



Tobi Hopper

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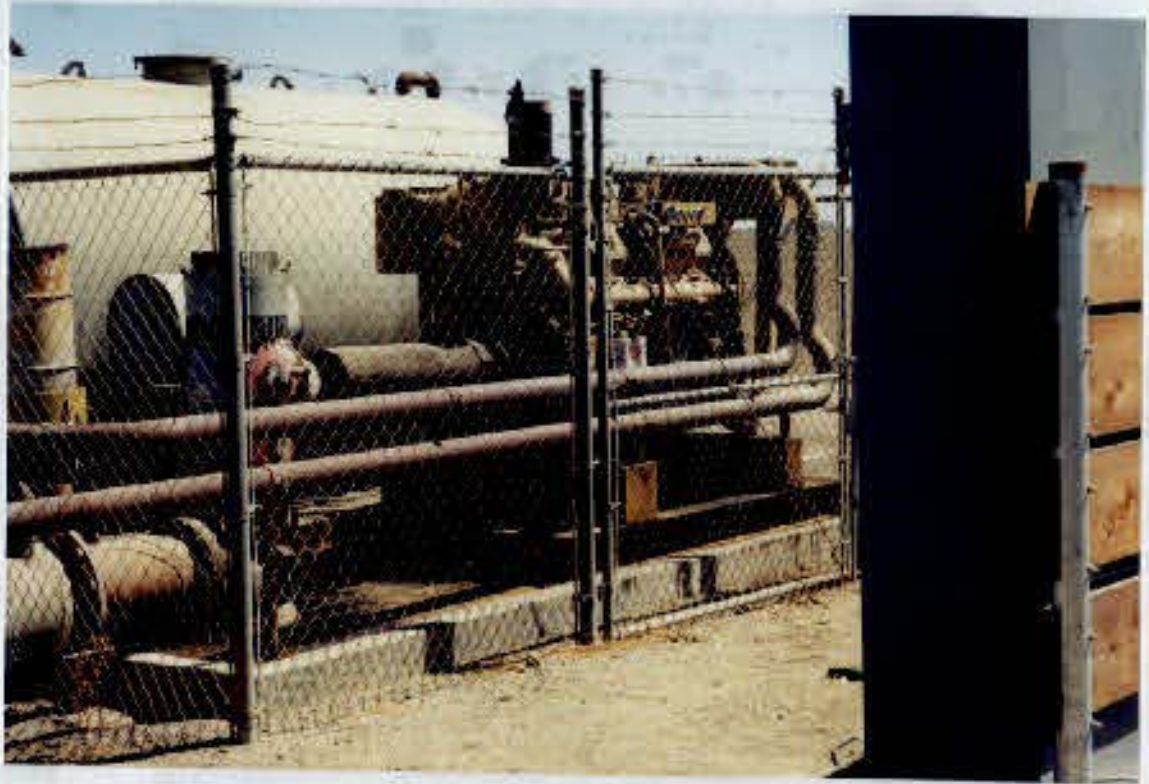
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San Joaquin Valley
Air Pollution Control District

February 5, 2003

Tobbie Hopper
Valley Air Conditioning and Repair
1350 F Street
Fresno, CA 93706

**RE: Notice of Revised Diesel Engine Retirement Agreements
Project Numbers: C-1010806 and C-1011235**

Dear Mr. Hopper:

Enclosed are the revised Diesel Engine Retirement Agreements associated with Emission Reduction Credit (ERC) Projects, C-1010806 and C-1011235. The agreements have been revised pursuant to comments submitted by Lee Schultz. Since the District did not receive the revised copy of Appendix B for Project 1011235, please include it in the agreement prior to recording.

Please note that the signed agreements must be returned to the District along with verification that the agreements have been recorded prior to the use or sale of any of the associated ERCs.

Thank you for your cooperation in this matter. If you have any questions, please contact Mr. David Warner at (559) 230-5900.

Sincerely,

for 
Seyed Sadredin
Director of Permit Services

SS:SR

Enclosures

c: David Warner, Permit Services Manager

David L. Crow
Executive Director/Air Pollution Control Officer

Northern Region Office
4230 Kiernan Avenue, Suite 130
Modesto, CA 95356-9322
(209) 557-6400 • FAX (209) 557-6475

Central Region Office
1990 East Gettysburg Avenue
Fresno, CA 93726-0244
(559) 230-6000 • FAX (559) 230-6061
www.valleyair.org

Southern Region Office
2700 M Street, Suite 275
Bakersfield, CA 93301-2373
(661) 326-6900 • FAX (661) 326-6985

Diesel Engine Retirement Agreement

ERC Project C-1010806

This agreement is made between O'Neill Farming Enterprises, Inc. and La Paloma Farms, a California General Partnership, known collectively herein as O'Neill Entities, Valley Air Conditioning and Repair, and the San Joaquin Valley Unified Air Pollution Control District (the "District") (collectively, the "Parties").

RECITALS

WHEREAS, the District is a duly formed governmental entity responsible for achieving and maintaining clean air quality in the San Joaquin Valley;

WHEREAS, pursuant to California Health and Safety Code sections 40709 through 40714.5, the District has adopted Rules and Regulations providing for the creation and use of emission reduction credits ("ERCs") which are real, surplus, quantifiable, permanent and enforceable;

WHEREAS, O'Neill Entities proposes to have its existing primary groundwater extraction engine in Service Area replaced with a new electric motor;

WHEREAS, O'Neill Entities enters this agreement for the purpose of generating emissions reductions within the San Joaquin Valley Air Basin and to create ERCs to be banked with the District;

WHEREAS, Valley Air Conditioning and Repair enters this agreement solely to create ERCs for its benefit and for the benefit of air quality in the region by reducing emissions from agricultural equipment which is currently exempt from the requirement of having a written permit;

NOW, THEREFORE, the Parties hereto agree as follows:

AGREEMENT

1.0 Terms used herein are defined as follows:

- (a) "Effective Date" of this agreement shall mean the date of acceptance of this agreement by the District.
- (b) "Service Area" shall mean all of the SE Quarter Section 9, Township 18S, Range 17E, Mount Diablo Base and Meridian, as set forth in Exhibit "B", attached hereto, and incorporated herein. The Service Area includes 544 acres, fields 8-4, 9-2, 9-3 and 9-4.
- (c) "well" shall mean the deep water well located on the southwest quarter section of the Service Area, as identified in Exhibit "B".
- (d) "primary groundwater extraction engine" shall mean the diesel engine used to power the well, as identified in Exhibit "A", attached hereto and incorporated herein.
- (e) "new electric motor" shall mean the new electric motor provided by Valley Air Conditioning and Repair that will replace the primary groundwater extraction engine.
- (f) "farmland" shall mean lands within the Service Area that are planted, cultivated and irrigated using the new electric motor.

(g) "irrigation system" shall mean the well and any and all piping, pumps and accessories which are used to irrigate any or all of the Service Area.

- 2.0 District agrees that O'Neill Entities in cooperation with Valley Air Conditioning and Repair are voluntarily reducing air pollution by replacing the primary groundwater extraction engine with a new electric motor for the purpose of creating ERCs, and District is aware of no regulatory impediment, existing or pending, which would prevent the use of ERCs generated pursuant to this Agreement.
- 3.0 O'Neill Entities agrees to replace its existing primary groundwater extraction engine as identified in Exhibit "A", which is used to irrigate the Service Area with the new electric motor provided by Valley Air Conditioning and Repair.
- 4.0 District agrees to issue ERCs to Valley Air Conditioning and Repair for actual emission reductions as quantified by the District in accordance with District Rules and Regulations. 80% of the Bankable ERCs will be issued pending a successful Public Noticing period. The remaining 20% will be issued or withheld, partially or in full, pending a site-specific validation of the assumptions made in evaluating the Baseline Emissions.
- 5.0 O'Neill Entities agrees to acquire a Permit to Operate, for the irrigation system that irrigates the Service Area covered by this agreement, from the District, and to maintain the Permit to Operate until the Permit to Operate is permanently relieved or replaced in writing by the District.
- 6.0 Valley Air Conditioning and Repair and O'Neill Entities agree that the post-project new electric motor serving the Service Area will be fitted with a non-resettable kilowatt-hour meter. This requirement may be satisfied with the use of the electric utility's billing meter if and only if the billing meter exclusively serves the electric motor referenced herein.
- 7.0 O'Neill Entities agrees to maintain records of monthly kilowatt-hour use of the new electric motor for a period of at least 12 months (Validation Period). The District will use said records to validate the baseline emissions prior to issuing any or all of the final 20% of the Bankable ERCs.
- 8.0 O'Neill Entities represents and warrants that it owns the Service Area, that O'Neill Entities owns the primary groundwater extraction engine being removed and the irrigation system covered by this Agreement, and that O'Neill Entities has all rights and authority to enter into this binding Agreement.
- 9.0 O'Neill Entities agrees to render the removed primary groundwater extraction engine inoperable by drilling or knocking a hole in the block, welding the cylinder head shut, obtaining written proof from a scrap yard that the removed Engine(s) has been destroyed or otherwise rendered inoperable, or other method approved in advance by the District, and to submit proof of such destruction of the removed engine to the District prior to the issuance of any related ERCs.
- 10.0 The District maintains the right to witness the destruction of the primary groundwater extraction engine and Parties agree to notify the District at least 14 days prior to the destruction of the engine.
- 11.0 O'Neill Entities agrees that the service area shall not be irrigated with any water that was pumped from any internal combustion engine-powered deep well.

- 12.0 O'Neill Entities agrees that replacement of the primary groundwater extraction engine with a new electric motor will remain in effect as long as any of the Service Area covered by this Agreement remains farmland, and agrees to disclose in writing the existence of this Agreement to any other entity which may come to own or become responsible for operating the irrigation system for the Service Area described. To ensure the permanence of this Agreement, this Agreement shall be recorded by the County Registrar. Any future entity that becomes responsible for the irrigation system shall agree to the terms contained in this Agreement.
- 13.0 O'Neill Entities and the District agree that no equipment which emits or may emit any air contaminant may be used, permanently or temporarily, to power or supplementally power the irrigation system without specific prior written approval by the District, which approval shall not be unreasonably withheld and where: (a) the new equipment is evaluated and approved in accordance with District Rules and Regulations; (b) the potential increase in emissions is entirely offset using the current District-approved Distance Offset Ratio; and (c) the Permit to Operate for the irrigation system is modified accordingly by the District.
- 13.1 The first exception to Condition 13.0 is that O'Neill Entities may use tailwater pumps, runoff pumps, ditch pumps and other accessories as necessary provided that the water being delivered to the service area did not originate from any internal combustion engine-powered deep well.
- 13.2 The second exception to Condition 13.0 is that O'Neill Entities may utilize booster pumps as necessary to supplement the irrigation system pressure, only if the pumped water travels through at least 238 feet of pipe as measured from the wellhead to the nearest booster pump. In lieu of this minimum distance requirement, booster pumps may be utilized provided that the discharge pressure on the wellhead, as measured by a permanently installed and operationally maintained pressure gage, is at least 20 psig.
- 13.3 The third exception to 13.0 is that O'Neill Entities may use an internal combustion engine-powered electrical generator to supply electrical power to the irrigation system as necessary during unforeseen electrical power outages, on an interim basis to mitigate damage to O'Neill Entities' crops until normal power is restored. Any electrical generator used under this section shall not be used in conjunction with any voluntary utility demand reduction program. Records of hours of internal combustion engine operation shall be maintained which identify the engine used, and include the date of operation, the number of hours of operation, the purpose of the operation (e.g., load testing, weekly testing, rolling blackout, general area power outage, etc.), and the sulfur content of the diesel fuel used. Such records shall be retained for a period of at least five years and made available for District inspection upon request.
- 14.0 O'Neill Entities, upon the sale or lease of the Service Area, will assign this Agreement and the Permit to Operate, and all rights, duties and obligations hereto, to the new owner. Assignment of this Agreement and all rights, duties and obligations will include a notice submitted to the District in the form of a completed District Transfer of Ownership application. Nothing in this Agreement shall be construed to diminish the District's authority to implement and enforce applicable state, federal, and local laws, rules and regulations.
- 15.0 O'Neill Entities grants to Valley Air Conditioning and Repair and the District, for the specific and sole purpose of exercising their respective responsibilities as defined in this Agreement and applicable law, the right of reasonable entry to the Service Area to monitor compliance with this Agreement during normal business hours.

- 16.0 All Parties to this Agreement warrant that each is duly authorized and empowered to bind such Party and there are no actions, suits, proceedings or other impediments, pending or threatened, which affect the performance of each Party's obligations under this Agreement.
- 17.0 All Parties agree that this Agreement constitutes a legal, valid and binding obligation on all Parties, enforceable in accordance with its terms and applicable law, and that its contents, including that of other documents incorporated by reference, are true and correct to the best of their knowledge.
- 18.0 O'Neill Entities and Valley Air Conditioning and Repair agree to, and will not contest, the District's jurisdiction over matters related to this Agreement; provided however, that neither O'Neill Entities nor Valley Air Conditioning and Repair are herein surrendering any right they may have under applicable law to challenge subsequent actions.
- 19.0 This Agreement, including the exhibits, made a part hereof, attached hereto and incorporated herein, forms the whole of the Agreement and may not be modified except in writing with the concurrence of all Parties. After such a time as any ERCs are issued, the Permit to Operate is acquired and after the Validation Period, this Agreement may not be modified except in writing with the concurrence of the District and O'Neill Entities.
- 20.0 If any condition of this Agreement, or the application of such condition shall be determined to be invalid, illegal or unenforceable for any reason, the remainder of the Agreement shall not be affected and every other condition of this Agreement shall be valid and enforceable to the fullest extent provided by law. Venue for any action to enforce this Agreement or its terms shall only occur in the appropriate court in Fresno County.
- 21.0 Exhibits and documents incorporated herein by reference:
- Exhibit A: Existing Engine Identification
- Exhibit B: Map/Description of Service Area
- 22.0 Notices shall be deemed to be given when faxed if proper documentation shows that the fax was received, or on the date registered mail is certified received to the following:

To O'Neill Entities:

1265 W Shaw Avenue, #101
 Fresno, CA 93711
 (559) 224-6000 (phone)
 (559)-224-2384 (fax)

To Valley Air Conditioning
 and Repair:

Valley Air Conditioning
 and Repair, Inc.
 1350 F Street
 Fresno, CA 93706
 (559) 237-3188 (phone)
 (559) 237-2867 (fax)

To District:

Director of Permit Services
 San Joaquin Valley APCD
 1990 E Gettysburg Avenue
 Fresno, CA 93726-0244
 (559) 230-6000 (phone)
 (559) 230-6061 (fax)

THE PARTIES, having read and approved the foregoing and as approved by their authorized officers, agree to be bound by the terms and conditions contained in this Agreement, execute this Agreement as of the Effective Date set forth above:

For O'Neill Entities:

Edwin R. O'Neill, pres

O'Neill Farming
Enterprises, Inc.
Edwin R. O'Neill
President

Dated:

2-13-03

For Valley Air Conditioning
and Repair

Tobbie Hopper

Tobbie Hopper
President

Dated:

Feb/11/03

For District:

Seyed Sadredin

Seyed Sadredin
Director of Permit Services

Dated:

2/21/03

For La Paloma Farms,
a California General Partnership

Edwin R. O'Neill, Partner
Neil R. Schuff, Partner

Dated:

2-13-03

EXHIBIT A

Irrigation Engine(s) Retired:

One 450 horsepower Caterpillar model 3408 diesel-fired internal combustion engine, Serial Number 67U6614.

Exhibit C

Exhibit C is not applicable because the land owner of record, the owner of the equipment and the operators are all parties to this agreement.

Diesel Engine Retirement Agreement

ERC Project C-1011235

This agreement is made between O'Neill Farming Enterprises, Inc. and Excelsior Farms, a California General Partnership, known collectively herein as O'Neill Entities, Valley Air Conditioning and Repair, and the San Joaquin Valley Unified Air Pollution Control District (the "District") (collectively, the "Parties").

RECITALS

WHEREAS, the District is a duly formed governmental entity responsible for achieving and maintaining clean air quality in the San Joaquin Valley;

WHEREAS, pursuant to California Health and Safety Code sections 40709 through 40714.5, the District has adopted Rules and Regulations providing for the creation and use of emission reduction credits ("ERCs") which are real, surplus, quantifiable, permanent and enforceable;

WHEREAS, O'Neill Entities proposes to have its existing primary groundwater extraction engine in Service Area replaced with a new electric motor;

WHEREAS, O'Neill Entities enters this agreement for the purpose of generating emissions reductions within the San Joaquin Valley Air Basin and to create ERCs to be banked with the District;

WHEREAS, Valley Air Conditioning and Repair enters this agreement solely to create ERCs for its benefit and for the benefit of air quality in the region by reducing emissions from agricultural equipment which is currently exempt from the requirement of having a written permit;

NOW, THEREFORE, the Parties hereto agree as follows:

AGREEMENT

1.0 Terms used herein are defined as follows:

- (a) "Effective Date" of this agreement shall mean the date of acceptance of this agreement by the District.
- (b) "Service Area" shall mean all of Section 4, Township 18S, Range 17E, Mount Diablo Base and Meridian as set forth in Exhibit "B", attached hereto, and incorporated herein. The Service Area includes 632.25 acres, fields 4-1, 4-2, 4-A2, 4-2N, 4-2S, 4-3 and 4-4..
- (c) "well" shall mean the deep water well located on the southwest quarter section of the Service Area, as identified in Exhibit "B".
- (d) "primary groundwater extraction engine" shall mean the diesel engine used to power the well, as identified in Exhibit "A", attached hereto and incorporated herein.
- (e) "new electric motor" shall mean the new electric motor provided by Valley Air Conditioning and Repair that will replace the primary groundwater extraction engine.
- (f) "farmland" shall mean lands within the Service Area that are planted, cultivated and irrigated using the new electric motor.

(g) "irrigation system" shall mean the well and any and all piping, pumps and accessories which are used to irrigate any or all of the Service Area.

- 2.0 District agrees that O'Neill Entities in cooperation with Valley Air Conditioning and Repair are voluntarily reducing air pollution by replacing the primary groundwater extraction engine with a new electric motor for the purpose of creating ERCs, and District is aware of no regulatory impediment, existing or pending, which would prevent the use of ERCs generated pursuant to this Agreement.
- 3.0 O'Neill Entities agrees to replace its existing primary groundwater extraction engine as identified in Exhibit "A", which is used to irrigate the Service Area with the new electric motor provided by Valley Air Conditioning and Repair.
- 4.0 District agrees to issue ERCs to Valley Air Conditioning and Repair for actual emission reductions as quantified by the District in accordance with District Rules and Regulations. 80% of the Bankable ERCs will be issued pending a successful Public Noticing period. The remaining 20% will be issued or withheld, partially or in full, pending a site-specific validation of the assumptions made in evaluating the Baseline Emissions.
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- 8.0 O'Neill Entities represents and warrants that it owns the Service Area, that O'Neill Entities owns the primary groundwater extraction engine being removed and the irrigation system covered by this Agreement, and that O'Neill Entities has all rights and authority to enter into this binding Agreement.
- 9.0 O'Neill Entities agrees to render the removed primary groundwater extraction engine inoperable by drilling or knocking a hole in the block, welding the cylinder head shut, obtaining written proof from a scrap yard that the removed Engine(s) has been destroyed or otherwise rendered inoperable, or other method approved in advance by the District, and to submit proof of such destruction of the removed engine to the District prior to the issuance of any related ERCs.
- 10.0 The District maintains the right to witness the destruction of the primary groundwater extraction engine and Parties agree to notify the District at least 14 days prior to the destruction of the engine.
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- 17.0 All Parties agree that this Agreement constitutes a legal, valid and binding obligation on all Parties, enforceable in accordance with its terms and applicable law, and that its contents, including that of other documents incorporated by reference, are true and correct to the best of their knowledge.
- 18.0 O'Neill Entities and Valley Air Conditioning and Repair agree to, and will not contest, the District's jurisdiction over matters related to this Agreement; provided however, that neither O'Neill Entities nor Valley Air Conditioning and Repair are herein surrendering any right they may have under applicable law to challenge subsequent actions.
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- 20.0 If any condition of this Agreement, or the application of such condition shall be determined to be invalid, illegal or unenforceable for any reason, the remainder of the Agreement shall not be affected and every other condition of this Agreement shall be valid and enforceable to the fullest extent provided by law. Venue for any action to enforce this Agreement or its terms shall only occur in the appropriate court in Fresno County.
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 Fresno, CA 93711
 (559) 224-6000 (phone)
 (559)-224-2384 (fax)

To Valley Air Conditioning
 and Repair:

Valley Air Conditioning
 and Repair, Inc.
 1350 F Street
 Fresno, CA 93706
 (559) 237-3188 (phone)
 (559) 237-2867 (fax)

To District:

Director of Permit Services
 San Joaquin Valley APCD
 1990 E Gettysburg Avenue
 Fresno, CA 93726-0244
 (559) 230-6000 (phone)
 (559) 230-6061 (fax)

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For O'Neill Entities:

Edwin R. O'Neill, pres

O'Neill Farming
Enterprises, Inc.
Edwin R. O'Neill
President

Dated: 2-13-03

For Valley Air Conditioning
and Repair:

Tobbie Hopper

Tobbie Hopper
President

Dated: Feb/11/03

For District:

Seyed Sadredin

Seyed Sadredin
Director of Permit Services

Dated: 2/21/03

For Excelsior Farms,
a California General Partnership

Edwin R. O'Neill, partner
Peer R. Schuff, partner

Dated: 2-13-03

EXHIBIT A

Irrigation Engine(s) Retired:

One 750 horsepower Caterpillar model 3412 diesel-fired internal combustion engine, Serial Number 038S15467.

**Exhibit "B"
Service Area**

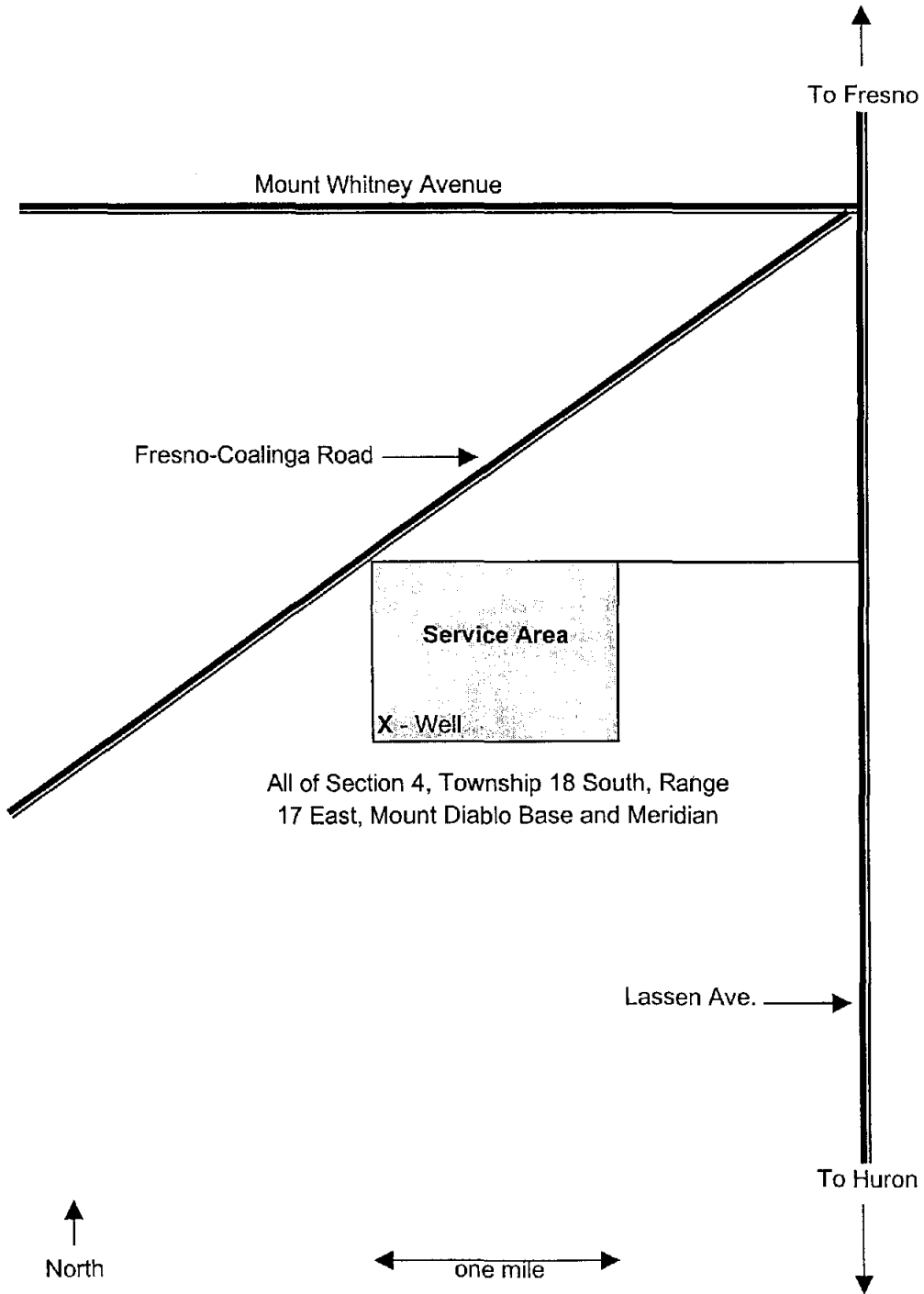
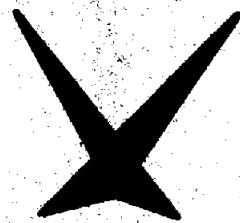
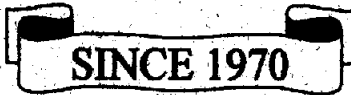


Exhibit C

Exhibit C is not applicable because the land owner of record, the owner of the equipment and the operators are all parties to this agreement.

Steve R



VALLEY AIR CONDITIONING & REPAIR, INC.

Residential HVAC • Commercial HVAC • Industrial HVAC • School/ Hospital HVAC • Chilled/Hot Water Systems
National Insurance Services • Energy Management • Building Controls • Energy Efficient Retrofits
Gas Powered Energy Generation Systems • Remodel Specialists • Preventative Maintenance • Thermal Storage Systems

RECEIVED
APR 15 2002
PERMIT SERVICES
SJVUAPCD

Mr. Sayed Sadrehin
Director of Permit Services
San Joaquin Valley Unified Air Pollution Control District
1990 E. Gettysburg Ave.
Fresno, California 93726-0244

Date: April 12, 2002
Re: ERC C1010806
& C-1011235

Attn: Mr. Dave Warner

Dear Mr. Sadrehin,

After our discussion of April 11, we offer a brief refresher history of Central Valley water to assist in understanding some of the nuances of agricultural irrigation.

Present day agricultural development of the San Joaquin Valley was only made possible by the development of the irrigation canals and underground aqueducts. The land known as "The Westside" was developed to utilize specific water delivery contracts that began to be sharply curtailed in the late 1980's. Growers were forced to develop deep wells to make up for the shortfall, or let the now valuable farmland lie fallow. Since it was difficult to obtain utility electric power in that area, the obvious solution was diesel engine power.

At some point in time both electrically pumped well water, and surface water, became more costly than diesel powered, pumped ground water. Therefore, from about 1990 on, massive numbers of electric motor powered pumps were converted to diesel engine power, and deep well pumping came to be much more extensively used. This seriously depleted underground water reserves so growers must now carefully plan their crop mix to optimize their use of water from both sources.

Since surface water is such an integral part of valley agriculture, albeit often insufficient to meet needs, it never occurred to us that the presence or absence of surface water would ever be a discussion item. We were totally focused on stopping the operation of large diesel pump engines.

Surface water supply has been woefully short of crop needs for many years, and has become increasingly expensive. Thus the diesel powered deep wells are operated to their maximum capability: a) just to get essential water, and, b) because the cost of diesel powered water pumping/delivery has become far less than the cost of surface water.

No responsible farm manager will buy \$55/AF (some this year at \$110/AF) surface water when he can pump from his well at \$27/AF. However, we do understand that the well water quality degrades periodically and is not suitable for certain crops at germination or certain development stages. In those instances surface water would be used sparingly

within portions of the defined land area. while it's well water is diverted to another nearby field whose crop tolerated well water.

When we started the quantification process for these two engines we, not surprisingly, lacked fuel records. We knew the average annual run hours indicated on the engine hour log, but we could not define the fuel rate. In addition, these clocks rarely indicate correct run times. They are prone to intermittent stoppages and omit the "down" time blocks. Nevertheless, the operator estimated the run time at around 3,600 hours/year and the clocks approximate this value.

Run hours times HP times fuel rate would still have been a simple method of defining fuel consumption. Unfortunately, the growers want as much water as they can obtain from each well, both to save money and to irrigate as much land as possible with each sprinkler/system setting. In this case, the distribution

systems are designed to handle about 2,500 gpm.

As the water table dropped, or, more often, as the piping runs got longer (adding friction resistance) the engine speed (and pump speed) was simply increased until the desired flow and pressure was achieved. As flow rate or discharge pressure increase, so does the HP and fuel consumption. In addition, pump efficiency degrades when operated at other than design speed, as well as from wear.

Having no way to define the variable HP and fuel rate, the run times become relatively useless. Do we multiply the maximum HP by the hours? The minimum? Some arbitrary selection between? What was the pump efficiency? Nothing was verifiable or even scientifically arguable.

Moreover, if the delivery runs get so long that the deep well pump cannot generate adequate delivery pressure, then booster pumps are employed downstream to re-establish the distribution systems pressure need. A mile of primary distribution pipe adds 25 psi to the pressure demand. Of course, the water is always used as close to the pump as is possible. Laying down and picking up the pipe is expensive, as is the added energy cost when pumping through long runs.

Lacking any viable means of establishing fuel consumption, we were forced to use the difficult and, and far more complex, CARB approved modeling method. Each of the wells is designed to be capable of serving the needs of a section of mixed cropland and the owner/operator identified the section, and/or parts of sections totaling about a section, primarily served by each well. The plots identified on the maps were defined as being 90 plus percent served the well situated thereon.

We then modeled the engine use for each defined pump service area based on crop maps and crop usage. The model came up short on run times.

C-1010806 modeled to 3,020 hours at a flow rate of only 2,000 gpm, but the annual average run time based on nine years operating history was 3,415 hours. And, C-1011235 modeled to 3,028 hours at 2,600 gpm while the ten year operating history averaged 3,681 Hours.

C-1010806 (3408) installed October 7, 1991, removed May 2001 (9 pumping seasons)

C-1011235 (3412) installed July 11, 1991, removed Sept. 2001 (10 pumping seasons)

Clearly, the wells had been used to irrigate more than the delineated land areas. However, there was no way to identify, let alone quantify, the adjacent areas served, or to even suggest that future ancillary areas could be defined. Any surplus capacity from these wells has been, and will be, used wherever it is needed to minimize water cost.

There was no alternative but to forfeit the ERC which should have been obtained from real, but un-quantifiable engine use. This was painful, but we had no choice.

In summary, it has been for some time, and is most likely to be for many years to come, in the growers best financial interest to pump as much water from each well as it is capable of producing. If ground water were metered that might not be the case, but we are many years from a change in that political reality.

We hope this provides a better track of the early phases of these projects. Development of a logical quantification method has been a laborious task for all of us. Real life water distribution, and water cost management is a constantly changing set of variables. Reducing those variables to a manageable equation supported by known science has been a challenge.

Sincerely,



John T. Hopper (Tobbie)
President

Steve Roeder

From: Elizabeth Ota [eota@arb.ca.gov]
Sent: Tuesday, May 21, 2002 3:23 PM
To: aleta kennard; beverly werner; brigitte tollstrup; Lucina Negrete; ed eckerle; karl krause; larry greene; mat ehrhardt; matt haber; Michael Tollstrup; Paul Hensleigh; Peggy Taricco; Robert Rogen; Ronald Hand; sam maani; seyed sadredin; steve roeder; pike.ed@epa.gov; zabel.allan@epa.gov; wong.lily@epa.gov; rios.gerardo@epa.gov
Subject: Re: Conference call with EPA on ag. pump ERC protocol

Just a reminder about tomorrow's call with EPA.

Elizabeth Ota wrote:

> EPA has confirmed their availability for a conference call on the ag.
> pump ERC protocol on May 22 from 2:00 - 3:00.
> Here is the information you'll need for the call:

>
> Call-in number: (888) 566-7603
> Passcode: 39243
> Leader: Liz Ota

>
> EPA also asked for the latest version of the protocol, which is
> attached. The significant changes made from the October, 2001 version
> provided to EPA are highlighted.

>
> -----
> Name: draft 3 4 02 deep well ag
pump protcol.doc
> draft 3 4 02 deep well ag pump protcol.doc Type: Microsoft Word Document
(application/msword)
> Encoding: base64
> Download Status: Not downloaded with
message

DRAFT

3/4/02

Protocol for Calculating Emission Reduction Credits for Replacing Existing Diesel Engines Used to Run Stationary Deep-Well Agricultural Pumps with Electric Motors

This protocol covers the calculation of emission reduction credits (ERCs) generated by replacing an existing diesel-fired engine used to power a stationary deep well agricultural pump with an electric motor. It covers ERCs generated from NO_x, CO, VOC, SO_x, and PM₁₀ reductions. PM₁₀ ERCs can be used to mitigate emission increases of criteria pollutants under New Source Review programs but cannot be used to satisfy separate requirements for toxic air contaminants.

Other protocols may be developed for calculating ERCs for portable agricultural pumps and for replacing diesel-fired engines with cleaner internal combustion engines.

Calculation of Emission Reduction Credits

ERCs are based on the elimination of the historic actual emissions of the engine being removed. Three different methodologies are listed, in order of recommended use if sufficient data are available, for calculating ERCs in units of pounds per quarter.

The following information applies to all methodologies:

Baseline Period

The baseline period is the same as specified in a district's New Source Review or ERC banking rule (generally stated as the two years prior to the date of the complete application, or two consecutive years out of the past five if an earlier period is justified).

Adjustments

As with any ERC evaluation, all emission reductions should be adjusted for any regulatory requirements and/or reductions assumed as part of a regional air quality plan applicable to the source at the time of the ERC application.

Emission reductions achieved by the Carl Moyer Memorial Air Quality Standards Attainment Program (Moyer Program) or other publicly-funded programs are not eligible for generating emission reduction credits, unless such a program has been specifically designed to do so.

Emission Factors

Generally, for establishing baseline emission levels, the most conservative (i.e. lowest) emission factors should be used. NO_x and PM₁₀ emission factors for off-road diesel engines from the current Moyer Program guidelines should be used. Emission factors for CO and VOC may be found in the most recent version of the U.S. Environmental Protection Agency document, *Compilation of Air Pollutant Emission Factors, AP-42*, Volume 1, Chapter 3, Section 3.3, "Gasoline and Diesel Industrial Engines." Calculations of SO_x emission reductions should assume past use of diesel fuel with a sulfur content that meets the California specifications for motor vehicle diesel fuel, unless sufficient documentation is provided to conclusively demonstrate that high-sulfur diesel fuel was used throughout the baseline period in the engine being replaced.

Carl Meyer
AP-42
SO_x based on fuel
source test data

Because agricultural pumps are not subject to permit requirements, there is the potential for manipulation of source tests in order to maximize the measured baseline emission rates. For this reason, source test data may only be used to establish baseline emission rates if sufficient records are provided to demonstrate that the source test represents normal engine operations.

Energy Consumption Factors

These should be based on current Moyer Program guidelines.

Calculation Method 1 - Baseline Emissions Based on Fuel Use Records

The preferred method for calculating ERCs uses actual fuel use records for the engine being replaced. While most farmers do not keep such records, this method should be used if accurate fuel use records have been kept over the duration of the baseline period.

Diesel to Electric ERC Calculation

ERC, lb/qtr = (EF1 * ECF1 * FC1) * lb / 453.6 g

↳ not the conversion

Where:

EF1	Emission Factor <u>Baseline</u>	g/bhp-hr
ECF1	Energy Consumption Factor <u>Baseline</u>	hp-hr/gal
FC1	Fuel Consumption <u>Baseline</u>	gal/qtr
Conversion factor	1 / 453.6	lb/g

Calculation Method 2 – Baseline Emissions Based on Hours of Operation

This is recommended as the next-best method to use if accurate fuel-use records are not available for the baseline period, but accurate records of hours of operation are.

Diesel to Electric ERC Calculation

ERC, lb/qtr = (EM1 * P1 * LF1 * H) * lb / 453.6 g

EF x hp x L-FACTOR (.65) x hrs / qtr x LB / 453.6g

Where:

EM1	Emission Factor <u>Baseline</u>	g/bhp-hr
P1	Old engine horsepower	hp
LF1	Load Factor <u>Baseline</u> , defaulted to 0.65, based on the Moyer Program guidance document	N/A
H	Hours of operation per quarter	hr/qtr
Conversion Factor	1 / 453.6	lb/g

Calculation Method 3 - Baseline Emissions Based on the Amount of Energy Required to Pump Water into the Field

This method is recommended if there is insufficient information to use Methods 1 or 2.

Overview

This method starts by calculating the optimal amount of water required to grow various crops. If crops are underwatered or overwatered, the yield is decreased and there is a negative impact to the grower. The science of watering has been studied by government agencies, academic institutions, and the agricultural industry. The Department of Water Resources regularly publishes reports on the actual field-deliveries of water used on various crops throughout the State. Farmers face difficulties in estimating the amount of water to pump due to the time it takes to water a field (a few days to a week) and the weather and temperature variations that occur over that time. Given the choice, farmers generally will overwater rather than underwater the crops.

This method uses data published by the Department of Water Resources (if available) to estimate the number of acre-feet of water required per acre of a given crop in a particular location using a specific irrigation method (e.g. drip, flood, etc). By aggregating the amounts of acre-feet of water required for all of the fields served by a specific irrigation system, the total water throughput requirement of the irrigation system can be determined.

The amount of energy necessary to pump the water from the well and into the field can then be calculated using various physical parameters of an irrigation pumping system (e.g. the depth of the well, the mechanical water-pump driveline efficiency, the mechanical gearhead efficiency, the distribution system efficiency, and the discharge pressure required). These parameters and the throughput requirement are used to determine the mechanical energy requirement, which is the number of horsepower-hours required to operate the irrigation system per calendar quarter.

*depth (ft)
gearhead of
line of
pressure (ft)
system of*

Once the mechanical energy requirement has been determined, it is combined with the appropriate emission factor to determine the emissions, in pounds per quarter.

Methodology

For a specific irrigation system, the following data are required:

*.1605 ft³
gal*

- Amount of water to be pumped per average month/quarter during the baseline period *ft³*
- Depth of the water well (feet)
- Amount the water table depresses when water is being pumped (feet)
- Pressure loss of the irrigation system (feet), if applicable
- Required surface discharge pressure (feet) – This value can be defaulted to zero for cases where the water is not being pumped directly into a pressurized system or where the deep well pump is hooked to a downline booster pump. If an assumption of a non-zero value is used for this variable, a gauge that measures discharge pressure should be required for the pump fitted with the new electric motor.

Calculation Method 3 - Baseline Emissions Based on the Amount of Energy Required to Pump Water into the Field (continued)

- Flow rate of the pump (gallons per minute)
- Type of irrigation system (e.g. furrow, flood, or drip)

Calculation procedure:

1. Calculate the water pressure required to operate system (ft):

$$\text{Pressure required (ft)} = \text{well depth (ft)} + \text{depression depth (ft)} + \text{surface discharge pressure (ft)} + \text{pressure loss of the system (ft)}$$

2. System mechanical efficiency (no units):

$$\text{System mechanical efficiency} = \text{pump impeller efficiency} \times \text{gearhead efficiency} \times \text{lineshaft efficiency}$$

$$\text{Default value of system mechanical efficiency} = 0.60$$

While actual system mechanical efficiencies will vary, a default value of 0.60 shall be used in this ERC calculation. This value reflects a pump impeller efficiency of approximately 0.65, which is the same as the value used in the approved Irrigation Pump Energy Requirement Model.

3. Determine quantity of water required using data published by the Department of Water Resources. If such data are not available, other published data may be used if sufficient justification is provided (lb/quarter):

$$Q = \frac{\text{water required acre - ft}}{\text{acre}} \times \text{acres} \times \frac{325,851 \text{ gal}}{\text{acre - ft}} \times \frac{8.33 \text{ lb}}{\text{gal}}$$

If there are existing electric pumps that serve the same field as the diesel pumps being replaced, the amount of water pumped by those electric pumps during the baseline period should be subtracted from the value obtained for Q. The ERC application should include records of the electric usage of those pumps during the baseline period so that this calculation can be performed.

4. Calculate the work output of the pump - (hp-h/quarter):

$$\text{Work output} = Q \left(\frac{\text{lb}}{\text{quarter}} \right) \times \text{Pressure required (ft)} \times \frac{1 \text{ hp - hr}}{1,980,000 \text{ ft - lb}}$$

5. Determine Mechanical Energy Requirement (hp-hr/quarter):

$$\text{Mechanical energy requirement} = \frac{\text{work output}}{\text{system mechanical efficiency}}$$

Calculation Method 3 - Baseline Emissions Based on the Amount of Energy Required to Pump Water into the Field (continued)

Diesel to Electric ERC Calculation

Once the mechanical energy requirement has been determined, it is combined with the appropriate emission factor to determine the emissions, in tons per quarter, as follows:

$$\text{ERC, lb/qtr} = (\text{EF1} * \text{MER1}) * \text{lb} / 453.6 \text{ g}$$

Where:

EF1	<u>Emission Factor Baseline</u>	g/bhp-hr
MER1	Mechanical Energy Requirement <u>Baseline</u> , as determined by the irrigation pump energy requirement calculations, for the older engine	hp-hr/qtr
Conversion factor	1 / 453.6	lb/g

Verification of Work Performed by New Motor

For systems where the deep well pump is pumping the water into a pressurized system and the work calculation relied on discharge pressure, in order to ensure that the use of booster pumps is not increased to supplement the work of the new electric motor, provisions should be made to verify that the new motor continues to perform at least as much work as the engine it replaces. This can be accomplished by installing a gauge that continuously measures the pump's discharge pressure. District inspectors should ascertain that the pump operating with the new electric motor has a discharge pressure at least as high as the discharge pressure prior to the replacement of the old diesel engine.

ERC Set-Aside and Validation

Because this method has not been fully validated under a variety of conditions, at least 20 percent of the ERCs calculated should be held by the district pending a one-year verification period (or longer period as judged by the district as appropriate for the specific conditions of each case) to ascertain that the actual operation of the pump corresponds to what was predicted using this method. For new electric motors, the actual amount of water pumped can be calculated from well-specific records of electricity use or records of hours of operation. The district should also apply appropriate corrections for other factors such as increased water conservation due to changes in irrigation method, changes in crop type, changes in pump efficiency, etc. in its evaluation of the accuracy of the method.

Credit Life

Credits generated under this protocol will be permanent.

Information to be Included in the ERC Application:

- Description of project
- Location of field
- Number and identification of all pumps serving the property
- Layout of whole irrigation system in service area
- If using Method 3, records of electricity usage during the baseline period for existing electric pumps serving the same field as the diesel pumps being replaced, if applicable.
- Specific location of pumps
- Verification of electric meter installation, if applicable
- Verification of installation of discharge pressure gauge, if applicable
- Location of meters, if applicable
- Manufacturer, make, model, year, horsepower and serial number of existing engines and replacement motors
- Information to be used to establish historic actual emissions (fuel use data, crop type, water depth, etc.)
- Discharge pressure of pump run by existing diesel engine while operating under typical conditions
- Proof of installation of new motor or engine (verified by district inspection)
- Proof that old engine is permanently destroyed (verified by district inspection)
- If using Method 3, certification that the relevant field receives all irrigation water from sources covered in the ERC application (verified by district inspection).

Inventory

The ERCs issued should be linked with the district's planning inventory. If the amount of ERCs calculated is not fully accounted for in the district's planning inventory, the district should either limit the amount of ERCs issued or update the next planning inventory to account for them.

PROJECT ROUTING FORM

PROJECT NUMBER: 1011235 FACILITY ID: 3892 PERMIT NOs: 3892

APPLICANT NAME: VALLEY AIR CONDITIONING & REPAIR INC.

PREMISE ADDRESS: O'NIELL FARMING, FIVE POINTS, CA. SE 1/4,S-4,T-18S,R-17E

PRELIMINARY REVIEW	ENGR	DATE	SUPR	DATE
A. Application Deemed Incomplete				
B. Application Deemed Complete <input type="checkbox"/> Awaiting CB Offsets	SR	10/17/01	[Signature]	10/17/01
C. Application Pending Denial				
D. Application Denied				

ENGINEERING EVALUATION	INIT	DATE
E. Engineering Evaluation Complete	SR	10/29/01
F. Supervising Engineer Approval	[Signature]	11/29/01
G. Compliance Division Approval <input checked="" type="checkbox"/> Not Required	ERC	
H. Permit Services Manager Approval	[Signature]	[Signature]

Director Review: Not Required Required 3/4/02
[Signature] 2/11/02 Finals to SS

CLERICAL STAFF: Perform tasks as indicated below. Initial and date when completed.

- PRELIMINARY REVIEW
- _____ Mail Incompleteness Letter to the Applicant.
 - _____ Mail Completeness Letter to the Applicant.
 - _____ Mail Intent to Deny Letter to the Applicant (Certified Mail).
 - _____ Mail Denial Letter to the Applicant (Certified Mail).

PROJECTS NOT REQUIRING PUBLIC NOTIFICATION

- PRELIMINARY DISPOSITION: _____ Mail Imminent Denial Letter to the Applicant (Certified Mail).
- FINAL DISPOSITION: _____ Mail ATC(s) to Distribution.
 _____ Mail Denial Letter to the Applicant (Certified Mail).

PROJECTS REQUIRING PUBLIC NOTIFICATION

- PRELIMINARY DECISION: _____ Deliver Ad to the Newspaper NOT LATER THAN _____
 _____ Mail copies of Cover Letter and Engineering Evaluation to Distribution.
- FINAL DECISION: _____ Deliver Ad to the Newspaper NOT LATER THAN _____
 _____ Mail copies of Cover Letter and ATC(s) to Distribution.
 _____ Mail copies of Cover Letter to Distribution.

DISTRIBUTION

- _____ APPLICANT _____ EPA - 75 Hawthorne St., San Francisco, CA 94105 Attn: A-3-4
- _____ ENGINEER _____ ARB - Stationary Source Div. Chief, PO Box 2815, Sacramento, CA 95812
- _____ COMPLIANCE _____ SJVUAPCD - 1999 Tuolumne St., Fresno, CA 93721 Attn: Seyed Sadredin
- _____ PREMISE FILE
- _____ BLDG DEPT _____ OTHER _____
- _____ FIRE DEPT _____ SCHOOL _____

San Joaquin Valley Air Pollution Control District Memo

Date: March 25, 2003

To: File C-3892, Project 1011235

(Section 4)

From: Steve Roeder

Subject: Signed and Recorded Diesel Engine Retirement Agreement

The number on the transmittal page of the attached Diesel Engine Retirement Agreement is confirmed to be from the County Recorder's Office indicating that the document has been recorded on March 23, 2003. Therefore, the ERC's issued with this project are considered to be valid.

RECORDING REQUESTED BY
CHICAGO TITLE COMPANY
AND WHEN RECORDED MAIL TO

O'Neill Farming
1265 W. Shaw Ave. #101
Fresno, CA 93711

03/20/2003, 20030063440

Escrow No. n/a
Order No. n/a

SPACE ABOVE THIS LINE FOR RECORDER'S USE

DIESEL ENGINE RETIREMENT AGREEMENT

RECEIVED
MAR 24 2003
BY: _____

THIS PAGE ADDED TO PROVIDE ADEQUATE SPACE FOR RECORDING INFORMATION
(Additional recording fee applies)

Diesel Engine Retirement Agreement

ERC Project C-1011235

A covenant running with the Service Area described herein

This agreement is made between O'Neill Farming Enterprises, Inc. and Excelsior Farms, a California General Partnership, known collectively herein as O'Neill Entities, Valley Air Conditioning and Repair, and the San Joaquin Valley Unified Air Pollution Control District (the "District") (collectively, the "Parties").

