

REVIEW:

Actively seek oil and gas information and hazards.

- Maintain situational awareness in the oil and gas field.

- Notify and communicate hazards.

- Monitor your environment and those around you.

- Contact Southern Ute Agency, Fire Management for more information: (970) 563-4571

Above Ground

The Rocky Mountain-Desert Southwest Reliability Center (RDRC) Contact number is

24 Hour Unlisted

970-461-7516 or 970-461-7517

They are available 24/7 and will have the responsible parties call you back within an hour.

When calling notify them of your name, you are from Durango Interagency Fire Dispatch Center, you have a fire needing to "dig fireline" at a fire located at Lat and Long or Township/Range or a location. Provide them with the county; and a general fire location from a road intersection, or known geographic location, to include distance and bearing.

Durango Area Gas & Oil Government Liaisons (Work with Incident IC's and G&O Companies. See phone list.)

| | |
|---|--------------------|
| SUA & UMA Reps Steve Johnson | Contact FMO |
| Rod Brashear | PLC/SJD |
| Loren Wickstrom | PLC/SJD |
| VACANT | PLC/SJD |

Always contact Durango Dispatch, the information on pages 6 and 7 is informational use only.

Durango Dispatch will contact the 8-1-1 operator for all fires involving oil and gas, or other utilities.

The oil and gas company safety representative should be available to the Incident Commander for advice and information regarding Oil and Gas industry issues.

Objective #3

Reference informational safety sheets to promote the identification of oil and gas industry hazards and possible ways to mitigate those hazards.

Oil and gas facilities have hazards that pose threats to wildland firefighters

When arriving on scene, notify Durango Dispatch Center of the owner of the facility and its location.

Seek out oil and gas well personnel to get information regarding the condition of surrounding oil and gas infrastructure and associated hazards.

The large, open spaces created by well pads and rights-of-way make convenient and tempting areas for firefighting operations, staging areas, and safety zones yet the presence of hazardous materials, high pressure pipelines and industrial equipment can create a dangerous environment for untrained personnel.

If staging more than three vehicles or pieces of equipment on a well pad location, ask Durango Dispatch to notify the owner/operator of the well (usually identified on the well location sign). See well diagram for safe areas to park on a well pad. Generally, these areas are outside of the well rig anchors and 20 feet away from any production equipment or pipelines.

Open pits/dumps should be avoided as they could contain discharging gas. When driving on a well pad, avoid backing up around production equipment. Park in such a way that allows you full vision of surrounding hazards and avoids the need for backing.

Gas Monitors

- Numerous available but two styles generally used.
- 4 Gas Measures CO, H₂S, O₂, & LEL
- Single Gas measures one gas (ie.H₂S) only.

Will sound low or high (louder with vibrate) alarm when thresholds are exceeded.
 - After an Alarm sounds it will go off automatically only after gas level drops below threshold.
 - Low thresholds set near or at OSHA 8 hour PEL (Permissible Exposure Limit).
 - Low alarm for H₂S at 10 PPM. High alarm at 20 PPM.
 - Low alarm for CO at 35 PPM. High alarm at 70 PPM.

O₂ range from 19.5% - 23.5%

LEL range from 10 – 20%.

 - 4 Gas will show peak levels and time weighted average of exposure.

To enter into the Buffer zone to fight fire:

- Notify Durango Fire Dispatch that the fire is in the buffer zone and hazards have been identified and mitigating measures will be taken.
- Firefighters must be trained in H₂S and Well Pad safety before entering the Buffer Zone.
- Firefighters will be briefed on potential hazards within the Buffer Zone and be allowed to refuse the assignment.
- Each resource (dozer, crew, engines) will have a four gas monitor with them at all times. Single Resource Bosses will ensure that subordinates stay within proximate distance of the four gas monitor. If individual personnel need to be separated (scouts, lookouts, sawyers, etc), they will receive individual gas monitors.
- Avoid prolonged exposure within the Buffer Zone. Rotate personnel as needed and remove anyone who shows early signs or symptoms of gas asphyxiation.
- Gas asphyxiation symptoms and emergency evacuation procedures will be included in the briefing. All personnel will monitor themselves and fellow firefighters for symptoms.
- The Single Resource Boss will coordinate and carry out the emergency evacuation plan when necessary.

