



CAL FIRE
San Luis Obispo
County Fire Department

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Matt Jenkins, Fire Chief



COMMERCIAL FIRE PLAN REVIEW

July 9, 2010

Subject: DRC2009-00025 for surface mining/reclamation operation.

To: Jeff Oliveira
Planning and Building Department

I have reviewed the Notice of Preparation for the surface mine and reclamation plan to operate aggregate quarry, asphalt and concrete recycling/manufacturing. This operation is located on APN # 070-141-070 and 071, which is a 60 acre site, of 260 acres total located at 6660 Calf Canyon Highway in Santa Margarita.

The project is within a **high fire hazard severity zone** with a 5 minute response time from the nearest County Fire Station, Parkhill Station # 40.

The project and applicant shall comply with the 2007 California Fire Code (CFC), the 2007 California Building Code (CBC), the Public Resources Code (PRC) and any other applicable fire laws.

Commercial Access Road:

- A commercial access road must be 20 feet wide.
- Parking is only allowed where an additional 8 feet of width is added for each side of the road that has parking.
- Must be an all weather non-skid paved surface.
- All roads must be able to support a fire engine weighing 40,000 pounds..
- Vertical clearance of 13'6" is required.

Gates:

- Must be setback from the road 30 feet from the intersection.
- Must automatically open with no special knowledge.
- Must have a KNOX key box or switch for fire department access. Call the Prevention Bureau for an order form at (805) 543-4244.
- Gate shall have an approved means of emergency operation at all times. CFC 503.6
- Gate must be 2 feet wider than the road on each side.
- Gates must have a turnaround located at each gate.

Water Supply

A water storage tank with a capacity determined by a factor of the cubic footage of the structure will be required to serve each existing and proposed structure. A residential fire connection must be located within 50 to 150 feet of the buildings.

Site Identification Addressing:

A site access road identification sign must be legible at the entrance on Highway 58. This sign/marker shall be on a contrasting background and a minimum of 10 inch lettering with 1/2" stroke. This sign/marker must be displayed in a prominent location. CFC 505.1 Streets and roads shall be identified with approved signs. CFC 505.2

Portable Fire Extinguishers:

California Fire Code section 906 requires a minimum 2A fire extinguisher shall be kept readily accessible on each piece of earth moving heavy equipment used at the surface mining site.

Fire Safety during Construction:

Prior and during construction all applicable Public Resources Codes must be complied with to prevent a wildfire. These will include the use of spark arresters, adequate clearance around welding operations, smoking restrictions and having extinguishers on site. The Industrial Operations Fire

Prevention Field Guide will assist the applicant and is available online at http://cdfdata.fire.ca.gov/fire_er/fpp_engineering_view?guide_id=12

California Health and Safety Code Section 13001 - Causing Fire, Misdemeanor.

Every person is guilty of a misdemeanor who, through careless or negligent action, throws or places any lighted cigarette, cigar, ashes, or other flaming or glowing substance, or any substance or thing which may cause a fire, in any place where it may directly or indirectly start a fire, or who uses or operates a welding torch, tar pot or any other device which may cause a fire who does not clear the inflammable material surrounding the operation or take such other reasonable precautions necessary to insure against the starting and spreading of fire.

California Public Resource Code Section 4427 - Clearing and Tools Required.

During any time of the year when burning permits are required in an area pursuant to this article, no person shall use or operate any motor, engine, boiler, stationary equipment, welding equipment, cutting torches, tar pots, or grinding devices from which a spark, fire, or flame may originate, which is located on or near any forest-covered land, brush-covered land, or grass-covered land, without doing both of the following:

- (a) First clearing away all flammable material, including snags, from the area around such operation for a distance of 10 feet.
- (b) Maintain one serviceable round point shovel with an overall length of not less than forty-six (46) inches and one backpack pump water-type fire extinguisher fully equipped and ready for use at the immediate area during the operation.

California Public Resource Code Section 4442 - Using Equipment Without Spark Arrester.

(a) Except as otherwise provided in this section, no person shall use, operate, or allow to be used or operated, any internal combustion engine which uses hydrocarbon fuels on any forest-covered land, brush-covered land, or grass-covered land unless the engine is equipped with a spark arrester, as defined in subdivision (c), maintained in effective working order or the engine is constructed, equipped, and maintained for the prevention of fire pursuant to Section 4443.

