APPENDIX E

Environmental Analysis for
Rule 4701 (Internal Combustion Engines – Phase 1) and
Rule 4702 (Internal Combustion Engines– Phase 2)

July 17, 2003

SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT

INITIAL STUDY

A. PROJECT BACKGROUND INFORMATION

1. Project Title: Rule 4701 (Internal Combustion Engines – Phase 1) and Rule 4702 (Internal Combustion Engines – Phase 2)

2. Lead Agency Name and Address

San Joaquin Valley Unified Air Pollution Control District (District)
1990 E. Gettysburg Ave.
Fresno, CA 93726

3. Contact Person:

CEQA: Mr. Hector R. Guerra
(559) 230-5800

Rule: Mr. Saul Gamez
(559) 230-5800

4. Project Location:

The rules apply to new and modified stationary sources located within the boundaries of the San Joaquin Valley Unified Air Pollution Control District (see Exhibit 1, Map of District boundaries).

5. Project Sponsor's Name and Address:

San Joaquin Valley Unified Air Pollution Control District
1990 E. Gettysburg Ave.
Fresno, CA 93726

6. Description of Project:

This Initial Study is based on draft Rule 4701 and draft Rule 4702 dated May 7, 2003. The proposed amendments to Rule 4701 are intended to correct the rule deficiencies identified on February 28, 2002, by the United State Environmental Protection Agency (EPA) in order to make the rule fully approvable for inclusion in the State Implementation Plan (SIP). Unless the rule deficiencies are corrected and the rule is fully approved for inclusion in the SIP by October 1, 2003, EPA will impose sanctions in the San Joaquin Valley consisting of increased offset

requirements for major sources and revocation of federal funding for highways. New Rule 4702 is intended to implement Reasonably Available Control Measures as required by the federal Clean Air Act. Further, the California Clean Air Act, as well as the District's 2002 and 2005 Rate of Progress Plan, require the implementation of all feasible control measures to reduce the emissions of VOC and NOx in order to achieve attainment of the federal and state health-based ozone standards. This rulemaking project to amend Rule 4701 and to develop Rule 4702 is intended to reduce the emissions of nitrogen oxides (NOx) and carbon monoxide (CO) pursuant to the District's ozone and particulate matter attainment strategies.

Rule 4701 applies to sources that operate permitted internal combustion engines with a brake horsepower greater than 50 horsepower. Rule 4702 would apply to sources that operate permitted spark-ignited internal combustion engines with a brake horsepower greater than 50 horsepower. For the engines subject to Rule 4702, District staff proposed emission limits based on control technologies that have been achieved in practice as well as controls that are technologically feasible for retrofit to existing units.

The likely control technology to meet the proposed Rule 4702 emission limits for rich-burn engines not cyclically loaded using fuels other than waste gases will be nonselective catalytic reduction (NSCR) with air/fuel ratio controllers. For engines using waste gases, the use of prestratified charge controls are likely to be used to meet the proposed limits. The likely control technology to meet the proposed emission limits for rich-burn engines cyclically loaded using field gas fuels will be nonselective catalytic reduction. For four-stroke spark-ignited lean-burn engines and two-stroke spark-ignited engines rated at 100 hp or more, the likely control technique would be to retrofit the engines with low-emission combustion controls. Other control techniques may be used to supplement these retrofits, such as ignition system modifications and engine derating. For engines that do not have low-emission combustion modification kits available, selective catalytic reduction (SCR) may be used to achieve the proposed limits.

The tiered implementation schedule (June 1, 2005, June 1, 2006, and June 1, 2007) for the proposed controls has been designed to achieve the maximum reductions yet provide a reasonable amount of time to design and install the required controls. The emission limits for each implementation schedule are the same.

The District's 2005 NOx emissions from internal combustion engines are estimated at 20 tons per day. District staff expects implementation of Rule 4702 to reduce NOx emissions by 1.76 tons per day. No emission reduction is expected from the amendments to Rule 4701.

7. Other Agencies Whose Approvals Is Required and Permits Needed:

No other agencies have discretionary authority over this project.

8. Project Compatibility with Existing Zones and Plans:

Adoption of this plan will not affect any land use zones or plans.

9. Name of Person Who Prepared Initial Study:

Hector R. Guerra
Senior Environmental Planner

B. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by the proposed project, involving at least one impact that is a "Less Than Significant Impact" as indicated by the checklist on the following pages.