RECITALS

WHEREAS, the District is a duly formed governmental entity responsible for achieving and maintaining clean air quality in the San Joaquin Valley;

WHEREAS, pursuant to California Health and Safety Code sections 40709 through 40714.5, the District has adopted Rules and Regulations providing for the creation and use of emission reduction credits ("ERCs") which are real, surplus, quantifiable, permanent and enforceable;

WHEREAS, O'Neill Entities proposes to have its existing primary groundwater extraction engine in Service Area replaced with a new electric motor;

WHEREAS, O'Neill Entities enters this agreement for the purpose of generating emissions reductions within the San Joaquin Valley Air Basin and to create ERCs to be banked with the District;

WHEREAS, Valley Air Conditioning and Repair enters this agreement solely to create ERCs for its benefit and for the benefit of air quality in the region by reducing emissions from agricultural equipment which is currently exempt from the requirement of having a written permit;

NOW, THEREFORE, the Parties hereto agree as follows:

AGREEMENT

1.0 Terms used herein are defined as follows:

- (a) "Effective Date" of this agreement shall mean the date of acceptance of this agreement by the District.
- (b) "Service Area" shall mean all of Section 4, Township 18S, Range 17E, Mount Diablo Base and Meridian as set forth in Exhibit "B", attached hereto, and incorporated herein.
- (c) "well" shall mean the deep water well located on the southwest quarter section of the Service Area, as identified in Exhibit "B".
- (d) "primary groundwater extraction engine" shall mean the diesel engine used to power the well, as identified in Exhibit "A", attached hereto and incorporated herein.
- (e) "new electric motor" shall mean the new electric motor provided by Valley Air Conditioning and Repair that will replace the primary groundwater extraction engine.
- (f) "farmland" shall mean lands within the Service Area that are planted, cultivated and irrigated using the new electric motor.

(g) "irrigation system" shall mean the well and any and all piping, pumps and accessories which are used to irrigate any or all of the Service Area.

- 2.0 District agrees that O'Neill Entities in cooperation with Valley Air Conditioning and Repair are voluntarily reducing air pollution by replacing the primary groundwater extraction engine with a new electric motor for the purpose of creating ERCs, and District is aware of no regulatory impediment, existing or pending, which would prevent the use of ERCs generated pursuant to this Agreement.
- 3.0 O'Neill Entities agrees to replace its existing primary groundwater extraction engine as identified in Exhibit "A", which is used to irrigate the Service Area with the new electric motor provided by Valley Air Conditioning and Repair.
- 4.0 District agrees to issue ERCs to Valley Air Conditioning and Repair for actual emission reductions as quantified by the District in accordance with District Rules and Regulations. 80% of the Bankable ERCs will be issued pending a successful Public Noticing period. The remaining 20% will be issued or withheld, partially or in full, pending a site-specific validation of the assumptions made in evaluating the Baseline Emissions.
- 5.0 O'Neill Entities agrees to acquire a Permit to Operate, for the irrigation system that irrigates the Service Area covered by this agreement, from the District, and to maintain the Permit to Operate until the Permit to Operate is permanently relieved or replaced in writing by the District.
- 6.0 Valley Air Conditioning and Repair and O'Neill Entities agree that the post-project new electric motor serving the Service Area will be fitted with a non-resettable kilowatt-hour meter. This requirement may be satisfied with the use of the electric utility's billing meter if and only if the billing meter exclusively serves the electric motor referenced herein.
- 7.0 O'Neill Entities agrees to maintain records of monthly kilowatt-hour use of the new electric motor for a period of at least 12 months (Validation Period). The District will use said records to validate the baseline emissions prior to issuing any or all of the final 20% of the Bankable ERCs.
- 8.0 O'Neill Entities represents and warrants that it owns the Service Area, that O'Neill Entities owns the primary groundwater extraction engine being removed and the irrigation system covered by this Agreement, and that O'Neill Entities has all rights and authority to enter into this binding Agreement.
- 9.0 O'Neill Entities agrees to render the removed primary groundwater extraction engine inoperable by drilling or knocking a hole in the block, welding the cylinder head shut, obtaining written proof from a scrap yard that the removed Engine(s) has been destroyed or otherwise rendered inoperable, or other method approved in advance by the District, and to submit proof of such destruction of the removed engine to the District prior to the issuance of any related ERCs.
- 10.0 The District maintains the right to witness the destruction of the primary groundwater extraction engine and Parties agree to notify the District at least 14 days prior to the destruction of the engine.
- 11.0 O'Neill Entities agrees that the service area shall not be irrigated with any water that was pumped from any internal combustion engine-powered deep well.

- 12.0 O'Neill Entities agrees that replacement of the primary groundwater extraction engine with a new electric motor will remain in effect as long as any of the Service Area covered by this Agreement remains farmland, and agrees to disclose in writing the existence of this Agreement to any other entity which may come to own or become responsible for operating the irrigation system for the Service Area described. To ensure the permanence of this Agreement, this Agreement shall be recorded by the County Registrar. Any future entity that becomes responsible for the irrigation system shall agree to the terms contained in this Agreement.
- 13.0 O'Neill Entities and the District agree that no equipment which emits or may emit any air contaminant may be used, permanently or temporarily, to power or supplementally power the irrigation system without specific prior written approval by the District, which approval shall not be unreasonably withheld and where: (a) the new equipment is evaluated and approved in accordance with District Rules and Regulations; (b) the potential increase in emissions is entirely offset using the current District-approved Distance Offset Ratio; and (c) the Permit to Operate for the irrigation system is modified accordingly by the District.
- 13.1 The first exception to Condition 13.0 is that O'Neill Entities may use tailwater pumps, runoff pumps, ditch pumps and other accessories as necessary provided that the water being delivered to the service area did not originate from any internal combustion engine-powered deep well.
- 13.2 The second exception to Condition 13.0 is that O'Neill Entities may utilize booster pumps as necessary to supplement the irrigation system pressure, only if the pumped water travels through at least 238 feet of pipe as measured from the wellhead to the nearest booster pump. In lieu of this minimum distance requirement, booster pumps may be utilized provided that the discharge pressure on the wellhead, as measured by a permanently installed and operationally maintained pressure gage, is at least 20 psig.
- 13.3 The third exception to 13.0 is that O'Neill Entities may use an internal combustion engine-powered electrical generator to supply electrical power to the irrigation system as necessary during unforeseen electrical power outages, on an interim basis to mitigate damage to O'Neill Entities' crops until normal power is restored. Any electrical generator used under this section shall not be used in conjunction with any voluntary utility demand reduction program. Records of hours of internal combustion engine operation shall be maintained which identify the engine used, and include the date of operation, the number of hours of operation, the purpose of the operation (e.g., load testing, weekly testing, rolling blackout, general area power outage, etc.), and the sulfur content of the diesel fuel used. Such records shall be retained for a period of at least five years and made available for District inspection upon request.
- 14.0 O'Neill Entities, upon the sale or lease of the Service Area, will assign this Agreement and the Permit to Operate, and all rights, duties and obligations hereto, to the new owner. Assignment of this Agreement and all rights, duties and obligations will include a notice submitted to the District in the form of a completed District Transfer of Ownership application. Nothing in this Agreement shall be construed to diminish the District's authority to implement and enforce applicable state, federal, and local laws, rules and regulations.
- 15.0 O'Neill Entities grants to Valley Air Conditioning and Repair and the District, for the specific and sole purpose of exercising their respective responsibilities as defined in this Agreement and applicable law, the right of reasonable entry to the Service Area to monitor compliance with this Agreement during normal business hours.

- 16.0 All Parties to this Agreement warrant that each is duly authorized and empowered to bind such Party and there are no actions, suits, proceedings or other impediments, pending or threatened, which affect the performance of each Party's obligations under this Agreement.
- 17.0 All Parties agree that this Agreement constitutes a legal, valid and binding obligation on all Parties, enforceable in accordance with its terms and applicable law, and that its contents, including that of other documents incorporated by reference, are true and correct to the best of their knowledge.
- 18.0 O'Neill Entities and Valley Air Conditioning and Repair agree to, and will not contest, the District's jurisdiction over matters related to this Agreement; provided however, that neither O'Neill Entities nor Valley Air Conditioning and Repair are herein surrendering any right they may have under applicable law to challenge subsequent actions.
- 19.0 This Agreement, including the exhibits, made a part hereof, attached hereto and incorporated herein, forms the whole of the Agreement and may not be modified except in writing with the concurrence of all Parties. After such a time as any ERCs are issued, the Permit to Operate is acquired and after the Validation Period, this Agreement may not be modified except in writing with the concurrence of the District and O'Neill Entities.
- 20.0 If any condition of this Agreement, or the application of such condition shall be determined to be invalid, illegal or unenforceable for any reason, the remainder of the Agreement shall not be affected and every other condition of this Agreement shall be valid and enforceable to the fullest extent provided by law. Venue for any action to enforce this Agreement or its terms shall only occur in the appropriate court in Fresno County.
- 21.0 Exhibits and documents incorporated herein by reference:
Exhibit A: Existing Engine Identification
Exhibit B: Map/Description of Service Area
- 22.0 Notices shall be deemed to be given when faxed if proper documentation shows that the fax was received, or on the date registered mail is certified received to the following:

To O'Neill Entities:

1265 W Shaw Avenue, #101
Fresno, CA 93711
(559) 224-2000 (phone)
(559)-224-2384 (fax)

To Valley Air Conditioning
and Repair:

Valley Air Conditioning
and Repair, Inc.
1350 F Street
Fresno, CA 93706
(559) 237-3188 (phone)
(559) 237-2867 (fax)

To District:

Director of Permit Services
San Joaquin Valley APCD
1990 E Gettysburg Avenue
Fresno, CA 93726-0244
(559) 230-6000 (phone)
(559) 230-6061 (fax)

THE PARTIES, having read and approved the foregoing and as approved by their authorized officers, agree to be bound by the terms and conditions contained in this Agreement, execute this Agreement as of the Effective Date set forth above:

For O'Neill Entities:

Edwin R. O'Neill

O'Neill Farming
Enterprises, Inc.
Edwin R. O'Neill
President

Dated:

3/10/2003

For Valley Air Conditioning
and Repair:

Tobbie Hopper

Tobbie Hopper
President

Dated:

3/12/03

For District:

Seyed Sadredin

Seyed Sadredin
Director of Permit Services

Dated:

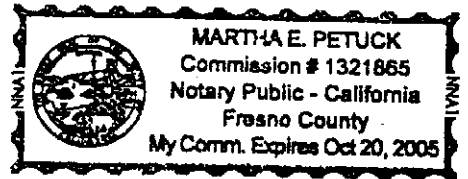
3/13/03

For Excelsior Farms,
a California General Partnership

Edwin R. O'Neill
Edwin R. O'Neill, Partner

Dated:

3/10/2003



Lee R. Schultz
Lee R. Schultz, Partner

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

No. 5193

State of California

County of Fresno

On 3/13/03 before me, Martha E. Petuck, Notary Public

DATE

NAME, TITLE OF OFFICER - E.G., "JANE DOE, NOTARY PUBLIC"

personally appeared Seyed Sadredini

NAME(S) OF SIGNER(S)

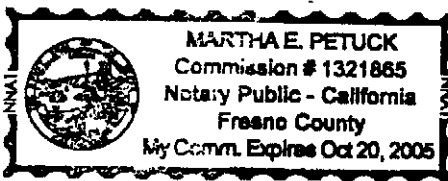
personally known to me - OR - proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

OPTIONAL SECTION

CAPACITY CLAIMED BY SIGNER

Though statute does not require the Notary to fill in the data below, doing so may prove invaluable to persons relying on the document.

- INDIVIDUAL
- CORPORATE OFFICER(S)
- TITLE(S) _____
- PARTNER(S) LIMITED GENERAL
- ATTORNEY-IN-FACT
- TRUSTEE(S)
- GUARDIAN/CONSERVATOR
- OTHER: _____



WITNESS my hand and official seal.

Martha E. Petuck
SIGNATURE OF NOTARY

SIGNER IS REPRESENTING:

NAME OF PERSON(S) OR ENTITY(IES)
STVAPCO

OPTIONAL SECTION

THIS CERTIFICATE MUST BE ATTACHED TO THE DOCUMENT DESCRIBED AT RIGHT:

TITLE OR TYPE OF DOCUMENT Diesel Engine Retention Agreement

NUMBER OF PAGES _____ DATE OF DOCUMENT _____

Though the data requested here is not required by law, it could prevent fraudulent reattachment of this form.

SIGNER(S) OTHER THAN NAMED ABOVE _____

STATE OF CALIFORNIA)
) ss.
COUNTY OF FRESNO)

On March 10, 2003, before me, Darlene E. Lobkowski, a Notary Public, personally appeared **EDWIN R. O'NEILL**, personally known to me or proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacities, and that by his signatures on the instrument the person or the entities upon behalf of which the person acted, executed the instrument.

Witness my hand and official seal.

Darlene E. Lobkowski
Notary Public



STATE OF CALIFORNIA)
) ss.
COUNTY OF FRESNO)

On March 10, 2003, before me, Darlene E. Lobkowski, a Notary Public, personally appeared **LEE R. SCHULTZ**, personally known to me or proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument the person or the entity upon behalf of which the person acted, executed the instrument.

Witness my hand and official seal.

Darlene E. Lobkowski
Notary Public



STATE OF CALIFORNIA)
) ss.
COUNTY OF FRESNO)

On March 12, 2003, before me, Darlene E. Lobkowski, a Notary Public, in and for said County and State, personally appeared **TOBBIE HOPPER**, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument the person or the entity upon behalf of which the person acted, executed the instrument.

Witness my hand and official seal.

Darlene E. Lobkowski
Notary Public

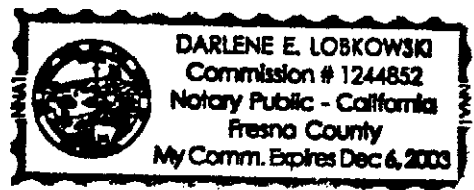


EXHIBIT A

Irrigation Engine(s) Retired:

One 750 horsepower Caterpillar model 3412 diesel-fired internal combustion engine, Serial Number 038S15467.

**Exhibit "B"
Service Area**

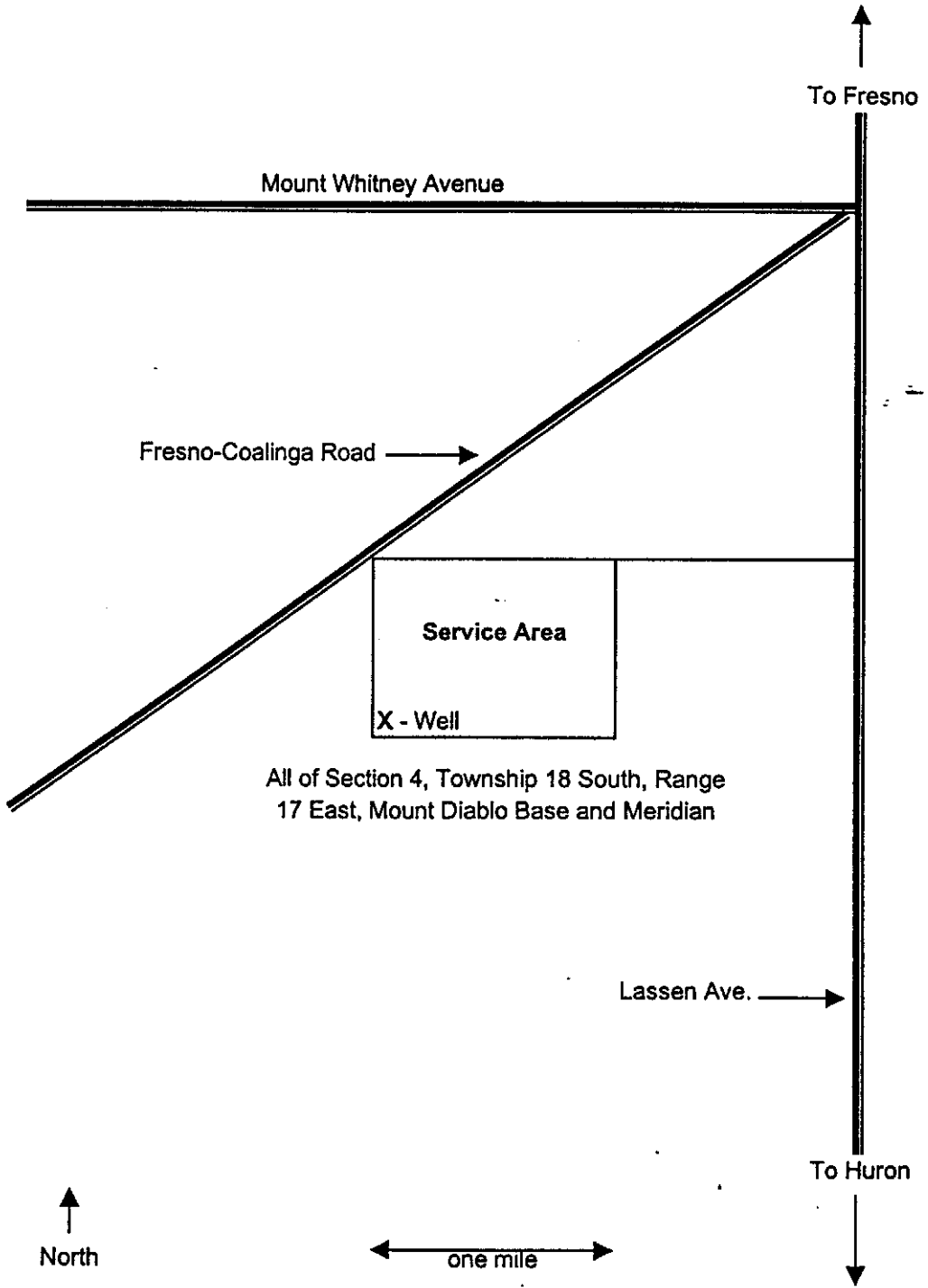


Exhibit C

Exhibit C is not applicable because the land owner of record, the owner of the equipment and the operators are all parties to this agreement.



San Joaquin Valley
Air Pollution Control District

February 5, 2003

Tobbie Hopper
Valley Air Conditioning and Repair
1350 F Street
Fresno, CA 93706

**RE: Notice of Revised Diesel Engine Retirement Agreements
Project Numbers: C-1010806 and C-1011235**

Dear Mr. Hopper:

Enclosed are the revised Diesel Engine Retirement Agreements associated with Emission Reduction Credit (ERC) Projects, C-1010806 and C-1011235. The agreements have been revised pursuant to comments submitted by Lee Schultz. Since the District did not receive the revised copy of Appendix B for Project 1011235, please include it in the agreement prior to recording.

Please note that the signed agreements must be returned to the District along with verification that the agreements have been recorded prior to the use or sale of any of the associated ERCs.

Thank you for your cooperation in this matter. If you have any questions, please contact Mr. David Warner at (559) 230-5900.

Sincerely,

for 
Seyed Sadredin
Director of Permit Services

SS:SR

Enclosures

c: David Warner, Permit Services Manager

David L. Crow
Executive Director/Air Pollution Control Officer

Northern Region Office
4230 Kiernan Avenue, Suite 130
Modesto, CA 95356-9322
(209) 557-6400 • FAX (209) 557-6475

Central Region Office
1990 East Gettysburg Avenue
Fresno, CA 93726-0244
(559) 230-6000 • FAX (559) 230-6061
www.valleyair.org

Southern Region Office
2700 M Street, Suite 275
Bakersfield, CA 93301-2373
(661) 326-6900 • FAX (661) 326-6985

Diesel Engine Retirement Agreement

ERC Project C-1010806

This agreement is made between O'Neill Farming Enterprises, Inc. and La Paloma Farms, a California General Partnership, known collectively herein as O'Neill Entities, Valley Air Conditioning and Repair, and the San Joaquin Valley Unified Air Pollution Control District (the "District") (collectively, the "Parties").

RECITALS

WHEREAS, the District is a duly formed governmental entity responsible for achieving and maintaining clean air quality in the San Joaquin Valley;

WHEREAS, pursuant to California Health and Safety Code sections 40709 through 40714.5, the District has adopted Rules and Regulations providing for the creation and use of emission reduction credits ("ERCs") which are real, surplus, quantifiable, permanent and enforceable;

WHEREAS, O'Neill Entities proposes to have its existing primary groundwater extraction engine in Service Area replaced with a new electric motor;

WHEREAS, O'Neill Entities enters this agreement for the purpose of generating emissions reductions within the San Joaquin Valley Air Basin and to create ERCs to be banked with the District;

WHEREAS, Valley Air Conditioning and Repair enters this agreement solely to create ERCs for its benefit and for the benefit of air quality in the region by reducing emissions from agricultural equipment which is currently exempt from the requirement of having a written permit;

NOW, THEREFORE, the Parties hereto agree as follows:

AGREEMENT

1.0 Terms used herein are defined as follows:

- (a) "Effective Date" of this agreement shall mean the date of acceptance of this agreement by the District.
- (b) "Service Area" shall mean all of the SE Quarter Section 9, Township 18S, Range 17E, Mount Diablo Base and Meridian, as set forth in Exhibit "B", attached hereto, and incorporated herein. The Service Area includes 544 acres, fields 8-4, 9-2, 9-3 and 9-4.
- (c) "well" shall mean the deep water well located on the southwest quarter section of the Service Area, as identified in Exhibit "B".
- (d) "primary groundwater extraction engine" shall mean the diesel engine used to power the well, as identified in Exhibit "A", attached hereto and incorporated herein.
- (e) "new electric motor" shall mean the new electric motor provided by Valley Air Conditioning and Repair that will replace the primary groundwater extraction engine.
- (f) "farmland" shall mean lands within the Service Area that are planted, cultivated and irrigated using the new electric motor.

(g) "irrigation system" shall mean the well and any and all piping, pumps and accessories which are used to irrigate any or all of the Service Area.

- 2.0 District agrees that O'Neill Entities in cooperation with Valley Air Conditioning and Repair are voluntarily reducing air pollution by replacing the primary groundwater extraction engine with a new electric motor for the purpose of creating ERCs, and District is aware of no regulatory impediment, existing or pending, which would prevent the use of ERCs generated pursuant to this Agreement.
- 3.0 O'Neill Entities agrees to replace its existing primary groundwater extraction engine as identified in Exhibit "A", which is used to irrigate the Service Area with the new electric motor provided by Valley Air Conditioning and Repair.
- 4.0 District agrees to issue ERCs to Valley Air Conditioning and Repair for actual emission reductions as quantified by the District in accordance with District Rules and Regulations. 80% of the Bankable ERCs will be issued pending a successful Public Noticing period. The remaining 20% will be issued or withheld, partially or in full, pending a site-specific validation of the assumptions made in evaluating the Baseline Emissions.
- 5.0 O'Neill Entities agrees to acquire a Permit to Operate, for the irrigation system that irrigates the Service Area covered by this agreement, from the District, and to maintain the Permit to Operate until the Permit to Operate is permanently relieved or replaced in writing by the District.
- 6.0 Valley Air Conditioning and Repair and O'Neill Entities agree that the post-project new electric motor serving the Service Area will be fitted with a non-resettable kilowatt-hour meter. This requirement may be satisfied with the use of the electric utility's billing meter if and only if the billing meter exclusively serves the electric motor referenced herein.
- 7.0 O'Neill Entities agrees to maintain records of monthly kilowatt-hour use of the new electric motor for a period of at least 12 months (Validation Period). The District will use said records to validate the baseline emissions prior to issuing any or all of the final 20% of the Bankable ERCs.
- 8.0 O'Neill Entities represents and warrants that it owns the Service Area, that O'Neill Entities owns the primary groundwater extraction engine being removed and the irrigation system covered by this Agreement, and that O'Neill Entities has all rights and authority to enter into this binding Agreement.
- 9.0 O'Neill Entities agrees to render the removed primary groundwater extraction engine inoperable by drilling or knocking a hole in the block, welding the cylinder head shut, obtaining written proof from a scrap yard that the removed Engine(s) has been destroyed or otherwise rendered inoperable, or other method approved in advance by the District, and to submit proof of such destruction of the removed engine to the District prior to the issuance of any related ERCs.
- 10.0 The District maintains the right to witness the destruction of the primary groundwater extraction engine and Parties agree to notify the District at least 14 days prior to the destruction of the engine.
- 11.0 O'Neill Entities agrees that the service area shall not be irrigated with any water that was pumped from any internal combustion engine-powered deep well.

- 12.0 O'Neill Entities agrees that replacement of the primary groundwater extraction engine with a new electric motor will remain in effect as long as any of the Service Area covered by this Agreement remains farmland, and agrees to disclose in writing the existence of this Agreement to any other entity which may come to own or become responsible for operating the irrigation system for the Service Area described. To ensure the permanence of this Agreement, this Agreement shall be recorded by the County Registrar. Any future entity that becomes responsible for the irrigation system shall agree to the terms contained in this Agreement.
- 13.0 O'Neill Entities and the District agree that no equipment which emits or may emit any air contaminant may be used, permanently or temporarily, to power or supplementally power the irrigation system without specific prior written approval by the District, which approval shall not be unreasonably withheld and where: (a) the new equipment is evaluated and approved in accordance with District Rules and Regulations; (b) the potential increase in emissions is entirely offset using the current District-approved Distance Offset Ratio; and (c) the Permit to Operate for the irrigation system is modified accordingly by the District.
- 13.1 The first exception to Condition 13.0 is that O'Neill Entities may use tailwater pumps, runoff pumps, ditch pumps and other accessories as necessary provided that the water being delivered to the service area did not originate from any internal combustion engine-powered deep well.
- 13.2 The second exception to Condition 13.0 is that O'Neill Entities may utilize booster pumps as necessary to supplement the irrigation system pressure, only if the pumped water travels through at least 238 feet of pipe as measured from the wellhead to the nearest booster pump. In lieu of this minimum distance requirement, booster pumps may be utilized provided that the discharge pressure on the wellhead, as measured by a permanently installed and operationally maintained pressure gage, is at least 20 psig.
- 13.3 The third exception to 13.0 is that O'Neill Entities may use an internal combustion engine-powered electrical generator to supply electrical power to the irrigation system as necessary during unforeseen electrical power outages, on an interim basis to mitigate damage to O'Neill Entities' crops until normal power is restored. Any electrical generator used under this section shall not be used in conjunction with any voluntary utility demand reduction program. Records of hours of internal combustion engine operation shall be maintained which identify the engine used, and include the date of operation, the number of hours of operation, the purpose of the operation (e.g., load testing, weekly testing, rolling blackout, general area power outage, etc.), and the sulfur content of the diesel fuel used. Such records shall be retained for a period of at least five years and made available for District inspection upon request.
- 14.0 O'Neill Entities, upon the sale or lease of the Service Area, will assign this Agreement and the Permit to Operate, and all rights, duties and obligations hereto, to the new owner. Assignment of this Agreement and all rights, duties and obligations will include a notice submitted to the District in the form of a completed District Transfer of Ownership application. Nothing in this Agreement shall be construed to diminish the District's authority to implement and enforce applicable state, federal, and local laws, rules and regulations.
- 15.0 O'Neill Entities grants to Valley Air Conditioning and Repair and the District, for the specific and sole purpose of exercising their respective responsibilities as defined in this Agreement and applicable law, the right of reasonable entry to the Service Area to monitor compliance with this Agreement during normal business hours.

- 16.0 All Parties to this Agreement warrant that each is duly authorized and empowered to bind such Party and there are no actions, suits, proceedings or other impediments, pending or threatened, which affect the performance of each Party's obligations under this Agreement.
- 17.0 All Parties agree that this Agreement constitutes a legal, valid and binding obligation on all Parties, enforceable in accordance with its terms and applicable law, and that its contents, including that of other documents incorporated by reference, are true and correct to the best of their knowledge.
- 18.0 O'Neill Entities and Valley Air Conditioning and Repair agree to, and will not contest, the District's jurisdiction over matters related to this Agreement; provided however, that neither O'Neill Entities nor Valley Air Conditioning and Repair are herein surrendering any right they may have under applicable law to challenge subsequent actions.
- 19.0 This Agreement, including the exhibits, made a part hereof, attached hereto and incorporated herein, forms the whole of the Agreement and may not be modified except in writing with the concurrence of all Parties. After such a time as any ERCs are issued, the Permit to Operate is acquired and after the Validation Period, this Agreement may not be modified except in writing with the concurrence of the District and O'Neill Entities.
- 20.0 If any condition of this Agreement, or the application of such condition shall be determined to be invalid, illegal or unenforceable for any reason, the remainder of the Agreement shall not be affected and every other condition of this Agreement shall be valid and enforceable to the fullest extent provided by law. Venue for any action to enforce this Agreement or its terms shall only occur in the appropriate court in Fresno County.
- 21.0 Exhibits and documents incorporated herein by reference:
- Exhibit A: Existing Engine Identification
- Exhibit B: Map/Description of Service Area
- 22.0 Notices shall be deemed to be given when faxed if proper documentation shows that the fax was received, or on the date registered mail is certified received to the following:

To O'Neill Entities:

1265 W Shaw Avenue, #101
 Fresno, CA 93711
 (559) 224-6000 (phone)
 (559)-224-2384 (fax)

To Valley Air Conditioning
 and Repair:

Valley Air Conditioning
 and Repair, Inc.
 1350 F Street
 Fresno, CA 93706
 (559) 237-3188 (phone)
 (559) 237-2867 (fax)

To District:

Director of Permit Services
 San Joaquin Valley APCD
 1990 E Gettysburg Avenue
 Fresno, CA 93726-0244
 (559) 230-6000 (phone)
 (559) 230-6061 (fax)

THE PARTIES, having read and approved the foregoing and as approved by their authorized officers, agree to be bound by the terms and conditions contained in this Agreement, execute this Agreement as of the Effective Date set forth above:

For O'Neill Entities:

Edwin R. O'Neill, pres

O'Neill Farming
Enterprises, Inc.
Edwin R. O'Neill
President

Dated:

2-13-03

For Valley Air Conditioning
and Repair:

Tobbie Hopper

Tobbie Hopper
President

Dated:

Feb 11/03

For District:

Seyed Sadredin

Seyed Sadredin
Director of Permit Services

Dated:

2/21/03

For La Paloma Farms,
a California General Partnership

Edwin R. O'Neill, partner
Neil R. Schuff, partner

Dated:

2-13-03

EXHIBIT A

Irrigation Engine(s) Retired:

One 450 horsepower Caterpillar model 3408 diesel-fired internal combustion engine, Serial Number 67U6614.

Exhibit C

Exhibit C is not applicable because the land owner of record, the owner of the equipment and the operators are all parties to this agreement.

Diesel Engine Retirement Agreement

ERC Project C-1011235

This agreement is made between O'Neill Farming Enterprises, Inc. and Excelsior Farms, a California General Partnership, known collectively herein as O'Neill Entities, Valley Air Conditioning and Repair, and the San Joaquin Valley Unified Air Pollution Control District (the "District") (collectively, the "Parties").

RECITALS

WHEREAS, the District is a duly formed governmental entity responsible for achieving and maintaining clean air quality in the San Joaquin Valley;

WHEREAS, pursuant to California Health and Safety Code sections 40709 through 40714.5, the District has adopted Rules and Regulations providing for the creation and use of emission reduction credits ("ERCs") which are real, surplus, quantifiable, permanent and enforceable;

WHEREAS, O'Neill Entities proposes to have its existing primary groundwater extraction engine in Service Area replaced with a new electric motor;

WHEREAS, O'Neill Entities enters this agreement for the purpose of generating emissions reductions within the San Joaquin Valley Air Basin and to create ERCs to be banked with the District;

WHEREAS, Valley Air Conditioning and Repair enters this agreement solely to create ERCs for its benefit and for the benefit of air quality in the region by reducing emissions from agricultural equipment which is currently exempt from the requirement of having a written permit;

NOW, THEREFORE, the Parties hereto agree as follows:

AGREEMENT

1.0 Terms used herein are defined as follows:

(a) "Effective Date" of this agreement shall mean the date of acceptance of this agreement by the District.

(b) "Service Area" shall mean all of Section 4, Township 18S, Range 17E, Mount Diablo Base and Meridian as set forth in Exhibit "B", attached hereto, and incorporated herein. The Service Area includes 632.25 acres, fields 4-1, 4-2, 4-A2, 4-2N, 4-2S, 4-3 and 4-4.

(c) "well" shall mean the deep water well located on the southwest quarter section of the Service Area, as identified in Exhibit "B".

(d) "primary groundwater extraction engine" shall mean the diesel engine used to power the well, as identified in Exhibit "A", attached hereto and incorporated herein.

(e) "new electric motor" shall mean the new electric motor provided by Valley Air Conditioning and Repair that will replace the primary groundwater extraction engine.

(f) "farmland" shall mean lands within the Service Area that are planted, cultivated and irrigated using the new electric motor.

(g) "irrigation system" shall mean the well and any and all piping, pumps and accessories which are used to irrigate any or all of the Service Area.

- 2.0 District agrees that O'Neill Entities in cooperation with Valley Air Conditioning and Repair are voluntarily reducing air pollution by replacing the primary groundwater extraction engine with a new electric motor for the purpose of creating ERCs, and District is aware of no regulatory impediment, existing or pending, which would prevent the use of ERCs generated pursuant to this Agreement.
- 3.0 O'Neill Entities agrees to replace its existing primary groundwater extraction engine as identified in Exhibit "A", which is used to irrigate the Service Area with the new electric motor provided by Valley Air Conditioning and Repair.
- 4.0 District agrees to issue ERCs to Valley Air Conditioning and Repair for actual emission reductions as quantified by the District in accordance with District Rules and Regulations. 80% of the Bankable ERCs will be issued pending a successful Public Noticing period. The remaining 20% will be issued or withheld, partially or in full, pending a site-specific validation of the assumptions made in evaluating the Baseline Emissions.
- 5.0 O'Neill Entities agrees to acquire a Permit to Operate, for the irrigation system that irrigates the Service Area covered by this agreement, from the District, and to maintain the Permit to Operate until the Permit to Operate is permanently relieved or replaced in writing by the District.
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- 8.0 O'Neill Entities represents and warrants that it owns the Service Area, that O'Neill Entities owns the primary groundwater extraction engine being removed and the irrigation system covered by this Agreement, and that O'Neill Entities has all rights and authority to enter into this binding Agreement.
- 9.0 O'Neill Entities agrees to render the removed primary groundwater extraction engine inoperable by drilling or knocking a hole in the block, welding the cylinder head shut, obtaining written proof from a scrap yard that the removed Engine(s) has been destroyed or otherwise rendered inoperable, or other method approved in advance by the District, and to submit proof of such destruction of the removed engine to the District prior to the issuance of any related ERCs.
- 10.0 The District maintains the right to witness the destruction of the primary groundwater extraction engine and Parties agree to notify the District at least 14 days prior to the destruction of the engine.
- 11.0 O'Neill Entities agrees that the service area shall not be irrigated with any water that was pumped from any internal combustion engine-powered deep well.

- 12.0 O'Neill Entities agrees that replacement of the primary groundwater extraction engine with a new electric motor will remain in effect as long as any of the Service Area covered by this Agreement remains farmland, and agrees to disclose in writing the existence of this Agreement to any other entity which may come to own or become responsible for operating the irrigation system for the Service Area described. To ensure the permanence of this Agreement, this Agreement shall be recorded by the County Registrar. Any future entity that becomes responsible for the irrigation system shall agree to the terms contained in this Agreement.
- 13.0 O'Neill Entities and the District agree that no equipment which emits or may emit any air contaminant may be used, permanently or temporarily, to power or supplementally power the irrigation system without specific prior written approval by the District, which approval shall not be unreasonably withheld and where: (a) the new equipment is evaluated and approved in accordance with District Rules and Regulations; (b) the potential increase in emissions is entirely offset using the current District-approved Distance Offset Ratio; and (c) the Permit to Operate for the irrigation system is modified accordingly by the District.
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- 15.0 O'Neill Entities grants to Valley Air Conditioning and Repair and the District, for the specific and sole purpose of exercising their respective responsibilities as defined in this Agreement and applicable law, the right of reasonable entry to the Service Area to monitor compliance with this Agreement during normal business hours.

- 16.0 All Parties to this Agreement warrant that each is duly authorized and empowered to bind such Party and there are no actions, suits, proceedings or other impediments, pending or threatened, which affect the performance of each Party's obligations under this Agreement.
- 17.0 All Parties agree that this Agreement constitutes a legal, valid and binding obligation on all Parties, enforceable in accordance with its terms and applicable law, and that its contents, including that of other documents incorporated by reference, are true and correct to the best of their knowledge.
- 18.0 O'Neill Entities and Valley Air Conditioning and Repair agree to, and will not contest, the District's jurisdiction over matters related to this Agreement; provided however, that neither O'Neill Entities nor Valley Air Conditioning and Repair are herein surrendering any right they may have under applicable law to challenge subsequent actions.
- 19.0 This Agreement, including the exhibits, made a part hereof, attached hereto and incorporated herein, forms the whole of the Agreement and may not be modified except in writing with the concurrence of all Parties. After such a time as any ERCs are issued, the Permit to Operate is acquired and after the Validation Period, this Agreement may not be modified except in writing with the concurrence of the District and O'Neill Entities.
- 20.0 If any condition of this Agreement, or the application of such condition shall be determined to be invalid, illegal or unenforceable for any reason, the remainder of the Agreement shall not be affected and every other condition of this Agreement shall be valid and enforceable to the fullest extent provided by law. Venue for any action to enforce this Agreement or its terms shall only occur in the appropriate court in Fresno County.
- 21.0 Exhibits and documents incorporated herein by reference:
- Exhibit A: Existing Engine Identification
- Exhibit B: Map/Description of Service Area
- 22.0 Notices shall be deemed to be given when faxed if proper documentation shows that the fax was received, or on the date registered mail is certified received to the following:

To O'Neill Entities:

1265 W Shaw Avenue, #101
 Fresno, CA 93711
 (559) 224-6000 (phone)
 (559)-224-2384 (fax)

To Valley Air Conditioning
 and Repair:

Valley Air Conditioning
 and Repair, Inc.
 1350 F Street
 Fresno, CA 93706
 (559) 237-3188 (phone)
 (559) 237-2867 (fax)

To District:

Director of Permit Services
 San Joaquin Valley APCD
 1990 E Gettysburg Avenue
 Fresno, CA 93726-0244
 (559) 230-6000 (phone)
 (559) 230-6061 (fax)

THE PARTIES, having read and approved the foregoing and as approved by their authorized officers, agree to be bound by the terms and conditions contained in this Agreement, execute this Agreement as of the Effective Date set forth above:

For O'Neill Entities:

Edwin R. O'Neill, pres

O'Neill Farming
Enterprises, Inc.
Edwin R. O'Neill
President

Dated: 2-13-03

For Valley Air Conditioning
and Repair:

Tobbie Hopper

Tobbie Hopper
President

Dated: Feb/11/03

For District:

Seyed Sadredin

Seyed Sadredin
Director of Permit Services

Dated: 2/21/03

For Excelsior Farms,
a California General Partnership

Edwin R. O'Neill, partner
Peo R. Schuff, partner

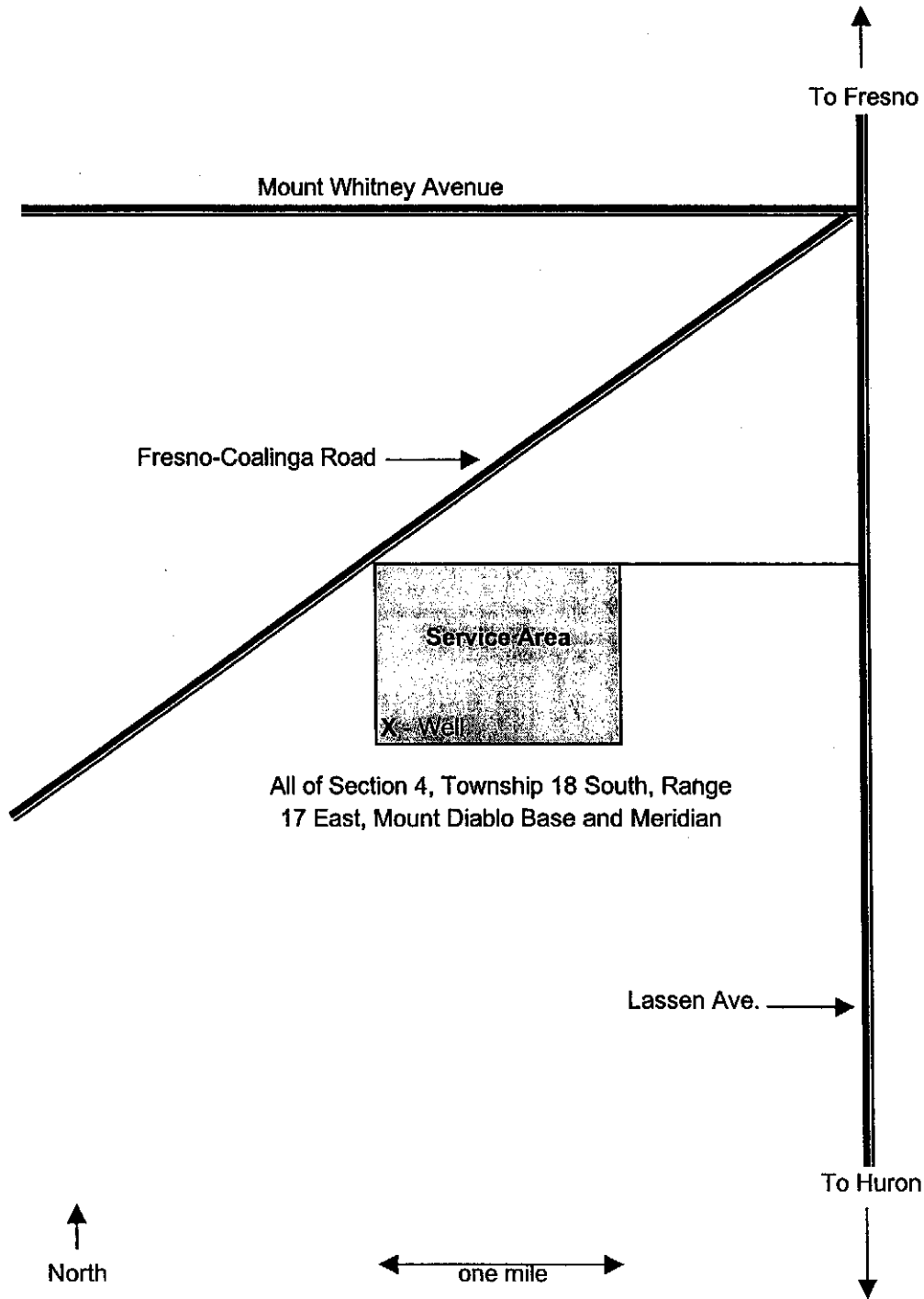
Dated: 2-13-03

EXHIBIT A

Irrigation Engine(s) Retired:

One 750 horsepower Caterpillar model 3412 diesel-fired internal combustion engine, Serial Number 038S15467.

**Exhibit "B"
Service Area**



All of Section 4, Township 18 South, Range
17 East, Mount Diablo Base and Meridian

Exhibit C

Exhibit C is not applicable because the land owner of record, the owner of the equipment and the operators are all parties to this agreement.



San Joaquin Valley
Air Pollution Control District

July 16, 2002

CERTIFIED MAIL

Tobbie Hopper
Valley Air Conditioning and Repair
1350 F Street
Fresno, CA 93706

**RE: Notice of Final Action - Emission Reduction Credits
Project Number: C-1011235**

Dear Mr. Hopper:

The Air Pollution Control Officer has issued Emission Reduction Credits (ERCs) to Valley Air Conditioning and Repair for emission reduction generated by the replacement of one ag-pump engine with an electric motor, at O'Neill Farming in Five Points. The quantity of ERCs to be issued is 18.2 tons-NOx/year, 0.3 tons-SOx/year, 0.9 tons-PM10/year, 5.1 tons-CO/year and 1.9 tons-VOC/year.

Enclosed are the ERC Certificates, the growers agreement and a copy of the notice of final action to be published approximately three days from the date of this letter.

Notice of the District's preliminary decision to issue the ERC Certificates was published on March 12, 2002. The District's analysis of the proposal was also sent to CARB and US EPA Region IX on March 5, 2002. All comments received following the District's preliminary decision on this project were considered.

Comments received by the District from Valley Air Conditioning and Repair and the EPA have been addressed and are identical to the comments and responses addressed during the Notice of Final Action for Valley Air Conditioning and Repair's ERC Project 1010806, dated March 27, 2002 (copy attached).

The District has received one additional comment form Valley Air Conditioning and Repair, which is discussed below.

"Item 5 of the permit prohibits the pumping of any water that did not originate from the subject well. Accordingly, excess rainwater cannot be removed and surface irrigation water cannot be used on this land parcel.

David L. Crow
Executive Director/Air Pollution Control Officer

Northern Region Office
4230 Kiernan Avenue, Suite 130
Modesto, CA 95356-9322
(209) 557-6400 • FAX (209) 557-6475

Central Region Office
1990 East Gettysburg Avenue
Fresno, CA 93726-0244
(559) 230-6000 • FAX (559) 230-6061
www.valleyair.org

Southern Region Office
2700 M Street, Suite 275
Bakersfield, CA 93301-2373
(661) 326-6900 • FAX (661) 326-6985

Valley Air Conditioning and Repair

July 16, 2002

Page 2

Since we all agreed that the intent is to preclude the use of any diesel or gas powered well water to irrigate this parcel (such as drilling a well on an adjacent parcel and diesel pumping it to this parcel) it is very important that the language be very precise and clear to avoid some future misunderstanding."

This project is based on the banking of the emission reductions that resulted from the replacement of a diesel-fired deep well ground water extraction pump with an electric pump. Our intent is to ensure that all of the water which would have been pumped by the diesel is now pumped by the new electric motor, and that the duty of the new electric motor is not compromised by having any of this land parcel irrigated by any water that was pumped from any engine-driven deep well pump. The pumping of surface water will therefore be acceptable and Permit Condition 5 on this permit as well as the previously issued Permit for ERC Project 1010806 will be revised as follows.

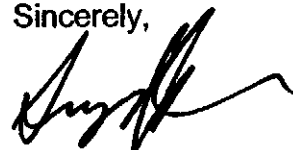
Owner/Operator may use tail water pumps, runoff pumps and/or ditch water pumps as necessary to transfer water being pumped from the electrically powered groundwater extraction well described in the Agreement, but may not deliver, or transfer water from any internal combustion engine powered groundwater extraction well to this parcel from any other point.

Also enclosed are invoices for the engineering evaluation and permit application filing fees pursuant to District Rule 3010. Please remit the amount owed, along with a copy of the attached invoice, within 30 days.

In addition, please note that the signed growers agreement must be returned to the District along with verification that the agreement has been recorded prior to the use or sale of any of these ERCs.

Thank you for your cooperation in this matter. If you have any questions, please contact Mr. David Warner at (559) 230-5900.

Sincerely,



Seyed Sadredin
Director of Permit Services

SS:SR

Enclosures

c: David Warner, Permit Services Manager



San Joaquin Valley
Air Pollution Control District

July 16, 2002

Mike Tollstrup, Chief
Project Assessment Branch
Stationary Source Division
California Air Resources Board
PO Box 2815
Sacramento, CA 95812-2815

**RE: Notice of Final Action - Emission Reduction Credits
Project Number: C-1011235**

Dear Mr. Tollstrup:

The Air Pollution Control Officer has issued Emission Reduction Credits (ERCs) to Valley Air Conditioning and Repair for emission reduction generated by the replacement of one ag-pump engine with an electric motor, at O'Neill Farming in Five Points. The quantity of ERCs to be issued is 18.2 tons-NOx/year, 0.3 tons-SOx/year, 0.9 tons-PM10/year, 5.1 tons-CO/year and 1.9 tons-VOC/year.

Enclosed are copies of the ERC Certificates and a copy of the notice of final action to be published approximately three days from the date of this letter.

Notice of the District's preliminary decision to issue the ERC Certificates was published on March 12, 2002. The District's analysis of the proposal was also sent to CARB and US EPA Region IX on March 5, 2002. All comments received following the District's preliminary decision on this project were considered.

Comments received by the District from Valley Air Conditioning and Repair and the EPA have been addressed and are identical to the comments and responses addressed during the Notice of Final Action for Valley Air Conditioning and Repair's ERC Project 1010806, dated March 27, 2002 (copy attached).

The District has received one additional comment form Valley Air Conditioning and Repair, which is discussed below.

"Item 5 of the permit prohibits the pumping of any water that did not originate from the subject well. Accordingly, excess rainwater cannot be removed and surface irrigation water cannot be used on this land parcel.

David L. Crow
Executive Director/Air Pollution Control Officer

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Mike Tollstrup

July 16, 2002

Page 2

Since we all agreed that the intent is to preclude the use of any diesel or gas powered well water to irrigate this parcel (such as drilling a well on an adjacent parcel and diesel pumping it to this parcel) it is very important that the language be very precise and clear to avoid some future misunderstanding."