When well sites are well maintained and fully functional, they are relatively safe places and can withstand the high temperatures associated with wildland fires. Not all well sites are well maintained however, and noxious and flammable gases can be present around the well site. If these gases are ignited, a potential flare-up or explosion could occur.

Toxic and harmful gases, such as Hydrogen Sulfide (H₂S), may be present in harmful concentrations around well sites and well equipment. These gases may or may not smell and are heavier than air and sink to low areas. Avoid low areas during calm, windless periods.

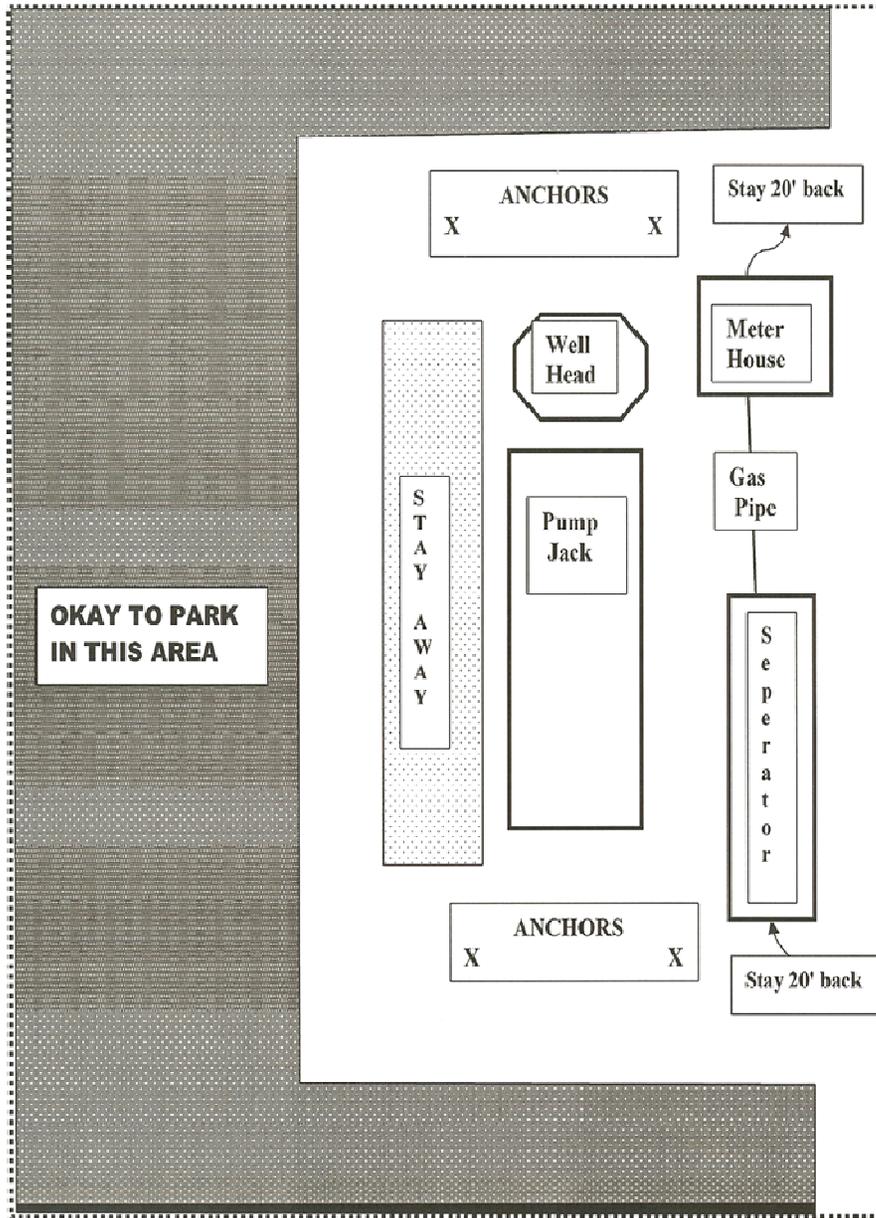
If dozer operations are likely, ask Durango Dispatch to notify the appropriate utility representative. Do not assume that pipelines are buried deeply or are directly under their markers. Dozer operators and bosses need to be extremely cautious.