☐	Land Use and Planning	☐	Population and Housing
☐	Geophysical	☐	Water
☐	Air Quality	☐	Transportation/Circulation
☐	Biological Resources	☐	Energy and Mineral Resources
☒	Hazards	☐	Noise
☐	Public Services	☒	Utilities and Service Systems
☐	Aesthetics	☐	Cultural Resources
☐	Recreation	☐	Mandatory Findings of Significance

C. DETERMINATION

I certify that this document reflects the independent judgment of the District.

__X__ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

_____ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because the mitigation measures described on an attached sheet have been added to the project. A NEGATIVE DECLARATION will be prepared.

_____ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

_____ I find that the proposed project MAY have a significant effect(s) on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as

described on attached sheets, if the effect is a "potentially significant impact" or "potentially significant unless mitigated." An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

Signature: _____ Date: _____

Printed name:_____
Title: _____

San Joaquin Valley Air Pollution Control District
RULE 4701 (INTERNAL COMBUSTION ENGINES – PHASE1)
RULE 4702 (INTERNAL COMBUSTION ENGINES – PHASE 2)

D. ENVIRONMENTAL IMPACT CHECKLIST

Explanations of some answers on the checkoff list are located in Section E.

	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
I. Geologic Problems. *Would the proposal result in or expose people to potential impacts involving:*				
a) Fault rupture?				X
b) Seismic ground shaking?				X
c) Seismic ground failure, including liquefaction?				X
d) Seiche, tsunami, or volcanic hazard?				X
e) Landslides or mudflows?				X
f) Erosion, changes in topography or unstable soil conditions from excavation, grading, or fill?				X
g) Subsidence of the land?				X
h) Expansive soils?				X
i) Unique geologic or physical features?				X
II. Air Quality. *Would the proposal:*				
a) Violate any air quality standard or contribute to an existing or projected air quality violation?				X
b) Expose sensitive receptors to pollutants?				X
c) Alter air movement, moisture, or temperature, or cause any change in climate?				X
d) Create objectionable odors?				X
III. Water. *Would the proposal result in:*				
a) Changes in absorption rates, drainage patterns, or the rate and amount of surface runoff?				X
b) Exposure of people or property to water related hazards such as flooding?				X
c) Discharge into surface water, or other alteration of surface water quality (e.g., temperature, dissolved oxygen or turbidity)?				X
d) Changes in the amount of surface water in any water body?				X
e) Changes in currents, or the course or direction of water movements?				X

	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
f) Change in the quantity of ground waters, either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations, or through substantial loss of groundwater recharge capability?				X
g) Altered direction or rate of flow of ground waters?				X
h) Impacts to groundwater quality?				X
i) Substantial reduction in the amount of water otherwise available for public water supplies?				X
IV. Biological Resources *Would the proposal result in impacts to:*				
a) Endangered, threatened, or rare species or their habitats (including but not limited to plants, fish, insects, animals, and birds)?				X
b) Locally designated species (e.g., heritage trees)?				X
c) Locally designated natural communities (e.g., oak forest, coastal habitat, etc.)?				X
d) Wetland habitat (e.g., marsh, riparian, and vernal pool)?				X
e) Wildlife dispersal or migration corridors?				X
V. Noise. *Would the proposal result in:*				
a) Increases in existing noise levels?				X
b) Exposure of people to severe noise levels?				X
VI. Land Use and Planning. *Would the proposal:*				
a) Conflict with general plan designation or zoning?				X
b) Conflict with applicable environmental plans or policies adopted by agencies with jurisdiction over the project?				X
c) Be incompatible with existing land use in the vicinity?				X
d) Affect agricultural resources or operations (e.g., impacts to soils or farmlands, or impacts from incompatible land uses)?				X
e) Disrupt or divide the physical arrangement of an established community (including a low-income or minority community)?				X
VII. Energy and Mineral Resources. *Would the proposal:*				
a) Conflict with adopted energy conservation plans?				X
b) Use non-renewable resources in a wasteful and inefficient manner?				X

	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
c) Result in the loss of availability of a known mineral resource that would be of future value to the region and the residents of the State?				X
VIII. Hazards. *Would the proposal involve:*				
a) A risk of accidental explosion or release of hazardous substances (including, but not limited to: oil, pesticides, chemicals, or radiation)?			X	
b) Possible interference with an emergency response plan or an emergency evacuation plan?				X
c) The creation of any health hazard or potential health hazard?				X
d) Exposure of people to existing sources of potential health hazards?				X
e) Increased fire hazard in areas with flammable brush, grass, or trees?				X
IX. Population and Housing. *Would the proposal:*				
a) Cumulatively exceed official regional or local population projections?				X
b) Induce substantial growth in an area either directly or indirectly (e.g., through projects in an undeveloped area or extension of major infrastructure)?				X
c) Displace existing housing, especially affordable housing?				X
X. Transportation/Circulation. *Would the proposal result in:*				
a) Increased vehicle trips or traffic congestion?				X
b) Hazards to safety from design features (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?				X
c) Inadequate emergency access or access to nearby uses?				X
d) Insufficient parking capacity on-site or off-site?				X
e) Hazards or barriers for pedestrians or bicyclists?				X
f) Conflicts with adopted policies supporting alternative transportation (e.g., bus turnouts, bicycle racks)?				X
g) Rail, waterborne or air traffic impacts?				X
XI. Public Services. *Would the proposal have an effect upon, or result in a need for new or altered governmental services in any of the following areas:*				
a) Fire protection?				X
b) Police protection?				X

