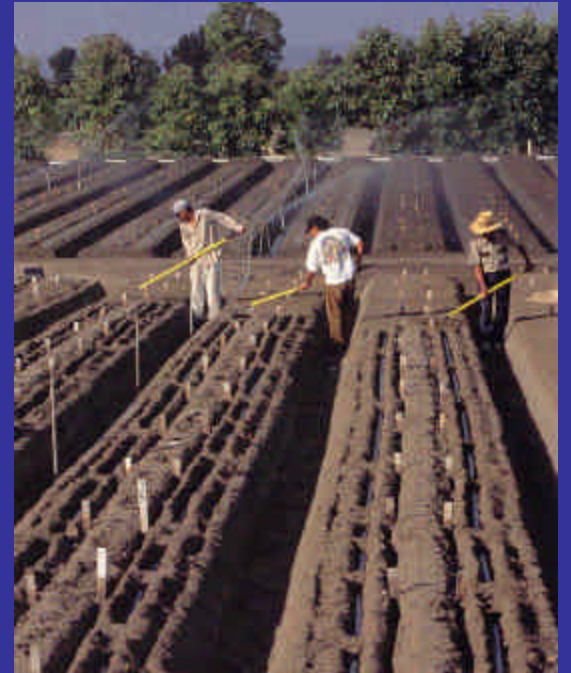


***NATURAL DISASTER
PREPAREDNESS PLANNING
AND
SUCCESSFUL IMPLEMENTATION***

***William Schaal, Peggy Baker,
H. David Towle, Richard Smith***

***Shaw Environmental & Infrastructure
University of California Division of Agriculture and Natural
Resources
University of Phoenix***



Ctrl montage

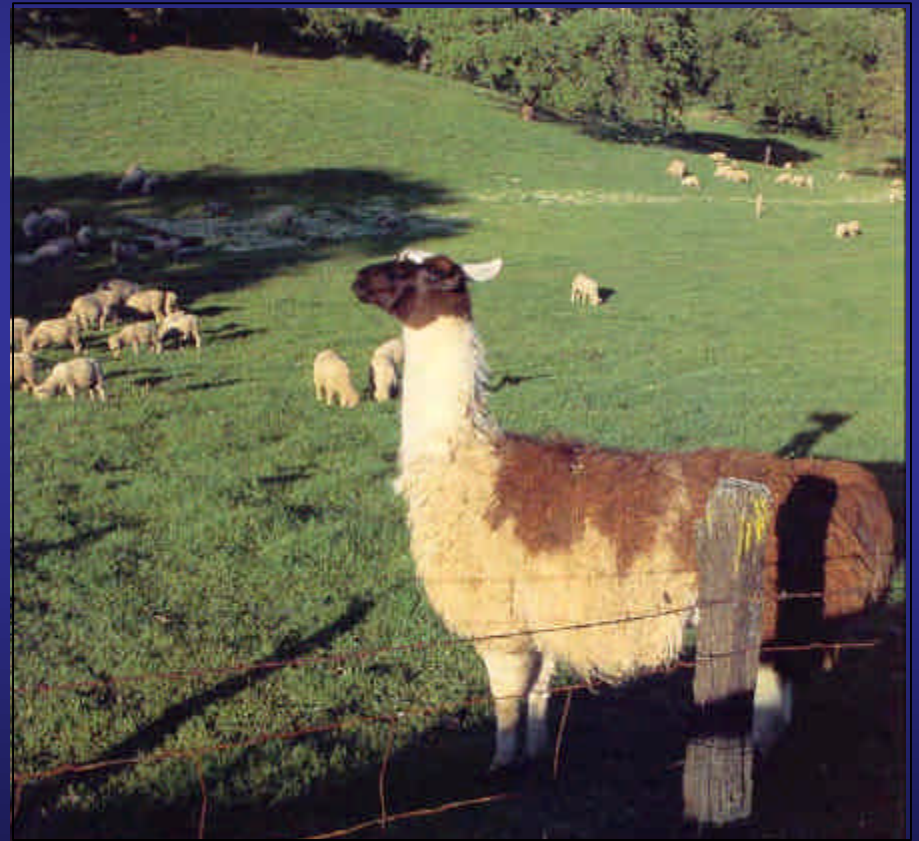
Research and Extension Center System (REC System)

-  ***Research in differing regions and climatic zones***
-  ***Facilitate interdisciplinary research***
-  ***Research solutions for regional problems***
-  ***Partnership with agricultural community concerns***
-  ***Joint projects with industries so they may implement new discoveries***

