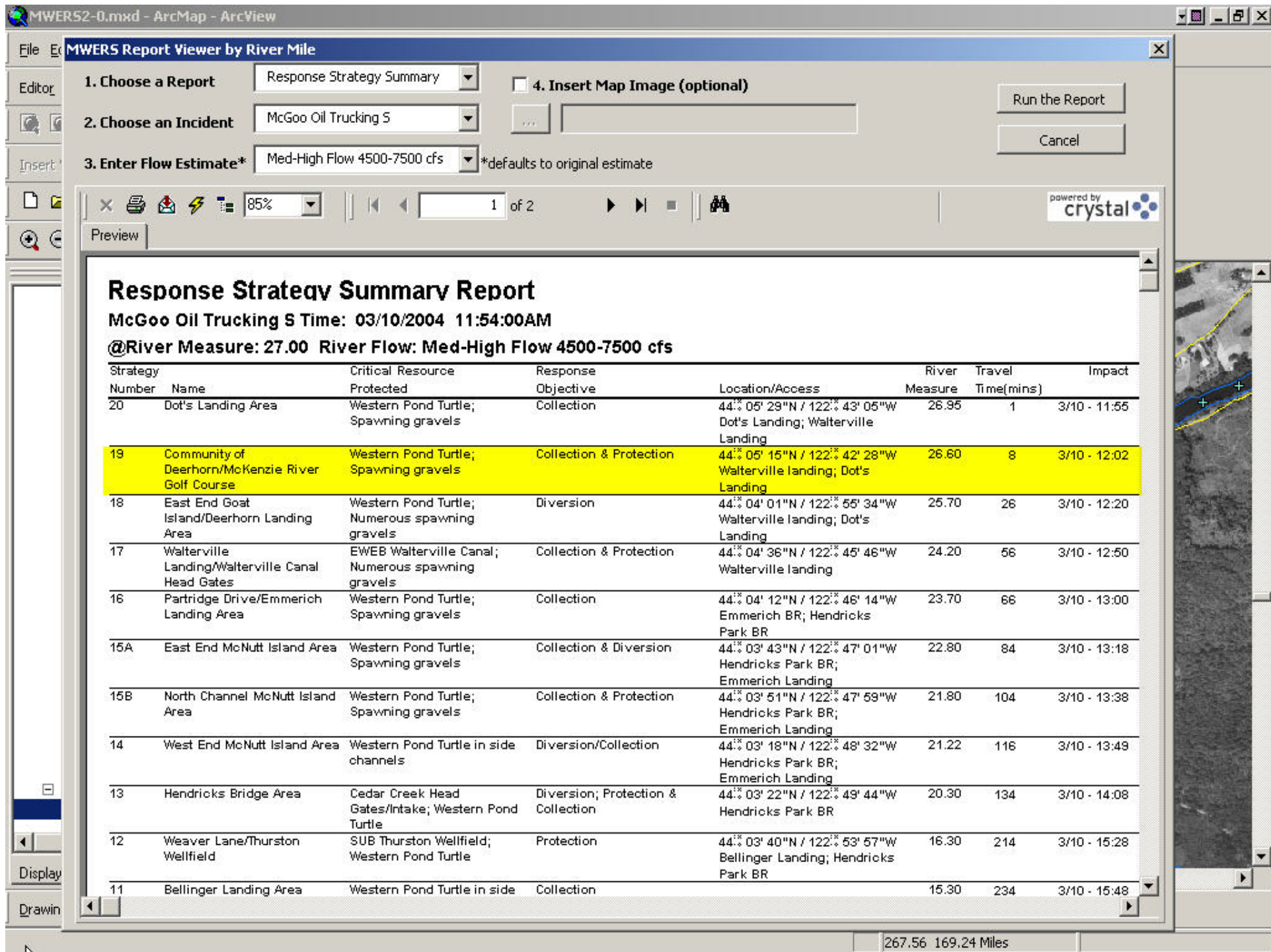
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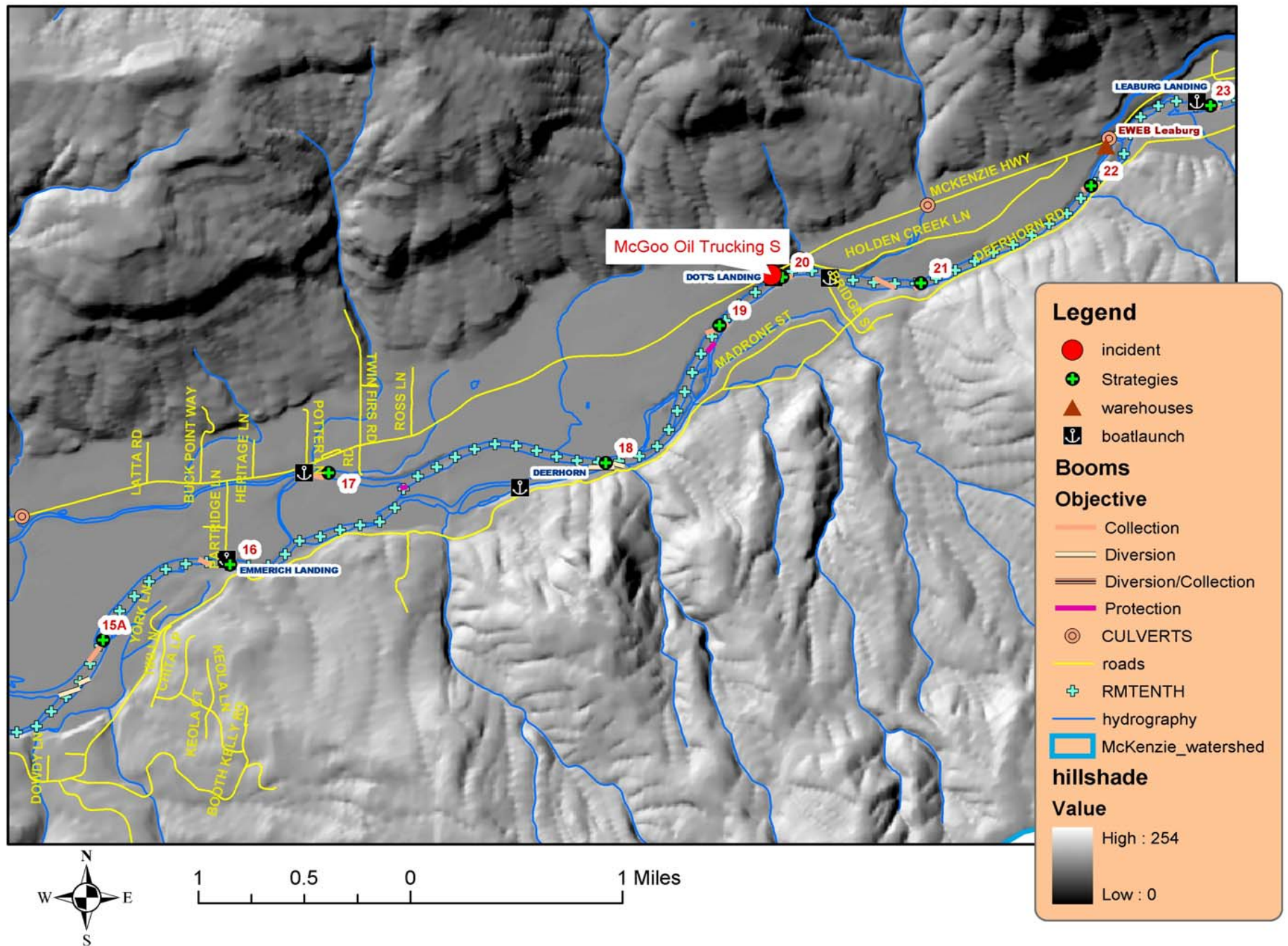
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McGoo Spill Response Resources Map