	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
c) Schools?				X
d) Parks or other recreational facilities?				X
e) Maintenance of public facilities, including roads?				X
f) Other governmental services?				X
XII. Utilities and Service Systems. *Would the proposal result in need for new systems or supplies or substantial alterations to the following utilities:*				
a) Power or natural gas?			X	
b) Communication systems?				X
c) Local or regional water treatment or distribution facilities?				X
d) Sewer or septic tanks?				X
e) Storm water drainage?				X
f) Solid waste and disposal?				X
g) Local or regional water supplies?				X
XIII. Aesthetics. *Would the proposal:*				
a) Affect a scenic vista or scenic highway?				X
b) Have a demonstrable negative aesthetic effect?				X
c) Create light or glare?				X
XIV. Recreation. *Would the proposal:*				
a) Increase the demand for neighborhood or regional parks or other recreational facilities?				X
b) Affect existing recreational opportunities?				X
XV. Cultural Resources. *Would the proposal:*				
a) Disturb paleontological resources?				X
b) Disturb archaeological resources?				X
c) Affect historical resources?				
d) Have the potential to cause a physical change which would affect unique cultural values?				X
e) Restrict existing religious or sacred uses within the potential impact area?				X

	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
XVI. Mandatory Findings of Significance.				
a) **Potential to degrade:** Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?				**X**
b) **Short-term:** Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals? (A short-term impact on the environment is one which occurs in a relatively, brief, definitive period of time. Long-term impacts will endure well into the future.)				**X**
c) **Cumulative:** Does the project have impacts which are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)				**X**
d) **Substantial adverse:** Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?				**X**

E. ENVIRONMENTAL IMPACT CHECKLIST COMMENTS

I. Geologic Problems

The proposed provisions of Rule 4702 may require some facilities to alter their existing facilities to accommodate additional emission control equipment. There are no provisions in the proposed rules that would call for a significant disruption or over-covering of soil, changes in topography or surface relief features, the erosion of beach sand, or a change in existing siltation rates. The proposed project will not increase the exposure of people or property to geologic hazards.

II. Air Quality

The San Joaquin Valley Air Basin is classified as a severe ozone nonattainment area and a serious PM10 nonattainment area for the health-based air quality standards established by the federal Clean Air Act. The San Joaquin Valley Unified Air Pollution Control District is considering downgrading the ozone classification to extreme nonattainment. The serious PM10 classification and the extreme ozone classification are the worst possible categories. NOx is a precursor to both ozone and PM10. It is expected that the use of NOx emission control devices will have positive effects on the air quality of the Valley. It is anticipated that some increased emissions of ammonia will result from the use of selective catalytic reduction (SCR) control systems for some units that could not achieve the emission limits in the rule by installing other controls. The amount of ammonia emissions is assumed to be a small fraction of the amount of NOx which is controlled and that the large, net, positive air quality benefit outweighs the small increase in fugitive ammonia emissions.

III. Water

The operation of non-selective catalytic reduction (NSCR) and SCR would not require the use of water. Therefore, there is no expected negative impact on existing water resources or the need to explore new water resources as a result of adopting the proposed project in the San Joaquin Valley.

IV. Biological Impacts

The proposed project is not expected to adversely affect existing plant or animal species or communities, unique or endangered plant or animal species, or agricultural crops. No additional significant adverse impacts to biological resources are expected to result from the proposed project because proposed rules are expected to affect existing facilities in industrial or commercial areas where biological resources are already disturbed. Further, improvements in air quality expected from the proposed rules are expected to provide health benefits to plant and animal species as well as to the human residents of the District.

V. Noise

The retrofitting of existing engines with NSR or SCR systems is not expected to result in significant noise impacts. The engines operate mainly in industrial settings where noise levels are already high. Existing engines typically generate a certain amount of noise and any increase in noise associated with the installation of add-on control equipment is expected to be negligible.