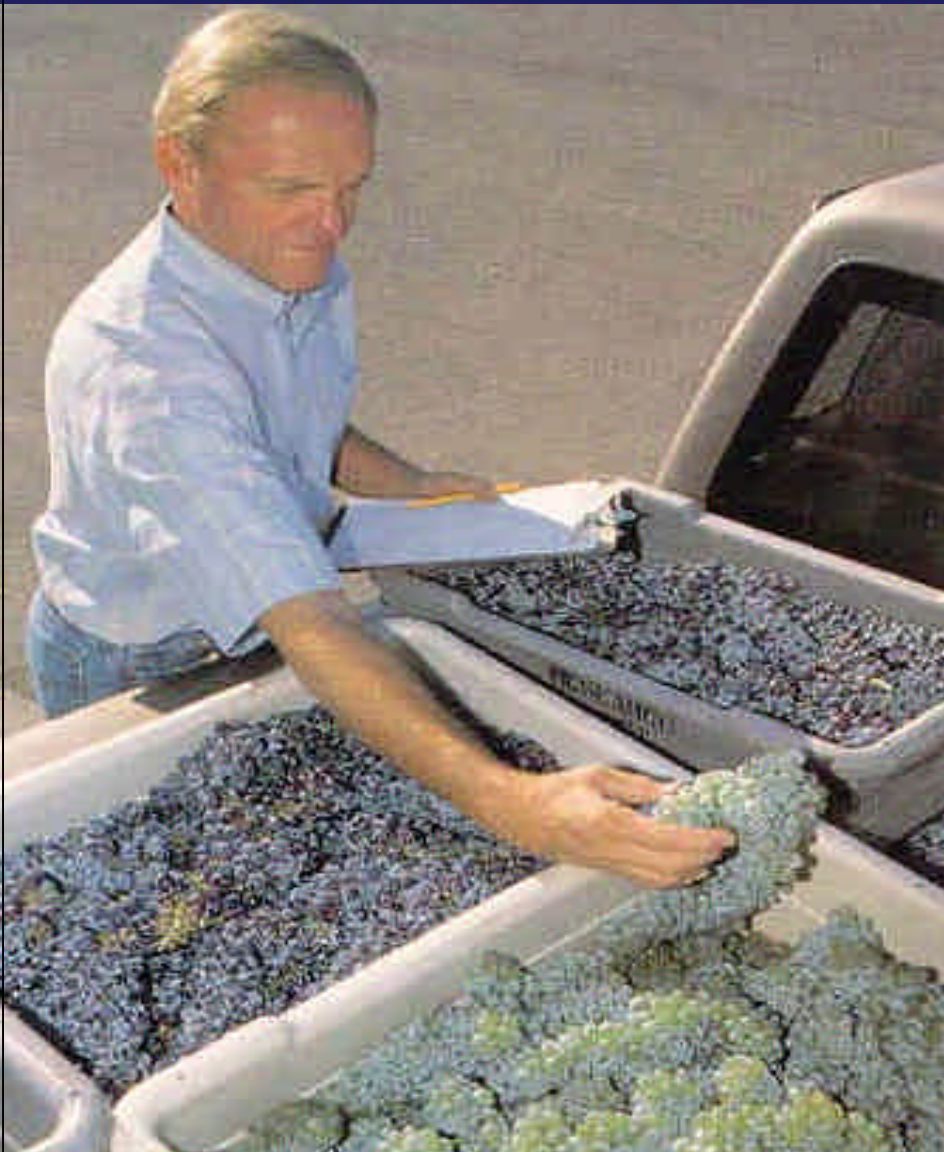


Center locations

Hopland



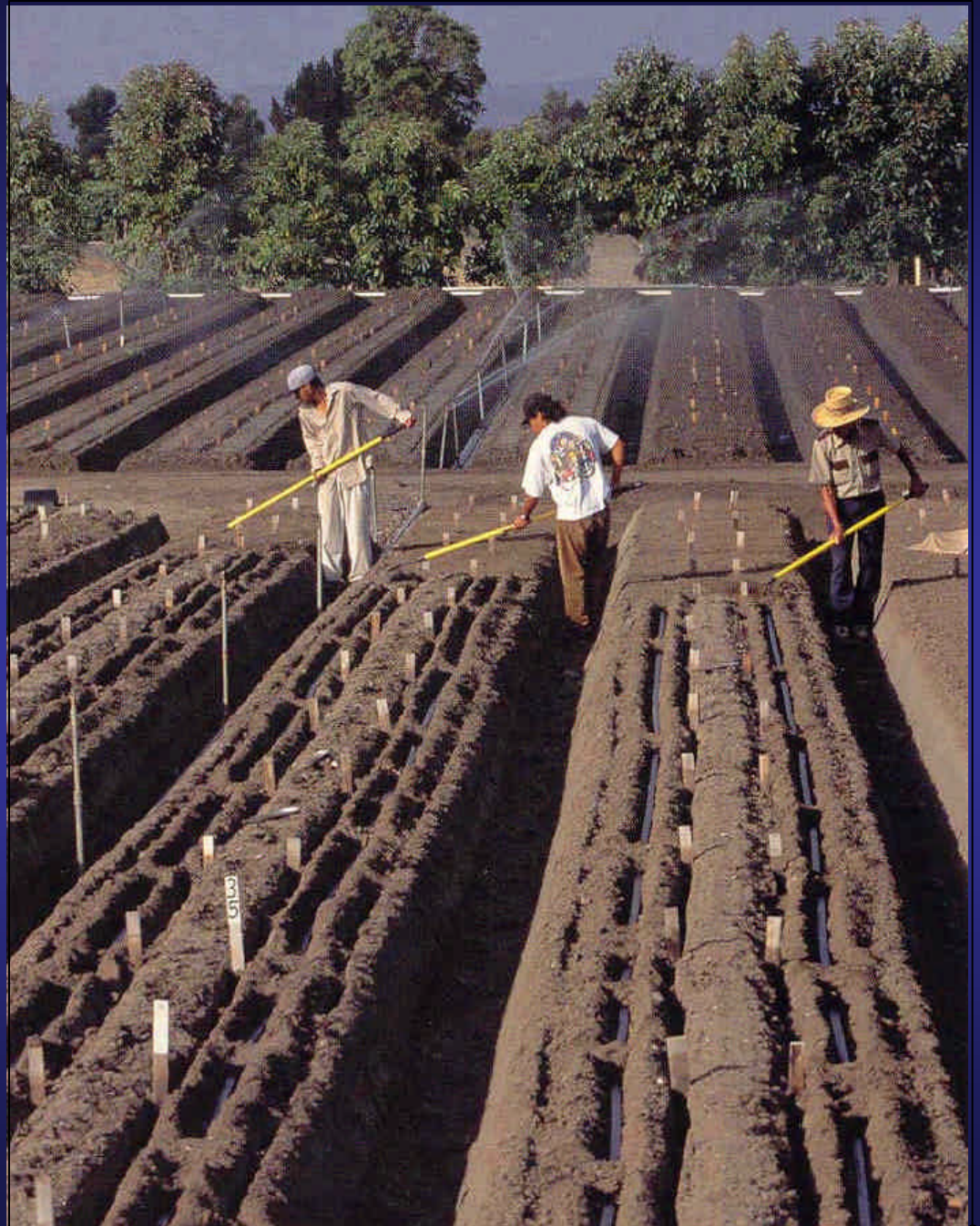
Kearney

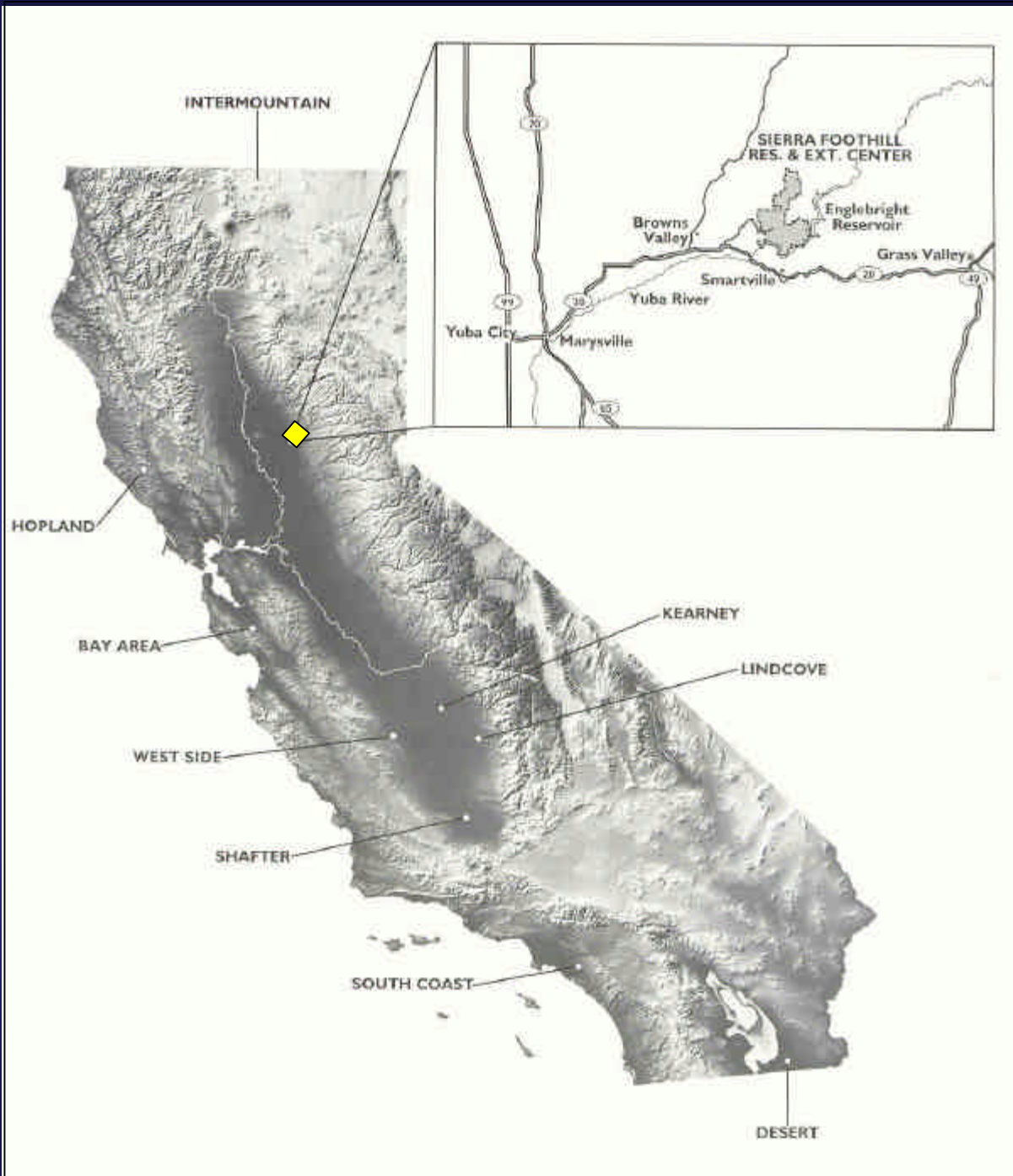


Shafter



South Coast



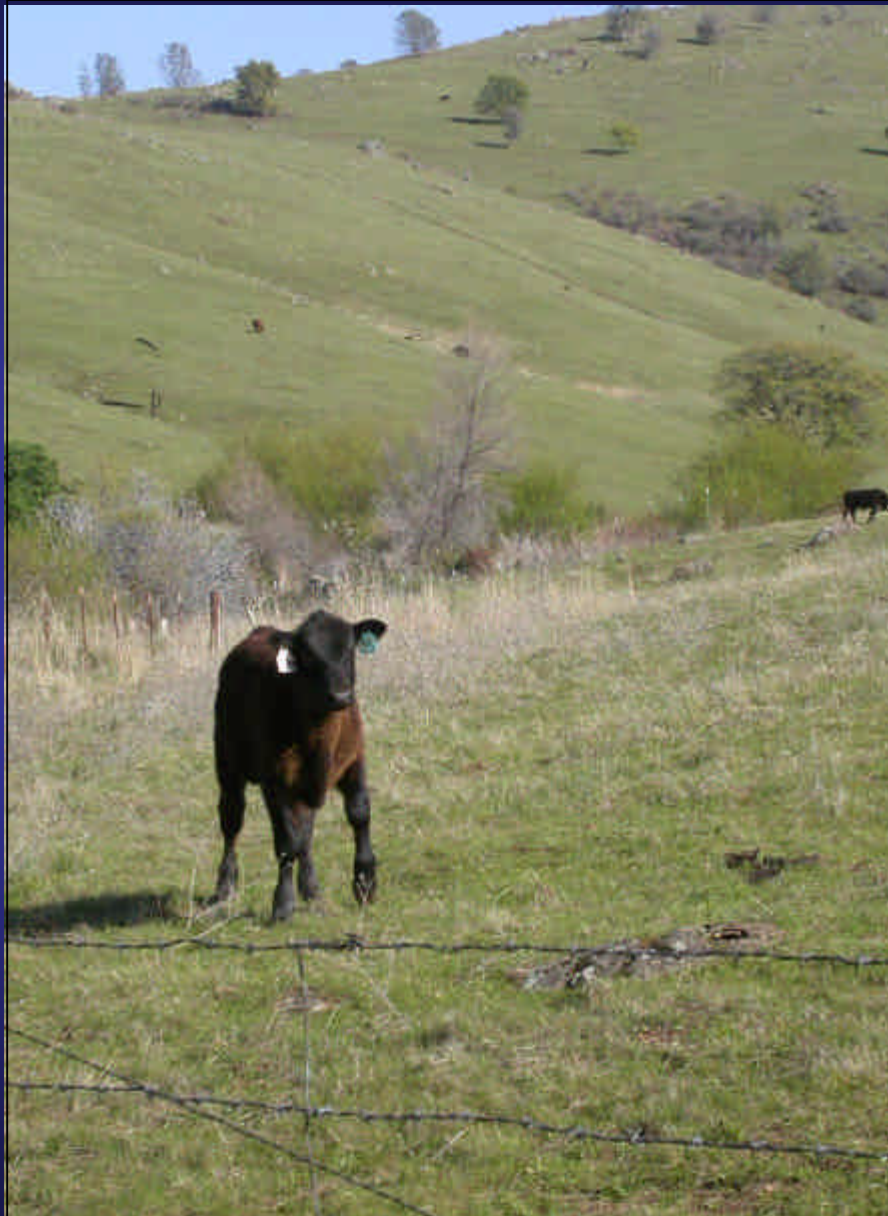


Sierra location

Sierra Foothills



Sierra Foothills





Preparedness Plans Address

- Security threats
- Personnel and Facility Safety
- Haz Mat releases
- Seismic events
- Fires
- Power failures
- Identification of critical research programs requiring controlled environments and/or environmental isolation

Survey Topics

Facility Description

- **Location and Accessibility**
- **Unique services & research Critical Missions/**
- **Utilities Type/service/quantities/backup**
- **Fuel use and storage**
- **Communications capabilities/systems/backups**
- **Seismic Stability Engineered Controls**
- **Specialized staff experience or training**

Survey Topics

Hazardous Materials

- **Pesticides**
- **Chemicals**
- **Waste**
- **Propane**
- **Fuel**
- **Hazardous Materials Management**

Survey Topics

Disaster Response

- **Disaster Types**