(b) Spark arresters affixed to the exhaust system of engines or vehicles subject to this section shall not be placed or mounted in such a manner as to allow flames or heat from the exhaust system to ignite any flammable material.

(c) A spark arrester is a device constructed of nonflammable materials specifically for the purpose of removing and retaining carbon and other flammable particles over 0.0232 of an inch in size from the exhaust flow of an internal combustion engine that uses hydrocarbon fuels or which is qualified and rated by the United States Forest Service.

California Fire Code Section 2606 – Welding and Other Hot Work

A fire watch shall be provided during hot work activities and shall continue for a minimum of 30 minutes after the conclusion of the work.

If I can provide additional information or assistance on this mater, please don't hesitate to contact me at (805) 543-4244. Thank you!

Sincerely,



Tina Rose
Fire Inspector

cc: Las Pilitas Resources LLC
Ken Johnston

10. CONSTRUCTION AND SURFACE MINING

Construction and surface mining are treated together. Each has certain operations and equipment unique to itself. Likewise, they generally involve similar operations (e.g., earth moving, drilling, and blasting) and equipment (e.g., bulldozers, loaders, and air compressors). Construction includes building dams, highways, railroads, pipelines, powerlines, etc., as well as grading for real estate developments, realigning or widening highways, etc. Surface mining includes rock and stone quarries, sand and gravel pits, cement quarries as well as mines for specific ores such as iron, coal, borax, diatomaceous earth, etc.

The time of greatest fire danger in any of these activities occurs during the pioneering or right-of-way clearing phase. At this time, people and machines are working in and among vegetative fuels which are highly flammable during a major portion of the year.

Later, as earth is moved much of the operation takes place on bare mineral soil or rock. However, fire prevention activities and fire suppression readiness cannot be ignored. There is always a fringe or border zone where vegetation meets the working area, and there are always access routes. The latter are particularly important since a major portion of wildland fires associated with construction and mining start along such access routes from motor vehicles and/or their operators.

10.1 Earth Moving Equipment

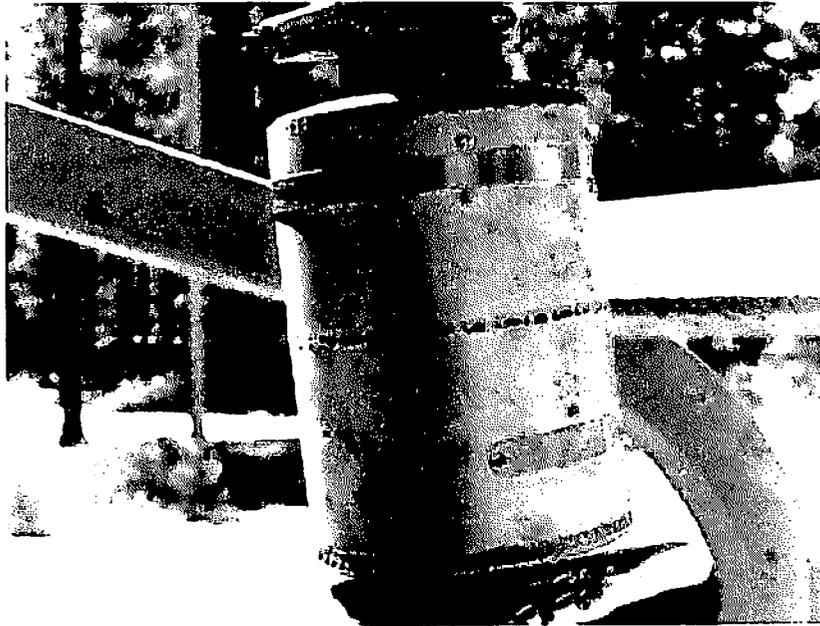
- *PRC §4428 (Fire tools required)*
- *PRC §4442 (Spark arresters required)*

Earth moving equipment (e.g., bulldozers, scrapers, end loaders, and trenchers) comprises the majority of construction and surface mining equipment. It is the bulk of the fire risk in these activities.