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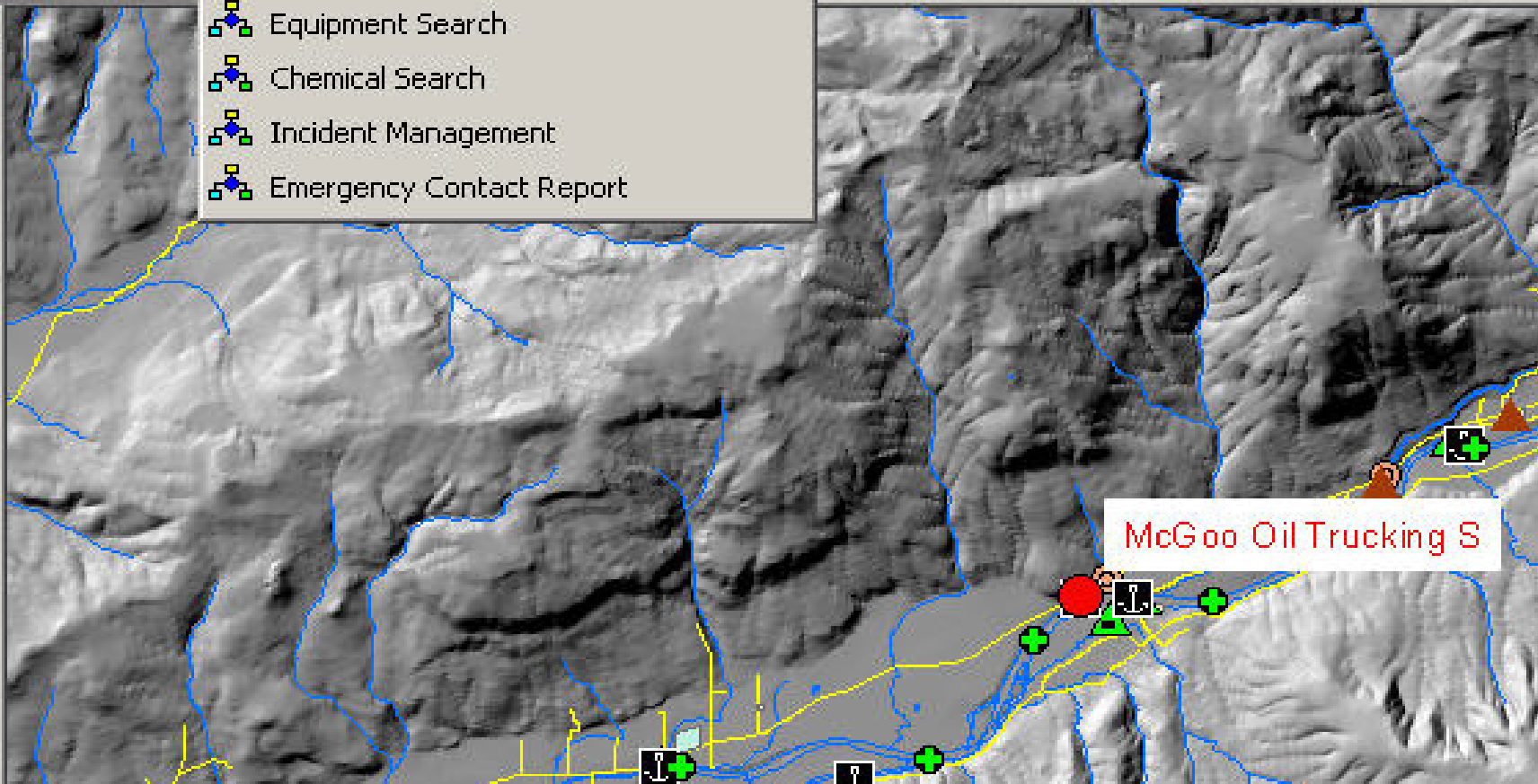
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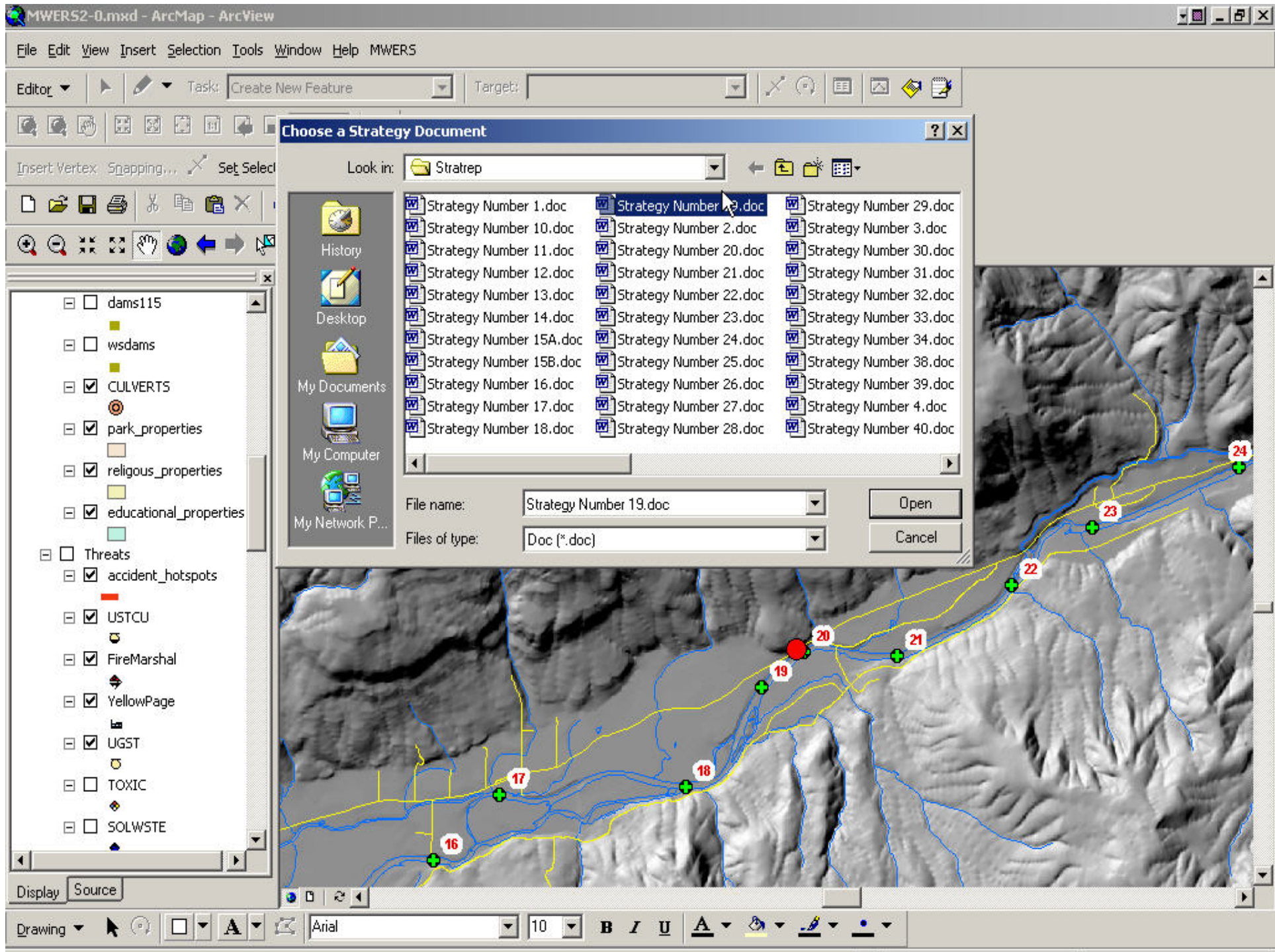
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Strategy Number 19
Community of Deerhorn/McKenzie River Golf Course Area