- **Susceptibility**
- **Security**
- **Emergency and Disaster Training**
- **Emergency response equipment/supplies/stores**
- **SARA Title III Community Right-to-Know Emergency Response Plan**
- **Off-Site Responders (Fire, Medical, Haz Mat)**

SFREC Utilities and Backup Systems

Utility Type	Description	Capacity	Backup System	Back-up Capacity
Drinking Water	Source water from headquarters spring, gravity flow at 10 gallons per minute (gpm)	Two 42,000-gallon (gal) storage tanks	Headquarters Well	>15 gpm
Irrigation Water	Source water from springs and reservoir	Variable	Headquarters Well	>15 gpm
Stock Water	Gravity fed and pumped	Variable	Not applicable	Not applicable
Fire Suppression Water	Domestic and irrigation water systems	84,000 gals. From domestic water system	Irrigation water from Lake Englebright	More water than can be hauled
Electricity	Pacific Gas & Electric	Not applicable	Two gasoline generators and one power take-off generator	10 KW from power take-off generator 4500 W from gas generator
Propane	Four total above- ground steel tanks	One 1,000-gal residence tank, one 500-gal shop tank, one 500-gal admin. office tank, and one 250-gal dorm tank	None	None
Diesel	One above-ground convault tank	1,000 gal	Conduct fueling at Brown's Valley commercial facilities	Not applicable
Gasoline	One above-ground convault tank	1,000 gal	Conduct fueling at Brown's Valley commercial facilities	Not applicable
Sewage	Septic system	Not applicable	None	None
Fire Alarms	Automated system	Audible alarms (do not notify local fire dept)	None	None
Communication System	Fixed telephone system	Multiple lines	Cell phones, handi talkies, and truck radios	Not applicable
Computer	Fixed computer connection	One line	Centrex and Non-Centrex lines	Not applicable
Roads	Paved and gravel	More than 30 miles	Not applicable	Not applicable

SFREC Critical Research Operations and Contingency Backup Systems

System	Purpose	Priority	Resource Needed	Contingency Backup	Backup Adequacy
Refrigerators with Freezers	Store blood, tissue	2	Electricity	Power take-off generator to provide electricity	Sufficient
Water Treatment	Drinking Water supply	2	Gravity flow	Gas generator to energize chlorinator pump	Sufficient
Irrigation	Experimental crop watering	4	Gravity flow	Power take-off generator to energize well pump and gravity fed domestic system	Sufficient
Lab hoods	Chemicals not stored under hoods	5	Electricity	None needed	Not applicable
Research Chemical Storage Areas	Store research chemicals	1	Contact researcher to verify containment	Contact HazMat response team	Sufficient
Fire Hose Water Supply	Provide supplemental water to fire department	1	Water tank truck capable of pumping water from on-site sources	Fire department may utilize water tank truck	Sufficient
Communications	Communicate emergencies	2	Phone lines, cell phone repeater towers, batteries	Cell phones, field truck radios, two ham radios	Sufficient
Pesticide Storage	Storage of pesticides	3	Electricity	Power take-off generator to provide electricity	Sufficient
Computers	Maintain electronic records	4	Electricity	Battery packs and backup files, power take-off generator	Sufficient
Building HVAC	Control bldg atmosphere	5	Electricity/ propane	Power take-off generator to provide electricity	Sufficient