This section applies equally, however, to all other mobile equipment used in these industries (e.g., pavement spreaders and rollers, forklifts, sidebooms, and compactors). These types of equipment are powered by internal combustion engines and therefore required to be fitted with a properly functioning spark arrester when operating on forest, brush or grass-covered land.

“Operating on” has been interpreted as meaning either actually on and over these vegetative fuels or in proximity thereof. Nearly anywhere on a highway, powerline or pipeline right-of-way would be included, as would all areas within 50 to 100 feet inside the perimeter of open pit mines, quarries, dam site clearings, or anywhere outside such perimeters.

A “properly functioning spark arrester” normally includes a turbocharger, providing none of the exhaust gases are allowed to bypass the impeller blades. If the arrester is of the common retention type, it is “properly functioning” only if the carbon trap is empty enough to actually retain carbon particles. The frequency of cleaning the trap to meet this standard will vary with type and condition of engines, and type and amount of use. Generally, however, spark arrester traps should be emptied no less often than once a week. A well-tuned engine operating continuously at, or near, full power will usually produce the fewest exhaust carbon particles. An engine that is in poor condition, and is allowed to idle for an appreciable time will, when revved up, produce large quantities of carbon particles. Most equipment is operated and maintained somewhere between these two extremes.



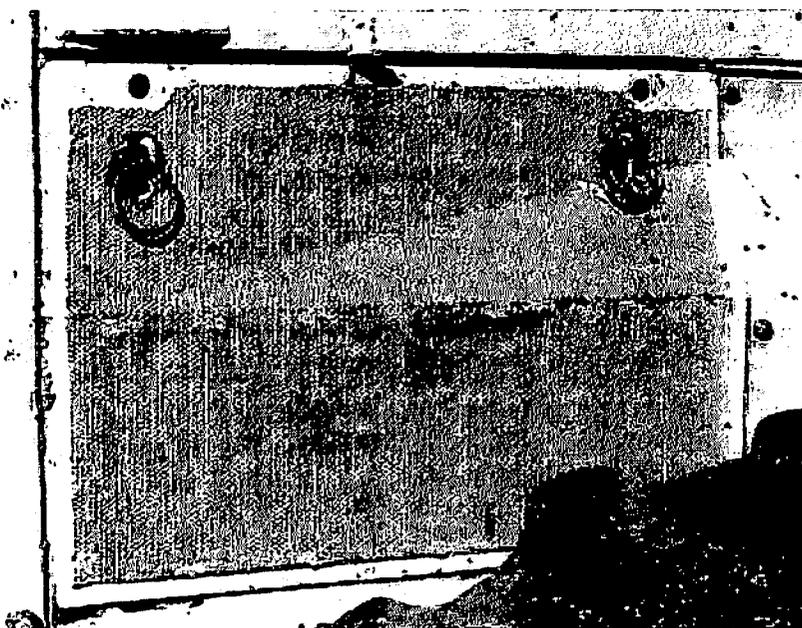
**Photograph 10-1.
Spark Arrester on Bulldozer**

The escape of carbon particles out the top of the stack is the most frequent source of wildland fire from the use of these machines. Other parts of the exhaust system can, and sometimes do, provide ignition sources. These primarily include leaks and accumulations of flammable debris. During any routine maintenance, the entire exhaust system, from manifold to end of stack, should be inspected for cracks, burned out holes, missing bolts, broken gaskets, etc., and for accumulations of debris. Appropriate corrections must be made. A leaking exhaust system is in violation of spark arrester laws and regulations.

Other sources of ignition from these machines include sparks from blades or tracks scraping against rocks, overheated brakes on wheeled equipment, friction from worn or unaligned belts and drive chains, and burned out bearings or bushings. The first of these is difficult to prevent. Operators should be aware that sparks can, and do, fly from rock/metal contact. They should be prepared and equipped to take immediate suppression action. The other hazards result primarily from inadequate maintenance. The prevention indicated is obvious.

A common fuel bed, which presents a fire hazard to both the machine and the surrounding vegetation, is accumulated debris in the belly pan. Such debris, which may include soil, is usually soaked with oil and therefore more flammable than in its natural state. It also restricts air flow around the crankcase and causes overheating of lubricating oil.