This project is based on the banking of the emission reductions that resulted from the replacement of a diesel-fired deep well ground water extraction pump with an electric pump. Our intent is to ensure that all of the water which would have been pumped by the diesel is now pumped by the new electric motor, and that the duty of the new electric motor is not compromised by having any of this land parcel irrigated by any water that was pumped from any engine-driven deep well pump. The pumping of surface water will therefore be acceptable and Permit Condition 5 on this permit as well as the previously issued Permit for ERC Project 1010806 will be revised as follows.

Owner/Operator may use tail water pumps, runoff pumps and/or ditch water pumps as necessary to transfer water being pumped from the electrically powered groundwater extraction well described in the Agreement, but may not deliver, or transfer water from any internal combustion engine powered groundwater extraction well to this parcel from any other point.

Thank you for your cooperation in this matter. If you have any questions, please contact Mr. David Warner at (559) 230-5900.

Sincerely,



Seyed Sadredin
Director of Permit Services

SS:SR

Enclosures

c: David Warner, Permit Services Manager



San Joaquin Valley
Air Pollution Control District

July 16, 2002

Gerardo C. Rios (AIR 3)
Acting Chief, Permits Office
Air Division
U.S. E.P.A. - Region IX
75 Hawthorne Street
San Francisco, CA 94105

**RE: Notice of Final Action - Emission Reduction Credits
Project Number: C-1011235**

Dear Mr. Rios:

Thank you for your comment on the above project.

The Air Pollution Control Officer has issued Emission Reduction Credits (ERCs) to Valley Air Conditioning and Repair for emission reduction generated by the replacement of one ag-pump engine with an electric motor, at O'Neill Farming in Five Points. The quantity of ERCs to be issued is 18.2 tons-NOx/year, 0.3 tons-SOx/year, 0.9 tons-PM10/year, 5.1 tons-CO/year and 1.9 tons-VOC/year.

Enclosed are copies of the ERC Certificates and a copy of the notice of final action to be published approximately three days from the date of this letter.

Notice of the District's preliminary decision to issue the ERC Certificates was published on March 12, 2002. The District's analysis of the proposal was also sent to CARB and US EPA Region IX on March 5, 2002. All comments received following the District's preliminary decision on this project were considered.

Comments received by the District from Valley Air Conditioning and Repair and the EPA have been addressed and are identical to the comments and responses addressed during the Notice of Final Action for Valley Air Conditioning and Repair's ERC Project 1010806, dated March 27, 2002 (copy attached).

The District has received one additional comment form Valley Air Conditioning and Repair, which is discussed below.

David L. Crow
Executive Director/Air Pollution Control Officer

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Gerardo C. Rios (AIR 3)

July 16, 2002

Page 2

"Item 5 of the permit prohibits the pumping of any water that did not originate from the subject well. Accordingly, excess rainwater cannot be removed and surface irrigation water cannot be used on this land parcel.

Since we all agreed that the intent is to preclude the use of any diesel or gas powered well water to irrigate this parcel (such as drilling a well on an adjacent parcel and diesel pumping it to this parcel) it is very important that the language be very precise and clear to avoid some future misunderstanding."

This project is based on the banking of the emission reductions that resulted from the replacement of a diesel-fired deep well ground water extraction pump with an electric pump. Our intent is to ensure that all of the water which would have been pumped by the diesel is now pumped by the new electric motor, and that the duty of the new electric motor is not compromised by having any of this land parcel irrigated by any water that was pumped from any engine-driven deep well pump. The pumping of surface water will therefore be acceptable and Permit Condition 5 on this permit as well as the previously issued Permit for ERC Project 1010806 will be revised as follows.

Owner/Operator may use tail water pumps, runoff pumps and/or ditch water pumps as necessary to transfer water being pumped from the electrically powered groundwater extraction well described in the Agreement, but may not deliver, or transfer water from any internal combustion engine powered groundwater extraction well to this parcel from any other point.

Thank you for your cooperation in this matter. If you have any questions, please contact Mr. David Warner at (559) 230-5900.

Sincerely,



Seyed Sadredin
Director of Permit Services

SS:SR

Enclosures

c: David Warner, Permit Services Manager

Fresno Bee

**NOTICE OF FINAL ACTION
FOR THE ISSUANCE OF
EMISSION REDUCTION CREDITS**

NOTICE IS HEREBY GIVEN that the Air Pollution Control Officer has issued Emission Reduction Credits (ERCs) to Valley Air Conditioning and Repair for emission reduction generated by the replacement of one ag-pump engine with an electric motor, at O'Neill Farming in Five Points. The quantity of ERCs to be issued is 18.2 tons-NOx/year, 0.3 tons-SOx/year, 0.9 tons-PM10/year, 5.1 tons-CO/year and 1.9 tons-VOC/year.

All comments received following the District's preliminary decision on this project were considered.

Comments received by the District during the public notice period were minor and did not affect the basis for issuance of the above referenced ERCs.

The application review for Project #C-1011235 is available for public inspection at the **SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT, 1990 E Gettysburg Ave., Fresno, CA 93726-0244.**



San Joaquin Valley
Air Pollution Control District

Central Regional Office • 1990 E. Gettysburg Ave. • Fresno, CA 93726

Emission Reduction Credit Certificate C-438-1

ISSUED TO: VALLEY AIR CONDITIONING & REPAIR INC
ISSUED DATE: July 16, 2002
LOCATION OF REDUCTION: O'NEILL FARMING
FIVE POINTS, CA
SECTION: 4 TOWNSHIP: 18S RANGE: 17E

For VOC Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
266 lbs	686 lbs	1,005 lbs	1,062 lbs

Conditions Attached

Method Of Reduction

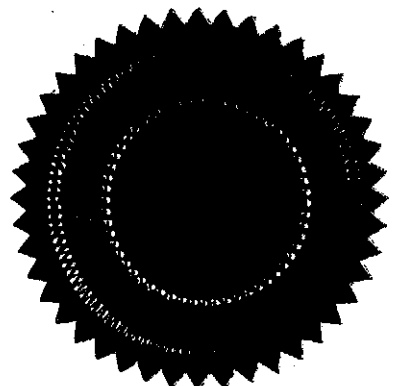
- Shutdown of Entire Stationary Source
 Shutdown of Emissions Units
 Other

Replacement of ag-pump engine with electric motor

Use of these credits outside the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) is not allowed without express written authorization by the SJVUAPCD.

David L. Crow, Executive Director / APCO


Seyed Sadredin, Director of Permit Services





San Joaquin Valley
Air Pollution Control District

Central Regional Office • 1990 E. Gettysburg Ave. • Fresno, CA 93726

Emission Reduction Credit Certificate C-438-2

ISSUED TO: VALLEY AIR CONDITIONING & REPAIR INC
ISSUED DATE: July 16, 2002
LOCATION OF REDUCTION: O'NEILL FARMING
FIVE POINTS, CA
SECTION: 4 TOWNSHIP: 18S RANGE: 17E

For NO_x Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
2,578 lbs	6,634 lbs	9,718 lbs	10,262 lbs

Conditions Attached

Method Of Reduction

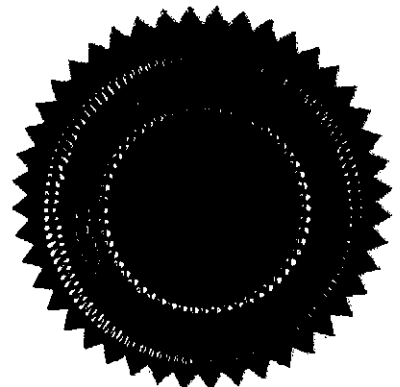
- Shutdown of Entire Stationary Source
 Shutdown of Emissions Units
 Other

Replacement of ag-pump engine with electric motor

Use of these credits outside the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) is not allowed without express written authorization by the SJVUAPCD.

David L. Crow, Executive Director / APCO


Seyed Sadredin, Director of Permit Services





San Joaquin Valley
Air Pollution Control District

Central Regional Office • 1990 E. Gettysburg Ave. • Fresno, CA 93726

Emission Reduction Credit Certificate C-438-3

ISSUED TO: VALLEY AIR CONDITIONING & REPAIR INC
ISSUED DATE: July 16, 2002
LOCATION OF REDUCTION: O'NEILL FARMING
FIVE POINTS, CA
SECTION: 4 TOWNSHIP: 18S RANGE: 17E

For CO Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
722 lbs	1,856 lbs	2,718 lbs	2,871 lbs

Conditions Attached

Method Of Reduction

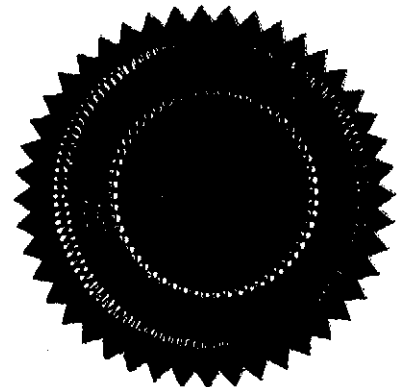
- Shutdown of Entire Stationary Source
 Shutdown of Emissions Units
 Other

Replacement of ag-pump engine with electric motor

Use of these credits outside the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) is not allowed without express written authorization by the SJVUAPCD.

David L. Crow, Executive Director / APCO


Seyed Sadredin, Director of Permit Services





San Joaquin Valley
Air Pollution Control District

Central Regional Office • 1990 E. Gettysburg Ave. • Fresno, CA 93726

Emission Reduction Credit Certificate C-438-4

ISSUED TO: VALLEY AIR CONDITIONING & REPAIR INC
ISSUED DATE: July 16, 2002
LOCATION OF REDUCTION: O'NEILL FARMING
FIVE POINTS, CA
SECTION: 4 TOWNSHIP: 18S RANGE: 17E

For PM10 Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
126 lbs	325 lbs	476 lbs	502 lbs

Conditions Attached

Method Of Reduction

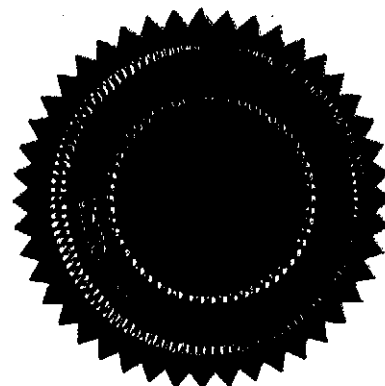
- Shutdown of Entire Stationary Source
 Shutdown of Emissions Units
 Other

Replacement of ag-pump engine with electric motor

Use of these credits outside the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) is not allowed without express written authorization by the SJVUAPCD.

David L. Crow, Executive Director / APCO


Seyed Sadredin, Director of Permit Services





San Joaquin Valley
Air Pollution Control District

Central Regional Office • 1990 E. Gettysburg Ave. • Fresno, CA 93726

Emission Reduction Credit Certificate C-438-5

ISSUED TO: VALLEY AIR CONDITIONING & REPAIR INC
ISSUED DATE: July 16, 2002
LOCATION OF REDUCTION: O'NEILL FARMING
FIVE POINTS, CA
SECTION: 4 TOWNSHIP: 18S RANGE: 17E

For SO_x Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
41 lbs	105 lbs	154 lbs	162 lbs

Conditions Attached

Method Of Reduction

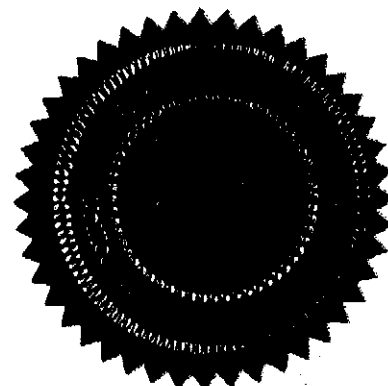
- Shutdown of Entire Stationary Source
 Shutdown of Emissions Units
 Other

Replacement of ag-pump engine with electric motor

Use of these credits outside the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) is not allowed without express written authorization by the SJVUAPCD.

David L. Crow, Executive Director / APCO


Seyed Eadredin, Director of Permit Services



District's Response to Comments from Valley Air Conditioning and Repair and EPA for ERC Project 1010806

Dated March 27, 2002

This document is a reproduction of the comment section of the letter of final notice for Valley Air Conditioning and Repair ERC Project 1010806. Valley Air Conditioning and Repair submitted 15 comments and EPA submitted one comment. Each comment, numbered and listed below, is followed by the District's response.

Valley Air Conditioning and Repair's Comments

1. Regarding the Growers Agreement, change the first sentence to read: "This agreement is made between O'Neill Farming Enterprises Inc., Humboldt Ranches and La Paloma Farms, LLC, known collectively herein as "O'Neill Entities, Valley Air Conditioning and Repair Inc. (for the singular and sole purpose of Emissions Reductions Credits development) and the San Joaquin..."

Response

Since the clarification of all parties involved is acceptable, the first sentence shall be revised as proposed (a copy of the revised Growers Agreement is attached). In addition, "O'Neill Farming" has been replaced with "O'Neill Entities" throughout the agreement.

However, we believe that the identification of Valley Air Conditioning and Repair's purpose shall most appropriately remain in the Recital Section of the Agreement. Therefore, rather than add the section in parenthesis, the word "solely" has been added to Recital 5 (attached).

2. Regarding the Growers Agreement, first paragraph, second sentence, after "electric motors used for", insert "primary groundwater extraction which definition shall apply to "irrigation" wherever it appears herein."

Response

The response to this comment will involve 2 areas of study, A and B which follow.

A. O'Neill Entities does use booster pump(s) to supplement the pressure from the deep well pump as necessary, and Valley Air Conditioning and Repair maintains that this practice would not influence the amount of work being done by the deep well pump.

B. O'Neill Entities uses tailwater pumps, or ditch pumps, to return water to the field which has been over-irrigated and has run off into a collection ditch. Both of these methods are common practice in farming.

It is not the District's intent to restrict the Growers use of irrigation beyond those assumptions made while evaluating the quantity and permanence of the associated Emission Reduction Credits (ERCs). We believe that the Grower will best be allowed to have sufficient flexibility to irrigate the fields without undue hardship. However, the District must, for the purpose of ensuring the permanence of the emission reductions, ensure that a polluting source, such as a diesel-fired booster pump, can not operate in such a manner as to trade work which would have been done with the new non-polluting electric deep well pump with work done by a polluting engine.

Regarding "B" above, the District has determined that the use of tailwater pumps has no impact on the amount of water which is pumped from the deep water well. The figures presented in the Engineering Analysis for this ERC project were based on historic water deliveries, all of which must come from the deep well. Therefore, the grower's use of the tail water pumps may go on unrestricted.

Regarding "A" above, the use of booster pumps may be allowed without adjustment to the ERCs proposed so long as the booster pump(s) do not reduce any of the work done by the electric pump which is required to ensure that the calculated emission reductions remain permanent.

According to the ERC Application, the original deep well pump had produced 2,000 gallons per minute of water at a total pressure head of 494.1 feet. Of this, the discharge pressure head was identified to be 46.1 feet. To allow a booster pump to be hooked up to the irrigation pipe directly after or near the wellhead, the booster pump could apply sufficient vacuum to the system to reduce the deep well pumps discharge pressure from +46.1 feet to (-20) feet¹.

¹ According to Pocket Ref, Second Edition, the Table Suction Head and Vapor Pressure (p 418) indicates that at 0' altitude, water at 60°F with a vapor pressure of 0.6 feet, can be pumped to create up to 20.0 feet of suction.

Therefore, when using a booster pump, in order to ensure that the electric pump is doing the proper amount of work reflected in the ERC quantification, the discharge pressure of the wellhead must be maintained at or above 46.1 psi*. The District has proposed two means by which this may be accomplished.

1. If the wellhead is fitted with a pressure gage, booster pump(s) may be used so long as the wellhead discharge pressure is at least 46.1 psig*.

* The following correction was made on May 21, 2002. When deciding the amount of pressure that will be needed in the wellhead in the event a booster pump engine is used, the value of 46 feet of pressure was inadvertently changed to read 46 psig. The proper conversion factor for changing feet into PSIG is 0.434. Therefore, 46 feet x 0.434 = 20 psig. The Contract and Permit to Operate have been revised to reflect this value, however, all occurrences of 46 psig that follow have not been revised for historical accuracy. This comment applies to all references to 46 psig that follow.

2. By utilizing pipe friction calculations, the minimum distance which water must travel in order to observe a pressure drop of at least 46.1 psi can be established.

For this particular case, the deep well pump directly feeds an 8" water pipe, and the well test revealed that the new electric motor produces water at 1,998 gal/min. According to Pocket Ref, Second Edition, Table Head Loss/100 Feet Pipe Due to Friction (p 407), old unlined cast iron pipe of 8" diameter carrying water at 60°F will lose 27.8 feet of pressure head per 100 feet of pipe. In order to ensure that the discharge pressure of the deep well pump is at least 46.1 feet, and in order to account for the up to 20 feet of suction which could be produced by a booster pump, the water must travel through at

$$\frac{66.1 \text{ feet pressure}}{27.8 \frac{\text{feet pressure}}{100 \text{ feet pipe}}} = 238$$
least feet of pipe prior to reaching the booster pump.

The District will allow the facility to utilize booster pumps provided that the water travels through at least 238 feet of pipe, measured from the wellhead to the booster pump. In lieu of this minimum distance requirement, the grower may utilize booster pump(s) at any distance from the wellhead, provided the gage discharge pressure or the wellhead is maintained at 46.1 psig. With this revision, we do not believe that this will necessitate any revision to the quantity of ERCs as calculated for this project.

Therefore, Condition 10 has been revised and Condition 12 has been revised to contain 12.1 and 12.2 as follows:

10.0 O'Neill Entities agrees that no existing deep wells and no new deep wells may be added to the Service Area covered by this Agreement which are powered in whole or in part by any IC engine power source.

12.0 O'Neill Entities and the District agree that no equipment which emits or may emit any air contaminant may be added, permanently or temporarily, to power or supplementally power the irrigation system which irrigates the Service Area covered by this Agreement without specific prior written approval by the District where: (a) the new equipment is evaluated and approved in accordance with District Rules and Regulations; (b) the potential increase in emissions is entirely offset using the current District-approved Distance Offset Ratio; and (c) the Permit to Operate for the said irrigation system is modified accordingly by the District.

12.1 The first exception to Condition 12.0 is that O'Neill Entities may use tailwater pumps, runoff pumps or ditch pumps as necessary, provided that the water being pumped originated from the primary groundwater extraction pump described herein.

12.2 The second exception to Condition 12.0 is that O'Neill Entities may utilize booster pump(s) as necessary to supplement the irrigation system pressure, only if the pumped water travels through at least 238 feet of pipe as measured from the wellhead to the nearest booster pump. In lieu of this minimum distance requirement, booster pump(s) may be utilized provided that the discharge pressure on the wellhead, as measured by a permanently installed and operationally maintained pressure gage, is at least 46 psig.

3. Regarding the Growers Agreement, first paragraph, last sentence, replace "544 acres" with "approximately 544 acres".

Response

Since the actual number of acres upon which irrigation has been supplied may not be exact, this is acceptable and the proposed revision shall be made. However, upon inspection, if the District determines that there is a significant deviation between the actual acreage and the number of acres upon which the quantity of issuable ERCs has been determined, then the District may be required to revise the quantity of ERCs proposed or issued for this project.

4. Regarding the Growers Agreement, Recital 3, delete "non-polluting".

Rationale: Electric motors do produce some minimal level of pollution...

Response

Since "non-polluting" is an absolute statement that may not be entirely accurate and does to add anything to the Agreement, it will be deleted.

Therefore, Conditions 2, 4 and the Third Recital will be revised to remove "non-polluting".

5. Regarding the Growers Agreement, change Condition 1.0 from "District agrees that O'Neill Entities and Valley Air Conditioning and Repair..." to "District agrees that O'Neill Entities, in cooperation with Valley Air Conditioning and Repair...".

Rationale: Since the control of the previously existing diesel engines and the new electric motors rests solely with O'Neill Entities.

Response

It seems reasonable that O'Neill Entities will actually be the party which is reducing the air pollution. Since this Condition is a statement of intent and contains or implies no

obligation, and since the proposed distinction will not impact the enforceability of the Agreement, Condition 1.0 will be revised as requested.

6. Regarding the Growers Agreement, change Condition 2.0 from: "O'Neill Entities agrees to replace all of its existing irrigation engines as identified in Exhibit A, which irrigates Service Area as identified in Exhibit B..." to "O'Neill Entities agrees to replace its existing groundwater extraction irrigation engines as identified in Exhibit A, which irrigates Service Area as identified in Exhibit B...", and delete "non-polluting".

Response

Since the District has performed an analysis based on the elimination of the groundwater extraction irrigation engine, since the Grower will be allowed to use booster pump engines under the conditions described in the response to Comment #2 above, and since the engine which was replaced during Project C-1010806 was the only groundwater extraction irrigation engine serving the Service Area described in the Agreement, the proposal clarifies the intent of the Agreement and is acceptable.

Therefore, Condition 2.0 will be revised as proposed. Pursuant to the discussion of "non-polluting" in the response to Comment #4 above, "non-polluting" has been removed.

7. Regarding the Growers Agreement, Condition 3.0, last sentence, add "in accordance with the process and procedure defined in the District's public notice documents".

Response

Although it was the District's intention to outline the contents of the validation for this project, due to the uniqueness of this project, and considering that all of the comments have not yet been received regarding the upcoming CARB Protocol, the District does not want to be limited to any procedure or process which may have been printed prior to a complete understanding of all of the issues involved with this project.

Therefore, no revision will be made.

8. Regarding the Growers Agreement, Condition 5.0, delete "Valley Air Conditioning and" and after "meter" add "which requirement is satisfied by the serving utility's billing meter".

Response

The intention of this statement is to ensure that all parties agree that the new electric motor will be fitted with a kilowatt-hour meter. The meters data produced during the

validation period will be used to validate assumptions made while quantifying the ERCs proposed for this project.

Since the District is primarily interested in the data acquired during the validation period, the condition will be revised to reflect this.

The District has also allowed utility service meters to be used to verify quantities of natural gas supplied to various permitted emissions units. In that case, if the meter is hooked up to other equipment which consumes natural gas, conservatively, no adjustment will be made to the records as all of the gas which ran through the utility service meter is assumed to have gone into the emissions unit in question.

In this case, since other equipment hooked to the electricity line between the utility service meter and the new electric motor will artificially inflate the amount of electricity going to the motor, thus falsely skewing the validation period data, the District will allow the utility service meter to be used for validation purposes if and only if nothing else is hooked up to the electricity line after the utility service meter except for the new electric primary groundwater extraction motor.

Therefore, Condition 5.0 will be revised as follows:

5.0 Valley Air Conditioning and Repair and O'Neill Entities agree that the post-project irrigation systems primary groundwater extraction electric motor, serving the Service Area, will be fitted with a non-resettable kilowatt-hour meter. The electric utility service meter may be used for this purpose if and only if the service meter exclusively serves only the primary groundwater extraction pump electric motor(s) referenced herein.

9. Regarding the Growers Agreement, Condition 6.0, add, "in accordance with the process and procedure defined in the District's public notice documents".

Response

Similar to the response to Comment 7 above, no change will be made.

10. Regarding the Growers Agreement, Delete Condition 7.0 or insert, "if the land owner or record is not a party to this agreement."

Response

The intent of this condition is to ensure that O'Neill Entities either owns the land and equipment covered by this agreement or it will acquire the approval from the land owner that is necessary to enter into this binding agreement. As referenced in Comment 1

above, according to the Applicant, O'Neill Entities represents O'Neill Farming, Humboldt Ranches and La Paloma Farms, LLC, which collectively includes the land owner of record, operators, etc. as parties to this contract. Since it is important that the identified party is the land owner, this condition cannot be deleted. Since the land owner is a party to this agreement, and is represented by the term O'Neill Entities, no further action is required regarding the release.

However, this condition must be adjusted to replace "Existing Engine(s)" with "irrigation system". In addition, any required release (not necessary in this case) shall be provided by the land owner in writing and be referenced by this Agreement as an Exhibit. Therefore, Condition 7 will be revised as follows:

7.0 O'Neill Entities represents and warrants that it owns the land upon which the irrigation system is situated, that O'Neill Entities owns the engine(s) being removed and the irrigation system covered by this Agreement, and that O'Neill Entities has all rights and authority to enter into this binding Agreement. If O'Neill Entities leases the land, the engine(s) being removed or the irrigation system, O'Neill Entities shall obtain the written approval(s) from the land owner to allow O'Neill Entities to enter into this Agreement, and such document(s) shall be identified in Exhibit C, attached hereto, and incorporated herein.

11. Regarding the Growers Agreement, Condition 10.0, replace "irrigated" with "provided with primary groundwater".

Response

Condition 10.0 has been adjusted pursuant to the Response to Comment 2 above.

12. Regarding the Growers Agreement, Condition 12.0, replace "the irrigation system" with "the primary groundwater extraction irrigation system"

Response

Condition 12.0 has been revised into Conditions 12.0 and 12.1 pursuant to the Response to Comment 2 above.

13. Regarding the Growers Agreement, Condition 13.0, Change the 4th line from, "notice is given to all parties (including the District)" to, "...notice is given to the District".

Rationale: Valley Air Conditioning and Repair will have completed its obligations on issuance of the final banking certificates and no further involvement from them is indicated.

Response

The District agrees. In addition, this condition has been further revised to clarify its meaning. Therefore, Condition 13.0 will be revised as follows:

13.0 O'Neill Entities, upon the sale or lease of land upon which the irrigation system is located, will assign this Agreement and the Permit to Operate, and all rights, duties and obligations hereto, to the new owner. Assignment of this Agreement and all rights, duties and obligations will include a notice submitted to the District in the form of a completed Transfer of Ownership application. Nothing in this Agreement shall be construed to diminish the District's authority to implement and enforce applicable state, federal, and local laws, rules and regulations.

14. Regarding the Growers Agreement, Condition 16.0: A) Between "All parties agree" and "enforceable" insert "(to the extent of their defined responsibilities)". B) After "true and correct" add "to the best of their knowledge and belief".

Rationale: A) Valley Air will have completed its obligations on issuance of the banking certificates and no further involvement is indicated. B) Basic information is certainly true so far as any of the parties know, and emission reduction calculations are correct, so far as we know. But, all of the information and calculations are subject to inadvertent error.

Response

A) Since the all of Districts responsibilities relevant to this project are not described in the Agreement, the first requested revision will not be made.

B) The District agrees that a Party can only certify that any information is true to the extent of that Party's knowledge. Therefore, Condition 16.0 will be revised to include, "to the best of their knowledge".

15. Regarding the Growers Agreement, Condition 18.0, add "prior to issuance of the ERCs and permit, after which time only O'Neill Entities and the District need concurrence."

Rationale: Valley Air will have completed its obligations on issuance of the banking certificates and no further involvement is indicated.

Response

The District agrees that after the Permit to Operate is issued, after any ERCs are issued, and after the Validation Period, that ongoing involvement may not include Valley Air Conditioning and Repair. Therefore, the following language will be added to Condition 18.0:

After such a time as any ERCs are issued, Permit(s) to operate are acquired and after the Validation Period, this Agreement may not be modified except in writing with the concurrence of the District and O'Neill Entities.

In addition, please note that the proposed Permit to Operate the irrigation system has been adjusted to reflect all of the changes discussed above.

EPA's Comment

The EPA has stated: "We are currently working with the California Air Resources Board and Districts to resolve key issues related to innovative ERCs, and expect to do so soon. We recommend that the District wait until a protocol has been established before issuing the final credits to ensure that the credits will be federally enforceable. Otherwise, these credits may not be usable for sources subject to federally enforceable offset requirements."

Response

The District has been working with the California Air Resources Board (CARB) on this protocol, and in fact, the CARB protocol was developed based on all of the major assumptions and conclusions drawn by the District in the evaluation for this project. Based on the comments made by EPA during the course of this project, EPA seems generally accepting of the CARB Protocol.

The District has responded favorably to every comment made by EPA, the applicant and the public, and has ensured that the evaluation for this project conforms to all of the standards set forth in the upcoming CARB Protocol. EPA has also verbally commented that the development of this protocol should involve public participation. The District agrees and has invited public participation on this project through two separate 30-day public notice periods.

The District believes that the bases for the proposed ERCs conform to all District regulations governing the issuance of ERCs, and EPA has offered no legal basis to postpone the issuance of these ERCs.



San Joaquin Valley
Unified Air Pollution
Control District

Due Date
6/28/2002

Amount Due
\$ 660.92

ERC FEE
3892 C48605 5/29/2002

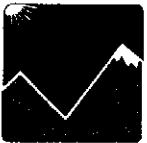
Amount Enclosed

RETURN THIS TOP PORTION ONLY, WITH REMITTANCE TO:

VALLEY AIR CONDITIONING & REPAIR INC
1350 "F" STREET
FRESNO, CA 93706

SJVAPCD
1990 E. Gettysburg Avenue
Fresno, CA 93726-0244

Thank You!



San Joaquin Valley
Unified Air Pollution
Control District

Facility ID
C3892

Invoice Date
5/29/2002

Invoice Number
C48605

SJVAPCD Tax ID: 77-0262563

Invoice Type
Project: C1011235

VALLEY AIR CONDITIONING & REPAIR INC
O'NIELL FARMING
FIVE POINTS, CA

PROJECT NUMBER: 1011235

APPLICATION FILING FEES	\$ 650.00
ENGINEERING TIME FEES	\$ 660.92
TOTAL FEES	\$ 1,310.92
LESS PREVIOUSLY PAID PROJECT FEES APPLIED TO THIS INVOICE	(\$ 650.00)
PROJECT FEES DUE (Enclosed is a detailed statement outlining the fees for each item.)	\$ 660.92

Invoice Detail

Facility ID: C3892

VALLEY AIR CONDITIONING & REPAIR INC
 O'NIELL FARMING
 FIVE POINTS, CA

Invoice Nbr: C48605
 Invoice Date: 5/29/2002
 Page: 1

Application Filing Fees

Project Nbr	Permit Number	Description	Application Fee
C1011235	C-3892-1011235-0	Emission Reduction Credit Banking Evaluation Fee	\$ 650.00
Total Application Filing Fees:			\$ 650.00

Engineering Time Fees

Project Nbr	Quantity	Rate	Description	Fee
C1011235	8.2 hours	\$ 80.60/h	After-Hours Engineering Time(OverTime)	\$ 660.92
Total Engineering Time Fees:				\$ 660.92



San Joaquin Valley
Unified Air Pollution
Control District

Due Date
6/20/2002

Amount Due
\$ 60.00

PTOFEE
3981 C48424 5/21/2002

Amount Enclosed

RETURN THIS TOP PORTION ONLY, WITH REMITTANCE TO:

O'NEILL ENTITIES
1265 W SHAW AVE
FRESNO, CA 93711

SJVAPCD
1990 E. Gettysburg Avenue
Fresno, CA 93726-0244

Thank You!



San Joaquin Valley
Unified Air Pollution
Control District

Facility ID
C3981

Invoice Date
5/21/2002

Invoice Number
C48424

SJVAPCD Tax ID: 77-0262563

Invoice Type
Project: C1020202

O'NEILL ENTITIES
SECTION 4 TOWNSHIP 18S RANGE 17E
FIVE POINTS, CA

PROJECT NUMBER: 1020202

APPLICATION FILING FEES	\$ 60.00
LESS PREVIOUSLY PAID PROJECT FEES APPLIED TO THIS INVOICE	\$ 0.00
PROJECT FEES DUE (Enclosed is a detailed statement outlining the fees for each item.)	\$ 60.00

Invoice Detail

Facility ID: C3981

O'NEILL ENTITIES
SECTION 4 TOWNSHIP 18S RANGE 17E
FIVE POINTS, CA

Invoice Nbr: C48424
Invoice Date: 5/21/2002
Page: 1

Application Filing Fees

Project Nbr	Permit Number	Description	Application Fee
C1020202	C-3981-2-0	ELECTRICALLY POWERED IRRIGATION SYSTEM FOR FIELDS 4-1, 4-2, 4-A2, 4-2N, 4-2S, 4-3 AND 4-4 (SERVICE AREA DESCRIBED IN ERC PROJECT C-1011235 DIESEL ENGINE RETIREMENT AGREEMENT)	\$ 60.00
Total Application Filing Fees:			\$ 60.00

Diesel Engine Retirement Agreement

ERC Project C-1011235

This agreement is made between O'Neill Farming Enterprises, Inc., Humboldt Ranches and La Paloma Farms, LLC, known collectively herein as O'Neill Entities, Valley Air Conditioning and Repair, and the San Joaquin Valley Unified Air Pollution Control District (the "District") (collectively, the "Parties"). The Effective Date of this Agreement shall be the date of acceptance by the District. This Agreement shall cover all engines and electric motors used for irrigating the land area described as: SE Quarter Section 4, Township 18S, Range 17E (the "Service Area"). Service Area includes 786 acres, fields 4-1, 4-2, 4-A2, 4-2N, 4-2S, 4-3 and 4-4..

RECITALS

WHEREAS, the District is a duly formed governmental entity responsible for achieving and maintaining clean air quality in the San Joaquin Valley;

WHEREAS, pursuant to California Health and Safety Code sections 40709 through 40714.5, the District has adopted Rules and Regulations providing for the creation and use of emission reduction credits ("ERCs") which are real, surplus, quantifiable, permanent and enforceable;

WHEREAS, O'Neill Entities proposes to have its existing primary groundwater extraction engine(s) in Service Area replaced with electric motors;

WHEREAS, O'Neill Entities enters this agreement for the purpose of generating emissions reductions within the San Joaquin Valley Air Basin and to create ERCs to be banked with the District;

WHEREAS, Valley Air Conditioning and Repair enters this agreement solely to create ERCs for its benefit and for the benefit of air quality in the region by reducing emissions from agricultural equipment which is currently exempt from the requirement of having a written permit;

NOW, THEREFORE, the Parties hereto agree as follows:

AGREEMENT

- 1.0 District agrees that O'Neill Entities in cooperation with Valley Air Conditioning and Repair are voluntarily reducing air pollution by replacing Existing Engine(s) with electric motor(s) for the purpose of creating ERCs, and District is aware of no regulatory impediment, existing or pending, which would prevent the use of ERCs generated pursuant to this Agreement.
- 2.0 O'Neill Entities agrees to replace its existing primary groundwater extraction irrigation engine(s) as identified in Exhibit A, which irrigates Service Area as identified in Exhibit B, attached hereto and incorporated herein, with new electric motor(s) provided by Valley Air Conditioning and Repair.
- 3.0 District agrees to issue ERCs to Valley Air Conditioning and Repair for actual emission reductions as quantified by the District in accordance with District Rules and Regulations. 80% of the Bankable ERCs will be issued pending a successful Public Noticing period. The remaining 20% will be issued or withheld, partially or in full, pending a site-specific validation of the assumptions made in evaluating the Baseline Emissions.

- 4.0 O'Neill Entities agrees to acquire a Permit to Operate for the irrigation system which irrigates the Service Area covered by this agreement from the District, and to maintain the Permit to Operate until the Permit to Operate is permanently relieved or replaced in writing by the District.
- 5.0 Valley Air Conditioning and Repair and O'Neill Entities agree that the post-project irrigation system serving the Service Area will be fitted with a non-resettable kilowatt-hour meter. This requirement may be satisfied with the use of the electric utility's billing meter if and only if the billing meter exclusively serves only the electric motor(s) referenced herein.
- 6.0 O'Neill Entities agrees to maintain records of monthly kilowatt-hour use of the irrigation system serving the Service Area for a period of at least 12 months (Validation Period). The District will use said records to validate the baseline emissions prior to issuing any or all of the final 20% of the Bankable ERCs.
- 7.0 O'Neill Entities represents and warrants that it owns the land upon which the irrigation system is situated, that O'Neill Entities owns the engine(s) being removed and the irrigation system covered by this Agreement, and that O'Neill Entities has all rights and authority to enter into this binding Agreement. If O'Neill Entities leases the land, the engine(s) being removed or the irrigation system, O'Neill Entities shall obtain the approval(s) from the land owner to allow O'Neill Entities to enter into this Agreement, and such document(s) shall be identified in Exhibit C, attached hereto and incorporated herein.
- 8.0 O'Neill Entities agrees to render the removed Engine(s) inoperable by drilling or knocking a hole in the block, welding the cylinder head shut, obtaining written proof from a scrap yard that the removed Engine(s) has been destroyed or otherwise rendered inoperable, or other method approved in advance by the District, and to submit proof of such destruction of the removed Engine(s) to the District prior to the issuance of any related ERCs.
- 9.0 The District maintains the right to witness the destruction of the Engine(s) and Parties agree to notify the District at least 14 days prior to the destruction of any Engine(s).
- 10.0 O'Neill Entities agrees that the deep well pump covered by this Agreement shall not be powered in whole or in part by any other IC engine power source.
- 11.0 O'Neill Entities agrees that replacement of the Existing Engine(s) with Electric Motors(s) will remain in effect as long as any of the Service Area covered by this Agreement remains farmland, and agrees to disclose in writing the existence of this Agreement to any other entity which may come to own or become responsible for operating the irrigation pumping system for the Service Area described. To ensure the permanence of this Agreement, this Agreement shall be recorded by the County Registrar. Any future entity which becomes responsible for the irrigation system shall agree to the terms contained in this Agreement.
- 12.0 O'Neill Entities and the District agree that no equipment which emits or may emit any air contaminant may be added, permanently or temporarily, to power or supplementally power the irrigation system which irrigates the Service Area covered by this Agreement without specific prior written approval by the District where: (a) the new equipment is evaluated and approved in accordance with District Rules and Regulations; (b) the potential increase in emissions is entirely offset using the current District-approved Distance Offset Ratio; and (c) the Permit to Operate for the said irrigation system is modified accordingly by the District.

- 12.1 The first exception to Condition 12.0 is that O'Neill Entities may use tailwater pumps, runoff pumps or ditch pumps as necessary, provided the water being pumped originated from the electrically powered primary groundwater extraction well described herein.
- 12.2 The second exception to Condition 12.0 is that O'Neill Entities may utilize booster pump(s) as necessary to supplement the irrigation system pressure, only if the pumped water travels through at least 238 feet of pipe as measured from the wellhead to the nearest booster pump. In lieu of this minimum distance requirement, booster pump(s) may be utilized provided that the discharge pressure on the wellhead, as measured by a permanently installed and operationally maintained pressure gage, is at least 20 psig.
- 13.0 O'Neill Entities, upon the sale or lease of land upon which the irrigation system is located, will assign this Agreement and the Permit to Operate, and all rights, duties and obligations hereto, to the new owner. Assignment of this Agreement and all rights, duties and obligations will include a notice submitted to the District in the form of a completed Transfer of Ownership application. Nothing in this Agreement shall be construed to diminish the District's authority to implement and enforce applicable state, federal, and local laws, rules and regulations.
- 14.0 O'Neill Entities grants to Valley Air Conditioning and Repair and the District, for the specific and sole purpose of exercising their respective responsibilities as defined in this Agreement and applicable law, the right of reasonable entry to Service Area to monitor compliance with this Agreement during normal business hours.
- 15.0 All Parties to this Agreement warrant that each is duly authorized and empowered to bind such Party and there are no actions, suits, proceedings or other impediments, pending or threatened, which affect the performance of each Party's obligations under this Agreement.
- 16.0 All Parties agree that this Agreement constitutes a legal, valid and binding obligation on all Parties, enforceable in accordance with its terms and applicable law, and that its contents, including that of other documents incorporated by reference, are true and correct to the best of their knowledge.
- 17.0 O'Neill Entities and Valley Air Conditioning and Repair agree to, and will not contest the District's jurisdiction over matters related to this Agreement.
- 18.0 This Agreement, including the exhibits, made a part hereof, attached hereto and incorporated herein, forms the whole of the Agreement and may not be modified except in writing with the concurrence of all Parties. After such a time as any ERCs are issued, Permit(s) to operate are acquired and after the Validation Period, this Agreement may not be modified except in writing with the concurrence of the District and O'Neill Entities.
- 19.0 If any condition of this Agreement, or the application of such condition shall be determined to be invalid, illegal or unenforceable for any reason, the remainder of the Agreement shall not be affected and every other condition of this Agreement shall be valid and enforceable to the fullest extent provided by law. Venue for any action to enforce this Agreement or its terms shall only occur in the appropriate court in Fresno County.
- 20.0 Exhibits and documents incorporated herein by reference:
- Exhibit A: Existing Engine Identification
- Exhibit B: Map/Description of Service Area

21.0 Notices shall be deemed to be given when faxed if proper documentation shows that the fax was received, or on the date registered mail is certified received to the following:

To O'Neill Entities:

To Valley Air Conditioning
and Repair:

To District:

Director of Permit Services
San Joaquin Valley APCD
1990 E Gettysburg Avenue
Fresno, CA 93726-0244
(559) 230-6000 (phone)
(559) 230-6061 (fax)

THE PARTIES, having read and approved the foregoing and as approved by their authorized officers, agree to be bound by the terms and conditions contained in this Agreement, execute this Agreement as of the Effective Date set forth above:

For O'Neill Entities:

For Valley Air Conditioning
and Repair:

For District:

Edwin R. O'Neill
Chief Executive Officer

Tobbie Hopper
President

Seyed Sadredin
Director of Permit Services

Dated: _____

Dated: _____

Dated: _____

Approved As To Legal Form:
Philip M. Jay, District Council

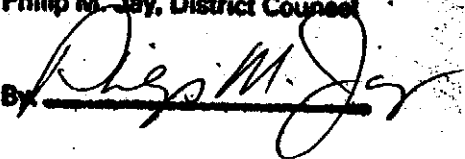
By: 

EXHIBIT A

Irrigation Engine(s) Retired:

One 750 horsepower Caterpillar model 3412 diesel-fired internal combustion engine, Serial Number 038S15467.

2000 Crop Map
05-12-2000

ASCS
ACRES

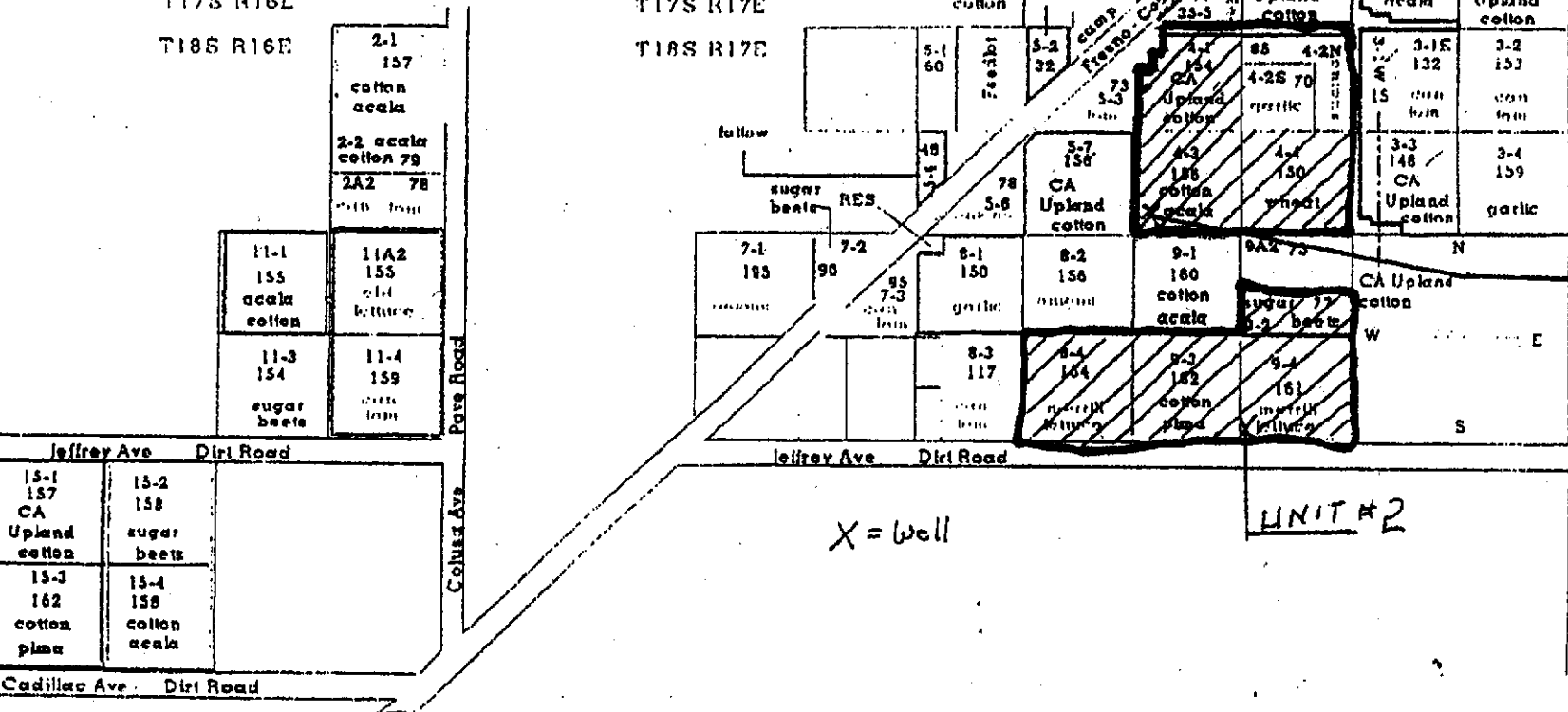
Cotton Acala	1252
Cotton Pima	324
CA Upland Cotton	1590
Garlic	379
Merrill Lettuce (Dbl Crop)	630
BBF Lettuce (Dbl Crop)	310
Onions	514
Wheat	227
Sugar Beets	185
Canning Tomatoes	959
Fallow	48
Total	6718

21-1
159
CA
Upland
cotton

St. Whitney Ave

T17S R16E
T18S R16E

T17S R17E
T18S R17E



Map of Service Area

EXHIBIT B

ERC APPLICATION

Final Review

Project Number: 1011235

(Section 4)

Processing Engineer: **Steve Roeder**
Lead Engineer: **Joven Refuerzo**
Date: **February 20, 2002**

Facility Name: **Valley Air Conditioning and Repair**
Facility ID: **C-3892**
Mailing Address: **1350 F Street**
Fresno, CA 93706

Contact Name: **Tobbie Hopper**

Telephone: **(559) 237-3188 Ext 14**

Date Received: **September 18, 2001**
Deemed Complete: **October 17, 2001**

I. Summary

Valley Air Conditioning and Repair is applying to bank the emission reduction credits (ERCs) resulting from the replacement of a diesel-fired ag-pump engine with an electric motor. The 750 hp Caterpillar model 3412 engine (Serial Number 038S15467) has already been removed.

II. Applicable Rules

Rule 2201 New and Modified Stationary Source Review Rule (6/15/95)
Rule 2301 Emission Reduction Credit Banking (12/17/92)
Rule 4701 Internal Combustion Engines (5/21/92)

III. Location of Reduction

The removed engine was owned and operated by O'Neill Farming and was located at the Southeast corner of Section 4, Township 18S, Range 17E in Five Points, CA.

IV. Method of Generating Reductions

Valley Air Conditioning has replaced one 750 hp Caterpillar model 3412 (1974 year) diesel-fired ag-pump engine with an electric motor. The diesel engine will be destroyed, and the destruction confirmed by the District prior to the issuance of any ERC Certificates.

V. Actual Emissions

Actual Emissions are emissions from a source which can be demonstrated as having actually occurred. The actual emissions will be determined as follows.

- 1) Engine emission factors will be determined.
- 2) A baseline period will be established.
- 3) The engines horsepower-hour output during the baseline period will be determined.
- 4) The engine's actual emissions will be established.

A. Engine Emission Factors

1. Assumptions

- Since no fuel records were maintained, we will conservatively assume that the diesel fuel was not ag diesel, but low-sulfur diesel, and contained 0.05% Sulfur by weight
- Emission Factors for VOC and CO come from AP-42 5th Edition (10/96), since engine-specific source-test data is not available for this 1974 engine
- Emission Factors for NO_x and PM₁₀ come from the Carl Moyer Program (Appendix C), which are more conservative than the AP-42 numbers for these 2 pollutants
- Emission Factor for SO_x is calculated based on the mass balance of fuel sulfur as follows:

$$0.05\%S \times \frac{7.1\text{lb} \cdot \text{fuel}}{\text{gallon}} \times \frac{2\text{lb} \cdot \text{SO}_2}{1\text{lb} \cdot \text{S}} \times \frac{1\text{gal}}{137,000\text{Btu}} \times \frac{1\text{hpinput}}{0.35\text{hpout}} \times \frac{2,542.5\text{Btu}}{\text{hp} \cdot \text{hr}} \times \frac{453.6\text{g}}{\text{lb}} = 0.171 \frac{\text{g} \cdot \text{SO}_x}{\text{hp} \cdot \text{hr}}$$

2. Emission Factors

C Engine Emission Factors			
NO _x	11.0	g/hp·hr	Carl Moyer Program
SO _x	0.171	g/hp·hr	Mass Balance
PM ₁₀	0.53	g/hp·hr	Carl Moyer Program
CO	3.03	g/hp·hr	AP-42 5 th Edition (10/96)
VOC	1.12	g/hp·hr	AP-42 5 th Edition (10/96)

B. Baseline Period

A baseline period is a timeframe within which a realistic normal operating history of an emission unit can be established. Pursuant to Rule 2201 Section 3.8, the baseline period consists of two years immediately preceding the submission date of the complete application, or at least two consecutive years within five years prior to the submission date of the complete application, if they are more representative of "normal source operation".