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).

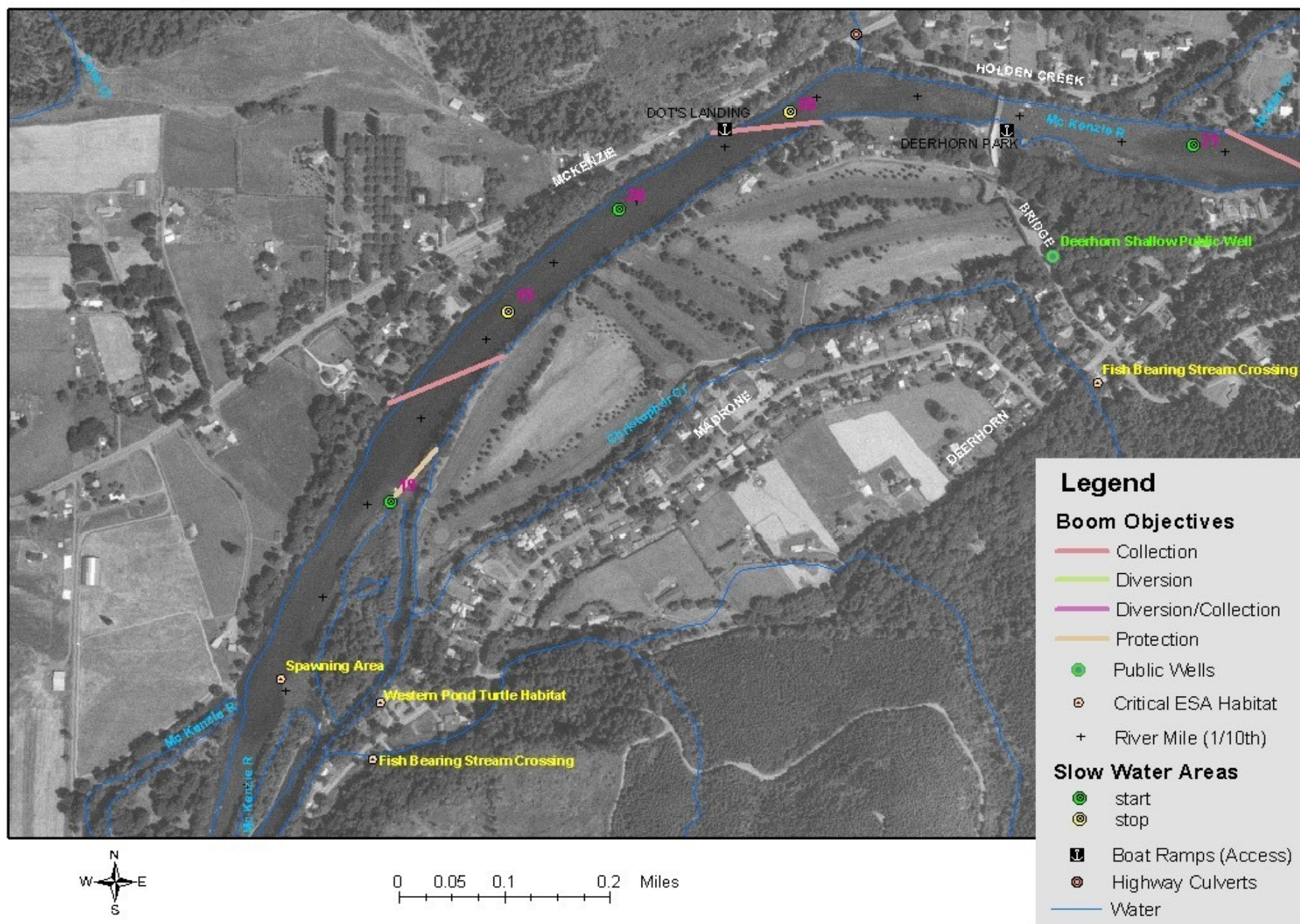
Watercourse Description:

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

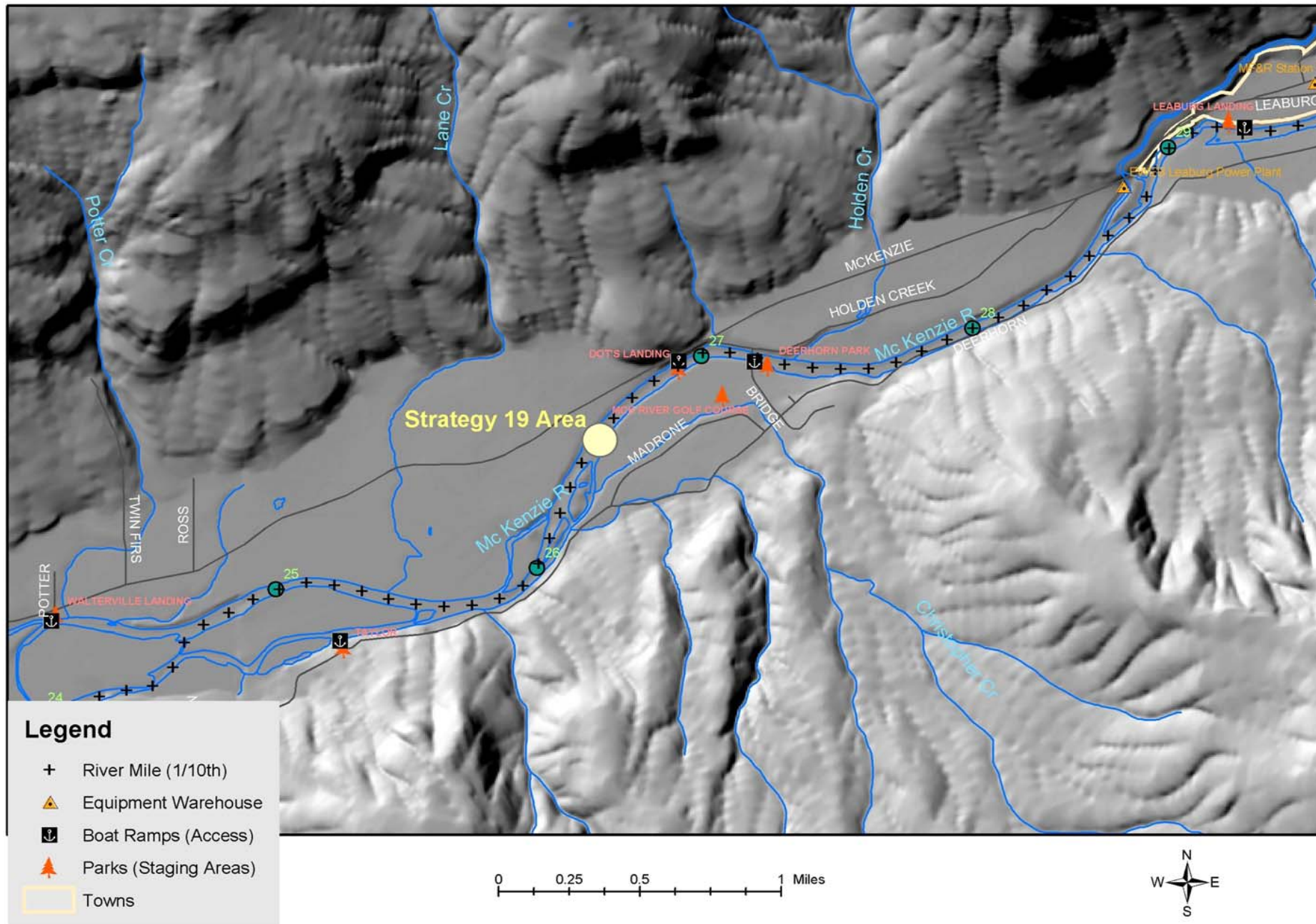
Equipment Needs:

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
2 4' Containment basins (kiddie pools)