Engines should avoid rights-of-way due to exposed pipelines and dog-legs (pipe rising above ground from pipelines).

Objective #4

Identify well pad infrastructure and hazards associated with the infrastructure.

SAFE PARKING AREAS FOR FIREFIGHTERS AT GAS WELLS



Stay Outside the Anchor Pattern
 Stay Away from Equipment that is Outside of Anchors by 20 feet.

- Given certain conditions when aerial attack of the fire is ineffective or excessive, ground suppression resources may be needed to enter the Exclusion Zone and suppress the fire directly.

- In such an event, an Initial Attack Entry Team (IAET) consisting of hazmat, oil and gas experts and fire managers will be assembled to scout and monitor the fire area and give clearance to fire suppression operations. See SUA Annual Operating Plan for more details.

When Operations are necessary within the Exclusion Zone and following clearance from the Initial Attack Entry Team:

- Firefighters will be briefed on potential hazards within the Exclusion Zone and be allowed to refuse the assignment.
- A Safety Officer will be assigned to the incident and will monitor environmental conditions, maintain positive situational awareness and ensure that all personnel are following safety procedures.
- Each resource (dozer, crew, engines) will have a four gas monitor with them at all times. Single Resource Bosses will ensure that subordinates stay within proximate distance of the four gas monitor. If individual personnel need to be separated (scouts, lookouts, sawyers, etc), they will receive individual gas monitors.

Southern Ute Exclusion Zone

Standard Operating Procedures:

- Training specifically covering the hazards associated with noxious gases within the wildland fire environment will be given to SUA firefighters annually and offered to surrounding agencies.
- Generally, fires occurring within the Exclusion Zone will be suppressed using aerial resources with ground resources watching and monitoring the fire from a safe distance outside of the Zone.
- Given certain conditions when aerial attack of the fire is ineffective or excessive, ground suppression resources may be needed to enter the Exclusion Zone and suppress the fire directly.
 - In such an event, an Initial Attack Entry Team (IAET) consisting of hazmat, oil and gas experts and fire managers will be assembled to scout and monitor the fire area and give clearance to fire suppression operations. See SUA Annual Operating Plan for more details.
- Training specifically covering the hazards associated with noxious gases within the wildland fire environment will be given to SUA firefighters annually and offered to surrounding agencies.
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Well Pad Infrastructure From Top Left Clockwise Separator Unit, Collection Pit, Pump head, Right of way with Dog leg



Objective #5

Identify sources of oil and gas information available to wildland fire-fighters. Oil and Gas well signs. Utilities: Contact through Durango Dispatch.