The engine was taken out of service on 8/31/2001, and the application was filed on 9/18/01. The application package includes 2 consecutive calendar years of crop data from January 1999 through December 2000. In addition, the water-use data which is referenced below is reported on a calendar annual basis. Since the supplied crop and water-use data is continuous and chronological, and represents the two calendar years immediately prior to the cessation of emissions, the baseline period shall be identified as

the calendar years of 1999 and 2000. This period is representative of normal source operations.

C. Baseline Engine-Use

As discussed above, actual fuel-use records have not been maintained for this engine. However, we do know the irrigation service area includes 7 fields totaling 786 acres, and that the operator has maintained records of the types of crops which have been planted in these fields during the baseline period.

Knowing the field size and the type of crop planted allows us to determine the amount of water which is required to grow the crops. Once the water-use is detailed, based on the physical characteristics of the irrigation system, the amount of work required to pump the water can be quantified, and thus the engine-use is established.

1. Crop History

The irrigation service area includes 7 fields, fields 4-1, 4-2, 4-A2, 4-2N, 4-2S, 4-3 and 4-4, which total 786 acres. In 1999, cotton was planted in fields 4-1 and 4-2, tomato was planted in field 4-A2, and lettuce was planted in fields 4-3 and 4-4. Nothing was planted in 4-2N or 4-2S. In 2000, cotton was planted in fields 4-1 and 4-3, onions were planted in field 4-2N, garlic was planted in field 4-2S and wheat was planted in field 4-4. Nothing was planted in field 4-2 or 4-A2. This data is presented in the following table:

Baseline Crop History			
Field	Acres	1999 Crop	2000 Crop
4-1	154	Cotton	Cotton
4-2	85	Cotton	-
4-A2	78	Tomato	-
4-2N	85	-	Onions
4-2S	78	-	Garlic
4-3	156	Lettuce	Cotton
4-4	150	Lettuce	Wheat

2. Baseline Water-Use

The water-use for these fields can be determined from the Department of Water Resources (DWR) publication, *Field Irrigation Deliveries in the San Joaquin Valley*. The DWR document lists actual monthly water delivery data from more than 2,350 fields totaling over 430,000 acres, representing various combinations of 49 crops and 9 irrigation methods in 11 areas within the San Joaquin Valley (see map and other related pages in Appendix A). The DWR document provides charts which identify the amount of water that has been historically delivered to the crops in the fields which were part of the survey. Using the DWR charts to determine how much water has been historically delivered to cotton, lettuce, and wheat, etc., we can establish the baseline water-use within the irrigation service area.

Since the DWR water-use charts represent the actual field delivery of water, the figures already account for typical rainfall, other weather variations, and irrigation system distribution water losses. Therefore, the chart figures will be used "as is" and require no adjustment for rain or weather.

The baseline water-use data is presented in monthly figures (in acre·feet/acre) in Appendix A, where it is combined into quarterly values (acre·feet/acre/quarter) and finally multiplied out into total acre·feet/quarter. The quarterly data from both of the baseline years is then averaged in order to represent normal operating quarters and the results are listed in the following table.

Baseline Water Requirement in Acre·Feet			
Quarter 1	Quarter 2	Quarter 3	Quarter 4
134.1 acre·ft	345.1 acre·ft	505.5 acre·ft	533.8 acre·ft

3. Baseline Engine-Use

The amount of engine-use (in horsepower-hours) which is required to pump the amount of water indicated above through the irrigation system and into the field can be calculated by considering the following mechanical parameters of the irrigation system:

- depth of the well
- water table depression during pumping
- discharge pressure
- system pressure loss
- the mechanical water-pump driveline efficiency
- the mechanical gearhead efficiency

By adding the well depth, the water table depression depth, irrigation system dynamic pressure loss and the system discharge pressure, total pressure head (in feet) required to drive the irrigation system is identified.

For example, this particular well is 372 feet deep. The water table depression level is 61 ft during pumping, the dynamic pressure drop of the water in the pipes is 9 feet and the discharge pressure is 46.8 feet. Therefore, the total pressure head required to drive this system is 488.8 feet.

In order to pump the 134.1 acre·ft of water (1st Quarter water-use) against 488.8 feet of pressure head, the irrigation system work output requirement is:

$$134.1 \text{ acre} \cdot \text{ft} \times \frac{43,560 \text{ ft}^2}{\text{acre}} \times \frac{62.4 \text{ lb}}{\text{ft}^3} \times 488.8 \text{ ft} \times \frac{1 \text{ ft} \cdot \text{lb}}{1,980,000 \text{ hp} \cdot \text{hr}} = 89,984 \text{ hp} \cdot \text{hr}$$

Considering the mechanical efficiency of the irrigation system, we can now calculate the amount of gearhead input-shaft-work which is required to operate the irrigation

system for the 1st Quarter. This gearhead shaft input directly corresponds to engine work output. A mechanical efficiency of the entire pumping unit will be assumed to be 60% (see note in Appendix B).

In order to produce 89,984 hp·hr of work output, the irrigation system requires the following amount of work input:

$$\frac{89,984 \text{ hp} \cdot \text{hr} (\text{work output})}{0.60 (\text{efficiency})} = 149,974 \text{ hp} \cdot \text{hr} (\text{work input})$$

The engine-use data for all quarters is calculated in the spreadsheet in Appendix B, and the final results are posted in the following table.

Baseline Engine-Use		
Quarter 1	149,974	hp·hr
Quarter 2	385,951	hp·hr
Quarter 3	565,338	hp·hr
Quarter 4	596,988	hp·hr

D. Actual Emissions

Engine emissions are calculated by multiplying the emission factors for this engine by the horsepower-hour figures listed above for each quarter of the year as follows:

Actual Emission Reductions						
Quarter 1						
NO _x	11	g/hp·hr x	149,974	hp·hr ÷	453.6 g/lb =	3,637 lb/qtr
SO _x	0.171	g/hp·hr x	149,974	hp·hr ÷	453.6 g/lb =	57 lb/qtr
PM ₁₀	0.53	g/hp·hr x	149,974	hp·hr ÷	453.6 g/lb =	175 lb/qtr
CO	3.03	g/hp·hr x	149,974	hp·hr ÷	453.6 g/lb =	1,002 lb/qtr
VOC	1.12	g/hp·hr x	149,974	hp·hr ÷	453.6 g/lb =	370 lb/qtr
Quarter 2						
NO _x	11	g/hp·hr x	385,951	hp·hr ÷	453.6 g/lb =	9,359 lb/qtr
SO _x	0.171	g/hp·hr x	385,951	hp·hr ÷	453.6 g/lb =	145 lb/qtr
PM ₁₀	0.53	g/hp·hr x	385,951	hp·hr ÷	453.6 g/lb =	451 lb/qtr
CO	3.03	g/hp·hr x	385,951	hp·hr ÷	453.6 g/lb =	2,578 lb/qtr
VOC	1.12	g/hp·hr x	385,951	hp·hr ÷	453.6 g/lb =	953 lb/qtr

Quarter 3						
NO _x	11	g/hp·hr x	565,338	hp·hr ÷	453.6 g/lb =	13,710 lb/qtr
SO _x	0.171	g/hp·hr x	565,338	hp·hr ÷	453.6 g/lb =	213 lb/qtr
PM ₁₀	0.53	g/hp·hr x	565,338	hp·hr ÷	453.6 g/lb =	661 lb/qtr
CO	3.03	g/hp·hr x	565,338	hp·hr ÷	453.6 g/lb =	3,776 lb/qtr
VOC	1.12	g/hp·hr x	565,338	hp·hr ÷	453.6 g/lb =	1,396 lb/qtr
Quarter 4						
NO _x	11	g/hp·hr x	596,988	hp·hr ÷	453.6 g/lb =	14,477 lb/qtr
SO _x	0.171	g/hp·hr x	596,988	hp·hr ÷	453.6 g/lb =	225 lb/qtr
PM ₁₀	0.53	g/hp·hr x	596,988	hp·hr ÷	453.6 g/lb =	698 lb/qtr
CO	3.03	g/hp·hr x	596,988	hp·hr ÷	453.6 g/lb =	3,988 lb/qtr
VOC	1.12	g/hp·hr x	596,988	hp·hr ÷	453.6 g/lb =	1,474 lb/qtr

VI. Adjustments

In order to quantify Actual Emissions Reductions (AER) and ultimately Bankable Emission Reductions, the baseline emissions calculated above must be adjusted in several areas. The baseline emissions must be adjusted for:

- Replacement Unit Emissions
- Applicable District Rules
- Requirements in the State Implementation Plan
- The Air Quality Improvement Deduction

A. Emissions from the Replacement Unit

The baseline emissions must be adjusted by subtracting the emissions from the replacement unit in order to determine emissions reductions. In this case, the engine is being replaced with an electric motor.

The irrigation system will be driven by a new electric motor. Though the new electric motor will not directly emit pollution, the electricity required to operate the motor must now be produced by a utility power generator. Therefore, the increase in emissions resulting from the increase in utility power required to run the new electric motor must be subtracted.

Within the District, the average emission factor for NO_x for the generation of grid electric power is 0.17 grams/hp·hr. By multiplying this emission factor for NO_x by the amount of horsepower·hours the new electric motor will be required to operate, the replacement emissions are determined.

NO _x Electrification Emissions						
Quarter 1	0.17	g/hp·hr x	149,974	hp·hr/qtr ÷	453.6 g/lb =	56 lb/qtr
Quarter 2	0.17	g/hp·hr x	385,951	hp·hr/qtr ÷	453.6 g/lb =	145 lb/qtr
Quarter 3	0.17	g/hp·hr x	565,338	hp·hr/qtr ÷	453.6 g/lb =	212 lb/qtr
Quarter 4	0.17	g/hp·hr x	596,988	hp·hr/qtr ÷	453.6 g/lb =	224 lb/qtr

Subtracting the preceding values from the baseline NO_x emissions yields the following Actual Emission Reductions for NO_x:

NO _x Emissions Reductions Adjusted for Electrification					
Quarter 1	3,637	lb/qtr -	56	lb/qtr =	3,581 lb/qtr
Quarter 2	9,359	lb/qtr -	145	lb/qtr =	9,214 lb/qtr
Quarter 3	13,710	lb/qtr -	212	lb/qtr =	13,498 lb/qtr
Quarter 4	14,477	lb/qtr -	224	lb/qtr =	14,253 lb/qtr

B. Applicable District Rules

Pursuant to District Rule 2201 Section 3.2.2.1, AER shall be in excess of any reductions required or encumbered by any laws, rules, regulations, agreements or orders.

Engines are regulated by District Rule 4701 *Internal Combustion Engines*. Therefore, the emission factors used for calculating emission reductions for engines may not exceed the emission factor limits established in Rule 4701. However, pursuant to Section 4.1 of Rule 4701, the provisions of this rule do not apply to engines in agricultural operations in the growing of crops or raising of fowl or animals. Since this engine is a farm engine used in the growing of crops, Rule 4701 does not apply and no adjustments are required.

C. State Implementation Plan (SIP)

Pursuant to Rule 2201 Section 3.2.2.2, AER shall be in excess of any reductions which are attributed to a control measure noticed for workshop, or proposed or contained in a State Implementation plan.

California Air Resources Board (CARB) has work shopped or proposed Best Available Retrofit Controls (BARCT) and Air Toxic Control Measures (ATCM) for internal combustion engines. The BARCT measure will be aimed at reducing NO_x emissions and the ATCM will target toxic particulate emissions from internal combustion engines. Currently, none of CARB's proposals require mandatory emission reductions from existing agricultural engines. Therefore, no adjustments are necessary.

D. Air Quality Improvement Deduction (AQID)

Pursuant to Rule 2201 Section 4.12.1, prior to banking, AER shall be discounted by 10% for an AQID. In the following table, the 10% AQID is subtracted from the adjusted emissions reductions in order to quantify the amount which is eligible for banking.

Emissions Reductions Credits Adjusted for AQID					
Quarter 1					
NO _x	3,581	lb/qtr -	358	lb/qtr =	3,223 lb/qtr
SO _x	57	lb/qtr -	6	lb/qtr =	51 lb/qtr
PM ₁₀	175	lb/qtr -	18	lb/qtr =	158 lb/qtr
CO	1,002	lb/qtr -	100	lb/qtr =	902 lb/qtr
VOC	370	lb/qtr -	37	lb/qtr =	333 lb/qtr

Quarter 2					
NO _x	9,214	lb/qtr -	921	lb/qtr =	8,293 lb/qtr
SO _x	145	lb/qtr -	15	lb/qtr =	131 lb/qtr
PM ₁₀	451	lb/qtr -	45	lb/qtr =	406 lb/qtr
CO	2,578	lb/qtr -	258	lb/qtr =	2,320 lb/qtr
VOC	953	lb/qtr -	95	lb/qtr =	858 lb/qtr
Quarter 3					
NO _x	13,498	lb/qtr -	1,350	lb/qtr =	12,148 lb/qtr
SO _x	213	lb/qtr -	21	lb/qtr =	192 lb/qtr
PM ₁₀	661	lb/qtr -	66	lb/qtr =	595 lb/qtr
CO	3,776	lb/qtr -	378	lb/qtr =	3,398 lb/qtr
VOC	1,396	lb/qtr -	140	lb/qtr =	1,256 lb/qtr
Quarter 4					
NO _x	14,253	lb/qtr -	1,425	lb/qtr =	12,828 lb/qtr
SO _x	225	lb/qtr -	23	lb/qtr =	203 lb/qtr
PM ₁₀	698	lb/qtr -	70	lb/qtr =	628 lb/qtr
CO	3,988	lb/qtr -	399	lb/qtr =	3,589 lb/qtr
VOC	1,474	lb/qtr -	147	lb/qtr =	1,327 lb/qtr

E. Bankable Emissions Reductions Credits

The bankable ERCs as determined in this evaluation are posted in the following table.

Bankable Emissions Reductions Credits		
Quarter 1		
NO _x	3,223	lb/qtr
SO _x	51	lb/qtr
PM ₁₀	158	lb/qtr
CO	902	lb/qtr
VOC	333	lb/qtr
Quarter 2		
NO _x	8,293	lb/qtr
SO _x	131	lb/qtr
PM ₁₀	406	lb/qtr
CO	2,320	lb/qtr
VOC	858	lb/qtr
Quarter 3		
NO _x	12,148	lb/qtr
SO _x	192	lb/qtr
PM ₁₀	595	lb/qtr
CO	3,398	lb/qtr
VOC	1,256	lb/qtr
Quarter 4		
NO _x	12,828	lb/qtr
SO _x	203	lb/qtr
PM ₁₀	628	lb/qtr
CO	3,589	lb/qtr
VOC	1,327	lb/qtr

VIII. Compliance

Pursuant to District Rules 2201 and 2301, Bankable Emissions Reductions must be:

- Real
- Surplus
- Permanent
- Quantifiable
- Enforceable
- Not already used to offset an Authority to Construct
- Based on a timely application
- For non-permitted emissions units, the emissions must have been included in the 1987 emissions inventory.

A. Real

These emissions reductions have been created by the replacement of an ag-pump engine with an electric motor. Since the baseline crop history is real and the emission factors are from widely accepted sources such as the Carl Moyer program and AP-42, and have been demonstrated to be conservative in the emission factor section of this evaluation, the baseline emissions are considered to be real.

The grower is will sign a contract pending successful public noticing of this project (*Diesel Engine Retirement Agreement* (Agreement) in Appendix F) agreeing to destroy the removed engine, and not supplement the irrigation system with power from any internal combustion engine. Since verification of the destruction of the engine will be conducted by the District prior to the issuance of any ERC Credits, the emission reductions are considered to be real.

B. Surplus

Surplus emission reductions are reductions that are in excess of those required by any laws, rules, regulations, agreements, orders or State Implementation Plan.

The baseline emissions from this engine have been adjusted in Section VII *Adjustments* (above) for all of these. Therefore, the remaining emissions reductions are considered to be surplus.

C. Permanent

The grower has agreed to destroy the removed engine (Agreement- Appendix F), thereby permanently eliminating the engines emissions. In order to preclude the possibility of un-offset future emissions from the irrigation system, the grower has agreed to acquire a Permit to Operate (Appendix H) the irrigation system. The permit, in conjunction with a permanent deed restriction (a condition of the Agreement), will ensure that the irrigation system will not be powered, in part or in full, by any emissions unit unless prior written District approval is obtained and the proper amount of offsets are provided. The

permanent deed restriction requires that these provisions be legally binding to any future owner/operator of the irrigation system. The applicant has agreed to disclose in writing the existence of the agreement to any other entity which may come to own or become responsible for operating the irrigation system for the service area. To ensure the permanence of the agreement and the notice of interested parties, the Agreement will be recorded by the County Registrar so that future title searches will disclose its existence and requirements.

D. Quantifiable

The reduction amounts have been calculated based on historic crop data, field water-use data, irrigation system parameters and engine emission factors. The accuracy of determining historic engine-use from crop history, field size and irrigation system parameters has been demonstrated on five irrigation systems for which accurate fuel-use records have been kept. An analysis of the data indicated that in all five tests (averaged together) the predicted fuel-use was within 1.2% of the actual fuel-use. This close correlation does yield some credibility to the methodology. However, comparing the predicted fuel-use to the actual fuel-use on an engine-by-engine basis, the difference ranged from -13.3% to +17.1%. Therefore, the District is proposing the following to conservatively ensure the accuracy and supportability of our quantification.

The ERCs will be issued in two stages. Eighty percent of the total bankable ERCs will be issued following the Public Noticing Period, and a conservative "reserve" of 20% will be set aside pending validation of the assumptions made during quantification. The validation period will be at least 12 calendar months.

The Agreement (Appendix F) and the Permit to Operate (Appendix H) each include a provision to maintain, on the power supply of the new electric motor, a kilowatt-hour meter. Records of irrigation system use shall also be maintained for the validation period of at least 12 full calendar months. By reviewing the post-project records, the District will determine if the post-project "energy-use" to "water-pumped" ratio correlates with the pre-project "energy-use" to "water-pumped" ratio, ultimately determining if the assumptions made during the baseline engine-use calculations were reasonably accurate.

In the case where the post-project energy-use figures are less than the pre-project energy-use figures, the District may withhold up to the 20% reserve of proposed ERCs. In the case where the post-project energy-use figures are equal to or higher than the pre-project energy-use figures, then the District may issue up to the full value of the 20% reserve of proposed ERCs after the validation period.

The proposed distribution of ERCs issuance is presented in the following table.

Proposed ERCs						
Quarter 1	Bankable ERC's		Primary Issuance (80%)		Secondary Issuance (20%)	
NO _x	3,223	lb/qtr	2,578	lb/qtr	645	lb/qtr
SO _x	51	lb/qtr	41	lb/qtr	10	lb/qtr
PM ₁₀	158	lb/qtr	126	lb/qtr	32	lb/qtr
CO	902	lb/qtr	722	lb/qtr	180	lb/qtr
VOC	333	lb/qtr	266	lb/qtr	67	lb/qtr
Quarter 2						
NO _x	8,293	lb/qtr	6,634	lb/qtr	1,659	lb/qtr
SO _x	131	lb/qtr	105	lb/qtr	26	lb/qtr
PM ₁₀	406	lb/qtr	325	lb/qtr	81	lb/qtr
CO	2,320	lb/qtr	1,856	lb/qtr	464	lb/qtr
VOC	858	lb/qtr	686	lb/qtr	172	lb/qtr
Quarter 3						
NO _x	12,148	lb/qtr	9,718	lb/qtr	2,430	lb/qtr
SO _x	192	lb/qtr	154	lb/qtr	38	lb/qtr
PM ₁₀	595	lb/qtr	476	lb/qtr	119	lb/qtr
CO	3,398	lb/qtr	2,718	lb/qtr	680	lb/qtr
VOC	1,256	lb/qtr	1,005	lb/qtr	251	lb/qtr
Quarter 4						
NO _x	12,828	lb/qtr	10,262	lb/qtr	2,566	lb/qtr
SO _x	203	lb/qtr	162	lb/qtr	41	lb/qtr
PM ₁₀	628	lb/qtr	502	lb/qtr	126	lb/qtr
CO	3,589	lb/qtr	2,871	lb/qtr	718	lb/qtr
VOC	1,327	lb/qtr	1,062	lb/qtr	265	lb/qtr

ERC # 438 1 VOC
 438 2 NO_x
 438 3 CO
 438 4 PM₁₀
 438 5 SO_x

→ Σ = 7300

36 492 29 192 7300

E. Enforceable

District Rule 2301 Section 4.2.4 states: "For non-permitted emission units, the emissions must have been included in the 1987 emissions inventory and the source creating ERCs shall apply for and acquire a Permit to Operate subject to enforceable permit conditions which ensures that the emission reductions will be provided in accordance with the provisions of this rule, and shall continue for the reasonably expected life of the proposed stationary source. If the District, pursuant to state laws, is prohibited to permit the emission unit, the stationary source creating ERCs shall execute a legal binding contract with the District which ensures that the emission reductions will be provided in accordance with the provisions of this rule, and shall continue for the reasonable expected life of the proposed source."

California Health and Safety Code 42310 (e) states: "A permit shall not be required for...Any equipment used in agricultural operations in the growing of crops..."

While the District cannot require permits for engines used in agricultural operations, the District is not prohibited from issuing a Permit to Operate for such operations, including irrigation systems, if requested by the owner. Therefore, in order to enforce the proposed

reductions in emissions, in addition to a signed legal binding contract being required (Agreement), the grower has agreed to acquire an enforceable Permit to Operate for the irrigation system. The Agreement and Permit to Operate, included in Appendixes F and H of this evaluation, include provisions as necessary to ensure the enforceability of the proposed emission reductions. The provisions from the Agreement, along with a brief explanation of the basis for such provisions, are included below. The conditions in the Permit to Operate are similar and have the same bases.

Conditions 2, 10 and 12 ensure that all of the power required to drive the entire irrigation system will forever come from an electric motor, and no internal combustion engine(s) will be hooked up to the irrigation system anywhere which can supplement the electric motor and create emissions, without prior written approval from the District where the equipment is evaluated in accordance with District Rules and the necessary offsets are provided.

- O'Neill Farming agrees to replace all of its existing high emissions irrigation engines as identified in Exhibit A, which irrigates Service Area as identified in Exhibit B, attached hereto and incorporated herein, with new, non-polluting electric motor(s) provided by Valley Air Conditioning and Repair.
- O'Neill Farming agrees that the Service Area covered by this Agreement shall not be irrigated in whole or in part by any other IC engine power source.
- O'Neill Farming and the District agree that no equipment which emits or may emit any air contaminant may be added, permanently or temporarily, to power or supplementally power the irrigation system which irrigates the Service Area covered by this Agreement without specific prior written approval by the District where: (a) the new equipment is evaluated and approved in accordance with District Rules and Regulations; (b) the potential increase in emissions is entirely offset in accordance with District Rules and Regulations; and (c) the Permit to Operate for the said irrigation system is modified accordingly by the District.

Conditions 11 and 13 ensure that the agreement will be in effect for as long as any of the service area is still farmland, and that any future owner/operator will be bound by this agreement.

- O'Neill Farming agrees that replacement of the Existing Engine(s) with Electric Motors(s) will remain in effect as long as any of the Service Area covered by this Agreement remains farmland, and agrees to disclose in writing the existence of this Agreement to any other entity which may come to own or become responsible for operating the irrigation pumping system for the Service Area described. To ensure the permanence of this Agreement, this Agreement shall be recorded by the County Registrar. Any future entity which becomes responsible for the irrigation system shall agree to the terms contained in this Agreement.
- O'Neill Farming, upon the sale or lease of land upon which the Electric Motor(s) are located, will assign this Agreement and the Permit to Operate, and all rights, duties and obligations hereto. Assignment of this Agreement and all rights, duties and obligation

may only occur after notice is given to all Parties (including the District). Nothing in this Agreement shall be construed to diminish the District's authority to implement and enforce applicable state, federal, and local laws, rules and regulations.

Conditions 8 and 9 guarantee the destruction of the removed engine.

- O'Neill Farming agrees to render the removed Engine(s) inoperable by drilling or knocking a hole in the block, welding the cylinder head shut, obtaining written proof from a scrap yard that the removed Engine(s) has been destroyed or otherwise rendered inoperable, or other method approved in advance by the District, and to submit proof of such destruction of the removed Engine(s) to the District prior to the issuance of any related ERCs.
- The District maintains the right to witness the destruction of the Engine(s) and Parties agree to notify the District at least 14 days prior to the destruction of any Engine(s).

Condition 14 allows the District access to the service area in order to verify compliance with the terms of this agreement.

- O'Neill Farming grants to Valley Air Conditioning and Repair and the District, for the specific and sole purpose of exercising their respective responsibilities as defined in this Agreement and applicable law, the right of reasonable entry to Service Area to monitor compliance with this Agreement during normal business hours.

Finally, conditions 16 and 17 ensure that all parties agree that this is a legal binding contract, and that the District has jurisdiction over all of the related matters.

- All Parties agree that this Agreement constitutes a legal, valid and binding obligation on all Parties, enforceable in accordance with its terms and applicable law, and that its contents, including that of other documents incorporated by reference, are true and correct.
- O'Neill Farming and Valley Air Conditioning and Repair agree to, and will not contest the District's jurisdiction over matters related to this Agreement.

These provisions in conjunction with the rest of the contract and the Permit to Operate will ensure that the terms of this ERC Project are enforceable.

F. Not used for the approval of an Authority to Construct or as Offsets

The ERCs quantified in this project have not been used as offsets for the approval of any Authority to Construct.

G. Based on a Timely Submittal of Application

Applications for ERCs must be received within 180 days of the reduction. According to the ERC application dated 9/18/01, the date of reductions is 8/31/01. Therefore, pursuant to Sections 4.2.3 and 5.5 of Rule 2301, this application is considered to be timely.

H. Included in Emissions Inventory

Rule 2301 requires that the emissions must have been included in the 1987 inventory. Emissions from agricultural irrigation pump IC engines are contained in the "Farm Equipment" area source category. This category includes tractors, balers, combines, mowers, and an "others" category - it is in the latter that irrigation pumps are included. This has been confirmed with Ray Asregadoo of the ARB's Emissions Inventory group. Of the 35.8 tons·NO_x/day listed in the 1987 inventory, it is possible to estimate the amount emitted by ag irrigation pumps, as follows:

From the ARB methodology for the Farm Equipment category (Appendix D), Table II indicates that 11,600 tons/year was emitted in the San Joaquin Valley, from diesel-powered equipment. From Table IV, the "other" category is responsible for 31.7 % of the total average hours of operation for diesel farm equipment (436 "other" hours/1,377 total hours). Conservatively assuming that only 50% of the "other" category is ag irrigation pump engines, the total 1987 emissions inventory was:

$$\frac{11,600 \text{ ton}}{\text{year}} \times \frac{436 \text{ hours}}{1,377 \text{ hours}} \times 50\% = 1,836.5 \frac{\text{ton} \cdot \text{NO}_x}{\text{year}}$$

Therefore, the 18.2 tons·NO_x/year we are proposing to issue as ERCs were included in the 1987 emissions inventory. The discussion that the other pollutants which are proposed for banking are also included in the 1987 emissions inventory is identical.

In addition, although Rule 2301 requires the above demonstration to be made based on the 1987 inventory, it is important to note that the year 1999 emissions inventory (the most recent CARB-approved emissions inventory) specifically includes diesel-fired agricultural irrigation IC engines. These figures have been extracted from the inventory and are presented in Appendix E of this evaluation. The inventory includes a District-wide total process rate of 759,570,000 hp·hr per year, and accounts for 11,811 ton·NO_x/year, 967 ton·SO_x/year, 1,018 ton·PM₁₀/year, 3,453 ton·CO/year, and 810 ton·VOC/year.

IX. Recommendation

Issue Primary ERC certificates with the quarterly values attached.

List of Appendixes

- A DWR Water Requirement Data
- B Irrigation Pump Energy Requirement Calculations
- C Carl Moyer Emission Factors
- D 1987 Emissions Inventory Data
- E 1999 Emissions Inventory Data
- F Diesel Engine Retirement Agreement
- G Draft ERC Certificates
- H Draft Permit to Operate

Appendix A Water Requirement Data

The watering figures which follow are from State of California, Department of Water Resources, San Joaquin District Publication *Field Irrigation Deliveries in the San Joaquin Valley (11/83)*. This data represents the baseline crop history and the watering requirement for the fields in service area, and is averaged together to establish quarterly baseline water-use. Note that the water amounts listed in the following table are based on actual field deliveries and already account for rainfall.

O'Neill Farming Unit ^{2*}														
1999 Data			1999 Monthly Watering Requirement: $\frac{\text{acre} \cdot \text{ft}}{\text{acre}}$											
Field	Acres	Plant	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
4-1	154	Cotton ¹	0	0	0	0	0	0.34	0.48	0.64	0.05	0.08	0.22	0.52
4-2	85	Cotton ¹	0	0	0	0	0	0.34	0.48	0.64	0.05	0.08	0.22	0.52
4-A2	78	Tomato ²	0	0	0.26	0.21	0.56	0.36	0.36	0.13	0	0	0	0
4-2N	85	-	0	0	0	0	0	0	0	0	0	0	0	0
4-2S	78	-	0	0	0	0	0	0	0	0	0	0	0	0
4-3	156	Lettuce ³	0.08	0.19	0.28	0.20	0	0.08	0.14	0.47	0.47	0.18	0.01	0.18
4-4	150	Lettuce ³	0.08	0.19	0.28	0.20	0	0.08	0.14	0.47	0.47	0.18	0.01	0.18
Water Required: acre · feet			188.6 acre · feet			255.1 acre · feet			648.3 acre · feet			309.2 acre · feet		
2000 Data			2000 Monthly Watering Requirement: $\frac{\text{acre} \cdot \text{ft}}{\text{acre}}$											
Field	Acres	Plant	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
4-1	154	Cotton ¹	0	0	0	0	0	0.34	0.48	0.64	0.05	0.08	0.22	0.52
4-2	85	-	0	0	0	0	0	0	0	0	0	0	0	0
4-A2	78	-	0	0	0	0	0	0	0	0	0	0	0	0
4-2N	85	Onions ⁴	0.03	0.01	0.19	0.48	0.69	0.19	0	0	0	0	0	2.32
4-2S	78	Garlic ⁵	0.03	0.01	0.19	0.48	0.69	0.19	0	0	0	0	0	2.32
4-3	156	Cotton ¹	0	0	0	0	0	0.34	0.48	0.64	0.05	0.08	0.22	0.52
4-4	150	Wheat ¹	0	0	0.28	0.59	0.13	0	0	0	0	0	0	0.84
Water Required: acre · ft			79.5 acre · feet			435.1 acre · feet			362.7 acre · feet			758.4 acre · feet		
Baseline Water Requirement:			134.1 $\frac{\text{acre} \cdot \text{ft}}{\text{quarter}}$			345.1 $\frac{\text{acre} \cdot \text{ft}}{\text{quarter}}$			505.5 $\frac{\text{acre} \cdot \text{ft}}{\text{quarter}}$			533.8 $\frac{\text{acre} \cdot \text{ft}}{\text{quarter}}$		

Notes:

*Service Area is based in DAU 244.

¹Cotton and Wheat water-use data is from DAU 244

²Tomato water-use if data is from DAU 244

³Lettuce is double cropped, water-use data is from DAU 259

DAU 259 is 50 miles South of DAU 244. Due to the distance between the 2 DAUs, an analysis must be conducted in order to determine if the data from DAU 259 may be used to represent water deliveries for the crops in DAU 244. It is immediately apparent that the water requirements for similar crops with similar irrigation methods are significantly higher (an average of 1.32 times higher) in DAU 259 than in DAU 244, as shown in the following table. Therefore, in order to use the water delivery figures from DAU 259 to represent water deliveries in DAU 244, the DAU 259 figures will be reduced by the factor of 1.32, as shown in the second table below.

Comparison of DAU 244 and DAU 259				
Crop	Irrigation Type	Water Deliveries in DAU 244	Water Deliveries in DAU 259	Factor
Wheat and Barley	Sprinkler	1.71	1.76	1.02
Cotton	Sprinkler	1.96	3.46	1.76
Tomato	Furrow	1.88	2.27	1.20
Overall Average Factor				1.32

Correction of Lettuce Watering Requirement from DAU 259 to DAU 244												
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
259	0.11	0.25	0.37	0.26	0	0.11	0.19	0.62	0.63	0.24	0.01	0.24
244	0.08	0.19	0.28	0.20	0	0.08	0.14	0.47	0.47	0.18	0.01	0.18

⁴Onion water-use is from DAU 256

DAU 256 is 50 miles Southeast of DAU 244. Due to the distance between the 2 DAUs, an analysis must be conducted in order to determine if the data from DAU 256 may be used to represent water deliveries for the crops in DAU 244. Examining the watering deliveries for similar crops in both DAUs, there is no clear relationship presented. Therefore, the watering requirements for the common crops with common water delivery methods are compared in the following table, and a watering ratio will be developed. In order to use the water delivery figures from DAU 256 to represent water deliveries in DAU 244, the DAU 256 figures will be reduced by the factor of 1.12, as shown in the second table below.

Comparison of DAU 244 and DAU 256				
Crop	Irrigation Type	Water Deliveries in DAU 244	Water Deliveries in DAU 256	Factor
Wheat	Sprinkler	2.18	$(1.31+1.60) \div 2 = 1.46$	1.49
Cotton	Furrow	2.33	3.12	0.75
Overall Average Factor				1.12

Correction of Onion Watering Requirement from DAU 256 to DAU 244												
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
256	0.03	0.01	0.17	0.43	0.62	0.17	0	0	0	0	0	2.07
244	0.03	0.01	0.19	0.48	0.69	0.19	0	0	0	0	0	2.32

⁵Garlic water-use is similar to that of onions

Since garlic is only listed in conjunction with onions in any of the water delivery tables, it will be assumed that the watering requirement for garlic is similar to that of onions. Therefore, the water delivery figures for garlic will be taken from the discussion of onions above.

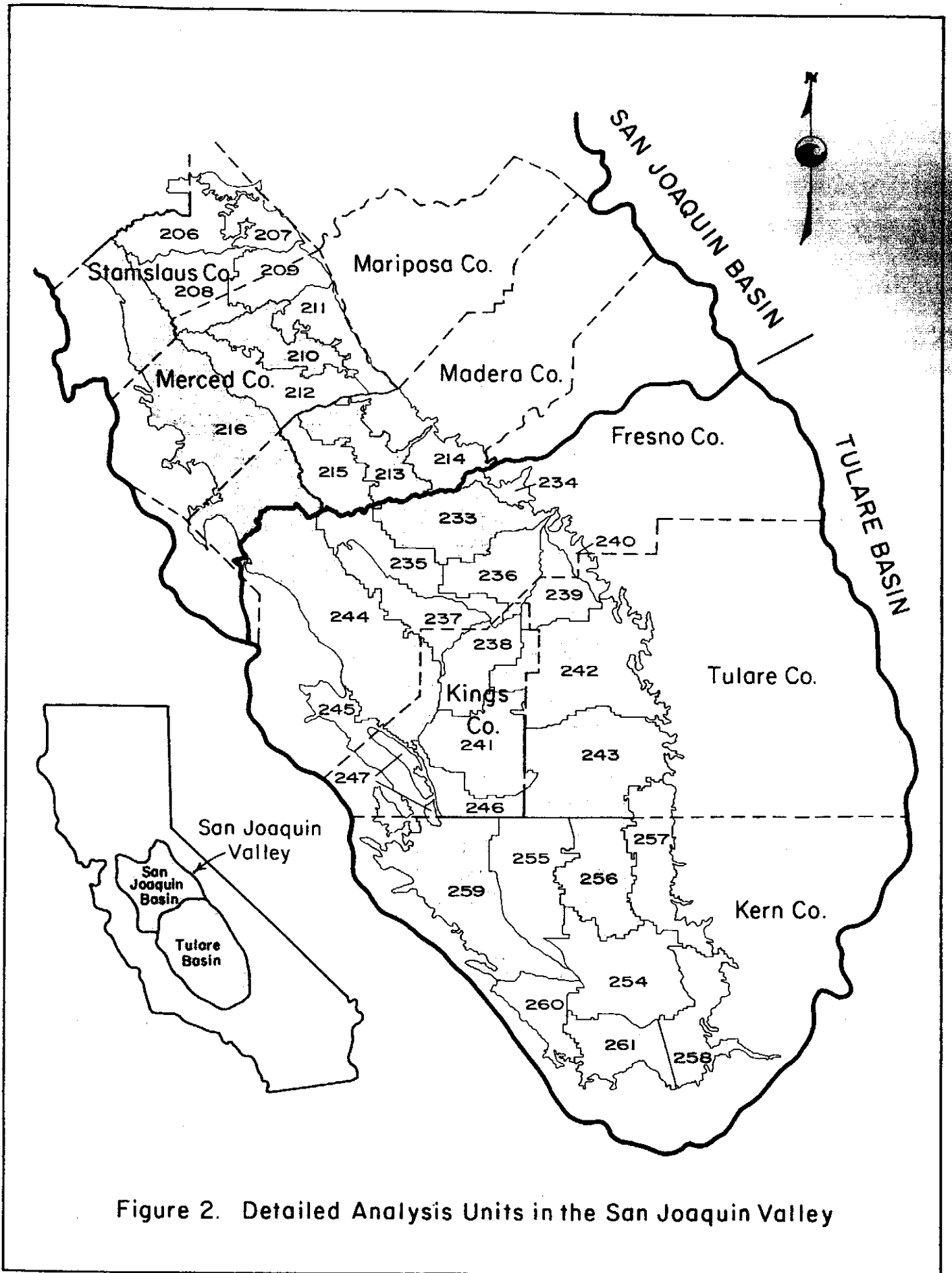


Figure 2. Detailed Analysis Units in the San Joaquin Valley

TABLE 15
 AVERAGE FIELD IRRIGATION DELIVERIES
 TULARE BASIN
 DAU 2441/

Crop	Irrigation Method	Number of Fields	Total Acres	Predominant Soil Texture	Annual Precipitation ^{2/} (ac-ft/ac)	Average Measured Field Deliveries (acre-feet/acre)												Annual Total	Standard Deviation	Standard Error
						Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
Field Crops																				
Cotton	Furrow	14	2,546	CL	0.91	0.00	0.00	0.00	0.00	0.00	0.34	0.48	0.64	0.05	0.08 ^{3/}	0.22 ^{3/}	0.52 ^{3/}	2.33	0.60	0.16
Cotton	Sprinkler	10	1,881	CL	1.21	0.00	0.05	0.00	0.00	0.11	0.43	0.52	0.50	0.02	0.00	0.20 ^{3/}	0.13 ^{3/}	1.96	0.36	0.11
Safflower	Furrow	1	65	CL	0.47	0.00	0.00	0.49	0.39	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.18	-	-
Sugar beets	Furrow	2	320	CL	0.58	0.00	0.00	0.00	0.00	0.56	0.88	0.48	0.00	0.00	0.00	0.00	0.58	2.50	-	-
Grains																				
Barley	Furrow	13	1,819	CL	0.62	0.00	0.05	0.34	0.49	0.20	0.00	0.00	0.00	0.00	0.00	0.09	0.11	1.28	0.26	0.08
Barley	Sprinkler	1	165	CL	0.73	0.77	0.00	0.00	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.23	-	-
Wheat	Furrow	2	297	CL	0.73	0.00	0.00	0.28	0.59	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.84	1.84	-	-
Wheat	Sprinkler	1	128	CL	0.73	0.00	0.00	0.17	0.58	0.35	0.00	0.00	0.00	0.00	0.00	0.54	0.54	2.18	-	-
Truck Crops																				
Tomatoes	Furrow	5	602	CL	0.88	0.00	0.00	0.26	0.21	0.56	0.36	0.36	0.13	0.00	0.00	0.00	0.00	1.88	-	-
Tomatoes	Sprinkler & furrow ^{4/}	8	950	CL	0.92	0.00	0.00	0.09	0.06	0.44	0.56	0.30	0.07	0.01	0.00	0.00	0.18	1.71	0.47	0.16
Total		57	8,773																	

- 1/ Area from which field irrigation deliveries were obtained is underlain by perched water at shallow depths.
 2/ Average observed precipitation (November-October) at Five Points weighted by number of fields per year.
 3/ Preirrigation.
 4/ Germination and first crop irrigations were with hand-move sprinklers; irrigations after flowering were by furrow. Data for one field were abstracted from "Use of Water on Federal Irrigation Projects, Central Valley Project, 1967-1970", Summary Report, Volume 2, U. S. Bureau of Reclamation, August 1971.

TABLE 16
AVERAGE FIELD IRRIGATION DELIVERIES
TULARE BASIN,
DAU 256

Crop	Irrigation Method	Number of Fields	Total Acres	Predom- inant Soil Texture	Annual Precipitation/ (ac-ft/ac)	Average Measured Field Deliveries (acre-feet/acre)												Annual Total	Standard Deviation	Standard Error
						Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
Forage Crops																				
Alfalfa	Border	5	917	CL	0.75	0.13	0.09	0.04	0.41	0.54	0.63	0.65	0.65	0.49	0.24	0.14	0.03	4.04		
Alfalfa	Border	10	947	SL-L	0.65													4.20 ^{2/}		
Field Crops																				
Beans (dry)	Furrow	2	72	SL	0.62													2.15 ^{2/}		
Beans (dry)	Linear-move sprinkler	1	144	SL	0.52													1.60 ^{2/}		
Cotton	Furrow	26	3,881	SL-L	0.66	0.06	0.27	0.51	0.02	0.04	0.62	0.84	0.74	0.02	0.00	0.00	0.00	3.12		
Cotton	Furrow	87	4,723	SL-L	0.72													2.36 ^{2/}		
Cotton	Linear-move sprinkler	3	1,070	SL	0.66	0.00	0.00	0.22	0.05	0.00	0.37	0.87	0.76	0.00	0.00	0.00	0.00	2.27		
Grain sorghum	Furrow	2	74	SL	0.66	0.00	0.00	0.00	0.00	0.00	0.44	0.45	0.50	0.44	0.00	0.00	0.00	1.93		
Grain sorghum	Furrow	1	39	SL	0.66													3.06 ^{2/}		
Onions (seed)	Furrow	1	12	S-SL	0.52													8.00 ^{2/}		
Soybeans	Furrow	2	113	L-CL	1.01	0.00	0.00	0.00	0.00	0.00	0.89	0.25	0.66	0.52	0.00	0.00	0.00	2.32		
Grains																				
Oat hay	Furrow	1	20	SL	0.66													0.45 ^{2/}		
Wheat and barley	Border	6	326	SL-L	0.69	0.28	0.02	0.24	0.29	0.13	0.00	0.00	0.00	0.00	0.04 ^{3/}	0.00	0.10 ^{3/}	1.10		
Wheat and barley	Border	6	266	SL-L	0.79													0.83 ^{3/}		
Wheat	Linear-move sprinkler	6	1,588	SL-L	0.66	0.10	0.02	0.23	0.43	0.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.31		
Wheat	Linear-move sprinkler	5	1,095	SL-L	0.52													1.60 ^{2/}		
Truck Crops																				
Asparagus	Furrow	2	573	SL	0.66	0.00	0.19	0.24	0.58	0.81	0.82	1.46	1.41	0.69	0.05	0.00	0.00	6.24		
Asparagus	Furrow	2	573	SL	0.62													7.10 ^{2/}		
Beans (green)	Sprinkler	1	144	SL	0.52													1.44 ^{2/}		
Flowers and nursery	Furrow	199	6,000	SL-L	0.67	0.07	0.12	0.23	0.30	0.41	0.50	0.50	0.51	0.38	0.44	0.19	0.14	3.79		
Onions	Furrow	2	352	SL-L	0.66	0.03	0.01	0.17	0.43	0.62	0.17	0.00	0.00	0.00	0.00	0.00	0.00	2.07 ^{2/}		
Potatoes	Sprinkler	3	347	S-SL	0.66	0.00	0.00	0.09	0.89	0.67	0.47	0.06	0.00	0.00	0.00	0.00	0.00	1.46 ^{2/}		
Potatoes	Linear-move sprinkler	2	434	S-SL	0.52													2.10 ^{2/}		
Deciduous Orchard^{4/}																				
Almonds (1-3 years)	Border	7	980	SL-L	0.55	0.02	0.07	0.26	0.17	0.28	0.45	0.32	0.28	0.23	0.47	0.00	0.00	2.55		
Almonds (4-7 years)	Border	13	2,029	SL-L	0.83	0.06	0.36	0.08	0.35	0.53	0.66	0.52	0.14	0.18	0.32	0.00	0.00	3.20		
Almonds (8 years +)	Border	6	1,425	SL-L	0.58	0.16	0.48	0.17	0.53	0.64	0.69	0.84	0.24	0.22	0.38	0.00	0.00	4.33		
Almonds (1-3 years)	Border	7	56	SL-L	1.19													2.64 ^{2/}		
Almonds (4-7 years)	Border	23	930	SL-L	0.96													1.46 ^{2/}		
Almonds (8 years +)	Border	17	762	SL-L	0.79													1.46 ^{2/}		
Almonds (4-7 years)	Sprinkler	6	2,070	SL-L	0.52	0.02	0.06	0.09	0.16	0.52	0.42	0.46	0.31	0.19	0.22	0.03	0.04	2.61		
Almonds (8 years +)	Sprinkler	61	10,091	SL-L	0.67	0.02	0.37	0.09	0.27	0.36	0.63	0.59	0.23	0.12	0.27	0.09	0.03	2.79		
Almonds (1-3 years)	Drip	6	2,323	SL-L	0.45	0.00	0.01	0.02	0.07	0.13	0.10	0.19	0.14	0.11	0.07	0.02	0.01	0.87		
Almonds (4-7 years)	Drip	16	9,761	SL-L	0.72	0.01	0.03	0.05	0.15	0.25	0.36	0.46	0.21	0.23	0.13	0.08	0.00	1.96		
Almonds (8 years +)	Drip	26	3,645	SL-L	0.70	0.02	0.04	0.15	0.28	0.43	0.52	0.55	0.25	0.21	0.20	0.07	0.03	2.75		
Appricots (4-7 years)	Drip	1	36	SL-L	0.88	0.00	0.04	0.24	0.32	0.26	0.43	0.36	0.42	0.13	0.11	0.00	0.00	2.31		
Appricots (8 years +)	Drip	2	49	SL-L	0.52	0.10	0.17	0.20	0.55	0.56	0.46	0.51	0.51	0.23	0.26	0.03	0.00	3.58		
Peaches and nectarines (4-7 years)	Drip	3	298	SL-L	0.58	0.00	0.03	0.13	0.23	0.20	0.37	0.32	0.38	0.10	0.03	0.00	0.00	1.79		
Peaches and nectarines (8 years +)	Drip	36	1,907	SL-L	0.59	0.02	0.12	0.18	0.29	0.63	0.44	0.66	0.52	0.12	0.08	0.03	0.00	2.98		
Peaches and nectarines (4-7 years)	Border	1	166	SL	0.66	0.00	0.20	0.00	0.69	1.05	0.72	1.80	0.56	0.77	0.00	0.00	0.00	5.79		
Peaches and nectarines (4-7 years)	Border	1	166	SL	0.52													6.10 ^{2/}		
Pistachios (9-12 years)	Furrow	2	94	SL-L	0.62	0.00	0.00	0.16	0.14	0.36	0.21	0.58	0.92	0.19	0.46	0.00	0.00	3.02		
Pistachios (13 years +)	Furrow	1	47	SL-L	0.52	0.00	0.35	0.00	0.22	0.53	0.53	0.60	0.88	0.64	0.45	0.00	0.00	3.90		
Pistachios (5-8 years)	Sprinkler	2	649	SL-L	0.52	0.00	0.00	0.33	0.09	0.50	0.38	0.53	0.59	0.31	0.37	0.00	0.00	3.17		
Pistachios (9-12 years)	Sprinkler	2	298	SL-L	0.59	0.00	0.00	0.04	0.10	0.16	0.30	0.36	0.40	0.04	0.00	0.00	0.00	1.40		
Pistachios (13 years +)	Sprinkler	3	1,957	SL-L	0.52	0.03	0.04	0.05	0.25	0.37	0.39	0.44	0.88	0.15	0.13	0.09	0.11	2.63		
Pistachios (5-8 years)	Drip	6	1,017	SL-L	0.62	0.00	0.00	0.05	0.07	0.13	0.23	0.19	0.23	0.83	0.00	0.00	0.00	0.93		
Pistachios (9-12 years)	Drip	14	2,513	SL-L	0.60	0.00	0.04	0.06	0.15	0.26	0.39	0.44	0.45	0.07	0.01	0.02	0.00	1.83		
Subtropical Orchard^{4/}																				
Avocado (8 years +)	Drip	1	13	SL-L	0.66	0.00	0.00	0.00	0.06	0.21	0.20	0.20	0.30	0.20	0.23	0.05	0.00	1.45		
Citrus (1-3 years)	Sprinkler	2	197	SL-L	0.66	0.00	0.08	0.00	0.17	0.26	0.20	0.53	0.36	0.16	0.00	0.00	0.00	1.76		
Citrus (4-7 years)	Sprinkler	2	646	SL-L	0.98	0.00	0.09	0.04	0.12	0.14	0.27	0.49	0.22	0.07	0.34	0.15	0.18	2.11		
Citrus (8 years +)	Sprinkler	11	4,702	SL-L	0.70	0.03	0.04	0.06	0.16	0.25	0.45	0.46	0.43	0.31	0.30	0.16	0.18	2.77		
Citrus (4-7 years)	Drip	2	299	SL-L	0.58	0.00	0.02	0.03	0.09	0.09	0.17	0.20	0.19	0.07	0.08	0.02	0.04	1.00		
Citrus (8 years +)	Drip	41	3,621	SL-L	0.64	0.04	0.03	0.09	0.17	0.37	0.36	0.39	0.43	0.23	0.23	0.11	0.05	2.41		
Kiwi (4 years +)	Drip	2	12	SL-L	0.59	0.00	0.00	0.14	0.10	0.16	0.23	0.32	0.21	0.40	0.24	0.00	0.11	1.91		
Olives (8 years +)	Sprinkler	3	561	SL-L	0.59	0.06	0.10	0.08	0.36	0.25	0.20	0.46	0.40	0.54	0.21	0.12	0.00	2.78		
Olives (8 years +)	Drip	10	7,135	SL-L	0.59	0.00	0.03	0.08	0.17	0.27	0.30	0.29	0.50	0.47	0.12	0.00	0.00	2.17		
Vineyard^{4/}																				
3 years +	Border	20	959	SL-L	0.70													2.38 ^{2/}		
3 years +	Border	1	535	SL-L	0.66	0.00	0.00	0.00	1.06	0.28	1.10	0.78	0.00	0.00	0.85	0.35	0.00	4.43		
3 years +	Sprinkler	8	428	SL-L	0.59	0.00	0.00	0.16	0.22	0.44	0.53	0.54	0.41	0.10	0.19	0.06	0.00	2.65		
1-2 years	Drip	3	537	SL-L	0.52	0.03	0.22	0.06	0.15	0.18	0.18	0.02	0.22	0.12	0.02	0.02	0.00	1.22		
3 years +	Drip	45	4,250	SL-L	0.58	0.03	0.08	0.11	0.22	0.30	0.44	0.43	0.39	0.08	0.01	0.03	0.00	2.12		
		140	84,763																	

1/ Average observed precipitation (November-October) at Wasco and Delano weighted by number of fields per year.