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



Strategy 19: River Access & Equipment Staging Areas



- ArcView

ion Tools Window Help

MWERS

Task: Create New Feature

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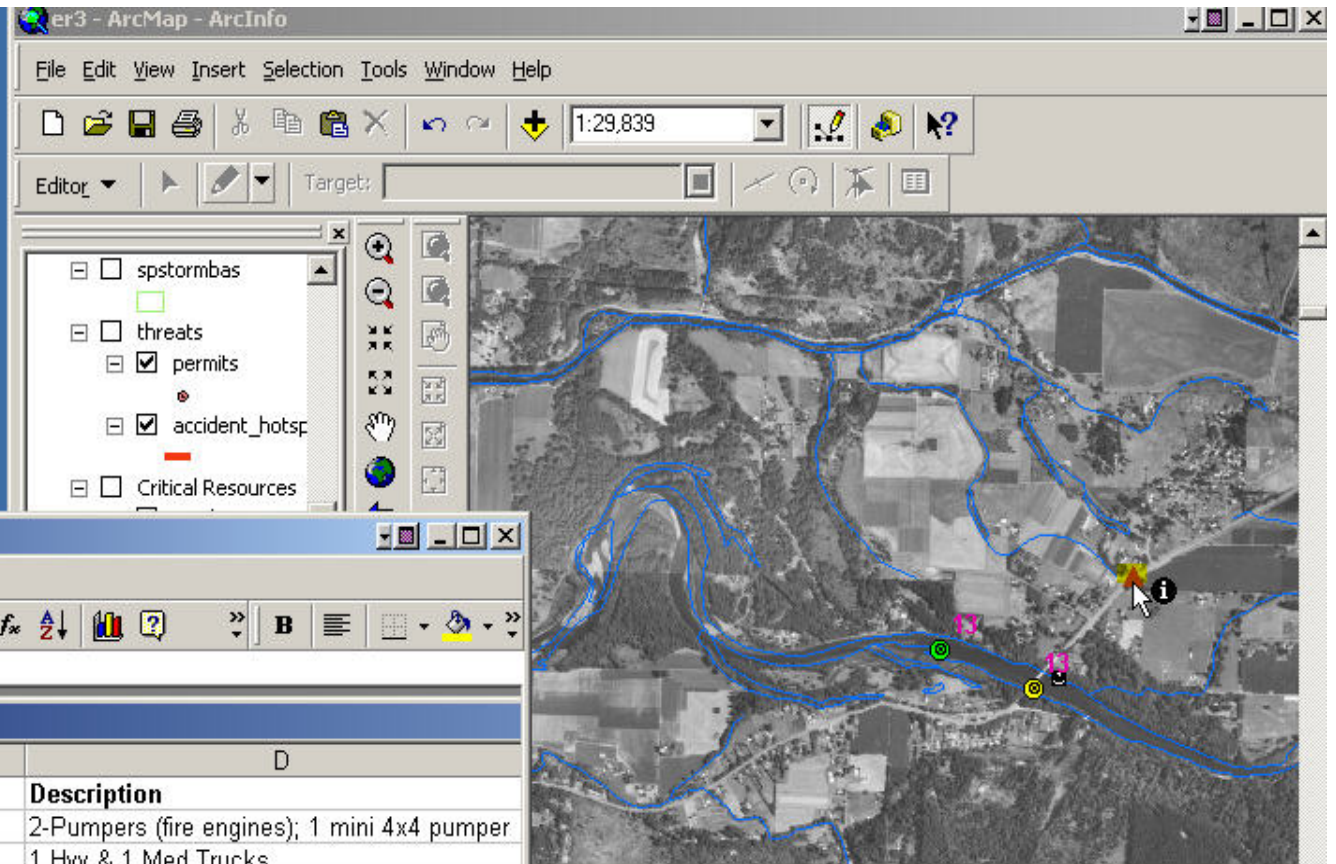
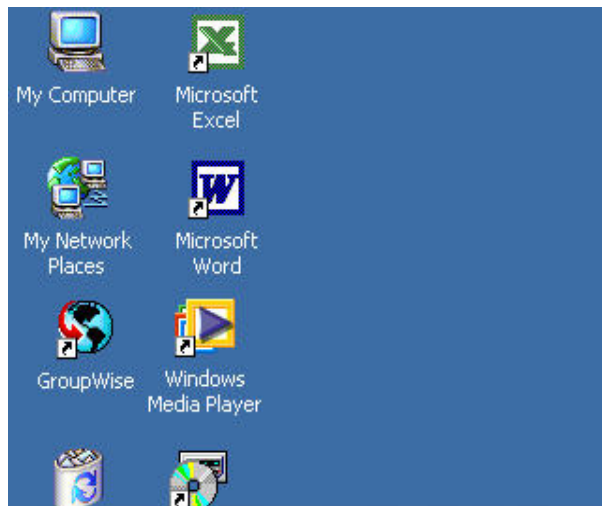
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McGoo Oil Trucking S



Equipment-McKenzie Fire Station 2				
	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				

Location: (1389057.042684 880795.704882)		
Fire Station	Field	Value
	FID	15
	Shape	Point
	FACILITY_N	McKenzie Fire Station 2
	MANAGER	Dale Ledyard
	CONTACT	Dana Burwell
	TELEPHONE	541-746-6312
	PAGER	541-349-6074
	CELL_PHONE	541-954-2757
	HOME_AFTER	541-896-3136
	LATITUDE	44.06
	LONGITUDE	123
	LONG	-122.8241
	hypath	c:\esproj\eweb\emresp\Equip-McKenzie Fire Station 2.xls

MWERS Report Viewer by River Mile

1. Choose a Report Critical Resources Distance Sort

☐ 4. Insert Map Image (optional)

Run the Report

2. Choose an Incident McGoo Oil Trucking 5

Cancel

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

85% 1 of 6

powered by
crystal

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	Agency	Phone	Pager	Cell Phone	Home After	X/Longitude	River	Travel	Impact
Priority	Description	Comment				Y/Latitude	Mile	Time(mins)	

Surface Water Intak

Walterville Canal Intake	Eugene Water & EI	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 & EI	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 & EI	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			