Two remedies are available: 1) screening the debris out of the engine compartment, and 2) washing or blowing the debris out during servicing and maintenance. This trash problem has been so serious in the logging industry that all major manufacturers now equip their new logging machines with screens or grates to completely enclose the engine compartment. In the interest of fire safety, all owners and operators in any type of service should have their machines similarly equipped.



**Photograph 10-2.
Engine Compartment Screen**

All such equipment has an electrical system, either for direct starting or for ignition on a gasoline starting motor. These electrical systems occasionally develop shorts and electric arcing which often ignites a fire. It has been suggested that all machines, both new and old, be equipped with a conveniently located master switch by which the operator can instantly open the circuit to stop any arcing. An alternative would be an automatic overload circuit breaker.

All construction equipment, whether tracked or wheeled, and whether for highway or non-highway use, should be equipped with a shovel and axe. Both should be mounted so as to be readily available to the operator in case of fire, not locked away in a compartment or trunk. The shovel should be long-handled and round-pointed. Some of the large and expensive machines may be equipped with manual/automatic fire suppression systems.

10.2 Stationary and Portable Equipment

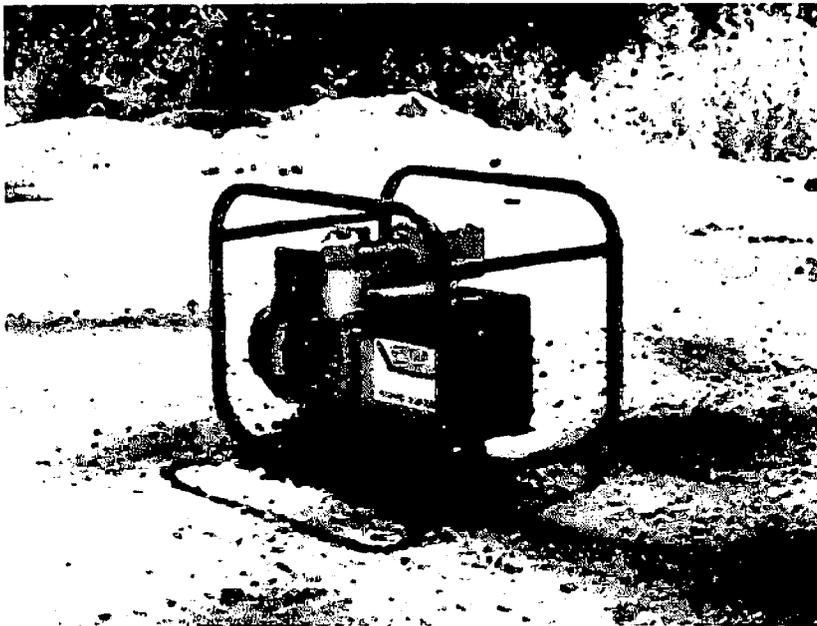
- *PRC §4431 (Gasoline powersaw clearance and tools required)*
- *PRC §4442 (Spark arresters required)*
- *36CFR §261.52 (Spark arresters required on National Forest land)*

This section covers equipment which may be mounted on wheels, tracks or skids, is usually not self-propelled, and is normally operated in a given location for an appreciable time, from a few hours to several months. Such equipment can be highly varied but is typified by: air compressors, chippers, generators, derricks or cranes (other than electric), etc. This machinery would usually be in the way if placed directly in the operating area.

As with all internal combustion engine-powered equipment, the greatest fire danger comes from the exhaust system. The problems and their solutions for this type of equipment are different than for mobile equipment. This type of equipment is often governed to run at a steady speed, but not necessarily at a

steady load. Being in a fixed location, grass can grow up under and around it. Leaves and needles can blow against it even though it may have been placed on bare ground at the outset.

Over the years, various laws, ordinances, and regulations have been adopted regarding such equipment. They require the same type of exhaust spark arresters as for mobile equipment, a clearance of all flammable materials of at least 10 feet in all directions from the machine and the provision of a shovel and a backpack pump water fire extinguisher in the immediate area. It is good firesafe practice to inspect the exhaust system on these machines periodically for leaks as discussed in "Earth Moving Equipment."