2/ Only annual amounts of applied water available.

3/ Preferigation.

4/ Tabulation of tree and vine crops including plant spacing is in Table 17.

TABLE 17
AVERAGE FIELD IRRIGATION DELIVERIES FOR TREES AND VINES
TULARE BASIN
GAD 256

Crop	Age (years)	Plant Spacing (feet)	Irrigation Method	Number of Fields	Total Acres	Annual Precipitation ^{1/} (ac-ft/ac)	Average Measured Field Deliveries (acre-feet/acre)												Annual Total	Standard Deviation	Standard Error
							Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
Deciduous Orchard																					
Almonds	1-3	24 x 24	Border	3	63	0.55	0.00	0.10	0.49	0.12	0.24	0.80	0.41	0.41	0.29	0.72	0.00	0.00	3.58	-	-
	4-7	24 x 24	Border	11	1,143	0.72	0.07	0.43	0.10	0.38	0.55	0.67	0.53	0.14	0.16	0.32	0.00	0.00	3.35	1.55	0.47
8+	24 x 24	Border	4	539	0.56	0.14	0.50	0.09	0.60	0.57	0.67	0.79	0.07	0.29	0.32	0.00	0.00	4.04	-	-	
	20 x 24	Border	4	917	0.55	0.03	0.05	0.08	0.20	0.31	0.18	0.26	0.19	0.18	0.29	0.00	0.00	1.77	-	-	
4-7	24 x 25	Border	2	886	0.98	0.00	0.00	0.00	0.18	0.42	0.61	0.46	0.16	0.28	0.30	0.00	0.00	2.41	-	-	
	24 x 25	Border	2	886	0.59	0.20	0.44	0.33	0.38	0.79	0.73	0.94	0.59	0.68	0.51	0.00	0.00	4.99	-	-	
4-7	20 x 24	Sprinkler	3	658	0.34	0.03	0.08	0.13	0.15	0.73	0.39	0.39	0.33	0.18	0.15	0.01	0.04	2.61	-	-	
	20 x 24	Sprinkler	9	2,048	0.82	0.04	0.10	0.11	0.14	0.32	0.55	0.49	0.35	0.03	0.29	0.05	0.02	2.49	0.42	0.14	
4-7	25 x 25	Sprinkler	1	1,259	0.58	0.00	0.00	0.07	0.25	0.29	0.36	0.72	0.36	0.25	0.59	0.07	0.10	3.06	-	-	
	25 x 25	Sprinkler	35	4,759	0.61	0.00	0.02	0.07	0.33	0.39	0.54	0.63	0.14	0.07	0.30	0.13	0.03	2.65	0.51	0.09	
8+	24 x 24	Sprinkler	2	156	0.84	0.00	0.05	0.03	0.12	0.32	0.49	0.40	0.26	0.16	0.14	0.05	0.00	2.02	-	-	
	24 x 24	Sprinkler	8	1,364	0.67	0.05	0.09	0.13	0.25	0.45	0.53	0.66	0.31	0.30	0.24	0.04	0.06	3.11	0.79	0.26	
8+	16 x 26	Sprinkler	1	141	0.52	0.00	0.13	0.13	0.12	0.30	0.39	0.39	0.28	0.21	0.14	0.00	0.01	2.12	-	-	
	24 x 24	Sprinkler	5	1,425	0.69	0.05	0.10	0.05	0.13	0.31	0.49	0.64	0.42	0.34	0.06	0.06	0.02	2.53	-	-	
8+	12 x 24	Sprinkler	3	345	0.75	0.01	0.00	0.02	0.07	0.13	0.10	0.19	0.14	0.11	0.07	0.02	0.01	0.87	0.32	0.13	
	20 x 24	Drip	6	2,323	0.45	0.00	0.01	0.02	0.07	0.31	0.10	0.19	0.14	0.11	0.07	0.02	0.01	0.87	0.32	0.13	
4-7	20 x 24	Drip	9	5,637	0.77	0.01	0.02	0.05	0.15	0.25	0.41	0.52	0.25	0.23	0.12	0.11	0.00	2.12	0.77	0.26	
	4-7	14 x 28	Drip	4	1,688	0.78	0.02	0.06	0.05	0.18	0.26	0.35	0.44	0.22	0.24	0.14	0.04	0.01	2.01	-	-
8+	14 x 28	Drip	2	882	0.98	0.00	0.05	0.04	0.09	0.36	0.41	0.48	0.19	0.25	0.16	0.04	0.00	2.07	-	-	
	25 x 25	Drip	3	2,436	0.87	0.02	0.03	0.06	0.12	0.23	0.22	0.33	0.29	0.23	0.17	0.06	0.01	1.77	-	-	
8+	25 x 25	Drip	17	2,036	0.59	0.02	0.04	0.17	0.27	0.41	0.51	0.46	0.21	0.11	0.20	0.07	0.05	2.52	0.49	0.12	
	22 x 22	Drip	2	72	0.59	0.03	0.05	0.17	0.33	0.41	0.49	0.65	0.31	0.44	0.14	0.04	0.00	3.06	-	-	
8+	24 x 24	Drip	5	555	0.69	0.02	0.04	0.13	0.35	0.53	0.63	0.85	0.36	0.42	0.26	0.08	0.00	3.67	-	-	
	18 x 20	Drip	1	36	0.58	0.00	0.04	0.24	0.32	0.26	0.43	0.36	0.42	0.13	0.11	0.00	0.00	2.31	-	-	
8+	18 x 20	Drip	2	49	0.52	0.10	0.17	0.20	0.55	0.96	0.46	0.51	0.51	0.23	0.26	0.03	0.00	3.58	-	-	
	18 x 20	Drip	2	290	0.58	0.00	0.04	0.19	0.32	0.28	0.48	0.42	0.45	0.14	0.10	0.00	0.00	2.42	-	-	
Peaches and nectarines	4-7	12 x 24	Drip	1	8	0.58	0.00	0.00	0.01	0.04	0.05	0.14	0.12	0.24	0.02	0.00	0.00	0.62	-	-	
	8+	18 x 20	Drip	28	1,299	0.59	0.03	0.10	0.17	0.28	0.52	0.43	0.54	0.54	0.13	0.08	0.04	0.00	2.86	0.73	0.14
8+	18 x 22	Drip	8	608	0.59	0.00	0.19	0.22	0.31	1.01	0.49	0.61	0.46	0.07	0.06	0.00	0.00	3.42	0.64	0.23	
	9-12	12 x 24	Furrow	2	94	0.62	0.00	0.00	0.16	0.14	0.36	0.21	0.58	0.92	0.19	0.46	0.00	0.00	3.02	-	-
13+	12 x 24	Furrow	1	47	0.52	0.00	0.35	0.00	0.22	0.53	0.53	0.60	0.58	0.64	0.45	0.00	0.00	3.90	-	-	
	5-8	17 x 17	Sprinkler	2	649	0.52	0.00	0.00	0.33	0.09	0.50	0.38	0.53	0.59	0.31	0.37	0.00	0.07	3.17	-	-
9-12	11 x 22	Sprinkler	2	298	0.59	0.00	0.00	0.04	0.10	0.16	0.30	0.36	0.40	0.04	0.00	0.00	0.00	1.40	-	-	
	13+	17 x 17	Sprinkler	2	1,808	0.52	0.00	0.00	0.03	0.30	0.44	0.41	0.47	0.61	0.23	0.20	0.14	0.16	2.99	-	-
13+	11 x 22	Sprinkler	1	149	0.52	0.10	0.11	0.09	0.14	0.24	0.36	0.39	0.51	0.00	0.00	0.00	0.00	1.94	-	-	
	5-8	12 x 24	Drip	5	799	0.63	0.00	0.00	0.03	0.07	0.13	0.21	0.18	0.22	0.03	0.00	0.00	0.87	-	-	
5-8	11 x 22	Drip	1	218	0.58	0.00	0.00	0.12	0.08	0.12	0.34	0.24	0.29	0.03	0.02	0.02	0.00	1.26	-	-	
	9-12	11 x 22	Drip	11	2,076	0.59	0.00	0.04	0.06	0.17	0.30	0.46	0.49	0.50	0.01	0.01	0.03	0.00	2.07	0.32	0.10
9-12	12 x 24	Drip	3	437	0.66	0.01	0.04	0.06	0.06	0.13	0.14	0.25	0.25	0.00	0.00	0.00	0.00	0.94	-	-	
	Subtropical Orchard																				
Citrus	1-3	11 x 22	Sprinkler	2	197	0.66	0.00	0.08	0.00	0.17	0.26	0.20	0.53	0.36	0.16	0.00	0.00	0.00	1.76	-	-
	4-7	20 x 20	Sprinkler	2	646	0.98	0.00	0.09	0.04	0.12	0.14	0.27	0.49	0.22	0.07	0.34	0.15	0.18	2.11	-	-
8+	20 x 20	Sprinkler	11	4,702	0.70	0.03	0.04	0.08	0.16	0.25	0.45	0.46	0.43	0.31	0.30	0.16	0.10	2.77	0.65	0.20	
	4-7	18 x 22	Drip	1	223	0.58	0.00	0.04	0.02	0.08	0.09	0.14	0.18	0.20	0.09	0.16	0.00	0.04	1.04	-	-
4-7	20 x 22	Drip	1	76	0.58	0.00	0.00	0.03	0.10	0.08	0.19	0.21	0.17	0.05	0.00	0.04	0.04	0.91	-	-	
	8+	11 x 22	Drip	5	1,111	0.69	0.02	0.03	0.07	0.11	0.29	0.44	0.50	0.35	0.26	0.13	0.03	0.04	2.27	-	-
8+	16 x 18	Drip	1	22	0.66	0.00	0.00	0.00	0.09	0.31	0.22	0.23	0.20	0.25	0.10	0.00	0.00	1.40	-	-	
	8+	18 x 22	Drip	3	259	0.64	0.04	0.02	0.04	0.10	0.26	0.39	0.28	0.26	0.17	0.15	0.07	0.00	1.78	-	-
8+	20 x 20	Drip	4	189	0.59	0.04	0.03	0.07	0.16	0.35	0.27	0.29	0.27	0.15	0.20	0.08	0.04	1.92	-	-	
	8+	20 x 22	Drip	1	76	0.66	0.00	0.00	0.03	0.20	0.35	0.54	0.16	0.20	0.10	0.12	0.06	0.00	1.46	-	-
8+	22 x 22	Drip	27	1,964	0.61	0.04	0.03	0.11	0.19	0.31	0.35	0.41	0.47	0.25	0.27	0.14	0.07	2.64	0.76	0.15	
	Kiwi																				
4+	15 x 30	Drip	2	12	0.59	0.00	0.00	0.14	0.10	0.16	0.23	0.32	0.21	0.40	0.24	0.00	0.11	1.91	-	-	
	Olives																				
8+	14 x 28	Sprinkler	3	561	0.59	0.05	0.10	0.08	0.36	0.26	0.20	0.46	0.40	0.54	0.21	0.12	0.00	2.78	-	-	
	8+	15 x 30	Drip	10	1,135	0.59	0.00	0.03	0.08	0.17	0.27	0.30	0.29	0.50	0.41	0.12	0.00	0.00	2.17	0.24	0.07
Vineyard																					
3+	8 x 12	Border	1	535	0.66	0.00	0.00	0.00	1.06	0.28	1.10	0.78	0.00	0.00	0.85	0.36	0.00	4.43	-	-	
	3+	8 x 12	Sprinkler	8	428	0.59	0.00	0.00	0.16	0.22	0.44	0.53	0.54	0.41	0.10	0.19	0.06	0.00	2.65	0.79	0.28
1-2	7 x 12	Drip	1	424	0.52	0.08	0.25	0.00	0.07	0.07	0.11	0.04	0.39	0.07	0.07	0.06	0.00	1.21	-	-	
	1-2	8 x 12	Drip	2	113	0.52	0.00	0.21	0.09	0.19	0.24	0.21	0.01	0.13	0.14	0.00	0.00	1.22	-	-	
3+	7 x 12	Drip	2	184	0.56	0.00	0.10	0.09	0.25	0.24	0.41	0.51	0.25	0.03	0.03	0.00	0.00	1.91	-</		

TABLE 20
AVERAGE FIELD IRRIGATION DELIVERIES
TULARE BASIN
DAU 259

Crop	Irrigation Method	Number of Fields	Total Acres	Predominant Soil Texture	Annual Precipitation ^{1/} (ac-ft/ac)	Average Measured Field Deliveries (acres-feet/acre)												Annual Total	Standard Deviation	Standard Error
						Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
Field Crops																				
Beans (dry)	Sprinkler	2	340	L-CL	0.53	-	-	-	-	-	-	-	-	-	-	-	1.67 ^{2/}	-	-	
Cotton	Sprinkler	29	14,497	L-CL	0.86	0.01	0.20	0.38	0.10	0.27	0.55	1.02	1.04	0.01	0.00	0.00	3.58	0.50	0.09	
Cotton	Sprinkler	2	2,350	L-CL	0.53	-	-	-	-	-	-	-	-	-	-	-	3.34 ^{2/}	-	-	
Sugar beets	Sprinkler	4	11,251	L-CL	0.25	0.03	0.05	0.28	0.38	0.67	0.91	1.06	1.12	0.83	0.26	0.00	5.59	-	-	
Grains																				
Wheat and barley	Sprinkler	6	5,085	L-CL	0.31	0.24	0.23	0.31	0.66	0.28	0.03	0.00	0.00	0.00	0.00	0.04	1.79	0.51	0.21	
Wheat and barley	Sprinkler	3	3,727	L-CL	0.53	-	-	-	-	-	-	-	-	-	-	-	1.74 ^{2/}	-	-	
Truck Crops																				
Broccoli	Sprinkler	1	100	L-CL	0.57	-	-	-	-	-	-	-	-	-	-	-	1.76 ^{2/}	-	-	
Carrots	Sprinkler	2	660	L-CL	0.53	-	-	-	-	-	-	-	-	-	-	-	2.13 ^{2/}	-	-	
Lettuce (spring)	Furrow	5	1,400	L-CL	0.66	0.11	0.25	0.37	0.26	0.00	0.00	0.00	0.00	0.00	0.11 ^{3/}	0.01 ^{3/}	0.24 ^{3/}	1.35	0.00	0.00
Lettuce (fall)	Furrow	2	2,100	L-CL	0.58	0.00	0.00	0.00	0.00	0.00	0.11	0.19	0.62	0.63	0.24	0.01	0.00	1.80	0.39	0.16
Melons	Furrow	7	2,210	L-CL	0.68	0.24	0.27	0.14	0.05	0.25	0.64	0.52	0.02	0.00	0.00	0.00	0.00	2.13	0.59	0.22
Onions and garlic	Sprinkler	10	3,147	L-CL	0.52	0.17	0.21	0.25	0.52	0.65	0.40	0.07	0.12	0.02	0.06	0.30	0.17	2.94	0.93	0.29
Onions and garlic	Sprinkler	5	1,841	L-CL	0.53	-	-	-	-	-	-	-	-	-	-	-	3.06 ^{2/}	-	-	
Peas	Sprinkler	2	585	L-CL	0.56	-	-	-	-	-	-	-	-	-	-	-	1.92 ^{2/}	-	-	
Peppers	Sprinkler	1	95	L-CL	0.51	0.00	0.00	0.04	0.87	1.19	0.43	1.46	1.83	0.58	0.00	0.00	6.40	-	-	
Peppers	Sprinkler	1	95	L-CL	0.51	-	-	-	-	-	-	-	-	-	-	-	3.00 ^{2/}	-	-	
Potatoes	Sprinkler	3	578	L-CL	0.73	0.00	0.06	0.09	0.29	0.77	0.57	0.11	0.00	0.00	0.00	0.00	1.89	-	-	
Spinach	Sprinkler	1	220	L-CL	0.57	-	-	-	-	-	-	-	-	-	-	-	1.89 ^{2/}	-	-	
Tomatoes	Furrow	2	331	L-CL	0.52	0.42	0.02	0.06	0.03	0.47	0.75	0.50	0.02	0.00	0.00	0.00	2.27	-	-	
Tomatoes	Furrow	1	140	L-CL	0.51	-	-	-	-	-	-	-	-	-	-	-	2.51 ^{2/}	-	-	
Deciduous Orchard																				
Almonds (1-3 years)	Drip	1	80	L-CL	0.48	0.09	0.00	0.20	0.00	0.09	0.06	0.30	0.49	0.00	0.00	0.00	1.23	-	-	
Almonds (4-7 years)	Drip	4	320	L-CL	0.25	0.08	0.12	0.07	0.25	0.33	0.39	0.43	0.28	0.11	0.15	0.11	0.05	2.37	-	-
Almonds (8 years +)	Drip	1	80	L-CL	0.61	0.11	0.29	0.19	0.34	0.51	0.69	0.70	0.41	0.24	0.28	0.13	0.18	4.07	-	-
Almonds (1-3 years)	Sprinkler	16	8,296	L-CL	0.31	0.05	0.19	0.23	0.33	0.36	0.55	0.52	0.43	0.14	0.17	0.04	0.11	3.11	1.01	0.25
Almonds (4-7 years)	Sprinkler	45	7,994	L-CL	0.51	0.03	0.19	0.24	0.34	0.36	0.67	0.72	0.42	0.06	0.04	0.05	0.06	3.38	0.61	0.09
Almonds (8 years +)	Sprinkler	36	20,131	L-CL	0.62	0.10	0.06	0.17	0.40	0.51	0.62	0.63	0.27	0.08	0.30	0.11	0.23	3.48	0.92	0.15
Almonds (1-3 years)	Sprinkler	33	18,529	L-CL	0.53	-	-	-	-	-	-	-	-	-	-	-	4.63 ^{2/}	-	-	
Almonds (4-7 years)	Hose-pull	29	7,829	L-CL	0.44	0.03	0.09	0.11	0.22	0.27	0.30	0.29	0.25	0.18	0.09	0.05	0.04	1.92	0.65	0.06
Almonds (8 years +)	Hose-pull	32	18,503	L-CL	0.62	0.16	0.09	0.17	0.33	0.41	0.47	0.46	0.25	0.12	0.20	0.07	0.12	2.85	0.94	0.17
Almonds (1-3 years)	Hose-pull	8	764	L-CL	0.66	0.21	0.14	0.28	0.47	0.63	0.92	0.50	0.09	0.14	0.21	0.03	0.11	3.73	0.92	0.32
Almonds (4-7 years)	Hose-pull	1	89	L-CL	0.25	0.00	0.16	0.27	0.45	0.30	0.30	0.30	0.28	0.17	0.24	0.01	0.00	2.48	-	-
Almonds (8 years +)	Hose-pull	6	230	L-CL	0.47	0.15	0.08	0.30	0.24	0.36	0.36	0.35	0.42	0.35	0.18	0.02	0.08	2.89	0.71	0.29
Peaches and nectarines (4-7 years)	Drip	1	27	L-CL	0.43	0.09	0.14	0.18	0.21	0.33	0.33	0.31	0.26	0.26	0.14	0.06	0.05	2.36	0.80	0.15
Peaches and nectarines (1-3 years)	Hose-pull	27	2,853	L-CL	0.43	0.09	0.14	0.18	0.21	0.33	0.33	0.31	0.26	0.26	0.14	0.06	0.05	2.36	0.80	0.15
Peaches and nectarines (4-7 years)	Hose-pull	25	913	L-CL	0.59	0.12	0.11	0.26	0.42	0.50	0.52	0.32	0.35	0.32	0.20	0.04	0.11	3.27	1.19	0.24
Peaches and nectarines (8 years +)	Hose-pull	6	176	L-CL	0.45	0.22	0.00	0.29	0.27	0.46	0.64	0.36	0.46	0.52	0.00	0.00	0.22	3.34	1.30	0.53
Peaches and nectarines (1-3 years)	Furrow	3	30	L-CL	0.47	0.10	0.11	0.27	0.50	0.58	0.35	0.29	0.24	0.27	0.09	0.00	0.00	2.80	-	-
Peaches and nectarines (4-7 years)	Furrow	1	10	L-CL	0.31	0.44	0.53	0.80	1.59	0.35	0.66	0.88	0.88	0.44	0.44	0.00	0.00	7.01	-	-
Pecans (1-3 years)	Sprinkler	1	50	L-CL	0.51	-	-	-	-	-	-	-	-	-	-	-	2.66 ^{2/}	-	-	
Pistachios (1-4 years)	Hose-pull	2	22	L-CL	0.33	0.00	0.16	0.24	0.32	0.32	0.64	0.36	0.59	0.48	0.24	0.00	0.00	3.35	-	-
Pistachios (5-8 years)	Hose-pull	4	44	L-CL	0.61	0.00	0.10	0.12	0.28	0.46	0.68	0.50	0.35	0.24	0.08	0.02	0.17	2.80	-	-
Pistachios (9-12 years)	Hose-pull	4	1,844	L-CL	0.56	0.04	0.00	0.09	0.29	0.34	0.35	0.47	0.48	0.03	0.17	0.15	0.13	2.54	-	-
Pistachios (1-4 years)	Drip	28	10,404	L-CL	0.46	0.03	0.10	0.20	0.17	0.19	0.26	0.27	0.22	0.03	0.01	0.00	0.01	1.49	0.77	0.15
Pistachios (5-8 years)	Drip	27	18,907	L-CL	0.66	0.02	0.02	0.05	0.12	0.17	0.23	0.24	0.24	0.06	0.09	0.06	0.07	1.37	0.68	0.13
Pistachios (9-12 years)	Drip	1	812	L-CL	0.51	-	-	-	-	-	-	-	-	-	-	-	0.45 ^{2/}	-	-	
Pistachios (1-4 years)	Hose-pull	34	6,958	L-CL	0.54	-	-	-	-	-	-	-	-	-	-	-	1.60 ^{2/}	0.25	0.04	
Pistachios (5-8 years)	Hose-pull	6	492	L-CL	0.27	0.06	0.14	0.19	0.21	0.43	0.43	0.48	0.30	0.41	0.20	0.12	0.00	2.97	0.94	0.39
Pistachios (9-12 years)	Hose-pull	7	659	L-CL	0.38	0.16	0.19	0.29	0.33	0.50	0.48	0.40	0.39	0.41	0.21	0.02	0.00	3.38	0.61	0.23
Pistachios (1-4 years)	Hose-pull	6	636	L-CL	0.65	0.07	0.14	0.20	0.33	0.46	0.50	0.40	0.30	0.45	0.17	0.02	0.09	3.13	0.69	0.28
Subtropical Orchard																				
Citrus (4-7 years)	Drip	6	251	L-CL	0.65	0.01	0.04	0.06	0.10	0.15	0.16	0.17	0.39	0.21	0.14	0.08	0.00	1.51	0.57	0.23
Citrus (8 years +)	Drip	8	168	L-CL	0.62	0.01	0.03	0.06	0.15	0.14	0.28	0.39	0.89	0.21	0.32	0.05	0.10	2.63	0.81	0.28
Citrus (1-3 years)	Sprinkler	3	769	L-CL	0.50	0.00	0.00	0.15	0.14	0.40	0.38	0.39	0.30	0.34	0.17	0.11	0.00	2.38	-	-
Citrus (4-7 years)	Hose-pull	39	4,743	L-CL	0.38	0.00	0.07	0.11	0.18	0.31	0.27	0.23	0.28	0.17	0.19	0.06	0.00	1.87	0.59	0.09
Citrus (8 years +)	Hose-pull	47	6,147	L-CL	0.47	0.02	0.08	0.13	0.20	0.30	0.33	0.32	0.36	0.32	0.19	0.10	0.01	2.36	0.75	0.11
Olives (1-3 years)	Hose-pull	17	2,706	L-CL	0.72	0.02	0.08	0.08	0.19	0.44	0.54	0.45	0.49	0.37	0.24	0.16	0.04	3.10	0.79	0.19
Olives (4-7 years)	Hose-pull	8	1,161	L-CL	0.21	0.01	0.07	0.09	0.09	0.20	0.22	0.25	0.22	0.12	0.14	0.10	0.00	1.51	0.36	0.13
Olives (8 years +)	Hose-pull	21	3,009	L-CL	0.43	0.00	0.15	0.22	0.28	0.34	0.36	0.40	0.38	0.29	0.11	0.05	0.05	2.63	0.51	0.11
Olives (1-3 years)	Hose-pull	16	2,175	L-CL	0.77	0.01	0.10	0.13	0.27	0.38	0.45	0.45	0.41	0.21	0.12	0.16	0.19	2.88	0.35	0.09
Vineyard																				
1-2 years	Drip	2	144	L-CL	0.90	0.00	0.00	0.02	0.02	0.02	0.19	0.16	0.14	0.05	0.00	0.00	0.62	-	-	
1-2 years +	Sprinkler	2	800	L-CL	0.48	0.53	0.60	0.20	0.02	0.20	0.51	0.64	0.23	0.00	0.00	0.00	2.93	-	-	
3 years +	Furrow	12	1,458	L-CL	0.61	0.05	0.02	0.05												

TABLE 21
AVERAGE FIELD IRRIGATION DELIVERIES FOR TREES AND VINES
TULARE BASIN
DAU-259

Crop	Age (years)	Plant Spacing (feet)	Irrigation Method	Number of Fields	Total Acres	Annual Precipitation (ac-ft/ac)	Average Measured Field Deliveries (acre-feet/acre)												Annual Total	Standard Deviation	Standard Error
							Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
Deciduous Orchard																					
Almonds	1-3	20 x 20	Drip	1	80	0.48	0.09	0.00	0.20	0.00	0.09	0.06	0.30	0.49	0.00	0.00	0.00	1.23	-	-	
	4-7	20 x 23	Drip	4	320	0.25	0.08	0.12	0.07	0.25	0.33	0.39	0.43	0.28	0.11	0.15	0.11	0.05	2.37	-	-
	8+	20 x 23	Drip	1	80	0.61	0.11	0.29	0.19	0.34	0.51	0.69	0.70	0.41	0.24	0.28	0.13	0.18	4.07	-	-
	4-7	20 x 23	Sprinkler	16	8,296	0.31	0.05	0.19	0.23	0.33	0.35	0.55	0.52	0.43	0.14	0.17	0.04	0.11	3.11	1.01	0.25
	8+	20 x 23	Sprinkler	45	7,994	0.51	0.03	0.19	0.24	0.34	0.56	0.67	0.72	0.42	0.06	0.04	0.05	0.06	3.38	0.61	0.09
	8+	20 x 23	Sprinkler	31	320	0.36	0.13	0.00	0.00	0.28	0.64	0.87	0.91	0.41	0.17	0.32	0.34	0.29	4.36 ^{2/}	-	-
	8+	24 x 21	Sprinkler	5	16,829	0.53	0.27	0.11	0.29	0.49	0.61	0.66	0.70	0.27	0.25	0.35	0.10	0.00	4.10	0.35	0.06
	8+	24 x 24	Sprinkler	19	7,200	0.63	0.05	0.19	0.20	0.26	0.46	0.52	0.57	0.26	0.00	0.24	0.16	0.20	3.11	0.53	0.22
	8+	24 x 24	Sprinkler	2	1,700	0.54	0.12	0.03	0.20	0.36	0.45	0.58	0.48	0.17	0.12	0.30	0.05	0.20	3.06 ^{2/}	0.57	0.13
	8+	25 x 25	Sprinkler	9	2,501	0.64	0.08	0.04	0.10	0.57	0.60	0.66	0.86	0.44	0.01	0.32	0.14	0.25	4.08	1.32	0.44
	1-3	22 x 24	Hose-pull sprinkler	1	152	0.25	0.00	0.13	0.11	0.40	0.37	0.36	0.42	0.41	0.35	0.00	0.23	0.00	2.78	-	-
	4-7	22 x 24	Hose-pull	3	456	0.35	0.27	0.11	0.29	0.49	0.61	0.66	0.70	0.27	0.25	0.35	0.10	0.00	4.10	-	-
	8+	22 x 24	Hose-pull	8	764	0.66	0.21	0.14	0.28	0.47	0.63	0.92	0.50	0.09	0.14	0.21	0.03	0.11	3.73	0.92	0.32
1-3	24 x 24	Hose-pull	28	7,672	0.44	0.03	0.08	0.10	0.21	0.26	0.28	0.27	0.23	0.17	0.09	0.04	0.14	1.80	0.63	0.12	
4-7	24 x 24	Hose-pull	30	16,047	0.63	0.15	0.09	0.15	0.30	0.38	0.43	0.42	0.24	0.10	0.18	0.07	0.13	2.64	0.86	0.16	
Apricots	1-3	20 x 20	Sprinkler	1	89	0.25	0.00	0.16	0.27	0.45	0.30	0.30	0.30	0.28	0.17	0.24	0.01	0.00	2.48	-	-
Nectarines and peaches	4-7	20 x 20	Drip	6	230	0.47	0.15	0.08	0.30	0.24	0.36	0.36	0.35	0.42	0.35	0.18	0.02	0.08	2.89	0.71	0.29
	1-3	20 x 20	Hose-pull	27	2,853	0.43	0.09	0.14	0.18	0.21	0.33	0.33	0.31	0.26	0.26	0.14	0.06	0.05	2.36	0.80	0.15
	4-7	20 x 20	Hose-pull	25	913	0.59	0.12	0.11	0.26	0.42	0.50	0.52	0.32	0.35	0.32	0.20	0.04	0.11	3.27	1.19	0.24
	8+	20 x 20	Hose-pull	6	176	0.45	0.22	0.00	0.29	0.27	0.46	0.54	0.36	0.46	0.52	0.00	0.00	0.22	3.34	1.30	0.53
	1-3	20 x 20	Furrow	3	30	0.47	0.10	0.11	0.27	0.50	0.58	0.35	0.29	0.24	0.27	0.09	0.00	0.00	2.80	-	-
4-7	20 x 20	Furrow	1	10	0.31	0.44	0.53	0.80	1.59	0.35	0.66	0.88	0.88	0.44	0.44	0.00	0.00	7.01	-	-	
Pistachios	1-4	15 x 22	Drip	5	4,321	0.41	0.02	0.05	0.03	0.04	0.04	0.05	0.07	0.04	0.02	0.01	0.00	0.01	0.38	-	-
	1-4	18 x 19	Drip	23	6,083	0.50	0.03	0.11	0.24	0.20	0.22	0.30	0.31	0.26	0.04	0.01	0.00	0.01	1.73	0.63	0.13
	1-4	16 x 19	Drip	1	812	0.51	-	-	-	-	-	-	-	-	-	-	-	-	0.45 ^{2/}	-	-
	5-8	15 x 22	Drip	21	17,465	0.65	0.02	0.02	0.04	0.12	0.14	0.19	0.22	0.22	0.06	0.10	0.07	0.09	1.29	0.69	0.15
	5-8	16 x 19	Drip	6	1,442	0.83	0.00	0.01	0.08	0.14	0.29	0.38	0.31	0.30	0.07	0.02	0.01	0.01	1.62 ^{2/}	0.65	0.26
	5-8	16 x 19	Drip	34	6,958	0.54	-	-	-	-	-	-	-	-	-	-	-	-	1.65 ^{2/}	0.25	0.04
	1-4	15 x 22	Hose-pull	2	22	0.33	0.00	0.16	0.24	0.32	0.32	0.64	0.36	0.59	0.48	0.24	0.00	0.00	3.35	-	-
	5-8	15 x 22	Hose-pull	4	44	0.61	0.00	0.10	0.12	0.28	0.46	0.48	0.50	0.35	0.24	0.08	0.02	0.17	2.80	-	-
	9-12	15 x 22	Hose-pull	4	1,844	0.56	0.04	0.00	0.09	0.29	0.34	0.35	0.47	0.48	0.03	0.17	0.15	0.13	2.54	-	-
	Plums	1-3	16 x 20	Hose-pull	6	492	0.27	0.06	0.14	0.19	0.21	0.43	0.43	0.48	0.30	0.41	0.20	0.12	0.00	2.97	0.94
4-7	16 x 20	Hose-pull	7	669	0.38	0.16	0.19	0.29	0.33	0.50	0.48	0.40	0.39	0.41	0.21	0.02	0.00	3.38	0.61	0.23	
8+	16 x 20	Hose-pull	6	636	0.65	0.07	0.14	0.20	0.33	0.66	0.50	0.40	0.30	0.45	0.17	0.02	0.09	3.13	0.69	0.28	
Subtropical Orchard																					
Citrus	4-7	24 x 24	Drip	4	228	0.66	0.01	0.04	0.04	0.10	0.11	0.12	0.11	0.44	0.13	0.09	0.05	0.00	1.24	-	-
	4-7	14 x 28	Drip	2	23	0.54	0.00	0.04	0.09	0.12	0.23	0.24	0.28	0.30	0.36	0.24	0.13	0.00	2.03	-	-
	8+	20 x 24	Drip	2	96	0.56	0.00	0.00	0.00	0.18	0.20	0.19	0.73	0.32	0.12	0.64	0.12	0.21	2.71	-	-
	8+	14 x 28	Drip	6	72	0.70	0.01	0.05	0.08	0.14	0.12	0.32	0.28	1.09	0.24	0.21	0.02	0.00	2.56	0.93	0.38
	1-3	11 x 22	Sprinkler	3	769	0.50	0.00	0.00	0.15	0.14	0.40	0.38	0.39	0.30	0.34	0.17	0.11	0.00	2.10	-	-
	1-3	11 x 22	Hose-pull	6	953	0.36	0.00	0.09	0.11	0.23	0.30	0.28	0.27	0.32	0.25	0.14	0.11	0.00	2.10	0.39	0.16
	1-3	12 x 24	Hose-pull	2	278	0.15	0.00	0.03	0.09	0.27	0.43	0.36	0.36	0.31	0.29	0.27	0.00	0.00	2.41	-	-
	1-3	18 x 22	Hose-pull	20	3,058	0.60	0.00	0.07	0.12	0.16	0.32	0.28	0.22	0.31	0.14	0.21	0.06	0.00	1.89	0.60	0.13
	1-3	14 x 28	Hose-pull	3	46	0.21	0.00	0.13	0.13	0.25	0.20	0.17	0.18	0.22	0.16	0.17	0.02	0.00	1.60	0.51	0.18
	4-7	24 x 24	Hose-pull	8	408	0.42	0.00	0.06	0.08	0.14	0.30	0.27	0.18	0.41	0.37	0.24	0.10	0.01	2.63	0.66	0.17
	4-7	11 x 22	Hose-pull	16	2,616	0.44	0.04	0.08	0.11	0.24	0.31	0.36	0.36	0.41	0.37	0.24	0.10	0.01	2.47	-	-
	4-7	12 x 24	Hose-pull	4	556	0.49	0.00	0.09	0.06	0.10	0.37	0.30	0.25	0.17	0.30	0.18	0.15	0.00	1.97	-	-
	4-7	18 x 22	Hose-pull	16	2,537	0.51	0.02	0.07	0.16	0.23	0.29	0.35	0.35	0.37	0.32	0.16	0.13	0.02	2.47	0.82	0.21
	4-7	14 x 28	Hose-pull	6	69	0.48	0.00	0.10	0.07	0.13	0.30	0.24	0.25	0.38	0.20	0.17	0.06	0.00	1.90	0.51	0.21
	4-7	24 x 24	Hose-pull	5	364	0.43	0.00	0.07	0.17	0.21	0.21	0.27	0.24	0.23	0.32	0.16	0.04	0.03	1.95	-	-
	8+	11 x 22	Hose-pull	8	1,418	0.69	0.05	0.08	0.10	0.20	0.55	0.56	0.50	0.52	0.46	0.20	0.12	0.01	3.35	0.83	0.29
	8+	12 x 24	Hose-pull	3	417	0.70	0.00	0.05	0.10	0.17	0.31	0.52	0.39	0.47	0.32	0.29	0.17	0.01	2.80	-	-
	8+	18 x 22	Hose-pull	4	665	0.76	0.00	0.10	0.00	0.20	0.46	0.63	0.49	0.53	0.31	0.32	0.18	0.05	3.27	-	-
8+	24 x 24	Hose-pull	2	206	0.90	0.00	0.12	0.11	0.18	0.16	0.36	0.27	0.35	0.20	0.17	0.28	0.15	2.35	-	-	
Olives	1-3	14 x 28	Hose-pull	8	1,161	0.21	0.01	0.07	0.09	0.09	0.20	0.22	0.25	0.22	0.12	0.14	0.10	0.00	1.61	0.36	0.13
	4-7	14 x 28	Hose-pull	21	3,009	0.43	0.00	0.15	0.22	0.28	0.34	0.36	0.40	0.38	0.29	0.11	0.05	0.05	2.63	0.51	0.11
	8+	14 x 28	Hose-pull	16	2,175	0.77	0.01	0.10	0.13	0.27	0.38	0.45	0.45	0.41	0.21	0.12	0.16	0.19	2.88	0.35	0.09
Vineyard	1-2	8 x 12	Drip	2	144	0.90	0.00	0.00	0.02	0.02	0.02	0.19	0.16	0.14	0.05	0.00	0.02	0.00	0.62	-	-
	1-2	7.5 x 12	Sprink																		

Appendix B

Irrigation Pump Energy Requirement Calculations

Irrigation Pump Energy Requirement Calculations												
Constants:												
	43,560 sq-ft per acre											
	43,560 cu-ft per acre ft											
	7.4805 gal per cu-ft											
	5.0505E-07 hp-hr per ft-lbf											
	62.4 lb/cu-ft water											
Water Requirement Data:												
Water Required (acre-feet/acre per Quarter)												
Quarter 1	134.1	acre-feet x	43,560	sq-ft/acre =	5,841,396	cu-ft/qtr						
Quarter 2	345.1	acre-feet x	43,560	sq-ft/acre =	15,032,556	cu-ft/qtr						
Quarter 3	505.5	acre-feet x	43,560	sq-ft/acre =	22,019,580	cu-ft/qtr						
Quarter 4	533.8	acre-feet x	43,560	sq-ft/acre =	23,252,328	cu-ft/qtr						
Water Distribution System Data												
Pumping Rate	2,000	gal/min /	7.4805	cu-ft/gal x	60	min/hr =	16,041.7	cu-ft/hr				
Water Table Data												
Groundwater Depth	372.0	feet	water table depth below ground surface									
Water Level Depression	61.0	feet	amount water table depresses when water is being pumped									
Surface Discharge Pressure	46.8	feet	head at pump discharge									
Pipe Head Loss	9.0	feet	pressure loss in pipes due to friction									
Total Pumping Head	488.80	feet	sum of total pumping pressure required									
Mechanical Data												
Pump Efficiency	64.4468	%										
Gearhead/Shaft Efficiency	95	%										
Line Shaft Efficiency	98	%										
Overall System Efficiency	0.600000		High Plains Underground Water Conservation District No. 1*									
Horsepower Required												
For System	16,041.7	cu-ft/hr x	62.4	lb/cu-ft x	488.8	ft x	5.051E-07	hp / (ft-lb/hr) /	0.60000	(eff) =	411.9	hp
Quarterly Irrigation System Output												
Quarter 1	5,841,396	cu-ft x	488.80	ft x	62.4	lb/cu-ft x	5.0505E-07	hp-hr/ft-lb /	0.6000	(eff) =	149,974	hp-hr
Quarter 2	15,032,556	cu-ft x	488.80	ft x	62.4	lb/cu-ft x	5.0505E-07	hp-hr/ft-lb /	0.6000	(eff) =	385,951	hp-hr
Quarter 3	22,019,580	cu-ft x	488.80	ft x	62.4	lb/cu-ft x	5.0505E-07	hp-hr/ft-lb /	0.6000	(eff) =	565,338	hp-hr
Quarter 4	23,252,328	cu-ft x	488.80	ft x	62.4	lb/cu-ft x	5.0505E-07	hp-hr/ft-lb /	0.6000	(eff) =	596,988	hp-hr

*According to the High Plains Underground Water Conservation District No. 1 of Lubbock Texas, after testing more than 400 wells, efficiencies for natural gas powered pumps are as high as 61%. The Panhandle Groundwater Conservation District, Irrigation Pump Efficiency Testing Department, in White Deer Texas indicates that typical pump efficiencies include gearhead losses and range from 50-60%. Since the range of 50-60% appears to be the industry standard, this value will be accepted as representative of this pumping unit. Therefore, for the purpose of this evaluation, the conservative value of 60% efficiency for the entire pumping unit will be used.