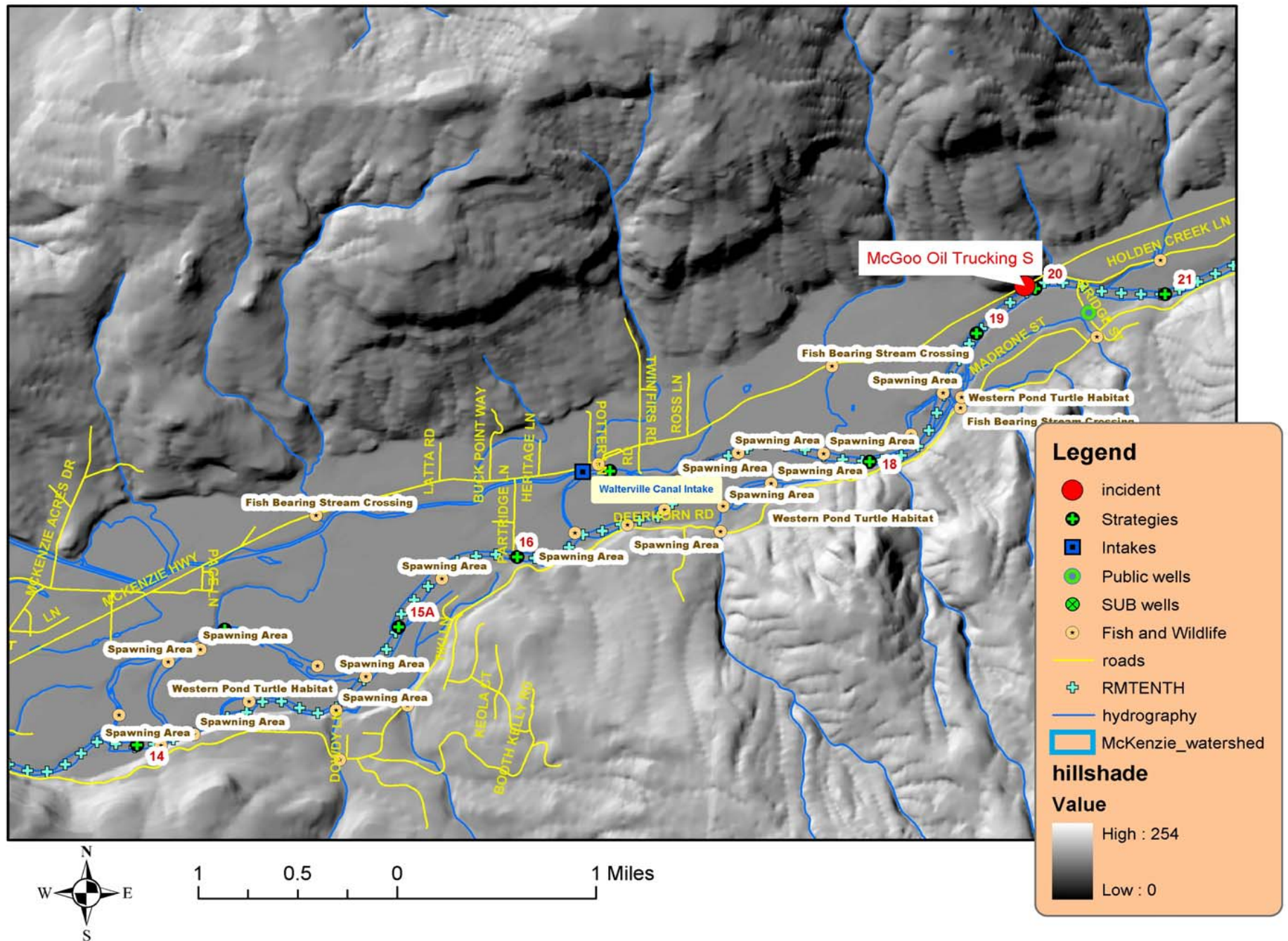
Public Wells

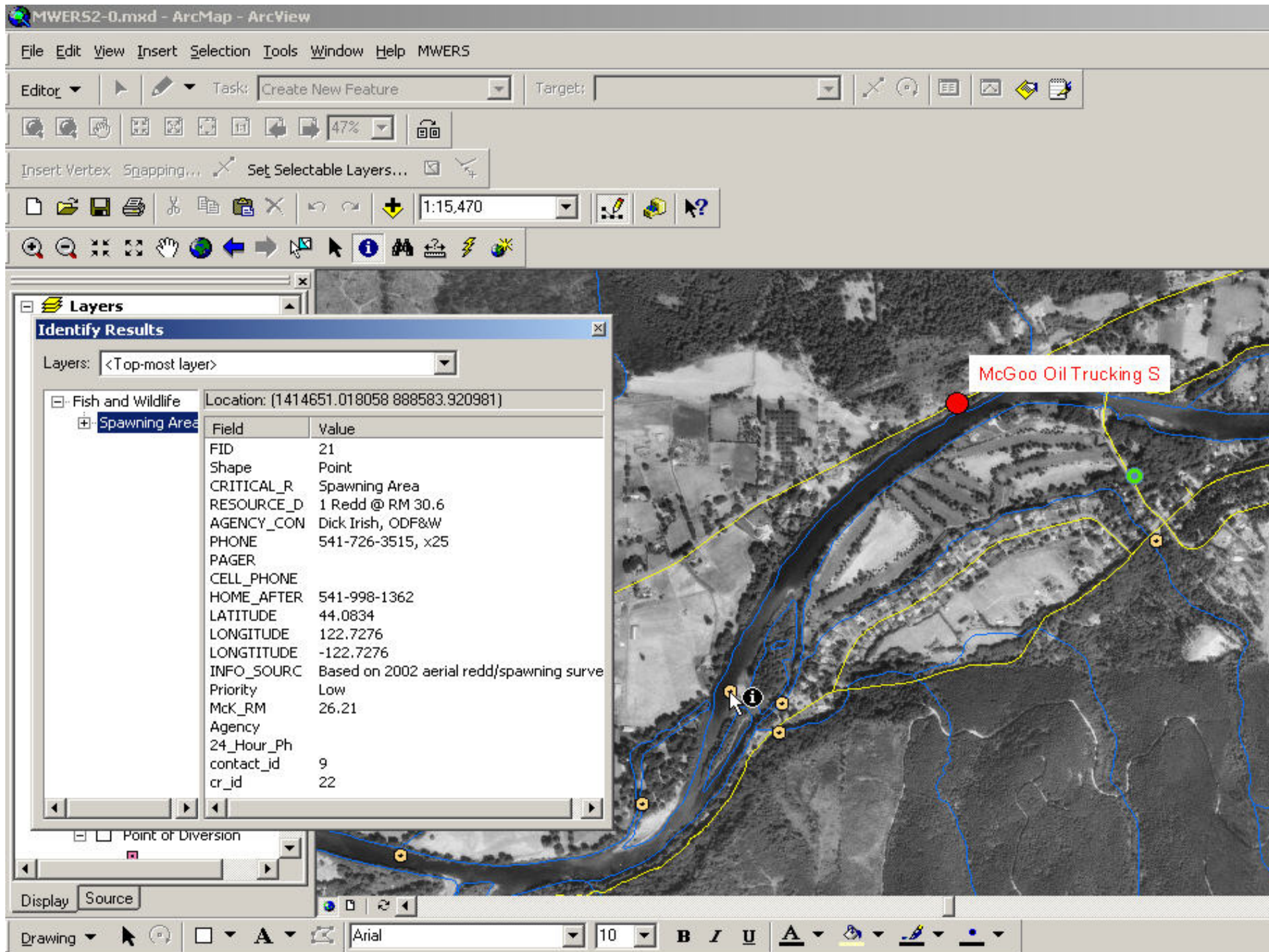
Marcola Well 1	Rainbow Water Dis	541-746-1676				-122.860	0.00	540	3/10 - 20:54
High	Shallow wells may be impacted from rive	City of Marcola shallow well				44.170			
Marcola Well 3	Rainbow Water Dis	541-746-1676				-122.860	0.00	540	3/10 - 20:54
High	Shallow wells may be impacted from rive	City of Marcola shallow well				44.170			
Marcola Well 4	Rainbow Water Dis	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 Well 5	Rainbow Water Dis	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	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