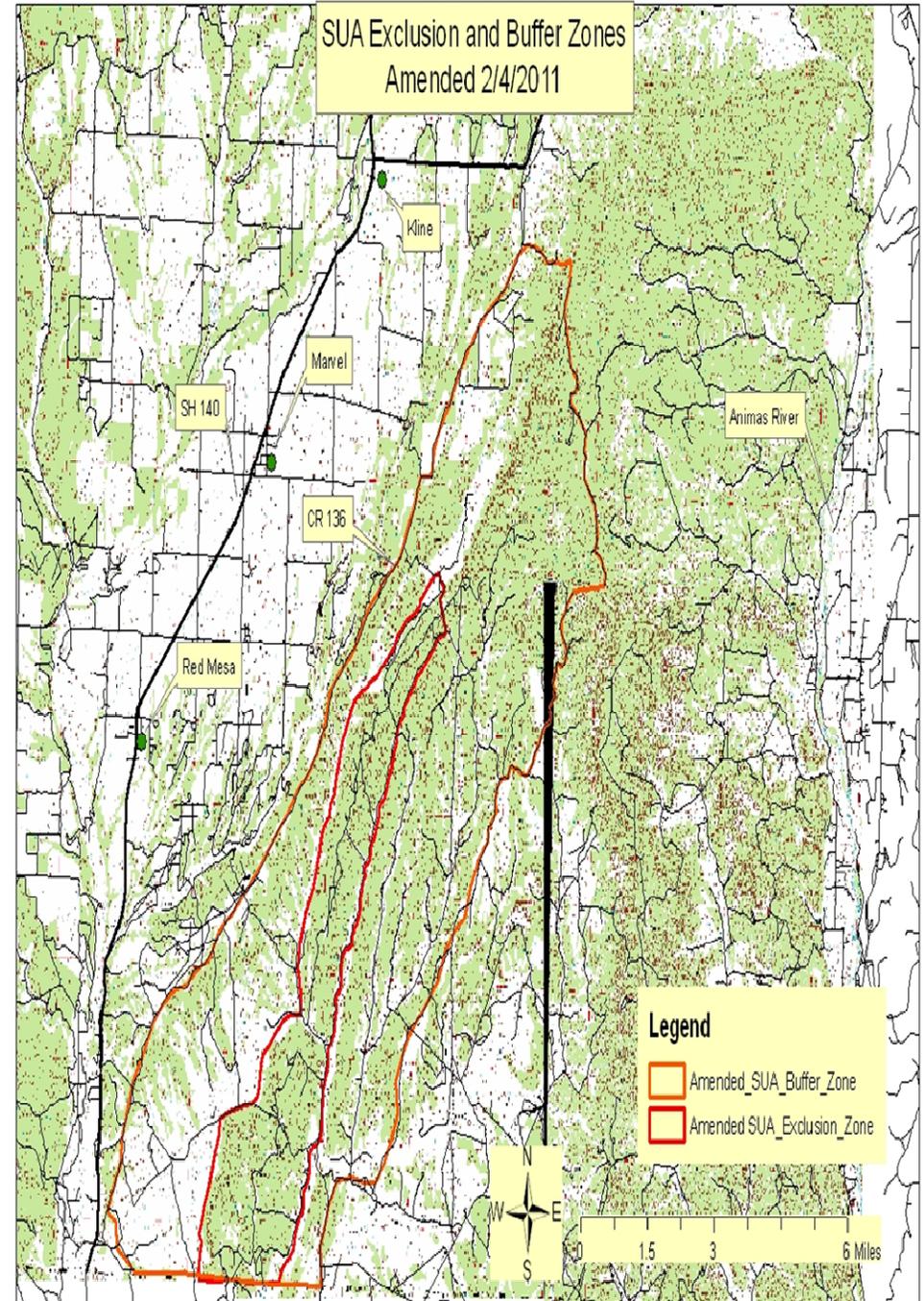
All well sites should be signed with the following:

Owner (BP Amoco)

Location – S/T/R or Lat/Long (S-29, T-33N, R-10W)

Well Number (So. Ute 33-10-29-3)

This one has hazards listed but not all do.