Appendix C

Carl Moyer Emission Factors

NOx FACTORS OFF-ROAD		
MODEL YEAR	HORSEPOWER	G/BHP-HR
1987 and earlier	50 - 120	13.00
	121 and greater	11.00
1988 - 1995	50 - 120	8.75
	121 and greater	8.17
1996 - 2000	50 - 750	6.90
2001 and later	50 - 174	6.90
	175 - 750	6.90
	751 and greater	6.90

PM FACTORS OFF-ROAD		
HORSEPOWER	MODEL YEAR	G/BHP-HR
50 - 120	1987 and earlier	0.44
	1988 - 2003	0.69
	2004	0.39
	2005	0.29
121 - 175	1969 and earlier	0.77
	1970 - 1971	0.66
	1972 - 1987	0.55
	1988 - 2002	0.38
	2003	0.24
	2004	0.19
176 - 250	1969 and earlier	0.77
	1970 - 1971	0.66
	1972 - 1987	0.55
	1988 - 2002	0.38
	2003	0.24
	2004	0.19
251 - 500	1969 and earlier	0.74
	1970 - 1971	0.63
	1972 - 1987	0.53
	1988 - 1995	0.38
	1996 - 2000	0.15
	2001	0.12
501 - 750	1969 and earlier	0.74
	1970 - 1971	0.63
	1972 - 1987	0.53
	1988 - 1995	0.38
	1996 - 2001	0.15
	2002	0.12
751 and greater	1969 and earlier	0.74
	1970 - 1971	0.63
	1972 - 1987	0.53
	1988 - 1999	0.38
	2000 - 2005	0.15

Default Projectile Air Pumps		
Model	Without Documentation	With Documentation
Agri Pump Model 1500/1500	0.15	0.15

Appendix D
1987 Emissions Inventory Data



TABLE II
FARM EQUIPMENT
DIESEL COMBUSTION EMISSIONS
CES - 81927

EMISSION UNITS: TONS/YEAR
PROCESS RATE UNITS: 1000 HORSEPOWER-HOUR/YEAR

AIR BASIN	COUNTY	PROCESS RATE	CO EMISSIONS (TONS/YEAR)	HC EMISSIONS (TONS/YEAR)	NOX EMISSIONS (TONS/YEAR)	SOX EMISSIONS (TONS/YEAR)	PM EMISSIONS (TONS/YEAR)
GBV	INYO	10187	18.70	109.80	147.40	11.80	12.40
	MONO	12181	22.10	122.80	174.80	13.80	14.80
LC	LAKE	15261	20.20	78.70	185.10	16.30	8.40
MC	AMADOR	19466	25.70	100.40	235.90	20.70	10.70
	CALAVERAS	339	1.00	2.00	4.00	0.10	0.10
	EL DORADO	15446	11.00	12.00	121.00	25.00	13.00
	GEYER	10243	13.00	12.00	111.00	11.00	7.00
	ELIASSA	10880	7.10	12.00	111.00	11.00	7.00
	SIERRA	10892	14.00	12.00	111.00	11.00	7.00
	YOUBA	20209	28.70	104.30	245.10	21.50	11.10
NC	DEL NORTE	2057	3.00	14.70	34.60	3.00	1.60
	ELDORADO	12113	13.70	12.00	121.00	11.00	7.00
	SCHUPLICINO	12113	13.70	12.00	121.00	11.00	7.00
	FRANKLIN	12113	13.70	12.00	121.00	11.00	7.00
	TRINITY	12113	13.70	12.00	121.00	11.00	7.00
NCC	MONTEBEY	12365	163.60	68.10	1492.80	131.70	68.70
	SAN BENITO	1591	2.10	2.00	19.80	1.70	0.90
	SANTA CRUZ	1591	2.10	2.00	19.80	1.70	0.90
NEP	LASSEN	17331	25.70	100.40	235.90	20.70	10.70
	SISKIYOU	25405	110.30	436.30	1011.50	88.60	43.00
SC	LOS ANGELES	25154	33.30	123.80	305.10	26.80	13.80
	ORANGE	2772	3.00	14.70	34.60	3.00	1.60
	SAN BERNARDINO	18472	29.70	112.00	274.50	13.80	10.80
	SAN BERNARDINO	4857	6.40	25.00	58.90	5.70	2.70
SCC	SAN LUIS OBISPO	12251	171.40	69.20	1570.20	128.00	71.20
	SANTA BARBARA	12251	171.40	69.20	1570.20	128.00	71.20
	VENTURA	12251	171.40	69.20	1570.20	128.00	71.20
SD	SAN DIEGO	15783	20.90	81.40	191.40	16.80	8.70
SED	IMPERIAL	64081	81.80	310.60	777.10	60.70	29.70
	LEWIS	50421	7.00	31.00	77.00	7.00	3.00
	LOS ANGELES	1159	1.50	5.00	13.00	1.00	0.50
	SAN BERNARDINO	1159	1.50	5.00	13.00	1.00	0.50
SF	ALAMEDA	28577	27.20	106.20	249.60	21.20	11.30
	CONTRA COSTA	15893	16.50	102.80	181.80	11.70	6.00
	MARIN	15893	16.50	102.80	181.80	11.70	6.00
	NAPA	15893	16.50	102.80	181.80	11.70	6.00
	SAN MATEO	15893	16.50	102.80	181.80	11.70	6.00
	SANTA CLARA	15893	16.50	102.80	181.80	11.70	6.00
SJV	FRESNO	116315	295.20	1116.10	2872.30	220.40	112.70
	KINGS	48743	46.10	171.00	421.00	32.00	15.00
	CLATSOP	101242	112.30	421.00	1021.00	72.00	32.00
	CLATSOP	101242	112.30	421.00	1021.00	72.00	32.00
	SAN JUANIN	101242	112.30	421.00	1021.00	72.00	32.00
	SAN JUANIN	101242	112.30	421.00	1021.00	72.00	32.00
	SAN JUANIN	101242	112.30	421.00	1021.00	72.00	32.00
	YUBA	134217	180.20	702.80	1652.00	145.10	73.10
SV	BUTTE	47766	63.20	246.50	579.30	50.70	25.30
	COLUSA	47766	63.20	246.50	579.30	50.70	25.30
	ELIASSA	47766	63.20	246.50	579.30	50.70	25.30
	ELIASSA	47766	63.20	246.50	579.30	50.70	25.30
	ELIASSA	47766	63.20	246.50	579.30	50.70	25.30
	ELIASSA	47766	63.20	246.50	579.30	50.70	25.30
	ELIASSA	47766	63.20	246.50	579.30	50.70	25.30
	ELIASSA	47766	63.20	246.50	579.30	50.70	25.30
	ELIASSA	47766	63.20	246.50	579.30	50.70	25.30
	ELIASSA	47766	63.20	246.50	579.30	50.70	25.30
	ELIASSA	47766	63.20	246.50	579.30	50.70	25.30
TOTAL			3447.10	13444.65	31601.63	2775.30	1436.89

TABLE III

EQUIPMENT POPULATION AND FACTORS
FOR 1987 FARM EQUIPMENT
GASOLINE COMBUSTION

EQUIPMENT TYPE (AVG. HRS/YR)	POPULATION(LOAD FACTOR)				
	<60HP	51-120HP	121-240HP	241-480HP	>480HP
AGTRACTOR(200)	3086(0.67)	18898(0.58)	1352(0.58)	0(0.53)	0(0.00)
BALER(140)	296(0.43)	6473(0.37)	0(0.37)	0(0.33)	0(0.00)
COMBINE(156)	72(0.54)	14597(0.47)	2928(0.47)	268(0.42)	0(0.00)
MOWER(102)	44286(0.43)	1384(0.37)	0(0.33)	0(0.30)	0(0.00)
OTHER(161)	4318(0.62)	4777(0.53)	1583(0.53)	606(0.49)	0(0.00)
TOTAL	52058	46129	5863	874	0

TABLE IV

EQUIPMENT POPULATION AND FACTORS
FOR 1987 FARM EQUIPMENT
DIESEL COMBUSTION

EQUIPMENT TYPE (AVG. HRS/YR)	POPULATION(LOAD FACTOR)				
	<60HP	61-120HP	121-240HP	241-480HP	>480HP
AGTRACTOR(463)	16493(0.48)	16341(0.55)	31512(0.60)	358(0.53)	0(0.00)
BALER(163)	791(0.25)	230(0.29)	0(0.32)	0(0.29)	0(0.00)
COMBINE(230)	5077(0.32)	3746(0.37)	5179(0.41)	44(0.36)	0(0.00)
MOWER(85)	527(0.27)	0(0.30)	0(0.34)	0(0.30)	0(0.00)
OTHER(436)	3458(0.43)	2728(0.50)	6475(0.55)	36(0.48)	0(0.00)
TOTAL	26356	23046	43166	437	0

TABLE V
FACTORS FOR ALLOCATING FARM EQUIPMENT EMISSIONS TO COUNTIES

	HARVEST ACREAGE
ALAMEDA	215924
ALPINE	0
AMADOR	204137
BUTTE	601100
CALAVERAS	4161
COLUSA	424714
CONTRA COSTA	200724
DEL NORTE	29975
EL DORADO	252709
FRESNO	2209600
GLENN	443913
HUMBOLT	342200
IMPERIAL	672374
INYO	212019
KERN	2030453
KINGS	721317
LAKE	100124
LASSEN	490734
LOS ANGELES	209311
MADERA	754321
MARIN	150320
MARIPOSA	0
MENDOCINO	607921
MERCED	1005013
MODOC	432030
MONO	127007
MONTEREY	1207356
NAPA	150177
NEVADA	100573
ORANGE	60769
PLACER	209200
PLUMAS	114250
RIVERSIDE	204749
SACRAMENTO	250100
SAN BENITO	501646
SAN BERNARDINO	02915
SAN DIEGO	105002
SAN FRANCISCO	0
SAN JOAQUIN	630909
SAN LUIS OBISPO	1350106
SAN MATEO	30050
SANTA BARBARA	001429
SANTA CLARA	203304
SANTA CRUZ	10002
SHASTA	490110
SIERRA	01040
SISKIYOU	075123
SOLANO	303375
SONOMA	470300
STANISLAUS	770330
SUTTER	300077
TEHAMA	1010440
TRINITY	41504
TULARE	1429250
TUOLUMNE	212044
VENTURA	430310
YOLO	443071
YUBA	270455
TOTAL	27,341,187

Appendix E
1999 Emissions Inventory Data



NC_EIC_SUB

EMISSIONS FOR AGGREGATED STATIONARY, AREA-WIDE, MOBILE, AND NATURAL SOURCES
DATABASE - 1999CATGFCO
(DISTRICT)

EIC (CES)	SOURCE CATEGORY (MATERIAL TYPE)	PROCESS RATE UNIT	PROCESS RATE	***** EMISSIONS (TONS/ANNUAL AVERAGE DAY) *****						
				TOG	ROG	CO	NOX	SOX	PM	PM10

COUNTY : FRESNO	FOOD AND AGRICULTURAL PROCESSING									
052-042-1200-0000 (83998)	AG. IRRIGATION I.C. ENGINES [DIESEL/DISTILLATE OIL (UNSPECI)]	1000 HORSEPOWER-HR	223640.00	.58	.51	2.78	9.52	.88	.90	.86
COUNTY : KERN	FOOD AND AGRICULTURAL PROCESSING									
052-042-1200-0000 (83998)	AG. IRRIGATION I.C. ENGINES [DIESEL/DISTILLATE OIL (UNSPECI)]	1000 HORSEPOWER-HR	182554.00	.60	.52	2.24	7.78	.62	.70	.67
COUNTY : KINGS	FOOD AND AGRICULTURAL PROCESSING									
052-042-1200-0000 (83998)	AG. IRRIGATION I.C. ENGINES [DIESEL/DISTILLATE OIL (UNSPECI)]	1000 HORSEPOWER-HR	83941.00	.20	.18	1.02	3.58	.32	.38	.36
COUNTY : MADERA	FOOD AND AGRICULTURAL PROCESSING									
052-042-1200-0000 (83998)	AG. IRRIGATION I.C. ENGINES [DIESEL/DISTILLATE OIL (UNSPECI)]	1000 HORSEPOWER-HR	65157.00	.18	.15	.78	2.78	.22	.25	.24
COUNTY : MERCED	FOOD AND AGRICULTURAL PROCESSING									
052-042-1200-0000 (83998)	AG. IRRIGATION I.C. ENGINES [DIESEL/DISTILLATE OIL (UNSPECI)]	1000 HORSEPOWER-HR	42848.00	.13	.11	.48	1.82	.16	.17	.16
COUNTY : SAN JOAQUIN	FOOD AND AGRICULTURAL PROCESSING									
052-042-1200-0000 (83998)	AG. IRRIGATION I.C. ENGINES [DIESEL/DISTILLATE OIL (UNSPECI)]	1000 HORSEPOWER-HR	64572.00	.17	.15	.80	2.75	.22	.25	.24
COUNTY : STANISLAUS	FOOD AND AGRICULTURAL PROCESSING									
052-042-1200-0000 (83998)	AG. IRRIGATION I.C. ENGINES [DIESEL/DISTILLATE OIL (UNSPECI)]	1000 HORSEPOWER-HR	17613.00	.04	.04	.22	.75	.06	.07	.07
COUNTY : TULARE	FOOD AND AGRICULTURAL PROCESSING									
052-042-1200-0000 (83998)	AG. IRRIGATION I.C. ENGINES [DIESEL/DISTILLATE OIL (UNSPECI)]	1000 HORSEPOWER-HR	79245.00	.64	.56	1.14	3.38	.17	.20	.19

Total			759,570,000 (hp-hr)	2.54	2.22	9.46	32.36	2.65	2.92	2.79 (ton/day)

Appendix F
Diesel Engine Retirement Agreement



Diesel Engine Retirement Agreement

ERC Project C-1011235

This agreement is made between O'Neill Farming, Valley Air Conditioning and Repair, and the San Joaquin Valley Unified Air Pollution Control District (the "District") (collectively, the "Parties"). The Effective Date of this Agreement shall be the date of acceptance by the District. This Agreement shall cover all engines and electric motors used for irrigating the land area described as: SE Quarter Section 4, Township 18S, Range 17E (the "Service Area"). Service Area includes 786 acres, fields 4-1, 4-2, 4-A2, 4-2N, 4-2S, 4-3 and 4-4.

RECITALS

WHEREAS, the District is a duly formed governmental entity responsible for achieving and maintaining clean air quality in the San Joaquin Valley;

WHEREAS, pursuant to California Health and Safety Code sections 40709 through 40714.5, the District has adopted Rules and Regulations providing for the creation and use of emission reduction credits ("ERCs") which are real, surplus, quantifiable, permanent and enforceable.

WHEREAS, O'Neill Farming proposes to have its existing engine(s) in Service Area replaced with non-polluting electric motors;

WHEREAS, O'Neill Farming enters this agreement for the purpose of generating emissions reductions within the San Joaquin Valley Air Basin and to create ERCs to be banked with District;

WHEREAS, Valley Air Conditioning and Repair seeks to create ERCs through this agreement for its benefit and for the benefit of air quality in the region by reducing emissions from agricultural equipment which is currently exempt from the requirement of having a written permit;

NOW, THEREFORE, the Parties hereto agree as follows:

AGREEMENT

- 1.0 District agrees that O'Neill Farming and Valley Air Conditioning and Repair are voluntarily reducing air pollution by replacing Existing Engine(s) with electric motor(s) for the purpose of creating ERCs, and District is aware of no regulatory impediment, existing or pending, which would prevent the use of ERCs generated pursuant to this Agreement.
- 2.0 O'Neill Farming agrees to replace all of its existing irrigation engines as identified in Exhibit A, which irrigates Service Area as identified in Exhibit B, attached hereto and incorporated herein, with new, non-polluting electric motor(s) provided by Valley Air Conditioning and Repair.
- 3.0 District agrees to issue ERCs to Valley Air Conditioning and Repair for actual emission reductions as quantified by the District in accordance with District Rules and Regulations. 80% of the Bankable ERCs will be issued pending a successful Public Noticing period. The remaining 20% will be issued or withheld, partially or in full, pending a site-specific validation of the assumptions made in evaluating the Baseline Emissions.
- 4.0 O'Neill Farming agrees to acquire a Permit to Operate for the irrigation system which irrigates the Service Area covered by this agreement from the District, and to maintain the Permit to Operate until the Permit to Operate is permanently relieved or replaced in writing by the District.
- 5.0 Valley Air Conditioning and Repair and O'Neill Farming agree that the post-project irrigation system serving the Service Area will be fitted with a non-resettable kilowatt-hour meter.

- 6.0 O'Neill Farming agrees to maintain records of monthly kilowatt-hour use of the irrigation system serving the Service Area for a period of at least 12 months (Validation Period). The District will use said records to validate the baseline emissions prior to issuing any or all of the final 20% of the Bankable ERCs.
- 7.0 O'Neill Farming represents and warrants that it owns the land upon which the Existing Engine(s) are situated, that O'Neill Farming owns the Existing Engine(s) covered by this Agreement, and that O'Neill Farming has all rights and authority to enter into this binding Agreement. If O'Neill Farming leases the land or Existing Engine(s), O'Neill Farming shall obtain the approval and a release from the land owner to allow O'Neill Farming to enter into this Agreement.
- 8.0 O'Neill Farming agrees to render the removed Engine(s) inoperable by drilling or knocking a hole in the block, welding the cylinder head shut, obtaining written proof from a scrap yard that the removed Engine(s) has been destroyed or otherwise rendered inoperable, or other method approved in advance by the District, and to submit proof of such destruction of the removed Engine(s) to the District prior to the issuance of any related ERCs.
- 9.0 The District maintains the right to witness the destruction of the Engine(s) and Parties agree to notify the District at least 14 days prior to the destruction of any Engine(s).
- 10.0 O'Neill Farming agrees that the Service Area covered by this Agreement shall not be irrigated in whole or in part by any other IC engine power source.
- 11.0 O'Neill Farming agrees that replacement of the Existing Engine(s) with Electric Motors(s) will remain in effect as long as any of the Service Area covered by this Agreement remains farmland, and agrees to disclose in writing the existence of this Agreement to any other entity which may come to own or become responsible for operating the irrigation pumping system for the Service Area described. To ensure the permanence of this Agreement, this Agreement shall be recorded by the County Registrar. Any future entity which becomes responsible for the irrigation system shall agree to the terms contained in this Agreement.
- 12.0 O'Neill Farming and the District agree that no equipment which emits or may emit any air contaminant may be added, permanently or temporarily, to power or supplementally power the irrigation system which irrigates the Service Area covered by this Agreement without specific prior written approval by the District where: (a) the new equipment is evaluated and approved in accordance with District Rules and Regulations; (b) the potential increase in emissions is entirely offset in accordance with District Rules and Regulations; and (c) the Permit to Operate for the said irrigation system is modified accordingly by the District.
- 13.0 O'Neill Farming, upon the sale or lease of land upon which the Electric Motor(s) are located, will assign this Agreement and the Permit to Operate, and all rights, duties and obligations hereto. Assignment of this Agreement and all rights, duties and obligation may only occur after notice is given to all Parties (including the District). Nothing in this Agreement shall be construed to diminish the District's authority to implement and enforce applicable state, federal, and local laws, rules and regulations.
- 14.0 O'Neill Farming grants to Valley Air Conditioning and Repair and the District, for the specific and sole purpose of exercising their respective responsibilities as defined in this Agreement and applicable law, the right of reasonable entry to Service Area to monitor compliance with this Agreement during normal business hours.
- 15.0 All Parties to this Agreement warrant that each is duly authorized and empowered to bind such Party and there are no actions, suits, proceedings or other impediments, pending or threatened, which affect the performance of each Party's obligations under this Agreement.

- 16.0 All Parties agree that this Agreement constitutes a legal, valid and binding obligation on all Parties, enforceable in accordance with its terms and applicable law, and that its contents, including that of other documents incorporated by reference, are true and correct.
- 17.0 O'Neill Farming and Valley Air Conditioning and Repair agree to, and will not contest the District's jurisdiction over matters related to this Agreement.
- 18.0 This Agreement, including the exhibits, made a part hereof, attached hereto and incorporated herein, forms the whole of the Agreement and may not be modified except in writing with the concurrence of all Parties.
- 19.0 If any condition of this Agreement, or the application of such condition shall be determined to be invalid, illegal or unenforceable for any reason, the remainder of the Agreement shall not be affected and every other condition of this Agreement shall be valid and enforceable to the fullest extent provided by law. Venue for any action to enforce this Agreement or its terms shall only occur in the appropriate court in Fresno County.
- 20.0 Exhibits and documents incorporated herein by reference:
 - Exhibit A: Existing Engine Identification
 - Exhibit B: Map/Description of Service Area
- 21.0 Notices shall be deemed to be given when faxed if proper documentation shows that the fax was received, or on the date registered mail is certified received to the following:

To O'Neill Farming

To Valley Air Conditioning
and Repair

To District

Director of Permit Services
 San Joaquin Valley APCD
 1990 E Gettysburg Avenue
 Fresno, CA 93726-0244
 (559) 230-6000 (phone)
 (559) 230-6061 (fax)

THE PARTIES, having read and approved the foregoing and as approved by their authorized officers, agree to be bound by the terms and conditions contained in this Agreement, execute this Agreement as of the Effective Date set forth above:

For O'Neill Farming:

For Valley Air Conditioning
and Repair:

For District:

Dated: _____

Dated: _____

Dated: _____

EXHIBIT A

Irrigation Engine(s) Retired:

One 750 hp Caterpillar model 3412 diesel-fired internal combustion engine, Serial Number 038S15467.



San Joaquin Valley
Air Pollution Control District

February 5, 2003

Tobbie Hopper
Valley Air Conditioning and Repair
1350 F Street
Fresno, CA 93706

**RE: Notice of Revised Diesel Engine Retirement Agreements
Project Numbers: C-1010806 and C-1011235**

Dear Mr. Hopper:

Enclosed are the revised Diesel Engine Retirement Agreements associated with Emission Reduction Credit (ERC) Projects, C-1010806 and C-1011235. The agreements have been revised pursuant to comments submitted by Lee Schultz. Since the District did not receive the revised copy of Appendix B for Project 1011235, please include it in the agreement prior to recording.

Please note that the signed agreements must be returned to the District along with verification that the agreements have been recorded prior to the use or sale of any of the associated ERCs.

Thank you for your cooperation in this matter. If you have any questions, please contact Mr. David Warner at (559) 230-5900.

Sincerely,

for 
Seyed Sadredin
Director of Permit Services

SS:SR

Enclosures

c: David Warner, Permit Services Manager

David L. Crow
Executive Director/Air Pollution Control Officer

Northern Region Office
4230 Kiernan Avenue, Suite 130
Modesto, CA 95356-9322
(209) 557-6400 • FAX (209) 557-6475

Central Region Office
1990 East Gettysburg Avenue
Fresno, CA 93726-0244
(559) 230-6000 • FAX (559) 230-6061
www.valleyair.org

Southern Region Office
2700 M Street, Suite 275
Bakersfield, CA 93301-2373
(661) 326-6900 • FAX (661) 326-6985

Diesel Engine Retirement Agreement

ERC Project C-1010806

This agreement is made between O'Neill Farming Enterprises, Inc. and La Paloma Farms, a California General Partnership, known collectively herein as O'Neill Entities, Valley Air Conditioning and Repair, and the San Joaquin Valley Unified Air Pollution Control District (the "District") (collectively, the "Parties").

RECITALS

WHEREAS, the District is a duly formed governmental entity responsible for achieving and maintaining clean air quality in the San Joaquin Valley;

WHEREAS, pursuant to California Health and Safety Code sections 40709 through 40714.5, the District has adopted Rules and Regulations providing for the creation and use of emission reduction credits ("ERCs") which are real, surplus, quantifiable, permanent and enforceable;

WHEREAS, O'Neill Entities proposes to have its existing primary groundwater extraction engine in Service Area replaced with a new electric motor;

WHEREAS, O'Neill Entities enters this agreement for the purpose of generating emissions reductions within the San Joaquin Valley Air Basin and to create ERCs to be banked with the District;

WHEREAS, Valley Air Conditioning and Repair enters this agreement solely to create ERCs for its benefit and for the benefit of air quality in the region by reducing emissions from agricultural equipment which is currently exempt from the requirement of having a written permit;

NOW, THEREFORE, the Parties hereto agree as follows:

AGREEMENT

1.0 Terms used herein are defined as follows:

(a) "Effective Date" of this agreement shall mean the date of acceptance of this agreement by the District.

(b) "Service Area" shall mean all of the SE Quarter Section 9, Township 18S, Range 17E, Mount Diablo Base and Meridian, as set forth in Exhibit "B", attached hereto, and incorporated herein. The Service Area includes 544 acres, fields 8-4, 9-2, 9-3 and 9-4.

(c) "well" shall mean the deep water well located on the southwest quarter section of the Service Area, as identified in Exhibit "B".

(d) "primary groundwater extraction engine" shall mean the diesel engine used to power the well, as identified in Exhibit "A", attached hereto and incorporated herein.

(e) "new electric motor" shall mean the new electric motor provided by Valley Air Conditioning and Repair that will replace the primary groundwater extraction engine.

(f) "farmland" shall mean lands within the Service Area that are planted, cultivated and irrigated using the new electric motor.

(g) "irrigation system" shall mean the well and any and all piping, pumps and accessories which are used to irrigate any or all of the Service Area.

- 2.0 District agrees that O'Neill Entities in cooperation with Valley Air Conditioning and Repair are voluntarily reducing air pollution by replacing the primary groundwater extraction engine with a new electric motor for the purpose of creating ERCs, and District is aware of no regulatory impediment, existing or pending, which would prevent the use of ERCs generated pursuant to this Agreement.
- 3.0 O'Neill Entities agrees to replace its existing primary groundwater extraction engine as identified in Exhibit "A", which is used to irrigate the Service Area with the new electric motor provided by Valley Air Conditioning and Repair.
- 4.0 District agrees to issue ERCs to Valley Air Conditioning and Repair for actual emission reductions as quantified by the District in accordance with District Rules and Regulations. 80% of the Bankable ERCs will be issued pending a successful Public Noticing period. The remaining 20% will be issued or withheld, partially or in full, pending a site-specific validation of the assumptions made in evaluating the Baseline Emissions.
- 5.0 O'Neill Entities agrees to acquire a Permit to Operate, for the irrigation system that irrigates the Service Area covered by this agreement, from the District, and to maintain the Permit to Operate until the Permit to Operate is permanently relieved or replaced in writing by the District.
- 6.0 Valley Air Conditioning and Repair and O'Neill Entities agree that the post-project new electric motor serving the Service Area will be fitted with a non-resettable kilowatt-hour meter. This requirement may be satisfied with the use of the electric utility's billing meter if and only if the billing meter exclusively serves the electric motor referenced herein.
- 7.0 O'Neill Entities agrees to maintain records of monthly kilowatt-hour use of the new electric motor for a period of at least 12 months (Validation Period). The District will use said records to validate the baseline emissions prior to issuing any or all of the final 20% of the Bankable ERCs.
- 8.0 O'Neill Entities represents and warrants that it owns the Service Area, that O'Neill Entities owns the primary groundwater extraction engine being removed and the irrigation system covered by this Agreement, and that O'Neill Entities has all rights and authority to enter into this binding Agreement.
- 9.0 O'Neill Entities agrees to render the removed primary groundwater extraction engine inoperable by drilling or knocking a hole in the block, welding the cylinder head shut, obtaining written proof from a scrap yard that the removed Engine(s) has been destroyed or otherwise rendered inoperable, or other method approved in advance by the District, and to submit proof of such destruction of the removed engine to the District prior to the issuance of any related ERCs.
- 10.0 The District maintains the right to witness the destruction of the primary groundwater extraction engine and Parties agree to notify the District at least 14 days prior to the destruction of the engine.
- 11.0 O'Neill Entities agrees that the service area shall not be irrigated with any water that was pumped from any internal combustion engine-powered deep well.

- 12.0 O'Neill Entities agrees that replacement of the primary groundwater extraction engine with a new electric motor will remain in effect as long as any of the Service Area covered by this Agreement remains farmland, and agrees to disclose in writing the existence of this Agreement to any other entity which may come to own or become responsible for operating the irrigation system for the Service Area described. To ensure the permanence of this Agreement, this Agreement shall be recorded by the County Registrar. Any future entity that becomes responsible for the irrigation system shall agree to the terms contained in this Agreement.
- 13.0 O'Neill Entities and the District agree that no equipment which emits or may emit any air contaminant may be used, permanently or temporarily, to power or supplementally power the irrigation system without specific prior written approval by the District, which approval shall not be unreasonably withheld and where: (a) the new equipment is evaluated and approved in accordance with District Rules and Regulations; (b) the potential increase in emissions is entirely offset using the current District-approved Distance Offset Ratio; and (c) the Permit to Operate for the irrigation system is modified accordingly by the District.
- 13.1 The first exception to Condition 13.0 is that O'Neill Entities may use tailwater pumps, runoff pumps, ditch pumps and other accessories as necessary provided that the water being delivered to the service area did not originate from any internal combustion engine-powered deep well.
- 13.2 The second exception to Condition 13.0 is that O'Neill Entities may utilize booster pumps as necessary to supplement the irrigation system pressure, only if the pumped water travels through at least 238 feet of pipe as measured from the wellhead to the nearest booster pump. In lieu of this minimum distance requirement, booster pumps may be utilized provided that the discharge pressure on the wellhead, as measured by a permanently installed and operationally maintained pressure gage, is at least 20 psig.
- 13.3 The third exception to 13.0 is that O'Neill Entities may use an internal combustion engine-powered electrical generator to supply electrical power to the irrigation system as necessary during unforeseen electrical power outages, on an interim basis to mitigate damage to O'Neill Entities' crops until normal power is restored. Any electrical generator used under this section shall not be used in conjunction with any voluntary utility demand reduction program. Records of hours of internal combustion engine operation shall be maintained which identify the engine used, and include the date of operation, the number of hours of operation, the purpose of the operation (e.g., load testing, weekly testing, rolling blackout, general area power outage, etc.), and the sulfur content of the diesel fuel used. Such records shall be retained for a period of at least five years and made available for District inspection upon request.
- 14.0 O'Neill Entities, upon the sale or lease of the Service Area, will assign this Agreement and the Permit to Operate, and all rights, duties and obligations hereto, to the new owner. Assignment of this Agreement and all rights, duties and obligations will include a notice submitted to the District in the form of a completed District Transfer of Ownership application. Nothing in this Agreement shall be construed to diminish the District's authority to implement and enforce applicable state, federal, and local laws, rules and regulations.
- 15.0 O'Neill Entities grants to Valley Air Conditioning and Repair and the District, for the specific and sole purpose of exercising their respective responsibilities as defined in this Agreement and applicable law, the right of reasonable entry to the Service Area to monitor compliance with this Agreement during normal business hours.

- 16.0 All Parties to this Agreement warrant that each is duly authorized and empowered to bind such Party and there are no actions, suits, proceedings or other impediments, pending or threatened, which affect the performance of each Party's obligations under this Agreement.
- 17.0 All Parties agree that this Agreement constitutes a legal, valid and binding obligation on all Parties, enforceable in accordance with its terms and applicable law, and that its contents, including that of other documents incorporated by reference, are true and correct to the best of their knowledge.
- 18.0 O'Neill Entities and Valley Air Conditioning and Repair agree to, and will not contest, the District's jurisdiction over matters related to this Agreement; provided however, that neither O'Neill Entities nor Valley Air Conditioning and Repair are herein surrendering any right they may have under applicable law to challenge subsequent actions.
- 19.0 This Agreement, including the exhibits, made a part hereof, attached hereto and incorporated herein, forms the whole of the Agreement and may not be modified except in writing with the concurrence of all Parties. After such a time as any ERCs are issued, the Permit to Operate is acquired and after the Validation Period, this Agreement may not be modified except in writing with the concurrence of the District and O'Neill Entities.
- 20.0 If any condition of this Agreement, or the application of such condition shall be determined to be invalid, illegal or unenforceable for any reason, the remainder of the Agreement shall not be affected and every other condition of this Agreement shall be valid and enforceable to the fullest extent provided by law. Venue for any action to enforce this Agreement or its terms shall only occur in the appropriate court in Fresno County.
- 21.0 Exhibits and documents incorporated herein by reference:
- Exhibit A: Existing Engine Identification
- Exhibit B: Map/Description of Service Area
- 22.0 Notices shall be deemed to be given when faxed if proper documentation shows that the fax was received, or on the date registered mail is certified received to the following:

To O'Neill Entities:

1265 W Shaw Avenue, #101
 Fresno, CA 93711
 (559) 224-6000 (phone)
 (559)-224-2384 (fax)

To Valley Air Conditioning
 and Repair:

Valley Air Conditioning
 and Repair, Inc.
 1350 F Street
 Fresno, CA 93706
 (559) 237-3188 (phone)
 (559) 237-2867 (fax)

To District:

Director of Permit Services
 San Joaquin Valley APCD
 1990 E Gettysburg Avenue
 Fresno, CA 93726-0244
 (559) 230-6000 (phone)
 (559) 230-6061 (fax)

THE PARTIES, having read and approved the foregoing and as approved by their authorized officers, agree to be bound by the terms and conditions contained in this Agreement, execute this Agreement as of the Effective Date set forth above:

For O'Neill Entities:

For Valley Air Conditioning
and Repair:

For District:

O'Neill Farming
Enterprises, Inc.
Edwin R. O'Neill
President

Tobbie Hopper
President

Syed Sadredin
Director of Permit Services

Dated: _____

Dated: _____

Dated: _____

For La Paloma Farms,
a California General Partnership

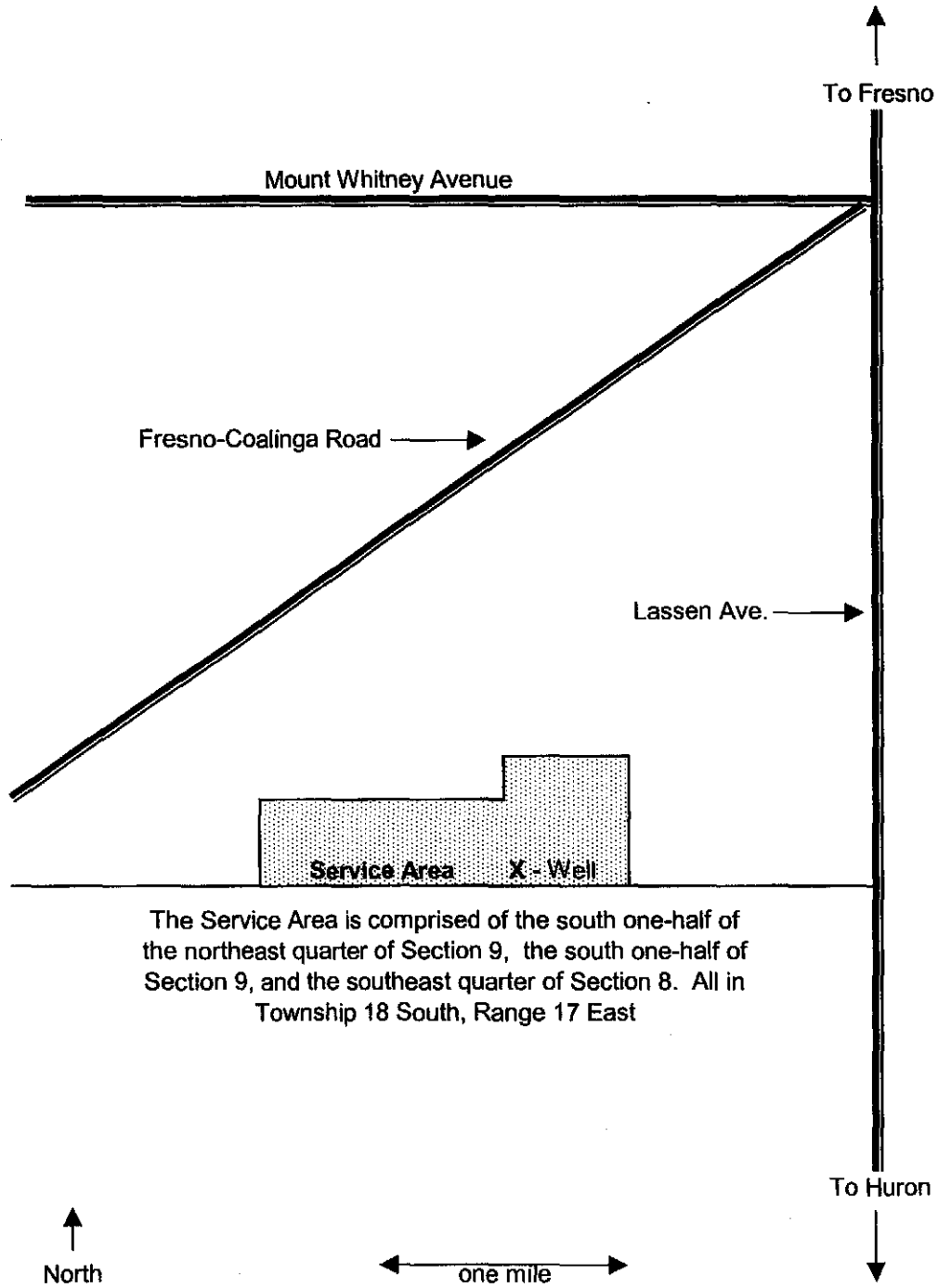
Dated: _____

EXHIBIT A

Irrigation Engine(s) Retired:

One 450 horsepower Caterpillar model 3408 diesel-fired internal combustion engine, Serial Number 67U6614.

**Exhibit "B"
Service Area**



The Service Area is comprised of the south one-half of the northeast quarter of Section 9, the south one-half of Section 9, and the southeast quarter of Section 8. All in Township 18 South, Range 17 East

Exhibit C

Exhibit C is not applicable because the land owner of record, the owner of the equipment and the operators are all parties to this agreement.

Diesel Engine Retirement Agreement

ERC Project C-1011235

This agreement is made between O'Neill Farming Enterprises, Inc. and Excelsior Farms, a California General Partnership, known collectively herein as O'Neill Entities, Valley Air Conditioning and Repair, and the San Joaquin Valley Unified Air Pollution Control District (the "District") (collectively, the "Parties").

RECITALS

WHEREAS, the District is a duly formed governmental entity responsible for achieving and maintaining clean air quality in the San Joaquin Valley;

WHEREAS, pursuant to California Health and Safety Code sections 40709 through 40714.5, the District has adopted Rules and Regulations providing for the creation and use of emission reduction credits ("ERCs") which are real, surplus, quantifiable, permanent and enforceable;

WHEREAS, O'Neill Entities proposes to have its existing primary groundwater extraction engine in Service Area replaced with a new electric motor;

WHEREAS, O'Neill Entities enters this agreement for the purpose of generating emissions reductions within the San Joaquin Valley Air Basin and to create ERCs to be banked with the District;

WHEREAS, Valley Air Conditioning and Repair enters this agreement solely to create ERCs for its benefit and for the benefit of air quality in the region by reducing emissions from agricultural equipment which is currently exempt from the requirement of having a written permit;

NOW, THEREFORE, the Parties hereto agree as follows:

AGREEMENT

1.0 Terms used herein are defined as follows:

- (a) "Effective Date" of this agreement shall mean the date of acceptance of this agreement by the District.
- (b) "Service Area" shall mean all of Section 4, Township 18S, Range 17E, Mount Diablo Base and Meridian as set forth in Exhibit "B", attached hereto, and incorporated herein. The Service Area includes 632.25 acres, fields 4-1, 4-2, 4-A2, 4-2N, 4-2S, 4-3 and 4-4..
- (c) "well" shall mean the deep water well located on the southwest quarter section of the Service Area, as identified in Exhibit "B".
- (d) "primary groundwater extraction engine" shall mean the diesel engine used to power the well, as identified in Exhibit "A", attached hereto and incorporated herein.
- (e) "new electric motor" shall mean the new electric motor provided by Valley Air Conditioning and Repair that will replace the primary groundwater extraction engine.
- (f) "farmland" shall mean lands within the Service Area that are planted, cultivated and irrigated using the new electric motor.

(g) "irrigation system" shall mean the well and any and all piping, pumps and accessories which are used to irrigate any or all of the Service Area.

- 2.0 District agrees that O'Neill Entities in cooperation with Valley Air Conditioning and Repair are voluntarily reducing air pollution by replacing the primary groundwater extraction engine with a new electric motor for the purpose of creating ERCs, and District is aware of no regulatory impediment, existing or pending, which would prevent the use of ERCs generated pursuant to this Agreement.
- 3.0 O'Neill Entities agrees to replace its existing primary groundwater extraction engine as identified in Exhibit "A", which is used to irrigate the Service Area with the new electric motor provided by Valley Air Conditioning and Repair.
- 4.0 District agrees to issue ERCs to Valley Air Conditioning and Repair for actual emission reductions as quantified by the District in accordance with District Rules and Regulations. 80% of the Bankable ERCs will be issued pending a successful Public Noticing period. The remaining 20% will be issued or withheld, partially or in full, pending a site-specific validation of the assumptions made in evaluating the Baseline Emissions.
- 5.0 O'Neill Entities agrees to acquire a Permit to Operate, for the irrigation system that irrigates the Service Area covered by this agreement, from the District, and to maintain the Permit to Operate until the Permit to Operate is permanently relieved or replaced in writing by the District.
- 6.0 Valley Air Conditioning and Repair and O'Neill Entities agree that the post-project new electric motor serving the Service Area will be fitted with a non-resettable kilowatt-hour meter. This requirement may be satisfied with the use of the electric utility's billing meter if and only if the billing meter exclusively serves the electric motor referenced herein.
- 7.0 O'Neill Entities agrees to maintain records of monthly kilowatt-hour use of the new electric motor for a period of at least 12 months (Validation Period). The District will use said records to validate the baseline emissions prior to issuing any or all of the final 20% of the Bankable ERCs.
- 8.0 O'Neill Entities represents and warrants that it owns the Service Area, that O'Neill Entities owns the primary groundwater extraction engine being removed and the irrigation system covered by this Agreement, and that O'Neill Entities has all rights and authority to enter into this binding Agreement.
- 9.0 O'Neill Entities agrees to render the removed primary groundwater extraction engine inoperable by drilling or knocking a hole in the block, welding the cylinder head shut, obtaining written proof from a scrap yard that the removed Engine(s) has been destroyed or otherwise rendered inoperable, or other method approved in advance by the District, and to submit proof of such destruction of the removed engine to the District prior to the issuance of any related ERCs.
- 10.0 The District maintains the right to witness the destruction of the primary groundwater extraction engine and Parties agree to notify the District at least 14 days prior to the destruction of the engine.
- 11.0 O'Neill Entities agrees that the service area shall not be irrigated with any water that was pumped from any internal combustion engine-powered deep well.

- 12.0 O'Neill Entities agrees that replacement of the primary groundwater extraction engine with a new electric motor will remain in effect as long as any of the Service Area covered by this Agreement remains farmland, and agrees to disclose in writing the existence of this Agreement to any other entity which may come to own or become responsible for operating the irrigation system for the Service Area described. To ensure the permanence of this Agreement, this Agreement shall be recorded by the County Registrar. Any future entity that becomes responsible for the irrigation system shall agree to the terms contained in this Agreement.
- 13.0 O'Neill Entities and the District agree that no equipment which emits or may emit any air contaminant may be used, permanently or temporarily, to power or supplementally power the irrigation system without specific prior written approval by the District, which approval shall not be unreasonably withheld and where: (a) the new equipment is evaluated and approved in accordance with District Rules and Regulations; (b) the potential increase in emissions is entirely offset using the current District-approved Distance Offset Ratio; and (c) the Permit to Operate for the irrigation system is modified accordingly by the District.
- 13.1 The first exception to Condition 13.0 is that O'Neill Entities may use tailwater pumps, runoff pumps, ditch pumps and other accessories as necessary provided that the water being delivered to the service area did not originate from any internal combustion engine-powered deep well.
- 13.2 The second exception to Condition 13.0 is that O'Neill Entities may utilize booster pumps as necessary to supplement the irrigation system pressure, only if the pumped water travels through at least 238 feet of pipe as measured from the wellhead to the nearest booster pump. In lieu of this minimum distance requirement, booster pumps may be utilized provided that the discharge pressure on the wellhead, as measured by a permanently installed and operationally maintained pressure gage, is at least 20 psig.
- 13.3 The third exception to 13.0 is that O'Neill Entities may use an internal combustion engine-powered electrical generator to supply electrical power to the irrigation system as necessary during unforeseen electrical power outages, on an interim basis to mitigate damage to O'Neill Entities' crops until normal power is restored. Any electrical generator used under this section shall not be used in conjunction with any voluntary utility demand reduction program. Records of hours of internal combustion engine operation shall be maintained which identify the engine used, and include the date of operation, the number of hours of operation, the purpose of the operation (e.g., load testing, weekly testing, rolling blackout, general area power outage, etc.), and the sulfur content of the diesel fuel used. Such records shall be retained for a period of at least five years and made available for District inspection upon request.
- 14.0 O'Neill Entities, upon the sale or lease of the Service Area, will assign this Agreement and the Permit to Operate, and all rights, duties and obligations hereto, to the new owner. Assignment of this Agreement and all rights, duties and obligations will include a notice submitted to the District in the form of a completed District Transfer of Ownership application. Nothing in this Agreement shall be construed to diminish the District's authority to implement and enforce applicable state, federal, and local laws, rules and regulations.
- 15.0 O'Neill Entities grants to Valley Air Conditioning and Repair and the District, for the specific and sole purpose of exercising their respective responsibilities as defined in this Agreement and applicable law, the right of reasonable entry to the Service Area to monitor compliance with this Agreement during normal business hours.

- 16.0 All Parties to this Agreement warrant that each is duly authorized and empowered to bind such Party and there are no actions, suits, proceedings or other impediments, pending or threatened, which affect the performance of each Party's obligations under this Agreement.
- 17.0 All Parties agree that this Agreement constitutes a legal, valid and binding obligation on all Parties, enforceable in accordance with its terms and applicable law, and that its contents, including that of other documents incorporated by reference, are true and correct to the best of their knowledge.
- 18.0 O'Neill Entities and Valley Air Conditioning and Repair agree to, and will not contest, the District's jurisdiction over matters related to this Agreement; provided however, that neither O'Neill Entities nor Valley Air Conditioning and Repair are herein surrendering any right they may have under applicable law to challenge subsequent actions.
- 19.0 This Agreement, including the exhibits, made a part hereof, attached hereto and incorporated herein, forms the whole of the Agreement and may not be modified except in writing with the concurrence of all Parties. After such a time as any ERCs are issued, the Permit to Operate is acquired and after the Validation Period, this Agreement may not be modified except in writing with the concurrence of the District and O'Neill Entities.
- 20.0 If any condition of this Agreement, or the application of such condition shall be determined to be invalid, illegal or unenforceable for any reason, the remainder of the Agreement shall not be affected and every other condition of this Agreement shall be valid and enforceable to the fullest extent provided by law. Venue for any action to enforce this Agreement or its terms shall only occur in the appropriate court in Fresno County.
- 21.0 Exhibits and documents incorporated herein by reference:
- Exhibit A: Existing Engine Identification
- Exhibit B: Map/Description of Service Area
- 22.0 Notices shall be deemed to be given when faxed if proper documentation shows that the fax was received, or on the date registered mail is certified received to the following:

To O'Neill Entities:

1265 W Shaw Avenue, #101
 Fresno, CA 93711
 (559) 224-6000 (phone)
 (559)-224-2384 (fax)

To Valley Air Conditioning
 and Repair:

Valley Air Conditioning
 and Repair, Inc.
 1350 F Street
 Fresno, CA 93706
 (559) 237-3188 (phone)
 (559) 237-2867 (fax)

To District:

Director of Permit Services
 San Joaquin Valley APCD
 1990 E Gettysburg Avenue
 Fresno, CA 93726-0244
 (559) 230-6000 (phone)
 (559) 230-6061 (fax)

THE PARTIES, having read and approved the foregoing and as approved by their authorized officers, agree to be bound by the terms and conditions contained in this Agreement, execute this Agreement as of the Effective Date set forth above:

For O'Neill Entities:

For Valley Air Conditioning
and Repair:

For District:

O'Neill Farming
Enterprises, Inc.
Edwin R. O'Neill
President

Tobbie Hopper
President

Seyed Sadredin
Director of Permit Services

Dated: _____

Dated: _____

Dated: _____

For Excelsior Farms,
a California General Partnership

Dated: _____

EXHIBIT A

Irrigation Engine(s) Retired:

One 750 horsepower Caterpillar model 3412 diesel-fired internal combustion engine, Serial Number 038S15467.

EXHIBIT B

Map of Service Area.

**Exhibit "B"
Service Area**

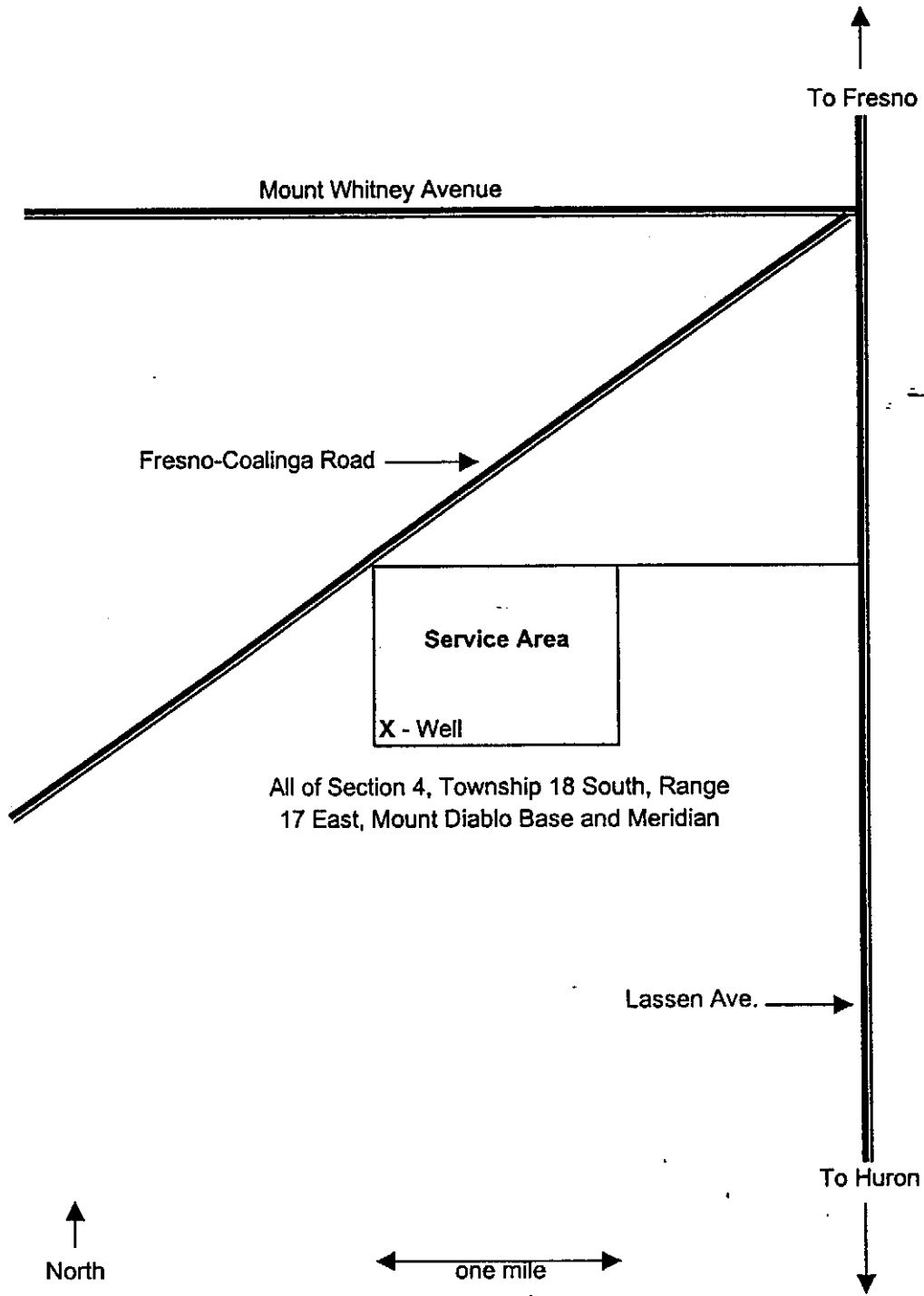


Exhibit C

Exhibit C is not applicable because the land owner of record, the owner of the equipment and the operators are all parties to this agreement.



San Joaquin Valley
Air Pollution Control District

January 21, 2003

Tobbie Hopper
Valley Air Conditioning and Repair
1350 F Street
Fresno, CA 93706

**RE: Notice of Revised Diesel Engine Retirement Agreements
Project Numbers: C-1010806 and C-1011235**

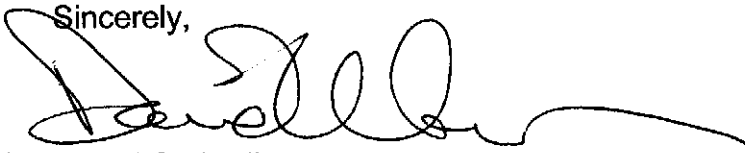
Dear Mr. Hopper:

Enclosed are the revised Diesel Engine Retirement Agreements associated with Emission Reduction Credit (ERC) Projects, C-1010806 and C-1011235. The agreements have been revised pursuant to comments submitted by Lee Schultz. Since the District did not receive the revised copy of Appendix B for Project 1011235, please include it in the agreement prior to recording.

Please note that the signed agreements must be returned to the District along with verification that the agreements have been recorded prior to the use or sale of any of the associated ERCs.

Thank you for your cooperation in this matter. If you have any questions, please contact Mr. David Warner at (559) 230-5900.