SFREC Haz Mat Inventory

	ITEM TO CHECK				
	Pesticides	Comp. Gases	Shop Cleaners	Paints / Solvents	Used Oil/ Antifreeze
Location	Inside building #214	Welding gases in shop building #205.	Shop building #205	Separate flammable material storage in building #205	Shop building #205. Not stored near fertilizer.
Ventilation	Yes	Not applicable	Not applicable	Not applicable	Not applicable
Signs	Yes. Sign states "Danger Hazardous Materials."	Yes. Individual gases are identified by tags	Not applicable	Yes--sign states "Flammable"	Yes--sign states "Used Oil"
Area Floor •Clear Access •Spill Resistant Concrete •Primary Containment •Secondary Containment	Yes Yes No Some	Yes Yes No No	No No No No	No No No No	No No No Yes
Shelving over 5' high secured to walls	Yes	Chained to wall	Not applicable	Yes	Not applicable
Container Types	Liquids in plastic jugs or drums. Granular bulk bags on floor. Some research quantities in small glass containers.	Compressed gas cylinders	Metal and plastic cans and bottles. Managed by outside contractor	Metal and plastic cans and bottles.	Accumulation container provided by outside vendor Managed by outside contractor
Incompatible Segregated	Segregated according to incompatibility charts	Not applicable	Not applicable	Segregated according to incompatibility charts	Not applicable
Spill kit: •Sign Visible •Broom •Shovel •Absorbent •Waste disposal container accessible and and labeled	One present No Yes Yes Yes Yes	Not applicable	One present No Yes Yes Yes Yes	One present No Yes Yes Yes Yes	One present No Yes Yes Yes Yes

Resulting Plans

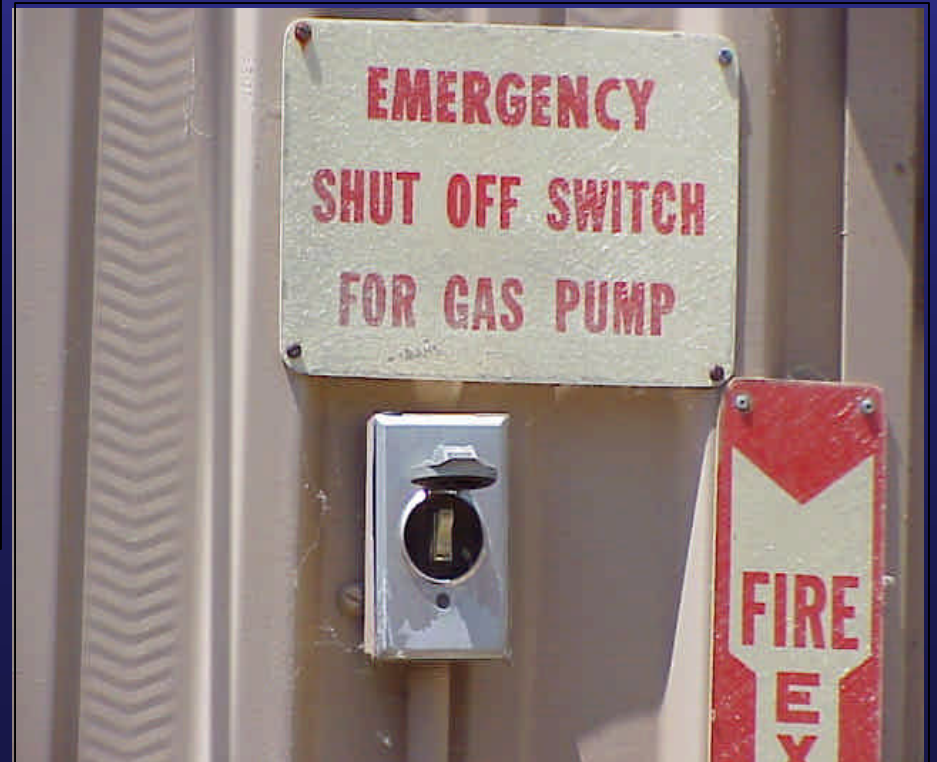
- **Emergency Preparedness Plan**
- **Emergency Response Plan**
- **Operational Recovery Plan**