VI. Land Use and Planning

There are no provisions in the proposed rules that would affect land use plans, policies, or regulations. It is also expected that the proposed rules will not affect infrastructure development or require changes to existing zone designations because the proposed provisions primarily regulate equipment at existing facilities. Local governments determine land use and other planning considerations, and no land use or planning requirements will be altered by amending the NOx emission limits from engines. Therefore, present or planned land uses in the region will not be affected as a result of the proposed rules.

VII. Energy and Mineral Resources

The operation of NSCR and SCR systems will require electrical power for electronics and control motors. Additionally, some operators may opt to replace their existing engines with electric motors. The power consumption of these control systems and replacement motors is not expected to have any significant impact on existing power resources.

VIII. Hazards

It is anticipated that for some engines, the operators may need to install and operate SCR control systems to comply with the proposed emission limits. SCR is known to cause an increase in ammonia emissions, or ammonia slip, under some circumstances. The levels of ammonia emissions from potential ammonia slip are not expected to reach hazardous levels, as ammonia emissions can be reduced by properly operating and maintaining the equipment.

Ammonia transportation vessels, handling equipment, and storage tanks must comply with state and local safety regulations that minimize the potential for accidental release. Some SCR systems can also use non-hazardous urea or aqueous ammonia injection to achieve the proposed emission limits without anhydrous ammonia.

Certain catalysts may contain hazardous materials that must be properly disposed of at the end of their useful life. Existing waste disposal regulations are considered to be adequate to prevent a significant impact from occurring.

IX. Population and Housing

There are no provisions in the proposed rules that would result in the creation of any industry that would effect population growth, or directly or indirectly induce the construction of single- or multiple-family units. No population relocation or growth inducement is expected from implementation of the amended rules.

X. Transportation and Circulation

The proposed rules will not increase the number of businesses operating engines in the District. Further, the proposed rules will not cause a substantial increase in the number of transport trips to deliver ammonia because it is anticipated that only a few additional existing engines would use SCR. The delivery of anhydrous ammonia throughout the Valley for SCR systems is already occurring at some existing facilities which currently use ammonia injection systems. Deliveries are also made to agricultural sources which use ammonia as a soil amendment.

XI. Public Services

The proposed provisions of new Rule 4702 are expected to result in the increased use of ammonia as a catalytic reagent. Ammonia is a colorless gas with a pungent suffocating odor and is corrosive to the skin, eyes, and lungs. Prolonged contact at concentrations greater than 300 ppm can cause permanent injury or death. Fortunately, ammonia has a low odor threshold (20 ppm), so most people will seek relief at much lower concentrations. Ammonia does not meet the DOT definition of a Flammable Gas but is flammable at concentrations of 15% to 28% by volume in air. Because of state-mandated safety requirements in the transportation and handling of ammonia, the District does not anticipate an adverse impact to fire department services.

XII. Utilities and Service Systems

The operation of NSCR and SCR systems require electrical power for electronics and control motors. The power consumption of these additional control systems is not expected have any significant impact on existing power resources.

XIII. Aesthetics

The proposed rules are not expected to adversely affect or change land use in the District. The proposed rules will not require any changes in the physical environment that would obstruct any scenic vistas or views of interest to the public. The proposed rules would not create aesthetically offensive sites visible to the public. No significant adverse aesthetic or recreation impacts are expected from the proposed rule provisions.

XIV. Recreation

It is expected that recreational facilities and resources in the District will not be affected adversely. These conclusions are based on the fact that any physical changes would occur at existing industrial or commercial sites. No significant adverse aesthetic or recreation impacts are expected from the proposed rule provisions.

XV. Cultural Resources

As previously noted, any effects from implementing the proposed rules will occur at existing facilities in commercial/industrial areas. As a result, significant impacts to cultural resources are not expected because the proposed rules will not require the destruction of existing buildings or sites with prehistoric, historic, archaeological, religious, or ethnic significance. The proposed rule provisions are, therefore, not anticipated to result in any activities or promote any programs, which could have a significant adverse impact on cultural resources within the District.

XVI. Mandatory Findings of Significance

a. The project does not have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory.

b. The project does not have the potential to achieve short-term, to the disadvantage of long-term, environmental goals.

c. The project does not have impacts, which are individually limited, but cumulatively considerable.

d. The project does not have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly.

EXHIBIT 1
MAP OF DISTRICT BOUNDARIES


EXIHIBIT 1
MAP OF SAN JOAQUIN
VALLEY UNIFIED AIR
POLLUTION CONTROL
DISTRICT
BOUNDARIES
SAN JOAQUIN
STANISLAUS
MERCED
MADERA
FRESNO
KINGS
TULARE
KERN