Sincerely,


for Seyed Sadredin
Director of Permit Services

SS:SR

Enclosures

c: David Warner, Permit Services Manager

David L. Crow
Executive Director/Air Pollution Control Officer

Northern Region Office
4230 Kiernan Avenue, Suite 130
Modesto, CA 95356-9322
(209) 557-6400 • FAX (209) 557-6475

Central Region Office
1990 East Gettysburg Avenue
Fresno, CA 93726-0244
(559) 230-6000 • FAX (559) 230-6061
www.valleyair.org

Southern Region Office
2700 M Street, Suite 275
Bakersfield, CA 93301-2373
(661) 326-6900 • FAX (661) 326-6985

Steve Roeder

From: Steve Roeder
Sent: Thursday, January 02, 2003 8:14 AM
To: 'lschultz@oneillfarming.com'
Subject: FW: ERC Agreements

DAVE,
 no response yet.
 so, here's a letter of issuance that
 includes our request,
 SR

Lee,

Thank you for the comments. We're about to reprint these agreements, however, I did not receive the attachment with my email which contained "Appendix B" for project 1011235. Can you email that to me?

Thank you.

Steve Roeder
 230-5905
steve.roeder@valleyair.org

OK,
 Reprint w/
 1/21 date.
 DW
 1/21 SR

-----Original Message-----

From: Dave Warner
Sent: Monday, December 30, 2002 7:50 AM
To: Steve Roeder
Subject: FW: ERC Agreements

Please address. Thanks.

-----Original Message-----

From: Lee R. Schultz [mailto:lschultz@oneillfarming.com]
Sent: Tuesday, December 24, 2002 7:45 AM
To: Dave Warner
Subject: ERC Agreements

Dave:

We are in receipt of the ERC Agreements, as amended.

There are a couple of typo's we need to correct.

I probably added to the confusion when I adjusted the O'Neill Entities on the prior drafts. The following are the corrections:

1. ERC Project C-1011235:

- A. We need to change "La Paloma Farms" to "Excelsior Farms" in the first paragraph. The signature line is ok.
- B. I have attached Exhibit "B".

2. ERC Project C-1010806:

- A. The signature page need to be changed from "Excelsior Farms" to "La Paloma Farms".

Again, I apologize for the confusion. If you would like, E-mail me your agreement and I'll make the appropriate changes.

You may want to consider eliminating the "field numbers" as they do not add anything to the agreements because the land within each Service Area is fully described in the respective Exhibit "B"s. Or, leave it alone as it does not hurt anything.

Steve Roeder

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Subject: FW: ERC Agreements

Please address. Thanks.

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Thanks

Lee Schultz

Diesel Engine Retirement Agreement

ERC Project C-1011235

*Revised
2/15/13*

This agreement is made between O'Neill Farming Enterprises, Inc. and Excelsior Farms, LLC, known collectively herein as O'Neill Entities, Valley Air Conditioning and Repair, and the San Joaquin Valley Unified Air Pollution Control District (the "District") (collectively, the "Parties").

RECITALS

WHEREAS, the District is a duly formed governmental entity responsible for achieving and maintaining clean air quality in the San Joaquin Valley;

WHEREAS, pursuant to California Health and Safety Code sections 40709 through 40714.5, the District has adopted Rules and Regulations providing for the creation and use of emission reduction credits ("ERCs") which are real, surplus, quantifiable, permanent and enforceable;

WHEREAS, O'Neill Entities proposes to have its existing primary groundwater extraction engine in Service Area replaced with a new electric motor;

WHEREAS, O'Neill Entities enters this agreement for the purpose of generating emissions reductions within the San Joaquin Valley Air Basin and to create ERCs to be banked with the District;

WHEREAS, Valley Air Conditioning and Repair enters this agreement solely to create ERCs for its benefit and for the benefit of air quality in the region by reducing emissions from agricultural equipment which is currently exempt from the requirement of having a written permit;

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- 15.0 O'Neill Entities grants to Valley Air Conditioning and Repair and the District, for the specific and sole purpose of exercising their respective responsibilities as defined in this Agreement and applicable law, the right of reasonable entry to the Service Area to monitor compliance with this Agreement during normal business hours.

- 16.0 All Parties to this Agreement warrant that each is duly authorized and empowered to bind such Party and there are no actions, suits, proceedings or other impediments, pending or threatened, which affect the performance of each Party's obligations under this Agreement.
- 17.0 All Parties agree that this Agreement constitutes a legal, valid and binding obligation on all Parties, enforceable in accordance with its terms and applicable law, and that its contents, including that of other documents incorporated by reference, are true and correct to the best of their knowledge.
- 18.0 O'Neill Entities and Valley Air Conditioning and Repair agree to, and will not contest, the District's jurisdiction over matters related to this Agreement; provided however, that neither O'Neill Entities nor Valley Air Conditioning and Repair are herein surrendering any right they may have under applicable law to challenge subsequent actions.
- 19.0 This Agreement, including the exhibits, made a part hereof, attached hereto and incorporated herein, forms the whole of the Agreement and may not be modified except in writing with the concurrence of all Parties. After such a time as any ERCs are issued, the Permit to Operate is acquired and after the Validation Period, this Agreement may not be modified except in writing with the concurrence of the District and O'Neill Entities.
- 20.0 If any condition of this Agreement, or the application of such condition shall be determined to be invalid, illegal or unenforceable for any reason, the remainder of the Agreement shall not be affected and every other condition of this Agreement shall be valid and enforceable to the fullest extent provided by law. Venue for any action to enforce this Agreement or its terms shall only occur in the appropriate court in Fresno County.
- 21.0 Exhibits and documents incorporated herein by reference:
 Exhibit A: Existing Engine Identification
 Exhibit B: Map/Description of Service Area
- 22.0 Notices shall be deemed to be given when faxed if proper documentation shows that the fax was received, or on the date registered mail is certified received to the following:

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 Fresno, CA 93711
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 (559)-224-2384 (fax)

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 and Repair, Inc.
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Director of Permit Services
 San Joaquin Valley APCD
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For Valley Air Conditioning
and Repair:

For District:

O'Neill Farming
Enterprises, Inc.
Edwin R. O'Neill
President

Tobbie Hopper
President

Sayed Sadredin
Director of Permit Services

Dated: _____

Dated: _____

Dated: _____

For Excelsior Farms

Dated: _____

EXHIBIT A

Irrigation Engine(s) Retired:

One 750 horsepower Caterpillar model 3412 diesel-fired internal combustion engine, Serial Number 038S15467.

EXHIBIT B

Map of Service Area.

Exhibit C

Exhibit C is not applicable because the land owner of record, the owner of the equipment and the operators are all parties to this agreement.

12/19/02

revised 1/2/13

Diesel Engine Retirement Agreement

ERC Project C-1011235

This agreement is made between O'Neill Farming Enterprises, Inc. and La Paloma Farms, LLC, known collectively herein as O'Neill Entities, Valley Air Conditioning and Repair, and the San Joaquin Valley Unified Air Pollution Control District (the "District") (collectively, the "Parties").

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- 5.0 O'Neill Entities agrees to acquire a Permit to Operate, for the irrigation system that irrigates the Service Area covered by this agreement, from the District, and to maintain the Permit to Operate until the Permit to Operate is permanently relieved or replaced in writing by the District.
- 6.0 Valley Air Conditioning and Repair and O'Neill Entities agree that the post-project new electric motor serving the Service Area will be fitted with a non-resettable kilowatt-hour meter. This requirement may be satisfied with the use of the electric utility's billing meter if and only if the billing meter exclusively serves the electric motor referenced herein.
- 7.0 O'Neill Entities agrees to maintain records of monthly kilowatt-hour use of the new electric motor for a period of at least 12 months (Validation Period). The District will use said records to validate the baseline emissions prior to issuing any or all of the final 20% of the Bankable ERCs.
- 8.0 O'Neill Entities represents and warrants that it owns the Service Area, that O'Neill Entities owns the primary groundwater extraction engine being removed and the irrigation system covered by this Agreement, and that O'Neill Entities has all rights and authority to enter into this binding Agreement.
- 9.0 O'Neill Entities agrees to render the removed primary groundwater extraction engine inoperable by drilling or knocking a hole in the block, welding the cylinder head shut, obtaining written proof from a scrap yard that the removed Engine(s) has been destroyed or otherwise rendered inoperable, or other method approved in advance by the District, and to submit proof of such destruction of the removed engine to the District prior to the issuance of any related ERCs.
- 10.0 The District maintains the right to witness the destruction of the primary groundwater extraction engine and Parties agree to notify the District at least 14 days prior to the destruction of the engine.
- 11.0 O'Neill Entities agrees that the service area shall not be irrigated with any water that was pumped from any internal combustion engine-powered deep well.

- 12.0 O'Neill Entities agrees that replacement of the primary groundwater extraction engine with a new electric motor will remain in effect as long as any of the Service Area covered by this Agreement remains farmland, and agrees to disclose in writing the existence of this Agreement to any other entity which may come to own or become responsible for operating the irrigation system for the Service Area described. To ensure the permanence of this Agreement, this Agreement shall be recorded by the County Registrar. Any future entity that becomes responsible for the irrigation system shall agree to the terms contained in this Agreement.
- 13.0 O'Neill Entities and the District agree that no equipment which emits or may emit any air contaminant may be used, permanently or temporarily, to power or supplementally power the irrigation system without specific prior written approval by the District, which approval shall not be unreasonably withheld and where: (a) the new equipment is evaluated and approved in accordance with District Rules and Regulations; (b) the potential increase in emissions is entirely offset using the current District-approved Distance Offset Ratio; and (c) the Permit to Operate for the irrigation system is modified accordingly by the District.
- 13.1 The first exception to Condition 13.0 is that O'Neill Entities may use tailwater pumps, runoff pumps, ditch pumps and other accessories as necessary provided that the water being delivered to the service area did not originate from any internal combustion engine-powered deep well.
- 13.2 The second exception to Condition 13.0 is that O'Neill Entities may utilize booster pumps as necessary to supplement the irrigation system pressure, only if the pumped water travels through at least 238 feet of pipe as measured from the wellhead to the nearest booster pump. In lieu of this minimum distance requirement, booster pumps may be utilized provided that the discharge pressure on the wellhead, as measured by a permanently installed and operationally maintained pressure gage, is at least 20 psig.
- 13.3 The third exception to 13.0 is that O'Neill Entities may use an internal combustion engine-powered electrical generator to supply electrical power to the irrigation system as necessary during unforeseen electrical power outages, on an interim basis to mitigate damage to O'Neill Entities' crops until normal power is restored. Any electrical generator used under this section shall not be used in conjunction with any voluntary utility demand reduction program. Records of hours of internal combustion engine operation shall be maintained which identify the engine used, and include the date of operation, the number of hours of operation, the purpose of the operation (e.g., load testing, weekly testing, rolling blackout, general area power outage, etc.), and the sulfur content of the diesel fuel used. Such records shall be retained for a period of at least five years and made available for District inspection upon request.
- 14.0 O'Neill Entities, upon the sale or lease of the Service Area, will assign this Agreement and the Permit to Operate, and all rights, duties and obligations hereto, to the new owner. Assignment of this Agreement and all rights, duties and obligations will include a notice submitted to the District in the form of a completed District Transfer of Ownership application. Nothing in this Agreement shall be construed to diminish the District's authority to implement and enforce applicable state, federal, and local laws, rules and regulations.
- 15.0 O'Neill Entities grants to Valley Air Conditioning and Repair and the District, for the specific and sole purpose of exercising their respective responsibilities as defined in this Agreement and applicable law, the right of reasonable entry to the Service Area to monitor compliance with this Agreement during normal business hours.

- 16.0 All Parties to this Agreement warrant that each is duly authorized and empowered to bind such Party and there are no actions, suits, proceedings or other impediments, pending or threatened, which affect the performance of each Party's obligations under this Agreement.
- 17.0 All Parties agree that this Agreement constitutes a legal, valid and binding obligation on all Parties, enforceable in accordance with its terms and applicable law, and that its contents, including that of other documents incorporated by reference, are true and correct to the best of their knowledge.
- 18.0 O'Neill Entities and Valley Air Conditioning and Repair agree to, and will not contest, the District's jurisdiction over matters related to this Agreement; provided however, that neither O'Neill Entities nor Valley Air Conditioning and Repair are herein surrendering any right they may have under applicable law to challenge subsequent actions.
- 19.0 This Agreement, including the exhibits, made a part hereof, attached hereto and incorporated herein, forms the whole of the Agreement and may not be modified except in writing with the concurrence of all Parties. After such a time as any ERCs are issued, the Permit to Operate is acquired and after the Validation Period, this Agreement may not be modified except in writing with the concurrence of the District and O'Neill Entities.
- 20.0 If any condition of this Agreement, or the application of such condition shall be determined to be invalid, illegal or unenforceable for any reason, the remainder of the Agreement shall not be affected and every other condition of this Agreement shall be valid and enforceable to the fullest extent provided by law. Venue for any action to enforce this Agreement or its terms shall only occur in the appropriate court in Fresno County.
- 21.0 Exhibits and documents incorporated herein by reference:
 Exhibit A: Existing Engine Identification
 Exhibit B: Map/Description of Service Area
- 22.0 Notices shall be deemed to be given when faxed if proper documentation shows that the fax was received, or on the date registered mail is certified received to the following:

To O'Neill Entities:

1265 W Shaw Avenue, #101
 Fresno, CA 93711
 (559) 224-6000 (phone)
 (559)-224-2384 (fax)

To Valley Air Conditioning
 and Repair:

Valley Air Conditioning
 and Repair, Inc.
 1350 F Street
 Fresno, CA 93706
 (559) 237-3188 (phone)
 (559) 237-2867 (fax)

To District:

Director of Permit Services
 San Joaquin Valley APCD
 1990 E Gettysburg Avenue
 Fresno, CA 93726-0244
 (559) 230-6000 (phone)
 (559) 230-6061 (fax)

THE PARTIES, having read and approved the foregoing and as approved by their authorized officers, agree to be bound by the terms and conditions contained in this Agreement, execute this Agreement as of the Effective Date set forth above:

For O'Neill Entities:

For Valley Air Conditioning
and Repair:

For District:

O'Neill Farming
Enterprises, Inc.
Edwin R. O'Neill
President

Tobbie Hopper
President

Seyed Sadredin
Director of Permit Services

Dated: _____

Dated: _____

Dated: _____

For Excelsior Farms

Dated: _____

EXHIBIT A

Irrigation Engine(s) Retired:

One 750 horsepower Caterpillar model 3412 diesel-fired internal combustion engine, Serial Number 038S15467.

EXHIBIT B

Map of Service Area.

Exhibit C

Exhibit C is not applicable because the land owner of record, the owner of the equipment and the operators are all parties to this agreement.



San Joaquin Valley
Air Pollution Control District

March 5, 2002

Tobbie Hopper
Valley Air Conditioning and Repair
1350 F Street
Fresno, CA 93706

**Re: Notice of Preliminary Decision - Emission Reduction Credits
Project Number: C-1011235**

Dear Mr. Hopper:

Enclosed for your review and comment is the District's revised analysis of Valley Air Conditioning and Repair's application for Emission Reduction Credits (ERCs) resulting from the replacement of one ag-pump engine with an electric motor, at O'Neill Farming in Five Points. The quantity of ERCs proposed for banking is 18.2 tons-NO_x/year, 0.3 tons-SO_x/year, 0.9 tons-PM₁₀/year, 5.1 tons-CO/year and 1.9 tons-VOC/year.

The notice of preliminary decision for this project will be published approximately three days from the date of this letter. Please submit your written comments on this project within the 30-day public comment period which begins on the date of publication of the public notice.

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. Steven Roeder of Permit Services at (559) 230-5905.

Sincerely,

A handwritten signature in black ink, appearing to read "Seyed Sadredin".

Seyed Sadredin
Director of Permit Services

Enclosures

c: David Warner, Permit Services Manager
SS:SR

David L. Crow
Executive Director/Air Pollution Control Officer

Northern Region Office
4230 Kiernan Avenue, Suite 130
Modesto, CA 95356-9322
(209) 557-6400 ♦ FAX (209) 557-6475

Central Region Office
1990 E. Gettysburg Avenue
Fresno, CA 93726-0244
(559) 230-6000 ♦ FAX (559) 230-6061

Southern Region Office
2700 M Street, Suite 275
Bakersfield, CA 93301-2370
(661) 326-6900 ♦ FAX (661) 326-6985



San Joaquin Valley
Air Pollution Control District

March 5, 2002

Bridget Tollstrup
Sacramento Metro AQMD
777 12th St, 3rd Floor
Sacramento, CA 95814-1908

**Re: Notice of Preliminary Decision - Emission Reduction Credits
Project Number: C-1011235**

Dear Ms. Tollstrup:

Enclosed for your review and comment is the District's revised analysis of Valley Air Conditioning and Repair's application for Emission Reduction Credits (ERCs) resulting from the replacement of one ag-pump engine with an electric motor, at O'Neill Farming in Five Points. The quantity of ERCs proposed for banking is 18.2 tons-NO_x/year, 0.3 tons-SO_x/year, 0.9 tons-PM₁₀/year, 5.1 tons-CO/year and 1.9 tons-VOC/year.

The notice of preliminary decision for this project will be published approximately three days from the date of this letter. Please submit your written comments on this project within the 30-day public comment period which begins on the date of publication of the public notice.

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. Steven Roeder of Permit Services at (559) 230-5905.

Sincerely,

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Seyed Sadredin
Director of Permit Services

Enclosures

c: David Warner, Permit Services Manager
SS:SR

David L. Crow
Executive Director/Air Pollution Control Officer

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San Joaquin Valley
Air Pollution Control District

March 5, 2002

Larry Green
Yolo-Solano AQMD
1947 Galileo Ct, Suite 103
Davis, CA 95616

**Re: Notice of Preliminary Decision - Emission Reduction Credits
Project Number: C-1011235**

Dear Mr. Green:

Enclosed for your review and comment is the District's revised analysis of Valley Air Conditioning and Repair's application for Emission Reduction Credits (ERCs) resulting from the replacement of one ag-pump engine with an electric motor, at O'Neill Farming in Five Points. The quantity of ERCs proposed for banking is 18.2 tons-NO_x/year, 0.3 tons-SO_x/year, 0.9 tons-PM₁₀/year, 5.1 tons-CO/year and 1.9 tons-VOC/year.

The notice of preliminary decision for this project will be published approximately three days from the date of this letter. Please submit your written comments on this project within the 30-day public comment period which begins on the date of publication of the public notice.

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. Steven Roeder of Permit Services at (559) 230-5905.

Sincerely,

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Seyed Sadredin
Director of Permit Services

Enclosures

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SS:SR

David L. Crow
Executive Director/Air Pollution Control Officer

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4230 Kiernan Avenue, Suite 130
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2700 M Street, Suite 275
Bakersfield, CA 93301-2370
(661) 326-6900 ♦ FAX (661) 326-6985



San Joaquin Valley
Air Pollution Control District

March 5, 2002

Mike Tollstrup, Chief
Project Assessment Branch
Stationary Source Division
California Air Resources Board
PO Box 2815
Sacramento, CA 95812-2815

**Re: Notice of Preliminary Decision - Emission Reduction Credits
Project Number: C-1011235**

Dear Mr. Tollstrup:

Enclosed for your review and comment is the District's revised analysis of Valley Air Conditioning and Repair's application for Emission Reduction Credits (ERCs) resulting from the replacement of one ag-pump engine with an electric motor, at O'Neill Farming in Five Points. The quantity of ERCs proposed for banking is 18.2 tons-NO_x/year, 0.3 tons-SO_x/year, 0.9 tons-PM₁₀/year, 5.1 tons-CO/year and 1.9 tons-VOC/year.

The notice of preliminary decision for this project will be published approximately three days from the date of this letter. Please submit your written comments on this project within the 30-day public comment period which begins on the date of publication of the public notice.

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. Steven Roeder of Permit Services at (559) 230-5905.

Sincerely,

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Seyed Sadredin
Director of Permit Services

Enclosures

c: David Warner, Permit Services Manager
SS:SR

David L. Crow
Executive Director/Air Pollution Control Officer



San Joaquin Valley
Air Pollution Control District

March 5, 2002

Gerardo C. Rios (AIR 3)
Acting Chief, Permits Office
Air Division
U.S. E.P.A. - Region IX
75 Hawthorne Street
San Francisco, CA 94105

Re: Notice of Preliminary Decision - Emission Reduction Credits
Project Number: C-1011235

Dear Mr. Rios:

Enclosed for your review and comment is the District's revised analysis of Valley Air Conditioning and Repair's application for Emission Reduction Credits (ERCs) resulting from the replacement of one ag-pump engine with an electric motor, at O'Neill Farming in Five Points. The quantity of ERCs proposed for banking is 18.2 tons-NO_x/year, 0.3 tons-SO_x/year, 0.9 tons-PM₁₀/year, 5.1 tons-CO/year and 1.9 tons-VOC/year.

The notice of preliminary decision for this project will be published approximately three days from the date of this letter. Please submit your written comments on this project within the 30-day public comment period which begins on the date of publication of the public notice.

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. Steven Roeder of Permit Services at (559) 230-5905.

Sincerely,

A handwritten signature in black ink, appearing to read "Seyed Sadredin".

Seyed Sadredin
Director of Permit Services

Enclosures
c: David Warner, Permit Services Manager
SS:SR

David L. Crow
Executive Director/Air Pollution Control Officer

Fresno Bee

**NOTICE OF PRELIMINARY DECISION
FOR THE PROPOSED ISSUANCE OF
EMISSION REDUCTION CREDITS**

NOTICE IS HEREBY GIVEN that the San Joaquin Valley Unified Air Pollution Control District solicits public comment on the proposed issuance of Emission Reduction Credits (ERCs) to Valley Air Conditioning and Repair for the replacement of one ag-pump engine with an electric motor, at O'Neill Farming in Five Points. The quantity of ERCs proposed for banking is 18.2 tons-NO_x/year, 0.3 tons-SO_x/year, 0.9 tons-PM₁₀/year, 5.1 tons-CO/year and 1.9 tons-VOC/year.

The analysis of the regulatory basis for these proposed actions, Project #C-1011235, is available for public inspection at the District office at the address below. Written comments on this project must be submitted within 30 days of the publication date of this notice to **SEYED SADREDIN, DIRECTOR OF PERMIT SERVICES, SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT.**

Diesel Engine Retirement Agreement

ERC Project C-1011235

This agreement is made between O'Neill Farming Enterprises, Inc. and La Paloma Farms, LLC, known collectively herein as O'Neill Entities, Valley Air Conditioning and Repair, and the San Joaquin Valley Unified Air Pollution Control District (the "District") (collectively, the "Parties").

RECITALS

WHEREAS, the District is a duly formed governmental entity responsible for achieving and maintaining clean air quality in the San Joaquin Valley;

WHEREAS, pursuant to California Health and Safety Code sections 40709 through 40714.5, the District has adopted Rules and Regulations providing for the creation and use of emission reduction credits ("ERCs") which are real, surplus, quantifiable, permanent and enforceable;

WHEREAS, O'Neill Entities proposes to have its existing primary groundwater extraction engine in Service Area replaced with a new electric motor;

WHEREAS, O'Neill Entities enters this agreement for the purpose of generating emissions reductions within the San Joaquin Valley Air Basin and to create ERCs to be banked with the District;

WHEREAS, Valley Air Conditioning and Repair enters this agreement solely to create ERCs for its benefit and for the benefit of air quality in the region by reducing emissions from agricultural equipment which is currently exempt from the requirement of having a written permit;

NOW, THEREFORE, the Parties hereto agree as follows:

AGREEMENT

1.0 Terms used herein are defined as follows:

- (a) "Effective Date" of this agreement shall mean the date of acceptance of this agreement by the District.
- (b) "Service Area" shall mean all of Section 4, Township 18S, Range 17E, Mount Diablo Base and Meridian as set forth in Exhibit "B", attached hereto, and incorporated herein. The Service Area includes 786 acres, fields 4-1, 4-2, 4-A2, 4-2N, 4-2S, 4-3 and 4-4.
- (c) "well" shall mean the deep water well located on the southwest quarter section of the Service Area, as identified in Exhibit "B".
- (d) "primary groundwater extraction engine" shall mean the diesel engine used to power the well, as identified in Exhibit "A", attached hereto and incorporated herein.
- (e) "new electric motor" shall mean the new electric motor provided by Valley Air Conditioning and Repair that will replace the primary groundwater extraction engine.
- (f) "farmland" shall mean lands within the Service Area that are planted, cultivated and irrigated using the new electric motor.

(g) "irrigation system" shall mean ^{the well and} any and all piping, pumps and accessories which ^{are used to} ~~deliver water into and~~ irrigate any or all of the Service Area, ~~including the well.~~

- 2.0 District agrees that O'Neill Entities in cooperation with Valley Air Conditioning and Repair are voluntarily reducing air pollution by replacing the primary groundwater extraction engine with a new electric motor for the purpose of creating ERCs, and District is aware of no regulatory impediment, existing or pending, which would prevent the use of ERCs generated pursuant to this Agreement.
- 3.0 O'Neill Entities agrees to replace ~~its existing primary groundwater extraction engine as identified in Exhibit "A", which irrigates Service Area as identified in Exhibit "B", attached hereto and incorporated herein,~~ with ^{the} new electric motor provided by Valley Air Conditioning and Repair.
- 4.0 District agrees to issue ERCs to Valley Air Conditioning and Repair for actual emission reductions as quantified by the District in accordance with District Rules and Regulations. 80% of the Bankable ERCs will be issued pending a successful Public Noticing period. The remaining 20% will be issued or withheld, partially or in full, pending a site-specific validation of the assumptions made in evaluating the Baseline Emissions.
- 5.0 O'Neill Entities agrees to acquire a Permit to Operate, ^{that} for the irrigation system, ~~which~~ irrigates the Service Area covered by this agreement, from the District, and to maintain the Permit to Operate until the Permit to Operate is permanently relieved or replaced in writing by the District.
- 6.0 Valley Air Conditioning and Repair and O'Neill Entities agree that the post-project new electric motor serving the Service Area will be fitted with a non-resettable kilowatt-hour meter. This requirement may be satisfied with the use of the electric utility's billing meter if and only if the billing meter exclusively serves the electric motor referenced herein.
- 7.0 O'Neill Entities agrees to maintain records of monthly kilowatt-hour use of the new electric motor for a period of at least 12 months (Validation Period). The District will use said records to validate the baseline emissions prior to issuing any or all of the final 20% of the Bankable ERCs.
- 8.0 O'Neill Entities represents and warrants that it owns the Service Area, that O'Neill Entities owns the primary groundwater extraction engine being removed and the irrigation system covered by this Agreement, and that O'Neill Entities has all rights and authority to enter into this binding Agreement.
- 9.0 O'Neill Entities agrees to render the removed primary groundwater extraction engine inoperable by drilling or knocking a hole in the block, welding the cylinder head shut, obtaining written proof from a scrap yard that the removed Engine(s) has been destroyed or otherwise rendered inoperable, or other method approved in advance by the District, and to submit proof of such destruction of the removed engine to the District prior to the issuance of any related ERCs.
- 10.0 The District maintains the right to witness the destruction of the primary groundwater extraction engine and Parties agree to notify the District at least 14 days prior to the destruction of the engine.
- 11.0 O'Neill Entities agrees that the service area shall not be irrigated with any water that was pumped from any internal combustion engine-powered deep well.

- 12.0 O'Neill Entities agrees that replacement of the primary groundwater extraction engine with a new electric motor will remain in effect as long as any of the Service Area covered by this Agreement remains farmland, and agrees to disclose in writing the existence of this Agreement to any other entity which may come to own or become responsible for operating the irrigation system for the Service Area described. To ensure the permanence of this Agreement, this Agreement shall be recorded by the County Registrar. Any future entity that becomes responsible for the irrigation system shall agree to the terms contained in this Agreement.
- 13.0 O'Neill Entities and the District agree that no equipment which emits or may emit any air contaminant may be used, permanently or temporarily, to power or supplementally power the irrigation system without specific prior written approval by the District, which approval shall not be unreasonably withheld and where: (a) the new equipment is evaluated and approved in accordance with District Rules and Regulations; (b) the potential increase in emissions is entirely offset using the current District-approved Distance Offset Ratio; and (c) the Permit to Operate for the irrigation system is modified accordingly by the District.
- 13.1 The first exception to Condition 13.0 is that O'Neill Entities may use tailwater pumps, runoff pumps, ditch pumps and other accessories as necessary provided that the water being delivered to the service area did not originate from any internal combustion engine-powered deep well.
- 13.2 The second exception to Condition 13.0 is that O'Neill Entities may utilize booster pumps as necessary to supplement the irrigation system pressure, only if the pumped water travels through at least 238 feet of pipe as measured from the wellhead to the nearest booster pump. In lieu of this minimum distance requirement, booster pumps may be utilized provided that the discharge pressure on the wellhead, as measured by a permanently installed and operationally maintained pressure gage, is at least 20 psig.
- 13.3 The third exception to 13.0 is that O'Neill Entities may use an internal combustion engine-powered electrical generator to supply electrical power to the irrigation system as necessary during unforeseen electrical power outages, on an interim basis to mitigate damage to O'Neill Entities' crops until normal power is restored. Any electrical generator used under this section shall not be used in conjunction with any voluntary utility demand reduction program. Records of hours of internal combustion engine operation shall be maintained which identify the engine used, and include the date of operation, the number of hours of operation, the purpose of the operation (e.g., load testing, weekly testing, rolling blackout, general area power outage, etc.), and the sulfur content of the diesel fuel used. Such records shall be retained for a period of at least five years and made available for District inspection upon request.
- 14.0 O'Neill Entities, upon the sale or lease of the Service Area, will assign this Agreement and the Permit to Operate, and all rights, duties and obligations hereto, to the new owner. Assignment of this Agreement and all rights, duties and obligations will include a notice submitted to the District in the form of a completed District Transfer of Ownership application. Nothing in this Agreement shall be construed to diminish the District's authority to implement and enforce applicable state, federal, and local laws, rules and regulations.
- 15.0 O'Neill Entities grants to Valley Air Conditioning and Repair and the District, for the specific and sole purpose of exercising their respective responsibilities as defined in this Agreement and applicable law, the right of reasonable entry to the Service Area to monitor compliance with this Agreement during normal business hours.

- 16.0 All Parties to this Agreement warrant that each is duly authorized and empowered to bind such Party and there are no actions, suits, proceedings or other impediments, pending or threatened, which affect the performance of each Party's obligations under this Agreement.
- 17.0 All Parties agree that this Agreement constitutes a legal, valid and binding obligation on all Parties, enforceable in accordance with its terms and applicable law, and that its contents, including that of other documents incorporated by reference, are true and correct to the best of their knowledge.
- 18.0 O'Neill Entities and Valley Air Conditioning and Repair agree to, and will not contest, the District's jurisdiction over matters related to this Agreement. *add stuff they wanted added.*
- 19.0 This Agreement, including the exhibits, made a part hereof, attached hereto and incorporated herein, forms the whole of the Agreement and may not be modified except in writing with the concurrence of all Parties. After such a time as any ERCs are issued, the Permit to Operate is acquired and after the Validation Period, this Agreement may not be modified except in writing with the concurrence of the District and O'Neill Entities.
- 20.0 If any condition of this Agreement, or the application of such condition shall be determined to be invalid, illegal or unenforceable for any reason, the remainder of the Agreement shall not be affected and every other condition of this Agreement shall be valid and enforceable to the fullest extent provided by law. Venue for any action to enforce this Agreement or its terms shall only occur in the appropriate court in Fresno County.
- 21.0 Exhibits and documents incorporated herein by reference:
- Exhibit A: Existing Engine Identification
- Exhibit B: Map/Description of Service Area
- 22.0 Notices shall be deemed to be given when faxed if proper documentation shows that the fax was received, or on the date registered mail is certified received to the following:

To O'Neill Entities:

1265 W Shaw Avenue, #101
Fresno, CA 93711
(559) 224-6000 (phone)
(559)-224-2384 (fax)

To Valley Air Conditioning
and Repair:

Valley Air Conditioning
and Repair, Inc.
1350 F Street
Fresno, CA 93706
(559) 237-3188 (phone)
(559) 237-2867 (fax)

To District:

Director of Permit Services
San Joaquin Valley APCD
1990 E Gettysburg Avenue
Fresno, CA 93726-0244
(559) 230-6000 (phone)
(559) 230-6061 (fax)

THE PARTIES, having read and approved the foregoing and as approved by their authorized officers, agree to be bound by the terms and conditions contained in this Agreement, execute this Agreement as of the Effective Date set forth above:

For O'Neill Entities:

For Valley Air Conditioning
and Repair:

For District:

O'Neill Farming
Enterprises, Inc.
Edwin R. O'Neill
President

Tobbie Hopper
President

Sayed Sadredin
Director of Permit Services

Dated: _____

Dated: _____

Dated: _____

For Excelsior Farms

Dated: _____

Diesel Engine Retirement Agreement

ERC Project C-1011235

This agreement is made between O'Neill Farming Enterprises, Inc. and La Paloma Farms, LLC, known collectively herein as O'Neill Entities, Valley Air Conditioning and Repair, and the San Joaquin Valley Unified Air Pollution Control District (the "District") (collectively, the "Parties"). ~~The Effective Date of this Agreement shall be the date of acceptance by the District. This Agreement shall cover all engines and electric motors used for irrigating the land area described as: Section 4, Township 18S, Range 17E, Mount Diablo Base and Meridian ("Service Area"). The Service Area includes 786 acres, fields 4-1, 4-2, 4-A2, 4-2N, 4-2S, 4-3 and 4-4.~~

RECITALS

WHEREAS, the District is a duly formed governmental entity responsible for achieving and maintaining clean air quality in the San Joaquin Valley;

WHEREAS, pursuant to California Health and Safety Code sections 40709 through 40714.5, the District has adopted Rules and Regulations providing for the creation and use of emission reduction credits ("ERCs") which are real, surplus, quantifiable, permanent and enforceable;

WHEREAS, O'Neill Entities proposes to have its existing primary groundwater extraction engine in Service Area replaced with a new electric motor;

WHEREAS, O'Neill Entities enters this agreement for the purpose of generating emissions reductions within the San Joaquin Valley Air Basin and to create ERCs to be banked with the District;

WHEREAS, Valley Air Conditioning and Repair enters this agreement solely to create ERCs for its benefit and for the benefit of air quality in the region by reducing emissions from agricultural equipment which is currently exempt from the requirement of having a written permit;

NOW, THEREFORE, the Parties hereto agree as follows:

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- (b) "Service Area" shall mean all of Section 4, Township 18S, Range 17E, Mount Diablo Base and Meridian as set forth in Exhibit "B", attached hereto, and incorporated herein. The Service Area includes 786 acres, fields 4-1, 4-2, 4-A2, 4-2N, 4-2S, 4-3 and 4-4..
- (c) "well" shall mean the deep water well located on the southwest quarter section of the Service Area, as identified in Exhibit "B".
- (d) "primary groundwater extraction engine" shall mean the diesel engine used to power the well, as identified in Exhibit "A", attached hereto and incorporated herein.
- (e) "new electric motor" shall mean the new electric motor provided by Valley Air Conditioning and Repair that will replace the primary groundwater extraction engine.

NOT TOO BAD?

OK, but we said
we'd make most of
their changes. See
notes where I think
we didn't do so.

(f) "farmland" shall mean lands within the Service Area that are planted, cultivated and irrigated using the new electric motor.

(g) "irrigation system" shall mean any and all piping, pumps and accessories which deliver water into and irrigate any or all of the Service Area, including the well.

2.0 District agrees that O'Neill Entities in cooperation with Valley Air Conditioning and Repair are voluntarily reducing air pollution by replacing the primary groundwater extraction engine with a new electric motor for the purpose of creating ERCs, and District is aware of no regulatory impediment, existing or pending, which would prevent the use of ERCs generated pursuant to this Agreement.

changes 3.0 O'Neill Entities agrees to replace its existing primary groundwater extraction ~~irrigation~~ engine as identified in Exhibit "A", which irrigates Service Area as identified in Exhibit "B", attached hereto and incorporated herein, with a new electric motor provided by Valley Air Conditioning and Repair.

4.0 District agrees to issue ERCs to Valley Air Conditioning and Repair for actual emission reductions as quantified by the District in accordance with District Rules and Regulations. 80% of the Bankable ERCs will be issued pending a successful Public Noticing period. The remaining 20% will be issued or withheld, partially or in full, pending a site-specific validation of the assumptions made in evaluating the Baseline Emissions.

changes 5.0 O'Neill Entities agrees to acquire a Permit to Operate for the irrigation system, which irrigates the Service Area covered by this agreement, from the District, and to maintain the Permit to Operate until the Permit to Operate is permanently relieved or replaced in writing by the District.

6.0 Valley Air Conditioning and Repair and O'Neill Entities agree that the post-project ~~irrigation system~~ new electric motor serving the Service Area will be fitted with a non-resettable kilowatt-hour meter. This requirement may be satisfied with the use of the electric utility's billing meter if and only if the billing meter exclusively serves the electric motor referenced herein.

7.0 O'Neill Entities agrees to maintain records of monthly kilowatt-hour use of the new electric motor for a period of at least 12 months (Validation Period). The District will use said records to validate the baseline emissions prior to issuing any or all of the final 20% of the Bankable ERCs.

8.0 O'Neill Entities represents and warrants that it owns the ~~land upon which the irrigation system is situated~~ Service Area, that O'Neill Entities owns the primary groundwater extraction engine being removed and the irrigation system covered by this Agreement, and that O'Neill Entities has all rights and authority to enter into this binding Agreement. ~~If O'Neill Entities leases the land....~~

9.0 O'Neill Entities agrees to render the removed primary groundwater extraction engine inoperable by drilling or knocking a hole in the block, welding the cylinder head shut, obtaining written proof from a scrap yard that the removed Engine(s) has been destroyed or otherwise rendered inoperable, or other method approved in advance by the District, and to submit proof of such destruction of the removed engine to the District prior to the issuance of any related ERCs.

10.0 The District maintains the right to witness the destruction of the primary groundwater extraction engine and Parties agree to notify the District at least 14 days prior to the destruction of the engine.

11.0 O'Neill Entities agrees that replacement of the primary groundwater extraction engine with a new electric motor will remain in effect as long as any of the Service Area covered by this Agreement remains farmland, and agrees to disclose in writing the existence of this Agreement to any other entity which may come to own or become responsible for operating the irrigation system for the Service Area described. To ensure the permanence of this Agreement, this Agreement shall be recorded by the County Registrar. Any future entity which becomes responsible for the irrigation system shall agree to the terms contained in this Agreement.

12.0 O'Neill Entities and the District agree that no equipment which emits or may emit any air contaminant may be used, permanently or temporarily, to power or supplementally power the irrigation system without specific prior written approval by the District, which approval shall not be unreasonably withheld and where: (a) the new equipment is evaluated and approved in accordance with District Rules and Regulations; (b) the potential increase in emissions is entirely offset using the current District-approved Distance Offset Ratio; and (c) the Permit to Operate for the irrigation system is modified accordingly by the District. The service area shall not be supplied with any water that was pumped from any internal combustion engine-powered deep well.

12.1 The first exception to Condition 12.0 is that O'Neill Entities may use tailwater pumps, runoff pumps, ditch pumps and other accessories as necessary provided that the water being delivered to the service area did not originate from any internal combustion engine-powered deep well.

12.2 The second exception to Condition 12.0 is that O'Neill Entities may utilize booster pumps as necessary to supplement the irrigation system pressure, only if the pumped water travels through at least 238 feet of pipe as measured from the wellhead to the nearest booster pump. In lieu of this minimum distance requirement, booster pumps may be utilized provided that the discharge pressure on the wellhead, as measured by a permanently installed and operationally maintained pressure gage, is at least 20 psig.

12.3 The third exception to 12.0 is that O'Neill Entities may use an internal combustion engine-powered electrical generator to supply electrical power to the irrigation system as necessary during unforeseen power outages. Any electrical generator used under this section shall not be used in conjunction with any voluntary utility demand reduction program. Records of hours of internal combustion engine operation shall be maintained which identify the engine used, and include the date of operation, the number of hours of operation, the purpose of the operation (e.g., load testing, weekly testing, rolling blackout, general area power outage, etc.), and the sulfur content of the diesel fuel used. Such records shall be retained on-site for a period of at least five years and made available for District inspection upon request.

13.0 O'Neill Entities, upon the sale or lease of the Service Area, will assign this Agreement and the Permit to Operate, and all rights, duties and obligations hereto, to the new owner. Assignment of this Agreement and all rights, duties and obligations will include a notice submitted to the District in the form of a completed District Transfer of Ownership application. Nothing in this Agreement shall be construed to diminish the District's authority to implement and enforce applicable state, federal, and local laws, rules and regulations.

missing condition? →

O'Neill but agrees that... good, leave as is ✓

The service area shall not be supplied with any water that was pumped from any internal combustion engine-powered deep well. *major irrigation ✓*

generator to O'Neill Entities crops until normal power is restored.

14.0 O'Neill Entities grants to Valley Air Conditioning and Repair and the District, for the specific and sole purpose of exercising their respective responsibilities as defined in this Agreement and applicable law, the right of reasonable entry to the Service Area to monitor compliance with this Agreement during normal business hours.

15.0 All Parties to this Agreement warrant that each is duly authorized and empowered to bind such Party and there are no actions, suits, proceedings or other impediments, pending or threatened, which affect the performance of each Party's obligations under this Agreement.

16.0 All Parties agree that this Agreement constitutes a legal, valid and binding obligation on all Parties, enforceable in accordance with its terms and applicable law, and that its contents, including that of other documents incorporated by reference, are true and correct to the best of their knowledge.

Changes

17.0 O'Neill Entities and Valley Air Conditioning and Repair agree to, and will not contest, the District's jurisdiction over matters related to this Agreement.

18.0 This Agreement, including the exhibits, made a part hereof, attached hereto and incorporated herein, forms the whole of the Agreement and may not be modified except in writing with the concurrence of all Parties. After such a time as any ERCs are issued, the Permit(s) to Operate ~~are~~ is acquired and after the Validation Period, this Agreement may not be modified except in writing with the concurrence of the District and O'Neill Entities.

19.0 If any condition of this Agreement, or the application of such condition shall be determined to be invalid, illegal or unenforceable for any reason, the remainder of the Agreement shall not be affected and every other condition of this Agreement shall be valid and enforceable to the fullest extent provided by law. Venue for any action to enforce this Agreement or its terms shall only occur in the appropriate court in Fresno County.

20.0 Exhibits and documents incorporated herein by reference:

Exhibit A: Existing Engine Identification

Exhibit B: Map/Description of Service Area

21.0 Notices shall be deemed to be given when faxed if proper documentation shows that the fax was received, or on the date registered mail is certified received to the following:

To O'Neill Entities:

1265 W Shaw Avenue, #101
Fresno, CA 93711
Fax (559)-224-2384

To Valley Air Conditioning
and Repair:

[Redacted area with a checkmark]

To District:

Director of Permit Services
San Joaquin Valley APCD
1990 E Gettysburg Avenue
Fresno, CA 93726-0244
(559) 230-6000 (phone)
(559) 230-6061 (fax)

gone ✓

THE PARTIES, having read and approved the foregoing and as approved by their authorized officers, agree to be bound by the terms and conditions contained in this Agreement, execute this Agreement as of the Effective Date set forth above:

For O'Neill Entities:

For Valley Air Conditioning
and Repair:

For District:

O'Neill Farming
Enterprises, Inc.
Edwin R. O'Neill
~~Chief Executive Officer~~
President

Tobbie Hopper
President

Syed Sadredin
Director of Permit Services

Dated: _____

Dated: _____

Dated: _____

For Excelsior Farms

Dated: _____

San Joaquin Valley Air Pollution Control District Memo

Date: September 5, 2002
To: Dave Warner
From: Steve Roeder
Subject: Comments on Revision to Valley Air Contract

1. The contract would be best made between the District and the Permit holder, upon whom we have direct enforcement over.

Any extra parties involved, such as the land owner, who are interested in an agreement should be made between themselves and the permittee.

If O'Neill Entities is a legal business recognized in the state of California and is guaranteed to hold up for the life of the permit (for ever), then we might consider permitting O'Neill Entities.

If we don't drop everyone else, and there is an enforcement action, since we've decided that the ERC's are permanent (which means we won't go after Valley Air Conditioning) then anyone other than the permit holder in the agreement means the District could get tied up in litigation for decades, which is something the EPA recognized as a problem.

No
dw I recommend that we drop Valley Air Conditioning and all of the other parties from the agreement, leaving only O'Neill Farming Enterprises.

Our condition requiring the ^{service area} farmland to never be fit with a deep-well diesel stands, no matter who "owns" the land. I'd wager that lots of businesses to which we issue permits operate in rented buildings, and we have never issued a permit or agreement to the building owner.

If O'Neill can't get the land owner to agree to their satisfaction that no engine will ever live there, then 1) We're permitting the wrong guy, and/or 2) They'll get beat and have to supply offsets for entering ~~into~~ an agreement they had no business entering. In either case, it's not the District's problem...

2. The fact that Valley Air has filed the application is great. Since it is up to the District to verify the fact that there used to be an engine there, and that a new electric motor is there now, and since Valley Air will not be contacted in the event of breach of permit or contract, then I see no reason they should even be involved in the contract.

pls
dw If O'Neill decides that they want a piece of the ERC action at a later date, maybe due to the extreme permit fees and operational costs (or whatever), then that's between O'Neill and Valley Air, and has nothing to do with the District.

"The ERC's will be issued to a third party" should cover it in the agreement. Beyond that, Valley Air has nothing to agree to. If they don't put in the motor, no ERC's are generated.

3. In 1.e,

"new electric motor" shall mean a new electric motor provided by Valley Air that will replace the primary groundwater extraction engine, *which is the principal subject of this Agreement.*

Phut?

The bit "*which is the principal subject of this Agreement*" is arguable and misleading, and although seemingly harmless, it could have some legal interpretation of which I haven't a clue, which could compromise this agreement.

Therefore, I recommend removing ~~that bit~~ it.

4. In 1.f,

"farmland" shall mean lands within the Service Area that are ~~annually~~ planted, cultivated and irrigated using the new electric motor.

Definitely delete "annually" OWS

"Annually planted, cultivated" are nice, however, are not necessary. By the same reasoning as for 3 above, this added term could have a legal interpretation that compromises the agreement, and should be eliminated.

5. In 1.g,

(g) "Transfer of Ownership Application" shall mean an application in the form and substance as that contained in Exhibit "D" attached hereto and incorporated herein by this reference.

I don't know about "form and substance", but I recommend that (g) should be eliminated and that "Transfer of Ownership Application" should be replaced in the body of the agreement with "District Transfer of Ownership Application". *I agree w/ Steve*

No exhibit, Form may change

~~6. 4.0 can now be re-written to eliminate the reference to Valley Air. *so can the rest of the document.*~~

7. All of section 3 can go away, now.

3.0 District agrees to issue ERCs to Valley Air for actual emission reductions as quantified by the District in accordance with District Rules and Regulations. 80% of the Bankable ERCs will be issued pending a successful Public Noticing period. The remaining 20% will be issued or withheld, partially or in full, pending a site-specific validation of the assumptions made in evaluating the Baseline Emissions.

3.0 has nothing to do with enforcement. It could go on a cover page or in a letter of issuance, or in the public notice.

I guess keeping it doesn't hurt, however, I recommend scrapping it.

No, 20% still pending (if not a request to change)

8. Regarding 4.0.

O'Neill Entities agrees to acquire a Permit to Operate for the new electric motor, which powers the well to irrigate the Service Area from the District, and to maintain the Permit to Operate until the Permit to Operate is permanently relieved or replaced in writing by the District.

Agree, not settled, I think not done

It seems like we must permit the irrigation system, or perhaps "any and all components delivering water to ~~and/or transporting water within~~ the service area".

This point is not completely settled, and it is clear that permitting the motor will not work. We need direct enforcement over the entire system and the service area.

9. In 5.0, we can eliminate "post-project". *Not asked for.*

10. In 6.0,

O'Neill Entities agrees to maintain records of monthly kilowatt-hour use of the new electric motor for a period of at least 12 months (Validation Period). The District will use said records to validate the baseline emissions prior to issuing any or all of the final 20% of the Bankable ERCs.

We can skip the reference to the Validation period. The reason we are requiring record keeping is not open to discussion. Therefore, we can simply say:

not requested

"O'Neill Entities agrees to maintain records of monthly kilowatt-hour use of the new electric motor for a period of at least 12 months."

11. The proposed #10.0:

O'Neill Entities agrees that the well covered by this Agreement shall not be powered in whole or in part by any other internal combustion engine power source, provided however, than in the event of an electrical power outage, O'Neill Entities will be entitled to use an internal combustion powered portable generator on an interim basis to mitigate damage to O'Neill Entities crops until normal power is restored.

OK

I agree that they should be able to use a diesel generator in the event of an emergency and unforeseen power outage situation, and in which case, this should be moved to section 12.3.

However, the proposed wording needs to preclude the possibility of simply unhooking the electrical power supply to the motor.

12? No. Done

17? Phil?