SFREC Plans

EMERGENCY PREPAREDNESS PLAN



EMERGENCY RESPONSE PLAN



Critical Elements for Success

- **Plans developed “bottom up”**
- **Site specific detail**
- **Full facility ownership**
- **Cross training**
- **Knowledge of plans part of performance evaluation**



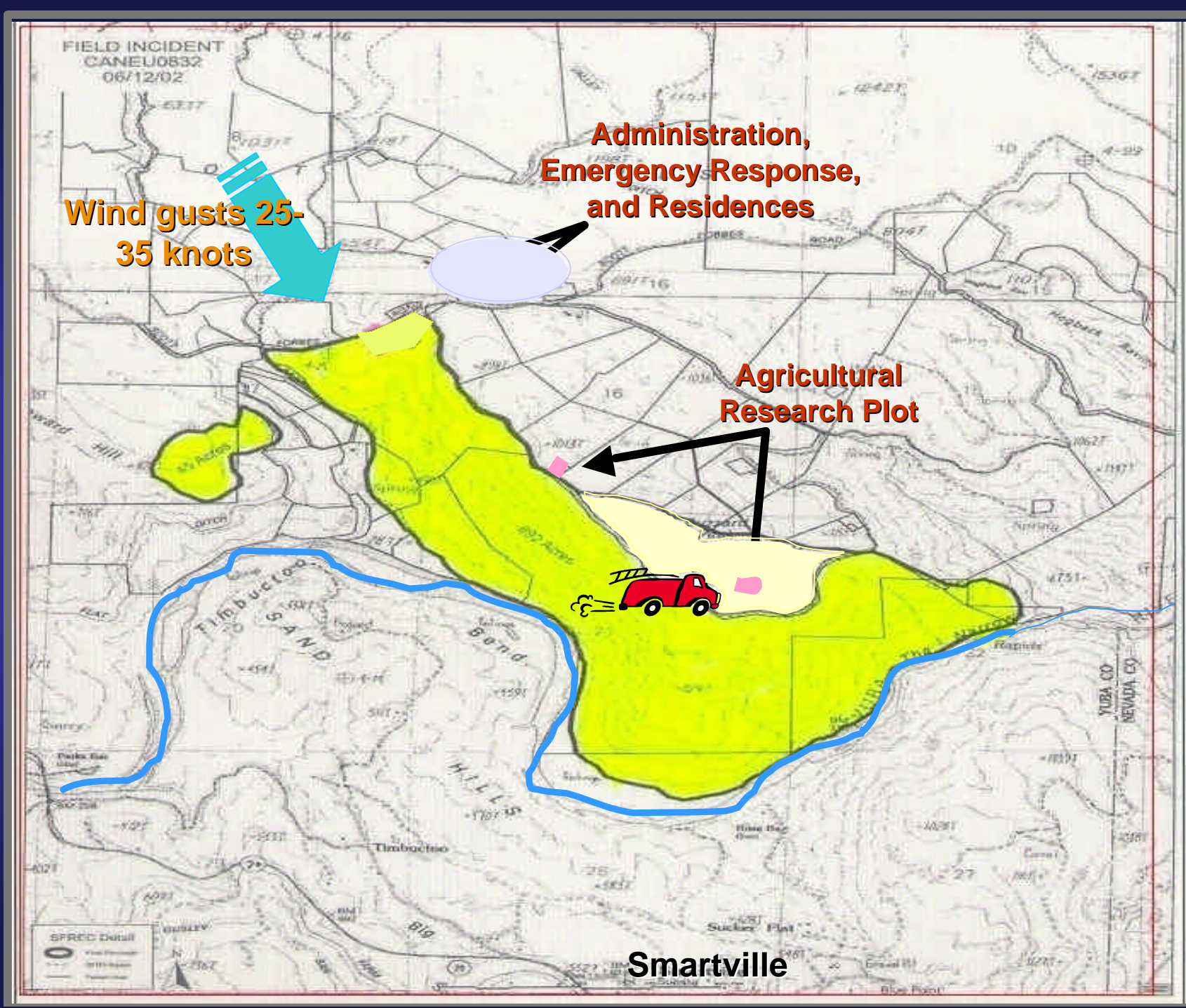
Wind gusts 25-35 knots

Administration, Emergency Response, and Residences

Agricultural Research Plot



Smartville



Response Actions

- **Fire occurred Sunday night; no first responders on site**
- **2nd Backup Assistant Incident Commander for Physical Plant first to arrive**
- **Response Actions well defined for both Physical Plant and Agricultural Actions**
- **Response Plan facilitates cross-responses:**
 - **move livestock, create fire breaks, shut down non-critical power systems**
- **On-site fire truck response to protect critical experimental plots**