**Photograph 10-3.
Clearance Around a Stationary Engine**

10.3 Trenching Equipment

A modern piece of equipment being used to trench through rock is a rock saw. This piece of equipment requires a 10-foot clearance like any other grinding equipment. Due to the terrain that this equipment is used in, a 10-foot clearance is often unattainable. In this case, a water tender of 2000 gallons may be required to be on site and saturate the area prior to operating.



Photograph 10-4.
Rock Saw

10.4 Small Multi-position Engines

- *PRC §4431 (Gasoline powersaw clearances and tools required)*
- *PRC §4442 (Spark arrester required)*
- *36CFR §261.52 (Spark arrester required on National Forest land)*

These engines power all types of hand-held power equipment, including chain or rotary saws, posthole diggers, weed cutters, compactors, etc. They must be equipped with spark arresters like all other internal combustion engines used on forest, brush, or grass-covered land. The retention spark arresters and turbochargers commonly used on larger engines are too bulky and heavy for these hand-held engines. Therefore, they are commonly fitted with attrition screen-type spark arresters.

If the mesh is fine enough to meet legal standards (.023 in.), screen arresters work quite well when they and the engine are new. Worn engines produce more carbon than new ones; therefore, they tend to clog the screen rather rapidly. The wire used to make the screen, though usually high carbon steel, is necessarily so fine that it will burn out under continuous heavy use. Thus, in order to avoid either excessive back pressure or the escape of carbon particles, these screen arresters require frequent inspection and servicing. They should be inspected for holes at each refueling and cleaned daily.

Probably the most hazardous time in the use of these small engines is during refueling. They are built compactly and most use gasoline for fuel. The proximity of the gas tank filler opening to the exhaust outlet and other very hot engine parts makes it easy to spill gasoline in a place where it will burst into flame. Therefore, the same laws and rules are applicable to all these machines as to chain saws discussed under "Timber Harvesting."

Basically, these laws and rules include:

- having fire fighting equipment readily at hand,
- refueling only in an area cleared to mineral earth at least 10 feet in all directions,

- when restarting engines, move the equipment away from any fumes, turning it so the exhaust points away from the refueling location.



**Photograph 10-5.
Refueling a Chainsaw**

Since July 1, 1978, all the Pacific Coast states have required new multi position small engines to be equipped with exhaust systems or spark arresters which meet SAE (Society of Automotive Engineers) Standard J335 (b). Some older equipment met this standard. All operators in wildland areas should make sure all their small engines meet this standard for surface and exhaust gas temperatures, debris accumulation, durability and serviceability.

Another source of fire from these machines is the cutting edge, or other rapidly moving metal part, striking a rock and causing a spark. This has been a frequent occurrence with rotary mowers used to clear dry grass and weeds. It can happen with any of the types of machines discussed here. Whether a fire starts from this cause, from exhaust sparks or from fuel spillage during refueling, it is imperative that the operator be prepared to immediately shut down the machine and commence fighting the fire. This is why California law, and that of several other states, requires that a long-handled, round-point shovel, or a fire extinguisher be kept within 25 feet at all times during operation and refueling.

10.5 Crushers and Pavement Plants



**Photograph 10-6.
Rock Crushing Operation**

These plants are usually erected on large areas of bare soil, sand or rock and are thus not, in themselves, wildland fire risks. The greatest source of fire danger around the plants is people and machines that work in and around them. The most frequent location of fire starts is along the access routes. People smoke and sometimes build lunch or warming fires. Motor vehicles and other mobile equipment emit exhaust sparks, have electric shorts, develop fuel leaks, etc. Thus, even though the plants themselves are not great fire risks, their mere existence creates an increased fire risk in the area. This warrants extra fire prevention effort.

10.6 Servicing and Maintenance of Equipment

For a more complete treatment of this subject, please refer to the chapter on "Maintenance, Repair and Servicing." The most important points to remember are:

- whenever possible, bring equipment to a service area which is free of flammables;
- if the machine cannot be moved, clear all flammables to mineral soil for at least 10 feet in all directions from it;
- in any case, always have firefighting equipment available nearby (i.e., within 25 feet); and
- have spark arresters on all internal combustion engines.

10.7 Training

Construction and mining employees are less likely to have had previous training and experience in fighting wildland fire than loggers. Therefore, for their own protection, as well as their employer's, it is important they be given training in wildland fire control.