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

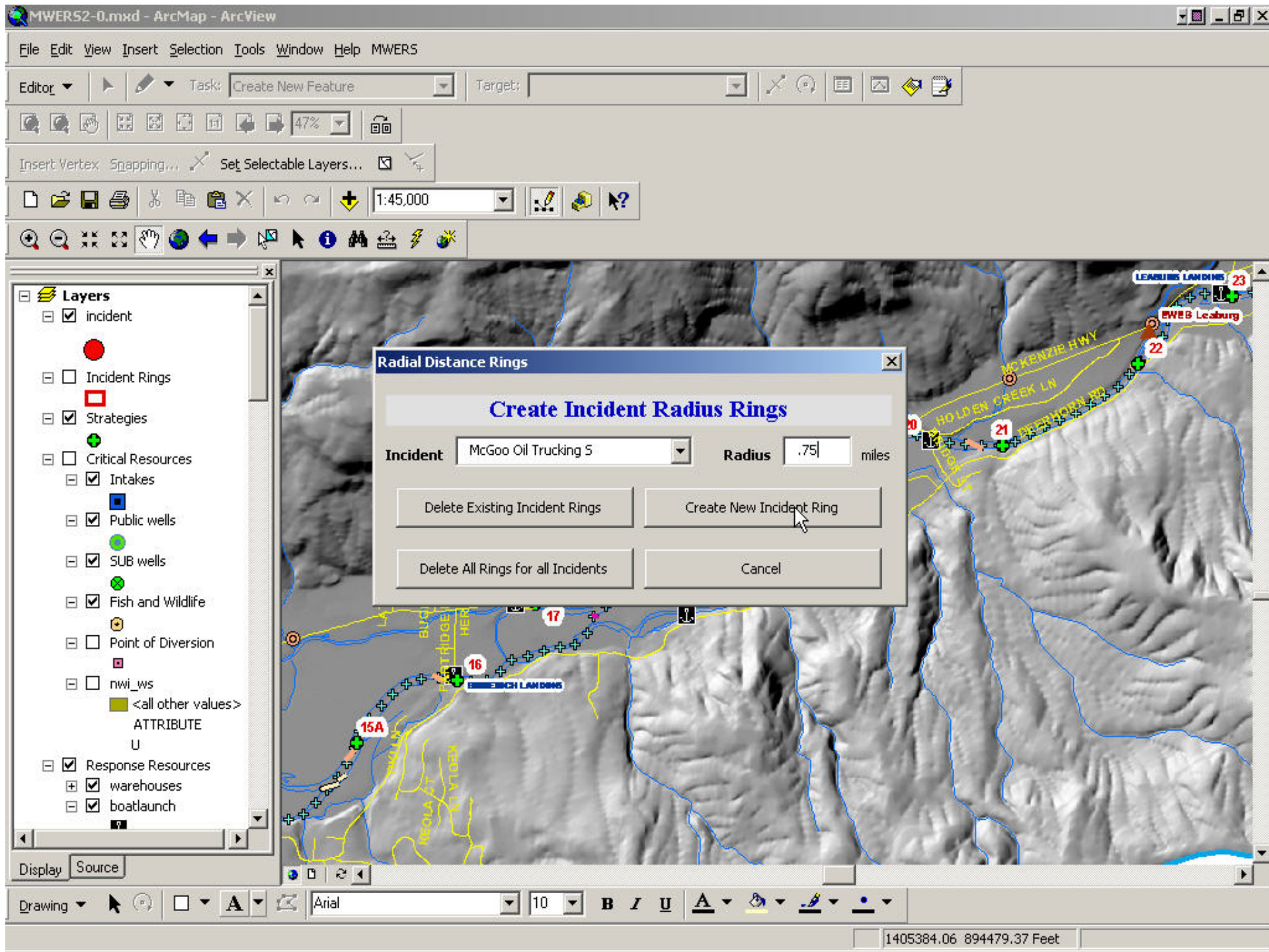


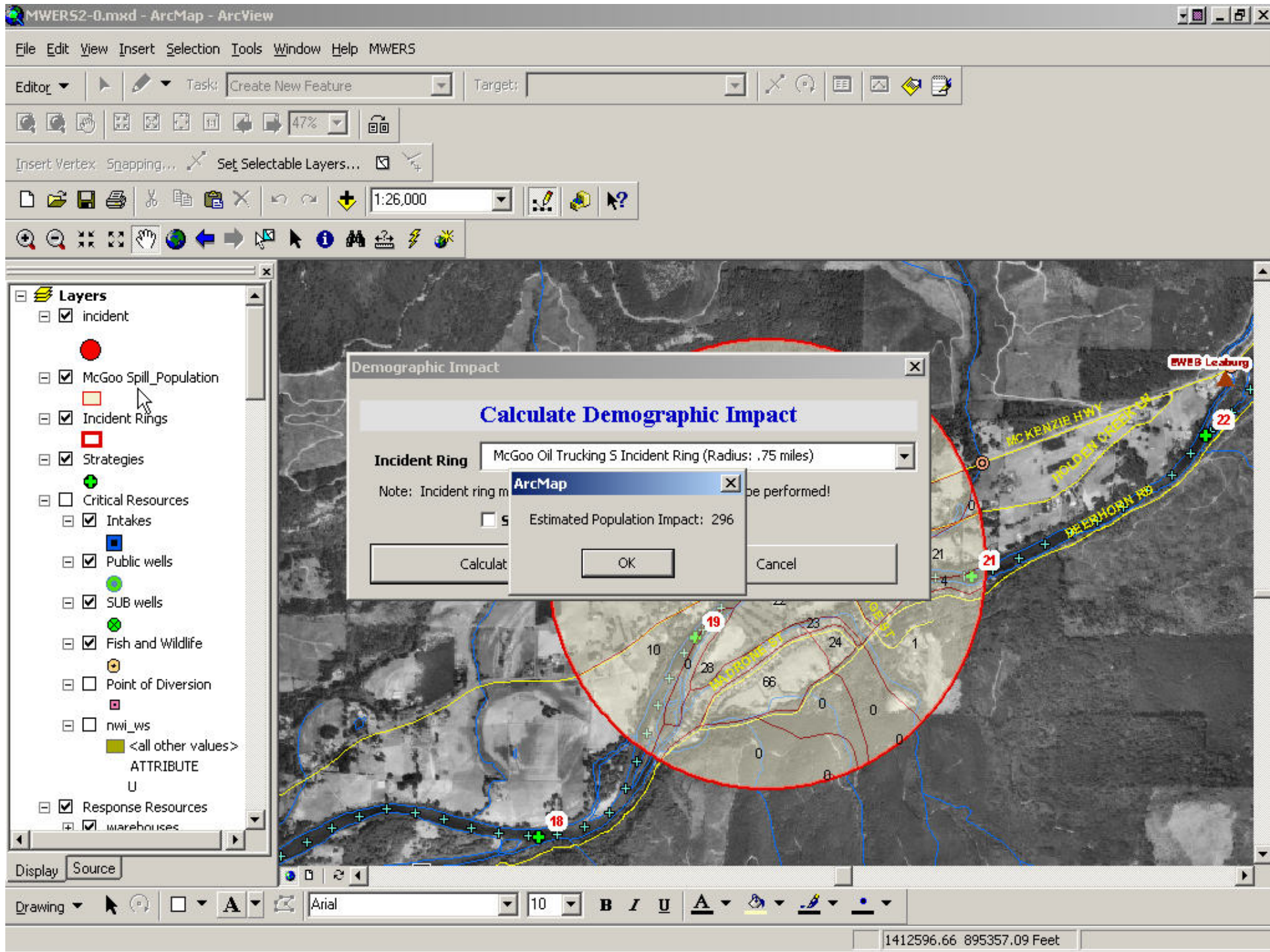