Flammable—In Concentrations above 5% in air.
40% Lighter Than Air

Safety Protocols & Tips

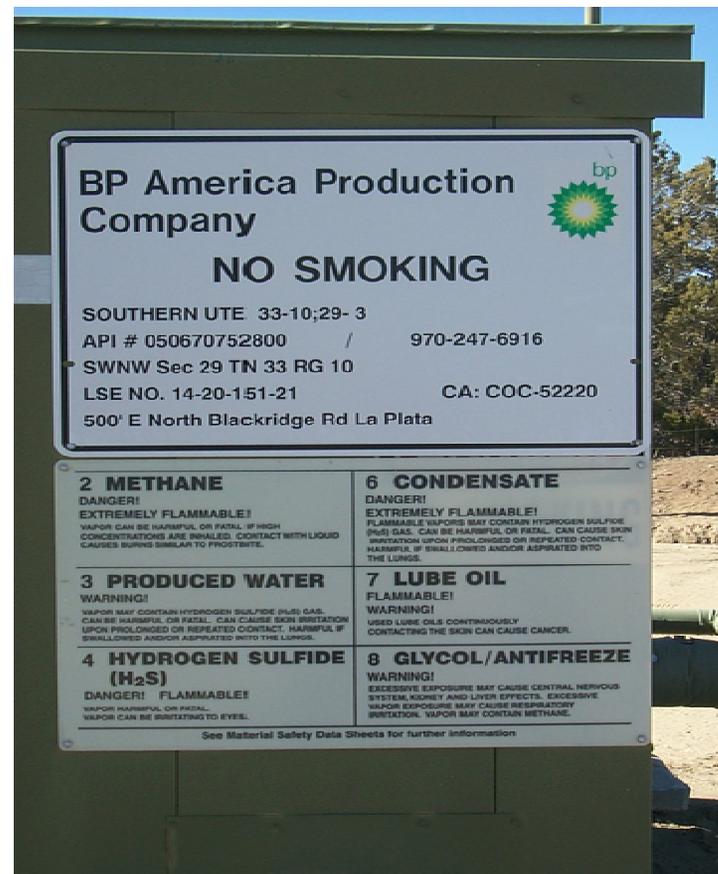
- Wear appropriate PPE when on site.
- Stay close to the person monitoring gas levels.
- Avoid areas where gas levels are too high (monitor alarm).
- Avoid standing directly in front of vent well discharge.
- Stay Hydrated (water is supplied)
- Plan your steps (rugged terrain).

Southern Ute Exclusion and Buffer Zones.

The west side of Southern Ute Reservation is of particular concern regarding noxious gas. In 1999, two firefighters became ill with symptoms consistent with asphyxiation and gas poisoning.

A safety panel was convened to investigate the cause of the illnesses and to provide recommendations:

1. Delineation of a firefighter Exclusion Zone and an outlying Buffer Zone.
2. Minimize firefighter exposure to these gases, ground suppression was limited to situations where aerial attack was ineffective or when other safety concerns may be created by allowing the fire to burn. (i.e. structures threatened, public safety, large fire potential, etc)



Durango Interagency Dispatch Center will be the primary contact to underground and above ground utility services for wildfires.

Inform Dispatch of all pertinent information regarding location of existing utilities and any planned disturbances that may impact utilities (dozer ops, smoke impacts to utility lines, etc).

Objective #6

Identify hazardous gas areas and methods of mitigating that hazard.

- Well Pads
- So. Ute Exclusion and Buffer Zones.
- Gas Monitor Use

Noxious gases exist naturally in many areas yet are more likely to be present near gas well installations.

The following is general gas safety information that is presented to oil and gas workers and site visitors.

Hydrogen Sulfide—General Information.

Abbreviated H₂S

Synonyms Include:

Sour Gas

Sewer Gas

Properties & Hazards:

Colorless

Toxic

Potentially deadly at concentration above 100 ppm.

Flammable

Concentrations must be at least 4.3% in air.

Odor—rotten egg

Paralyzes sense of smell.

Heavier than air (21% heavier than air)

Symptoms of H₂S Exposure include:

Eye Irritation

Dryness/irritation of throat

Irritation of respiratory system

Loss of Smell

Headache

Nausea

Vomiting

Response to Detected/Suspected H₂S

Leave Area Immediately—Go Upwind

Seek Medical Help, if needed

Carbon Monoxide—General Information

Abbreviated CO

Synonyms include:

Carbon Oxide

Flue Gas

Monoxide

Symptoms of Carbon Monoxide Exposure include:

Headache

Fatigue

Nausea

Dizziness

Shortness of Breath

Unconsciousness

Response to Detected/Suspected CO

Leave Area Immediately—Go Upwind

Seek Medical Help, if needed

Methane—General Information

Abbreviated CH₄

Principle Component of Natural Gas

Methane—Properties & Hazards

Colorless

Odorless