6. EXPLOSIVES

- *27 CFR §55.215 (Clearances around Magazines)*
- *27 CFR §55.41 (Explosives, Licenses, and Permits, Classes of Explosive Materials, Types of Storage Facilities, Locations of Storage Facilities, Construction of Storage Facilities, Quantity and Storage Restrictions, and Required Distances from Exposures)*
- *29 CFR §1926.9001 (Disposal of Explosive Containers)*

Explosives are used by wildland industrial operations, particularly construction and mining. When their use is kept in the hands of experienced personnel, their fire starting potential has proven to be low. However, in the hands of untrained or illegal users, their potential for both fire and blast damage increases significantly.

There is a rather large body of both federal and state laws governing the manufacture, sale, transportation, storage and use of explosives. It is primarily aimed at protecting the public from blast damage as well as theft and terrorism. Such laws also address illegal possession and use.

These laws are administered by law enforcement rather than fire agencies. Unfortunately communication between law enforcement and fire agencies is not always as good as would be desirable in the interest of public safety. Consequently, fire agencies are often unaware of the existence of explosives within their area of jurisdiction. When they are aware of explosives within their jurisdiction they need to notify all fire prevention, detection, and suppression personnel within the unit. For this reason, some fire agencies may require blasting permits in addition to any other required explosive permits. The permittee may also be required to notify the local fire agency of the legal location in order to notify staffed fire lookouts.

In the realm of wildland fire protection, three main problems are related to explosives:

- One is use of fuses rather than electric detonation. If properly placed, the explosives themselves will seldom ignite a fire. Cordite, primacord, or other burning fuses, however, will not only ignite any forest fuels they are laid across, but short pieces can be thrown considerable distances by the force of the explosion and cause multiple fires where they land. Therefore, all blasting in forest, range or watershed areas should be detonated electrically.
- Second is the heat of the explosive detonation itself. The rapid (instantaneous) oxidation of the explosive chemicals produces great heat in a small space and time. In contact with, or in close proximity to flammable materials, such heat will cause ignition resulting in fire. Appropriate clearance from forest fuels is mandatory.
- The third fire problem with regard to explosives is storage. This problem has two aspects. One is security. More explosives are stolen from temporary caches on construction and logging projects than from any other location. This is primarily a law enforcement problem; however, significant amounts of the stolen explosives end up being used in the wildland by untrained and inexperienced people and thus become a fire problem.

An explosive becoming exposed to wildfire is the other aspect of the storage problem. Magazines and caches are often deliberately camouflaged. Their locations are usually kept secret as protection against theft. This means that they are often in close contact with forest fuels. Unfortunately, firefighters seldom know where they are. In the interests of fire safety, all magazines and caches for explosives should have no less a clearance of flammable materials around them than that required for

structures in wildland areas (in California this is 30 feet). Several companies provide clearances up to 100 feet. If this cannot be reconciled with the security problem, some other means (e.g., insulation) should be employed to keep the radiated heat of a forest fire from detonating the explosives inside.

Regulations of the Federal Bureau of Alcohol, Tobacco and Firearms (27CFR55.41) provide for explosives licenses and permits, classes of explosive materials, types of storage facilities, location of storage facilities, construction of storage facilities, quantity and storage restrictions, and required distances from exposures. Included among these regulations is one (27CFR55.215) which states, "The area surrounding magazines, or trees (except live trees more than 10 feet tall), for not less than 25 feet in all directions." "Volatile materials are to be kept a distance of not less than 50 feet from outdoor magazines." "Living foliage which is used to stabilize the earthen covering of a magazine need not be removed". A special case of this problem which is related to use rather than storage is discussed under "Choker Setting", in the chapter on "Timber Harvesting."

With the best of control, a certain risk of fire is always associated with the use of explosives in wildland areas. Wildland fuels may be present in an unknown proximity; sparks may be struck by quartz or flint rocks, or some malfunction may occur. Therefore, it is always wise to keep a fire watchers in the area for at least one hour after detonation. Sleeper fires have been known to hang over and spring to life because of the wind, fuel moisture or some other weather change long after work crews have left an area.

6.1 Disposal of Explosive Containers

Federal Regulations 29 CFR 1962.900(l) require the disposal of explosive containers by burning. Burning Permit and approved site may be necessary for large construction projects.