Incident Response Summary – Side 1

RANGE, PASTURE, OR ORCHARD FIRE EMERGENCY RESPONSE ACTIONS

INCIDENT COMMANDER ACTIONS

1. Contact Fire Department, REC AO, and/or Ambulance Service.
2. Order evacuation of fields or other spaces.
3. Conduct headcount of employees and other personnel.
4. Direct application of intermediate first aid.
5. Direct SFREC operations to support Fire Department.
6. Initiate search effort for missing employees or other personnel.
7. Shut down SFREC if emergency poses unacceptable risk to employees or other personnel or causes reduction in operational productivity to unacceptable level.
8. Coordinate efforts to minimize impacts to employees or other personnel, livestock, facilities, and critical research programs.

Assistant Commander for Agriculture Actions (AICAA)

1. Close valves on field propane tanks.
2. Conduct headcount of livestock and initiate search if livestock are missing.
3. Release or move threatened livestock from barns, corrals, range lands, or pastures.
4. As requested by Fire Department, use generator to pump fire-suppression water and implement other measures to prevent fire damage.
5. Inspect overhead lines and contact utility provider if damaged or downed. Restrict access to areas around downed lines.
6. Inspect remote facilities and equipment for damage.
7. Contact veterinary service for injured livestock.
8. Inspect bridges for damage. Restrict access if bridge damage is observed or suspected.
9. Inspect roads to determine whether blockage from downed trees has occurred. Restrict access if where road blockage has occurred.
10. Use generator to pump water to maintain experimental crops.
11. Repair irrigation line leaks to maintain experimental crops. If not possible, then install temporary irrigation.

Incident Response Summary – Side2

Responsible Person	Task	Assigned to:	Backup 1	Backup 2
Tom, (IC)	Contact Fire Dept., REC AO, EMS	Jones	Kamel	Flood
Tom, (IC)	Order Evacuation of fields, pastures, or orchards	Tom	Larry	Sonny
Tom, (IC)	Conduct headcount of personnel and visitors	Jones	Kamel	Flood
Tom, (IC)	Direct SFREC operations to support Fire Dept.	Sonny	Larry	Ben
Tom, (IC)	Initiate search and rescue effort if needed	Tom	Larry	Sonny
Tom, (IC)	Coordinate activities to minimize impacts to employees, livestock, facilities and research	Tom	Larry	Sonny
Tom, (IC)	Shut down SFREC if emergency poses risk to personnel and facilities, as necessary	Tom	Larry	Sonny

Responsible Person	Task	Assigned to:	Backup 1	Backup 2
Sonny, (AICPP)	Assess potential for damage to headquarters facility and take steps to protect facilities	Sonny	Harry	Larry

Responsible Person	Task	Assigned to:	Backup 1	Backup 2
Larry, (AICA)	Release or move threatened livestock from barns, rangelands, corrals	Lars	Tonto	Flood
Larry, (AICA)	Assist Fire Department as needed with pumps, generators, etc.	Harry	Ben	Flowers
Larry, (AICA)	Inspect overhead lines and contact utility provider if lines are damaged or downed, restrict access to areas around lines as necessary	Ben	Flowers	Nano
Larry, (AICA)	Conduct headcount of livestock-initiate search if livestock are missing	Lars	Tonto	Flood
Larry, (AICA)	Contact vet for any injured livestock	Needle	Kamel	Flood
Larry, (AICA)	Inspect bridges for damage, restrict access if necessary	Larry	Ben	Sonny
Larry, (AICA)	Inspect roads for any damage or blockage, restrict as necessary	Ben	Flowers	Nano
Larry, (AICA)	Inspect remote facilities and equipment for damage	Ben	Flowers	Nano
Larry, (AICA)	Repair irrigation line links to maintain research projects, if expedient repairs are not possible, then install temporary irrigation piping	Flowers	Ben	Nano
Larry, (AICA)	Use generator to pump water to maintain experimental crops	Ben	Harry	Flowers

Benefits of Planning Process

- Improved *Communication*
 - across facility lines
 - greater Headquarters awareness of facility issues
- Improved *funding prioritization* among facilities



Security Applications

- ✓ **Critical to begin planning process at lowest organizational levels**
- ✓ **Instructions developed by those performing the response actions**
- ✓ **Cross training**
- ✓ **Detailed and facility specific visual aids**

*University of California
Division of Agriculture and Natural Resources
Veterinary Medicine Extension*

DANR Guide to Disaster Preparedness