1240 Hours

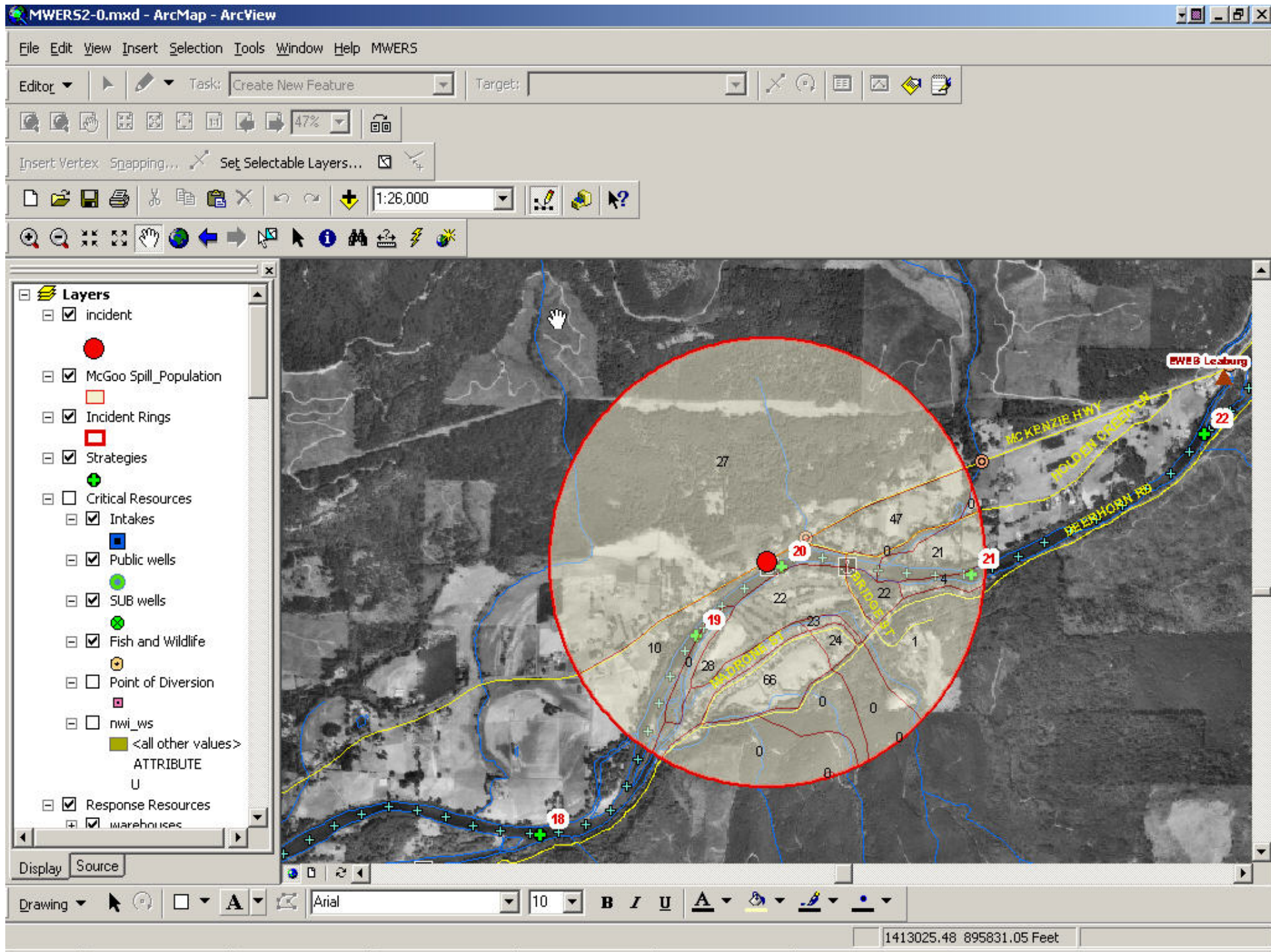


1300 Hours









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