San Joaquin Valley Air Pollution Control District

Memo

Date: September 13, 2002
To: Dave Warner
From: Steve Roeder
Subject: Comments on Revision to Valley Air Contract

1. In 1.e,

"new electric motor" shall mean a new electric motor provided by Valley Air that will replace the primary groundwater extraction engine, *which is the principal subject of this Agreement*.

The bit "*which is the principal subject of this Agreement*" is arguable and misleading, and although seemingly harmless, it could have some legal interpretation which could compromise this agreement.

Therefore, I recommend removing it.

2. In 1.f,

"farmland" shall mean lands within the Service Area that are annually planted, cultivated and irrigated using the new electric motor.

"Annually planted, cultivated" are nice, however, are not necessary. By the same reasoning as for 1 above, this added term could have a legal interpretation that compromises the agreement, and should be eliminated.

Therefore, we will eliminate the word "annually".

3. In 1.g,

(g) "Transfer of Ownership Application" shall mean an application in the form and substance as that contained in Exhibit "D" attached hereto and incorporated herein by this reference.

I don't know about "form and substance", but I recommend that (g) should be eliminated and that "Transfer of Ownership Application" should be replaced in the body of the agreement with "District Transfer of Ownership Application". In addition, it must not be an exhibit because the District Transfer of Ownership is subject to revision by the District.

4. Regarding 4.0.

O'Neill Entities agrees to acquire a Permit to Operate for the new electric motor, which powers the well to irrigate the Service Area from the District, and to maintain the Permit to Operate until the Permit to Operate is permanently relieved or replaced in writing by the District.

We must permit "any and all components delivering water to the service area", in order to preclude the possibility of having a diesel-powered deep well supply water to the service area. Therefore, "O'Neill Entities agrees to acquire a Permit to Operate for the new electric motor and any and all components delivering water to the service area..."

5. Regarding 5.0,

Valley Air and O'Neill Entities agree that the post-project new electric motor serving the Service Area will be fitted with a non-resettable kilowatt-hour meter. This requirement may be satisfied with the use of the electric utility's billing meter if and only if the billing meter exclusively serves only the electric motor(s) referenced herein.

While "irrigation system" may be replaced with "electric motor", "only" cannot be simply removed. The intent of this is to demonstrate that the new electric motor will operate at a certain minimum level. By allowing other electrical equipment to be hooked up to the utility service meter, the number of kilowatt-hours displayed on the meter will artificially inflate the number of horse power will be artificially high, defeating the purpose of having the electric motor's operation monitored.

6. The proposed #10.0:

O'Neill Entities agrees that the well covered by this Agreement shall not be powered in whole or in part by any other internal combustion engine power source, provided however, that in the event of an electrical power outage, O'Neill Entities will be entitled to use an internal combustion powered portable generator on an interim basis to mitigate damage to O'Neill Entities crops until normal power is restored.

I agree that they should be able to use a diesel generator in the event of an emergency and unforeseen power outage situation, and in which case, this should be moved to section 12.3.

7. Regarding the proposed elimination of 12.1:

The first exception to Condition 12.0 is that O'Neill Entities may use tailwater pumps, runoff pumps or ditch pumps as necessary provided that water being pumped originated from the electrically powered primary groundwater extraction well described herein.

According to the Notice of Final Action for Project 1011235, which states:

"This project is based on the banking of the emission reductions that resulted from the replacement of a diesel-fired deep well ground water extraction pump with an electric pump. Our intent is to ensure that all of the water which would have been pumped by the diesel is now pumped by the new electric motor, and that the duty of the new electric motor is not compromised by having any of this land parcel irrigated by any water that was pumped from any engine-driven deep well pump. The pumping of surface water will therefore be acceptable and Permit Condition 5 on this permit as well as the previously issued Permit for ERC Project 1010806 will be revised as follows.

Owner/Operator may use tail water pumps, runoff pumps and/or ditch water pumps as necessary to transfer water being pumped from the electrically powered groundwater extraction well described in the Agreement, but may not deliver, or transfer water from any internal combustion engine powered groundwater extraction well to this parcel from any other point."

Therefore, condition 12.0 is necessary to prohibit the use of any engine which could compromise the permanence of the emissions reductions.

Since certain engines will be allowed to be used, Sections 12.1 and 12.2 are also necessary to spell out the exceptions which allow ancillary devices to be used.

However, in order to clarify the intent of this section, Condition 12.0 will be rewritten as follows:

- 12.0 O'Neill Entities and the District agree that no equipment which emits or may emit any air contaminant may be used, permanently or temporarily, to power or supplementally power the new electric motor or any components delivering water to the service area without specific prior written approval by the District, which approval shall not be unreasonably withheld and where: (a) the new equipment is evaluated and approved in accordance with District Rules and Regulations; (b) the potential increase in emissions is entirely offset using the current District-approved Distance Offset Ratio; and (c) the Permit to Operate for the irrigation system is modified accordingly by the District.
- 12.1 The first exception to Condition 12.0 is that O'Neill Entities may use tailwater pumps, runoff pumps or ditch pumps as necessary provided that water being pumped did not originate from any internal combustion engine-powered deep well.
- 12.2 The second exception to Condition 12.0 is that O'Neill Entities may utilize booster pump(s) as necessary to supplement the irrigation system pressure, only if the pumped water travels through at least 238 feet of pipe as measured from the wellhead to the nearest booster pump. In lieu of this minimum distance requirement, booster pump(s) may be utilized provided that the discharge pressure on the wellhead, as measured by a permanently installed and operationally maintained pressure gage, is at least 20 psig.
- 12.3 The third exception to 12.0 is that O'Neill Entities may use an electrical generator to supply electrical power to the new electric motor as necessary during unforeseen power outages. Any electrical generator used for under this section shall not be used in conjunction with any voluntary utility demand reduction program. Records of hours of internal combustion engine operation shall be maintained which include the date of operation, the number of hours of operation, the purpose of the operation (e.g., load testing, weekly testing, rolling blackout, general area power outage, etc.), and the sulfur content of the diesel fuel used. Such records shall be retained on-site for a period of at least five years and made available for District inspection upon request. [District Rule 1070]

8. Regarding 13:

O'Neill Entities, upon the sale or lease of land upon which the new electric motor is located...

The term "new electric motor" is not sufficient. Further, the existing term "irrigation system" is not adequate either.

It is suggested that the wording include "the land upon which the new electric motor and/or service area are located..."

Diesel Engine Retirement Agreement

ERC Project C-1011235

This agreement is made between O'Neill Farming Enterprises, Inc., ~~Humboldt Ranches and La Paloma Farms, LLC~~, a California corporation and Excelsior Farms, a California general partnership, known collectively herein as "O'Neill Entities", Valley Air Conditioning and Repair, hereinafter referred to as "Valley Air" and the San Joaquin Valley Unified Air Pollution Control District (the "District") (collectively, the "Parties"). ~~The Effective Date of this Agreement shall be the date of acceptance by the District. This Agreement shall cover all engines and electric motors used for irrigating the land area described as: SE Quarter Section 4, Township 18S, Range 17E (the "Service Area"). Service Area includes 786 acres, fields 4 1, 4 2, 4 A2, 4 2N, 4 2S, 4 3 and 4 4.~~

We have eliminated all references to salient terms in this introduction, leaving only the identification of the parties to this Agreement. Salient terms to this Agreement are defined in Section 1.0.

With respect to this Project, it is Excelsior Farms that owns and farms the lands, not Humboldt Ranches or La Paloma Farms (they own and operate lands in the other Project).

Also, these are California general partnerships, not Limited Liability Corporations.

"all engines and electric motors used for irrigating the lands" will not work, as a practical matter. We have addressed this issue in the body of the Agreement.

RECITALS

WHEREAS, the District is a duly formed governmental entity responsible for achieving and maintaining clean air quality in the San Joaquin Valley;

WHEREAS, pursuant to California Health and Safety Code sections 40709 through 40714.5, the District has adopted Rules and Regulations providing for the creation and use of emission reduction credits ("ERCs") which are real, surplus, quantifiable, permanent and enforceable;

WHEREAS, O'Neill Entities proposes to have its existing primary groundwater extraction engine(s) in Service Area replaced with a new electric motors;

"New electric motor" is a defined term in 1.0

WHEREAS, O'Neill Entities enters this agreement for the purpose of generating emissions reductions within the San Joaquin Valley Air Basin and to create ERCs to be banked with the District;

WHEREAS, ~~Valley Air Conditioning and Repair~~ Valley Air enters this agreement solely to create ERCs for its benefit and for the benefit of air quality in the region by reducing emissions from agricultural equipment which is currently exempt from the requirement of having a written permit;

NOW, THEREFORE, the Parties hereto agree as follows:

AGREEMENT

1.0 Where used herein unless otherwise distinctly expressed in this Agreement, the term:

(a) "Effective Date" shall mean the date of acceptance of this Agreement by the District.

(b) “Service Area” shall mean all of Section 4, Township 18 South, Range 17 East, Mount Diablo Base and Meridian, as set forth in Exhibit “B” attached hereto and incorporated herein by this reference.

(c) “well” shall mean the deep water well located on the southwest quarter section of the Service Area, as identified in Exhibit “B”.

(d) “primary groundwater extraction engine” shall mean the diesel engine used to power the well.

(e) “new electric motor” shall mean a new electric motor provided by Valley Air that will replace the primary groundwater extraction engine, which is the principal subject of this Agreement.

(f) “farmland” shall mean lands within the Service Area that are annually planted, cultivated and irrigated using the new electric motor.

(g) “Transfer of Ownership Application” shall mean an application in the form and substance as that contained in Exhibit “D” attached hereto and incorporated herein by this reference.

Because the original draft of this Agreement contained many terms that are not defined and which could easily be interpreted differently, now or in the future, we have defined the salient terms to mitigate any future misunderstanding of the intent of this Agreement.

Most of the subsequent changes are merely substitutions of the original term for the defined terms, to clarify the Agreement.

A word needs to be said about the use of the term “irrigation system”. We cannot use this term. Irrigation system(s) could mean a whole host of things unrelated to this Agreement. Moreover, as new irrigation equipment becomes available, we’ll probably incorporate such new equipment into our programs and this Agreement contemplates a single exchange of one diesel engine for one new electric motor to irrigate the Service Area. Therefore, we believe it not practical to use a term that cannot be defined, either now or for future application to this Agreement.

Need to discuss w/ source; why can't use?

2.0

District agrees that O'Neill Entities in cooperation with ~~Valley Air Conditioning and Repair~~ Valley Air are voluntarily reducing air pollution by replacing ~~Existing Engine(s) with electric motor(s)~~ the primary groundwater extraction engine with the new electric motor for the purpose of creating ERCs, and District is aware of no regulatory impediment, existing or pending, which would prevent the use of ERCs generated pursuant to this Agreement.

3.0

O'Neill Entities agrees to replace its existing primary groundwater extraction ~~irrigation engine(s) engine as identified in Exhibit A, which irrigates which is used to irrigate the~~ Service Area ~~as identified in Exhibit B, attached hereto and incorporated herein,~~ with the new electric motor(s) provided by Valley Air Conditioning and Repair.

etc 4.0

District agrees to issue ERCs to ~~Valley Air Conditioning and Repair~~ Valley Air for actual emission reductions as quantified by the District in accordance with District Rules and Regulations. 80% of the Bankable ERCs will be issued pending a successful Public Noticing period. The remaining 20% will be issued or withheld, partially or in full, pending a site-specific validation of the assumptions made in evaluating the Baseline Emissions.

4.0

O'Neill Entities agrees to acquire a Permit to Operate for the ~~irrigation system~~ new electric motor, which poweres the well to irrigate which irrigates the Service Area covered by this

~~agreement~~ from the District, and to maintain the Permit to Operate until the Permit to Operate is permanently relieved or replaced in writing by the District.

- 5.0 ~~Valley Air Conditioning and Repair~~ Valley Air and O'Neill Entities agree that the post-project ~~irrigation system~~ new electric motor serving the Service Area will be fitted with a non-resettable kilowatt-hour meter. This requirement may be satisfied with the use of the electric utility's billing meter if and only if the billing meter exclusively serves only the electric motor(s) referenced herein.
- 6.0 O'Neill Entities agrees to maintain records of monthly kilowatt-hour use of the ~~irrigation system serving the Service Area~~ new electric motor for a period of at least 12 months (Validation Period). The District will use said records to validate the baseline emissions prior to issuing any or all of the final 20% of the Bankable ERCs.
- 7.0 O'Neill Entities represents and warrants that it owns the land upon which the ~~irrigation system~~ new electric motor is situated, that it owns the Service Area, that O'Neill Entities it owns the ~~engine(s)~~ primary groundwater extraction engine being removed and the ~~irrigation system covered by this Agreement, and~~ that O'Neill Entities ~~has~~ have all rights and authority to enter into this binding Agreement. ~~If O'Neill Entities leases the land, the engine(s) being removed or the irrigation system, O'Neill Entities shall obtain the approval(s) from the land owner to allow O'Neill Entities to enter into this Agreement, and such document(s) shall be identified in Exhibit C, attached hereto and incorporated herein.~~
- Since Excelsior Farms owns all the lands within the Service Area, we have eliminated the leased lands provision.*
- 8.0 O'Neill Entities agrees to render the ~~removed Engine(s)~~ primary groundwater extraction engine inoperable by drilling or knocking a hole in the block, welding the cylinder head shut, obtaining written proof from a scrap yard that the removed Engine(s) has been destroyed or otherwise rendered inoperable, or other method approved in advance by the District, and to submit proof of such destruction of the removed Engine(s) to the District prior to the issuance of any related ERCs.
- 9.0 The District maintains the right to witness the destruction of the Engine(s) and ~~Parties~~ O'Neill Entities or Valley Air agree to notify the District at least 14 days prior to the destruction of any Engine(s).
- 10.0 O'Neill Entities agrees that the ~~deep-well pump~~ covered by this Agreement shall not be powered in whole or in part by any other ~~IC~~ internal combustion engine power source; provided however, than in the event of an electrical power outage, O'Neill Entities will be entitled to use an internal combustion powered portable generator on an interim basis to mitigate damage to O'Neill Entities crops until normal power is restored.
- 11.0 O'Neill Entities agrees that replacement of the ~~Existing Engine(s)~~ with Electric Motors(s) primary groundwater extraction engine with the new electric motor will remain in effect as long as any of the Service Area covered by this Agreement remains farmland, and agrees to disclose in writing the existence of this Agreement to any other entity which may come to own or become responsible for operating the ~~irrigation pumping system~~ the new electric motor ~~for the Service Area described~~. To ensure the permanence of this Agreement, this Agreement shall be recorded by the County Registrar. Any future entity which becomes responsible for the irrigation system shall agree to the terms contained in this Agreement.

12.0 O'Neill Entities and the District agree that no equipment which emits or may emit any air contaminant may be added, permanently or temporarily, to power or supplementally power the ~~irrigation system-new electric motor which irrigates the Service Area covered by this Agreement~~ without specific prior written approval by the District, which approval shall not be unreasonably withheld and where: (a) the new equipment is evaluated and approved in accordance with District Rules and Regulations; (b) the potential increase in emissions is entirely offset using the current District-approved Distance Offset Ratio; and (c) the Permit to Operate for the said irrigation system is modified accordingly by the District.

~~12.1 The first exception to Condition 12.0 is that O'Neill Entities may use tailwater pumps, runoff pumps or ditch pumps as necessary, provided the water being pumped originated from the electrically powered primary groundwater extraction well described herein.~~

explain again

12.1 is unnecessary given that we are not now using "irrigation system". Also, since we are dealing with the substitution of a diesel powered unit for an electrical powered unit, we do not understand why ancillary internal combustion powered units, which are necessary to irrigate the Service Area, proposed to be restricted. Seems to us that this 12.1 as well as 12.2 are unnecessary.

12.2 The second exception to Condition 12.0 is that O'Neill Entities may utilize booster pump(s) as necessary to supplement the irrigation system pressure, only if the pumped water travels through at least 238 feet of pipe as measured from the wellhead to the nearest booster pump. In lieu of this minimum distance requirement, booster pump(s) may be utilized provided that the discharge pressure on the wellhead, as measured by a permanently installed and operationally maintained pressure gage, is at least 20 psig.

We can comply with the requirements of this 12.2, but we simply do not understand the rational for this restriction.

13.0 O'Neill Entities, upon the sale or lease of land upon which the ~~irrigation system-new electric motor~~ is located, will assign this Agreement and the Permit to Operate, and all rights, duties and obligations hereto, to the new owner. Assignment of this Agreement and all rights, duties and obligations will include a notice submitted to the District in the form of a completed Transfer of Ownership application. Nothing in this Agreement shall be construed to diminish the District's authority to implement and enforce applicable state, federal, and local laws, rules and regulations.

14.0 O'Neill Entities grants to ~~Valley Air Conditioning and Repair~~ Valley Air and the District, for the specific and sole purpose of exercising their respective responsibilities as defined in this Agreement and applicable law, the right of reasonable entry to the Service Area to monitor compliance with this Agreement during normal business hours.

15.0 All Parties to this Agreement warrant that each is duly authorized and empowered to bind such Party and there are no actions, suits, proceedings or other impediments, pending or threatened, which affect the performance of each Party's obligations under this Agreement.

16.0 All Parties agree that this Agreement constitutes a legal, valid and binding obligation on all Parties, enforceable in accordance with its terms and applicable law, and that its contents, including that of other documents incorporated by reference, are true and correct to the best of their knowledge.

17.0 O'Neill Entities and ~~Valley Air Conditioning and Repair~~ Valley Air agree to, and will not contest the District's jurisdiction over matters related to this Agreement; provided however, that neither the O'Neill Entities nor Valley Air are herein surrendering any right they may have under applicable law to challenge subsequent actions.

conditioning and repair

18.0 This Agreement, including the exhibits, made a part hereof, attached hereto and incorporated herein, forms the whole of the Agreement and may not be modified except in writing with the concurrence of all Parties. After such a time as any ERCs are issued, Permit(s) to operate are acquired and after the Validation Period, this Agreement may not be modified except in writing with the concurrence of the District and O'Neill Entities.

19.0 If any condition of this Agreement, or the application of such condition shall be determined to be invalid, illegal or unenforceable for any reason, the remainder of the Agreement shall not be affected and every other condition of this Agreement shall be valid and enforceable to the fullest extent provided by law. Venue for any action to enforce this Agreement or its terms shall only occur in the appropriate court in Fresno County.

20.0 Exhibits and documents incorporated herein by reference:

Exhibit A: Existing Engine Identification

Exhibit B: Map/Description of Service Area

Exhibit C: Permit to Operate

Exhibit D: Transfer of Ownership Application

21.0 Notices shall be deemed to be given when faxed if proper documentation shows that the fax was received, or on the date registered mail is certified received to the following:

To O'Neill Entities:

1265 W. Shaw Ave., #101

Fresno, CA 93711

FAX 559 224 2384

To Valley Air Conditioning
and Repair:

1350 "F" Street

Fresno, CA 93706

FAX 559

To District:

Director of Permit Services
San Joaquin Valley APCD
1990 E Gettysburg Avenue
Fresno, CA 93726-0244
(559) 230-6000 (phone)
(559) 230-6061 (fax)

THE PARTIES, having read and approved the foregoing and as approved by their authorized officers, agree to be bound by the terms and conditions contained in this Agreement, execute this Agreement as of the Effective Date set forth above:

For O'Neill Entities:

O'Neill Farming
Enterprises, Inc.
Edwin R. O'Neill
~~Chief Executive Officer~~
President

For Valley Air Conditioning
and Repair:

Tobbie Hopper
President

For District:

Sayed Sadredin
Director of Permit Services

Excelsior Farms

Dated: _____

Dated: _____

Dated: _____

We'll need two signature lines for Excelsior Farms & Ed O'Neill's OFE, Inc. title is President

Dave Warner

From: Dave Warner
Sent: Friday, September 13, 2002 10:52 AM
To: Seyed Sadredin; Phil Jay
Subject: O'niell Farms want some changes to the Ag Engine/ERC Contract

Attached is a ~~strike-out~~, underline version of their comments. I will also get to you my hand-written comments (and Steve Roeder's type-written comments).



ERC Project
2-1011235 - Modifi..

Here they are

They also want to meet next **Tuesday at 3:30 p.m.** I know that the EPA will be here that day, but will either or both of you be free by then to discuss these issues? Alternatively, you could provide me with guidance before then.

Can you join us?
DW

*Mucho Bueno, C.?
OK, but still
missed some changes
requested by O'Hill
(Pg 2 + 4.)*

DW



San Joaquin Valley
Air Pollution Control District



July 16, 2002

Edwin O'Neill
O'Neill Entities
1265 W Shaw Avenue
Fresno, CA 93711

*Steve, originals
of this letter will
go out with invoice
7/16.*

DW

**Re: Notice of Issuance of Permit to Operate and Revision of Permit to Operate
Projects C-1010806 and 1011235**

Dear Mr. O'Neill:

The District has issued Permit to Operate C-3981-2-0 for an electrically powered irrigation system for fields 4-1, 4-2, 4-A2, 4-2N, 4-2S, 4-3 and 4-4. Also find attached an invoice for permit fees.

In addition, the District has revised Permit to Operate C-3981-1-0, for an electrically powered irrigation system for fields 8-4, 9-2, 9-3 and 9-4, to clarify the conditions regarding the pumping of surface water as requested in the May 8, 2002 letter from John T. (Tobbie) Hopper.

Thank you for your cooperation. Should you have any questions, please contact Mr. David Warner at (559) 230-5900.

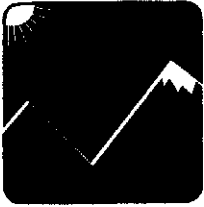
Sincerely,

Seyed Sadredin
Director of Permit Services

David Warner
Permit Services Manager

sr
attachments

David L. Crow
Executive Director/Air Pollution Control Officer



San Joaquin Valley
Air Pollution Control District



Permit to Operate

FACILITY: C-3981

EXPIRATION DATE: 03/31/2007

LEGAL OWNER OR OPERATOR:

O'NEILL ENTITIES
1265 W SHAW AVE
FRESNO, CA 93711

MAILING ADDRESS:

FACILITY LOCATION:

SECTION 4 TOWNSHIP 18S RANGE 17E
FIVE POINTS, CA

FACILITY DESCRIPTION:

AGRICULTURAL PRODUCTS

The Facility's Permit to Operate may include Facility-wide Requirements as well as requirements that apply to specific permit units.

This Permit to Operate remains valid through the permit expiration date listed above, subject to payment of annual permit fees and compliance with permit conditions and all applicable local, state, and federal regulations. This permit is valid only at the location specified above, and becomes void upon any transfer of ownership or location. Any modification of the equipment or operation, as defined in District Rule 2201, will require prior District approval. This permit shall be posted as prescribed in District Rule 2010.

David L. Crow
Executive Director / APCO

Seyed Sadredin
Director of Permit Services

San Joaquin Valley
Air Pollution Control District



PERMIT UNIT: C-3981-1-0

EXPIRATION DATE: 03/31/2007

EQUIPMENT DESCRIPTION:

ELECTRICALLY POWERED IRRIGATION SYSTEM FOR FIELDS 8-4, 9-2, 9-3 AND 9-4 (SERVICE AREA DESCRIBED IN ERC PROJECT C-1010806 DIESEL ENGINE RETIREMENT AGREEMENT)

PERMIT UNIT REQUIREMENTS

1. This irrigation system for fields 8-4, 9-2, 9-3 and 9-4 (Service Area covered by ERC Project C-1010806 Diesel Engine Retirement Agreement (the Agreement)) shall be powered only by electric motors, with the exceptions noted herein. [District Rule 2301]
2. Owner/Operator shall maintain this Permit to Operate for this irrigation pumping system which will remain in effect as long as any of the Service Area covered by the Agreement remains farmland, and shall disclose in writing the existence of this Permit and the Agreement to any other entity which may come to own or become responsible for operating the irrigation pumping system for the Service Area. [District Rule 2301]
3. Owner/Operator shall record a copy of the signed Agreement with the County Registrar. Any future entity which becomes responsible for the irrigation system shall agree to the terms contained in this Permit. [District Rule 2301]
4. Except as follows, no emissions unit(s) may be added, permanently or temporarily, to power or supplementally power this irrigation system without specific prior written approval by the District where: (a) the new equipment is evaluated and approved in accordance with District Rules and Regulations; (b) the potential increase in emissions is entirely offset in accordance with District Rules and Regulations; and (c) this Permit to Operate is modified accordingly by the District. [District Rule 2301]
5. Owner/Operator may use tail water pumps, runoff pumps and/or ditch water pumps as necessary to transfer water being pumped from the electrically powered groundwater extraction well described in the Agreement, but may not deliver or transfer water from any internal combustion engine powered groundwater extraction well to this parcel from any other point. [District Rule 2301]
6. Owner/Operator may utilize booster pump(s) as necessary to supplement the irrigation system pressure, only if the pumped water travels through at least 238 feet of pipe as measured from the wellhead to the nearest booster pump. In lieu of this minimum distance requirement, booster pump(s) may be utilized provided that the discharge pressure on the wellhead, as measured by a permanently installed and operationally maintained pressure gage, is at least 20 psig. [District Rule 2301]
7. Owner/Operator, upon the sale or lease of land upon which the irrigation system is located, shall transfer this Permit to Operate, and all rights, duties and obligations hereto, by submitting a completed Transfer of Ownership application package, in advance, to the District. [District Rule 2301]
8. Owner/Operator shall maintain a non-resettable kilowatt-hour meter on the power supply to the electric motor for the entire ERC Validation Period described in the Agreement. This requirement may be satisfied with the use of the electric utility's billing meter if and only if the billing meter exclusively serves only the electric motor which drives the deep well pump. [District Rule 2301]
9. Monthly records of the number of kilowatt-hours used by the electric motor during the ERC Validation Period described in the Agreement shall be maintained, retained for a period of at least 5 years, and made available for District inspection upon request. [District Rule 2301]

These terms and conditions are part of the Facility-wide Permit to Operate.

San Joaquin Valley
Air Pollution Control District



PERMIT UNIT: C-3981-2-0

EXPIRATION DATE: 03/31/2007

EQUIPMENT DESCRIPTION:

ELECTRICALLY POWERED IRRIGATION SYSTEM FOR FIELDS 4-1, 4-2, 4-A2, 4-2N, 4-2S, 4-3 AND 4-4 (SERVICE AREA DESCRIBED IN ERC PROJECT C-1011235 DIESEL ENGINE RETIREMENT AGREEMENT)

PERMIT UNIT REQUIREMENTS

1. This irrigation system for fields 4-1, 4-2, 4-A2, 4-2N, 4-2S, 4-3 and 4-4 (Service Area covered by ERC Project C-1011235 Diesel Engine Retirement Agreement) shall be powered only by electric motors. [District Rule 2301]
2. Owner/Operator shall maintain this Permit to Operate for this irrigation pumping system which will remain in effect as long as any of the Service Area covered by the Agreement remains farmland, and shall disclose in writing the existence of this Permit and the Agreement to any other entity which may come to own or become responsible for operating the irrigation pumping system for the Service Area. [District Rule 2301]
3. Owner/Operator shall record a copy of the signed Agreement with the County Registrar. Any future entity which becomes responsible for the irrigation system shall agree to the terms contained in this Permit. [District Rule 2301]
4. Except as follows, no emissions unit(s) may be added, permanently or temporarily, to power or supplementally power this irrigation system without specific prior written approval by the District where: (a) the new equipment is evaluated and approved in accordance with District Rules and Regulations; (b) the potential increase in emissions is entirely offset in accordance with District Rules and Regulations; and (c) this Permit to Operate is modified accordingly by the District. [District Rule 2301]
5. Owner/Operator may use tail water pumps, runoff pumps and/or ditch water pumps as necessary to transfer water being pumped from the electrically powered groundwater extraction well described in the Agreement, but may not deliver or transfer water from any internal combustion engine powered groundwater extraction well to this parcel from any other point. [District Rule 2301]
6. Owner/Operator may utilize booster pump(s) as necessary to supplement the irrigation system pressure, only if the pumped water travels through at least 238 feet of pipe as measured from the wellhead to the nearest booster pump. In lieu of this minimum distance requirement, booster pump(s) may be utilized provided that the discharge pressure on the wellhead, as measured by a permanently installed and operationally maintained pressure gage, is at least 20 psig. [District Rule 2301]
7. Owner/Operator, upon the sale or lease of land upon which the irrigation system is located, shall transfer this Permit to Operate, and all rights, duties and obligations hereto, by submitting a completed Transfer of Ownership application package, in advance, to the District. [District Rule 2301]
8. Owner/Operator shall maintain a non-resettable kilowatt-hour meter on the power supply to the electric motor for the entire ERC Validation Period described in the Agreement. This requirement may be satisfied with the use of the electric utility's billing meter if and only if the billing meter exclusively serves only the electric motor which drives the deep well pump. [District Rule 2301]
9. Monthly records of the number of kilowatt-hours used by the electric motor during the ERC Validation Period described in the Agreement shall be maintained, retained for a period of at least 5 years, and made available for District inspection upon request. [District Rule 2301]

These terms and conditions are part of the Facility-wide Permit to Operate.

Story #156236 System FRSC7

by JALONZO

Time 15:08:30 Date 3/08/02

Account: 2306000SAN Class: 894 Last user: JALONZO

Ad Start: 3/12/02 Ad Stop: 3/12/02 Total Cost: \$185.64 Run Days: tues

Page | Black

PUBLIC NOTICE

#156236

**NOTICE OF PRELIMINARY DECISION
FOR THE PROPOSED ISSUANCE OF
EMISSION REDUCTION CREDITS**

NOTICE IS HEREBY GIVEN that the San Joaquin Valley Unified Air Pollution Control District solicits public comment on the proposed issuance of Emission Reduction Credits (ERCs) to Valley Air Conditioning and Repair for the replacement of one ag- pump engine with an electric motor, at O'Neill Farming in Five Points. The quantity of ERCs proposed for banking is 18.2 tons-NOx/year, 0.3 tons SOx/year, 0.9 tons- PM10/year, 5.1 tons-CO/year and 1.9 tons-VOC/year.

The analysis of the regulatory basis for these proposed actions, Project #C-1011235, is available for public inspection at the District office at the address below. Written comments on this project must be submitted within 30 days of the publication date of this notice to **SEYED SADRE-DIN, DIRECTOR OF PERMIT SERVICES, SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT.**

(PUB: March 12, 2002)

TO: STEVEN ROEDER

From The Fresno Bee
Legal Notices Desk
Ph. (559) 441-6115
Fax (559) 495-6825

*-Please Proofread-
This notice will
run as-is unless
otherwise instructed*

RECEIVED

JUL 22 2002

ADMIN. SERVICES
SJVUAPCD

S-R

SAN JOAQUIN VALLEY APCD

ATTN FINANCE DEPARTMENT

1990 E GETTYSBURG

FRESNO, CA 93726

PROOF OF PUBLICATION

COUNTY OF FRESNO
STATE OF CALIFORNIA

EXHIBIT A.

PUBLIC NOTICE
#194156
**NOTICE OF FINAL ACTION
FOR THE ISSUANCE OF
EMISSION REDUCTION CREDITS**

NOTICE IS HEREBY GIVEN that the Air Pollution Control Officer has issued Emission Reduction Credits (ERCs) to Valley Air Conditioning and Repair for emission reduction generated by the replacement of one ag-pump engine with an electric motor, at O'Neill Farming in Five Points. The quantity of ERCs to be issued is 18.2 tons-NOx/year, 0.3 tons-SOx/year, 0.9 tons-PM10/year, 5.1 tons-CO/year and 1.9 tons-VOC/year.

All comments received following the District's preliminary decision on this project were considered.

Comments received by the District during the public notice period were minor and did not affect the basis for issuance of the above referenced ERCs.

The application review for Project #C-1011235, is available for public inspection at the **SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT, 1990 E Gettysburg Ave., Fresno, CA 93726-0244.**
(PUB: July 19, 2002)

The undersigned states:

McClatchy Newspapers in and on all dates herein stated was a corporation, and the owner and publisher of The Fresno Bee.

The Fresno Bee is a daily newspaper of general circulation now published, and on all-the-dates herein stated was published in the City of Fresno, County of Fresno, and has been adjudged a newspaper of general circulation by the Superior Court of the County of Fresno, State of California, under the date of November 22, 1994, Action No. 520058-9.

The undersigned is and on all dates herein mentioned was a citizen of the United States, over the age of twenty-one years, and is the principal clerk of the printer and publisher of said newspaper; and that the notice, a copy of which is hereto annexed, marked Exhibit A, hereby made a part hereof, was published in The Fresno Bee in each issue thereof (in type not smaller than nonpareil), on the following dates.

July 19, 2002

Beginning on the _____ day of _____ 19____,
to the _____ day of _____ 19____ inclusive.

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Dated _____ JULY _____ 19, 2002

Cathy Aquilera

Story #194156 System FRSCZ

by JALONZO

Time 14:02:48 Date 7/17/02

Account: 2306000SAN Class: 894 Last user: JALONZO

Ad Start: 7/19/02 Ad Stop: 7/19/02 Total Cost: \$194.04 Run Days: fri

Page 1 Black

PUBLIC NOTICE

#194156

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FOR THE ISSUANCE OF
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(PUB: July 19, 2002)

TO: STEVE ROEDER

From The Fresno Bee
Legal Notices Desk
Ph. (559) 441-6115
Fax (559) 495-6825

-Please Proofread-
This notice will
run as-is unless
otherwise instructed



ADVANCED ENERGY SYSTEMS, INC.
ENERGY ANALYSIS • CONSULTING • CONSTRUCTION
www.aesprovnsolutions.com

RECEIVED

MAY 30 2002
PERMIT SERVICES
SJVUAPCD

Date: May 8, 2002

Mr. Sayed Sadrehin
Director of Permit Services
San Joaquin Valley Unified Air Pollution Control District
1990 Easy Gettysburg Ave.
Fresno, California 93726-0244

Attn.: Mr. Dave Warner

Re: Permit C-3981

Dear Mr. Sadrehin,

When we took the deed restriction cover to the owner for signature, he noticed that the permit land description did not agree with the ERC contract. The contract description is correct for the first unit. However, this led to a detailed review and discussion of the contract and permit conditions.

We all understand, and agree, that the intent is to preclude diesel-powered replacement of the electric powered pump operation. Unfortunately, the language in the contract and permit are more prohibitive than was intended. So much so that it would cause serious disruption and possible crop damage if followed to the letter.

Item 5 of the permit prohibits the pumping of any water that did not originate from the subject well. Accordingly, excess rainwater cannot be removed and surface irrigation water cannot be used on this land parcel.

Since we all agreed that the intent is to preclude the use of any diesel or gas powered *well water* to irrigate this parcel (such as drilling a well on an adjacent parcel and diesel pumping to this parcel) it is very important that the language be very precise and clear to avoid some future misunderstanding.

We suggest something simple: " O'Neill Entities may use tail water pumps, runoff pumps and/or ditchwater pumps as necessary to transfer water being pumped from the electrically powered groundwater extraction well described in the agreement, but may NOT deliver, or transfer water from any internal combustion engine powered groundwater extraction well to this parcel from any other point."

We trust that these minor corrections will complete the discussion, and trust that the second unit now in process would use identical language. Please call if you have any questions.

Sincerely,



John T. (Tobbie) Hopper

San Joaquin Valley Air Pollution Control District Memo

May 21, 2002

To: Valley Air Conditioning And Repair
From: Steve Roeder
Re: Pressure Requirement for Well System

When deciding the amount of pressure that will be needed in the wellhead in the event a booster pump engine is used, the value of 46 feet of pressure was inadvertently changed to read 46 psig. The proper conversion of 46 feet into PSIG is 0.434. Therefore, $46 \text{ feet} \times 0.434 = 20 \text{ psig}$.

The Contract and Permit to Operate have been revised to reflect this value.

S. Roeder

RECEIVED

MAR 13 2002

ADMIN. SERVICES
SJVAPCD

SAN JOAQUIN VALLEY APCD.

ATTN FINANCE DEPARTMENT

1990 E GETTYSBURG

FRESNO , CA 93726

PROOF OF PUBLICATION

COUNTY OF FRESNO
STATE OF CALIFORNIA

EXHIBIT A.

PUBLIC NOTICE
#156236
**NOTICE OF PRELIMINARY DECISION
FOR THE PROPOSED ISSUANCE OF
EMISSION REDUCTION CREDITS**

NOTICE IS HEREBY GIVEN that the San Joaquin Valley Unified Air Pollution Control District solicits public comment on the proposed issuance of Emission Reduction Credits (ERCs) to Valley Air Conditioning and Repair for the replacement of one ag-pump engine with an electric motor, at O'Neill Farming in Five Points. The quantity of ERCs proposed for banking is 18.2 tons-NOx/year, 0.3 tons-SOx/year, 0.9 tons-PM10/year, 5.1 tons-CO/year and 1.9 tons-VOC/year.

The analysis of the regulatory basis for these proposed actions, Project #C-1011235, is available for public inspection at the District office at the address below. Written comments on this project must be submitted within 30 days of the publication date of this notice to **SEYED SADRE-DIN, DIRECTOR OF PERMIT SERVICES, SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT.**

(PUB: March 12, 2002)

The undersigned states:

McClatchy Newspapers in and on all dates herein stated was a corporation, and the owner and publisher of The Fresno Bee.

The Fresno Bee is a daily newspaper of general circulation now published, and on all-the-dates herein stated was published in the City of Fresno, County of Fresno, and has been adjudged a newspaper of general circulation by the Superior Court of the County of Fresno, State of California, under the date of November 22, 1994, Action No. 520058-9.

The undersigned is and on all dates herein mentioned was a citizen of the United States, over the age of twenty-one years, and is the principal clerk of the printer and publisher of said newspaper; and that the notice, a copy of which is hereto annexed, marked Exhibit A, hereby made a part hereof, was published in The Fresno Bee in each issue thereof (in type not smaller than nonpareil), on the following dates.

March 12, 2002

Beginning on the _____ day of _____ 19 _____,
to the _____ day of _____ 19 _____ inclusive.

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Dated MARCH 12, 2002

Cathy Aquilera

Due Date
6/28/2002

Amount Due
\$ 660.92

Amount Enclosed

ERCFEE
3892 C48605 5/29/2002

VALLEY AIR CONDITIONING & REPAIR INC
1350 "F" STREET
FRESNO, CA 93706

SJVAPCD
1990 E. Gettysburg Avenue
Fresno, CA 93726-0244

FILE COPY

Facility ID
C3892

Invoice Date
5/29/2002

Invoice Number
C48605

Invoice Type
Project: C1011235

VALLEY AIR CONDITIONING & REPAIR INC
O'NIELL FARMING
FIVE POINTS, CA

PROJECT NUMBER: 1011235

APPLICATION FILING FEES	\$ 650.00
ENGINEERING TIME FEES	\$ 660.92
TOTAL FEES	\$ 1,310.92
LESS PREVIOUSLY PAID PROJECT FEES APPLIED TO THIS INVOICE	(\$ 650.00)
PROJECT FEES DUE (Enclosed is a detailed statement outlining the fees for each item.)	\$ 660.92

Invoice Detail

Facility ID: C3892

VALLEY AIR CONDITIONING & REPAIR INC
 O'NIELL FARMING
 FIVE POINTS, CA

Invoice Nbr: C48605
 Invoice Date: 5/29/2002
 Page: 1

Application Filing Fees

Project Nbr	Permit Number	Description	Application Fee
C1011235	C-3892-1011235-0	Emission Reduction Credit Banking Evaluation Fee	\$ 650.00
Total Application Filing Fees:			\$ 650.00

Engineering Time Fees

Project Nbr	Quantity	Rate	Description	Fee
C1011235	8.2 hours	\$ 80.60/h	After-Hours Engineering Time(OverTime)	\$ 660.92
Total Engineering Time Fees:				\$ 660.92

FILE COPY

San Joaquin Valley Air Pollution Control District

Account Summary

Facility ID: C3981

O'NEILL ENTITIES
SECTION 4 TOWNSHIP 18S RANGE 17E
FIVE POINTS, CA

Statement Date: 5/21/2002

Invoice Date	Invoice Number	Invoice Due Date	Description of Fees	Amount Due
1/18/2002	C46931	2/17/2002	Project: C1020063	\$ 60.00
4/2/2002	C47784	6/1/2002	Prorated Permit To Operate Fees	\$ 527.12
5/21/2002	C48424	6/20/2002	Project: C1020202	\$ 60.00
Total Outstanding Balance:				\$ 647.12



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street

San Francisco, CA 94105-3901

April 11, 2002

RECEIVED
APR 15 2002
PERMIT SERVICES
SJVUAPCD

Mr. Seyed Sadredin
Director of Permit Services
San Joaquin Valley Unified APCD
1990 East Gettysburg Avenue
Fresno, CA 93726-0244

Re: EPA Comments on Proposed Emission Reduction Credit for Agricultural Well Pump Engine Replacement; project #C-1011235

Dear Mr. Sadredin:

Thank you for opportunity to review your proposed issuance of Emission Reduction Credits to Valley Air Conditioning for the replacement of one agricultural irrigation pump engine with an electric engine at O'Neill Farming in Five Points.

We recommend that the District wait until a protocol has been established before issuing the final credits to ensure that the credits will be federally approvable. Otherwise, these credits may not be usable for sources subject to federally enforceable offset requirements. We are currently working on key issues with the California Air Resources Board and Districts and hope to establish guidance soon, including establishing federally-enforceable reductions at non-traditional sources. We also expect to provide guidance covering the process for providing engineering calculations where baseline information is not available, establishing the application submittal requirements (for instance, whether a certified well test is required, and how to verify whether surface water or booster pumps have been used for a particular field), and other implementation specifics. We believe that revisions to the draft protocol would also be an appropriate mechanism to address changes requested by the applicant or new information that changes the assumptions used to propose ERCs, as occurred in the first proposed ERC for Valley Air Conditioning.

Please call me or have your staff contact Ed Pike at (415) 972-3970 if you have any questions regarding our letter.

Sincerely,

Gerardo C. Rios
Chief, Permits Office

cc: Tobbie Hopper, Valley Air Conditioning
Mike Tollstrup, ARB

6/11/02

FAX from.....PAR III Inc.

To Company: Phone: (402) 238-3333

Attention: *Steve Roeder* Fax: (402) 238-3231

Date: e-mail: Par3@huntel.net

FAX Number: 559-230-6061 P.O. Box 219

Pages Including Cover Sheet: 15416 So. 2nd St. • Bennington NE

Message

Dean Jensen

6/11/02
Deon Jensen

1997 California Agricultural Statistical Survey

County	Total Acres	Available Ag. Waste *		
		Tons Annual Prunings	Tons Annual Removals Prunings	
Fresno	53,174	48,401	157,768	
Kern	98,434	82,253	284,746	
Kings	12,852	8,072	34,510	
Madera	54,641	42,327	154,731	
Merced	82,511	76,637	246,374	
San Joaquin	57,920	50,999	170,149	
Stanislaus	85,286	80,328	255,773	
Tulare	38,399	27,822	106,814	
			Total	1,410,865

* Survey does not account for Citrus acreage.

Emissions from total tons available
Using Jan. 2000 CARB Emission factors of Average tree & vine

Tons Nox	Tons PM10	Tons SO2	Tons VOC	Tons CO
2,751	5,361	141	4,515	51,990

Dean Jensen
6/11/02

**Ag Grant
2002
NOX Emission Inventory**

Total SJV tons	Lbs	Tons/Nox	Tons/day	Tons/Qtr
669,061	2,609,338	1,305	3.57	325
Net SJV tons*	Lbs	Tons/Nox	Tons/day	Tons/Qtr
456,000	1,778,400	889	2.44	222
*Subtracting known offsets				

PM10 Emission Inventory

Total SJV tons	Lbs	Tons/PM10	Tons/day	Tons/Qtr
669,061	5,145,079	2,573	7.05	641
Net SJV tons*	Lbs	Tons/PM10	Tons/day	Tons/Qtr
456,000	1,778,400	889	2.44	222
*Subtracting known offsets				

RECEIVED

NOV 20 2001

PERMIT SERVICES
SJVUAPCD

1200 Twentyfirst Street
Second Floor
Bakersfield, CA 93301-4651

Tel (661) 282-2200
Fax (661) 282-2204
insight@insenv.com

November 19, 2001

Mr. Seyed Sadredin
Director of Permit Services
San Joaquin Valley APCD
1990 East Gettysburg Ave.
Fresno, CA 93726-0244

**Re: Emission Reduction Credits – Project 1011235
Correction to Application**

Attn.: Mr. Steve Roeder

Dear Mr. Sadredin:

In reviewing the crop data that was compiled and submitted as the basis for the emission reductions for the above referenced project, it was discovered that this data was not accurate. The corrected data and emission reduction calculations are attached for your use.

The Baseline Crop History table should contain the following data.

Baseline Crop History			
Field	Acres	1999 Crop	2000 Crop
4-1	154	Cotton	Cotton
4-2	85	Cotton	
4-A2	78	Tomato	
4-2N	85		Onions
4-2S	78		Garlic
4-3	156	Lettuce	Cotton
4-4	150	Lettuce	Wheat

The corrected baseline water use data is as follows:

*Fix APP D
- 2 pages a su
Correct O'Neill / onnell
in all
docs
include / copy APP'S*

Baseline Water Use										
Field	Acres	Crop	Crop Water Required (acre feet/acre)				Total Quarterly Water Required (acre feet/acre x number of acres)			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1999										
4-1	154	Cotton	0	0.34	1.17	0.82	0.00	52.36	180.18	126.28
4-2	85	Cotton	0	0.34	1.17	0.82	0.00	28.90	99.45	69.70
4-A2	78	Tomato	0.26	0.98	0.49	0.18	20.28	76.44	38.22	14.04
4-3	156	Lettuce*	0.73	0.37	1.44	0.61	113.88	57.72	224.64	95.16
4-4	150	Lettuce*	0.73	0.37	1.44	0.61	109.50	55.50	216.00	91.50
Total							243.66	270.92	758.49	396.68
2000										
4-1	154	Cotton	0	0.34	1.17	0.82	0.00	52.36	180.18	126.28
4-2N	85	Onions	0.63	1.57	0.21	0.53	53.55	133.45	17.85	45.05
4-2S	78	Garlic	0.63	1.57	0.21	0.53	49.14	122.46	16.38	41.34
4-3	156	Cotton	0	0.34	1.17	0.82	0.00	53.04	182.52	127.92
4-4	150	Wheat	0.17	0.93	0	1.08	25.50	139.50	0.00	162.00
Total							128.19	500.81	396.93	502.59
Average (Acre Feet per Quarter)							185.93	385.87	577.71	449.64
1,000 Cubic Feet per Quarter							8,099	16,808	25,165	19,586

The corrected Baseline Engine use becomes:

Baseline Engine-Use	
Quarter 1	223,344 hp - hr
Quarter 2	463,524 hp - hr
Quarter 3	693,980 hp - hr
Quarter 4	540,129 hp - hr

Utilizing the revised Baseline engine use data and the emission factors proposed in our application results in the following bankable ERCs as shown in the table presented in Section V.D. of the application review. These ERC's (see calculations in Attachment E) are as follows:

Actual Emission Reductions								
Quarter 1								
NOx	8.38	g/hp-hr x	223,344	hp-hr ÷	442.38	g/lb =	4,126	lb/qtr
SOx	0.367	g/hp-hr x	223,344	hp-hr ÷	442.38	g/lb =	181	lb/qtr
PM ₁₀	0.40	g/hp-hr x	223,344	hp-hr ÷	442.38	g/lb =	197	lb/qtr
CO	2.70	g/hp-hr x	223,344	hp-hr ÷	442.38	g/lb =	1,329	lb/qtr
VOC	0.68	g/hp-hr x	223,344	hp-hr ÷	442.38	g/lb =	335	lb/qtr
Quarter 2								
NOx	8.38	g/hp-hr x	463,524	hp-hr ÷	442.38	g/lb =	8,563	lb/qtr
SOx	0.367	g/hp-hr x	463,524	hp-hr ÷	442.38	g/lb =	375	lb/qtr
PM ₁₀	0.40	g/hp-hr x	463,524	hp-hr ÷	442.38	g/lb =	409	lb/qtr

CO	2.70	g/hp-hr x	463,524	hp-hr ÷	442.38	g/lb =	2,759	lb/qtr
VOC	0.68	g/hp-hr x	463,524	hp-hr ÷	442.38	g/lb =	695	lb/qtr
Quarter 3								
NOx	8.38	g/hp-hr x	693,980	hp-hr ÷	442.38	g/lb =	12,821	lb/qtr
SOx	0.367	g/hp-hr x	693,980	hp-hr ÷	442.38	g/lb =	561	lb/qtr
PM ₁₀	0.40	g/hp-hr x	693,980	hp-hr ÷	442.38	g/lb =	612	lb/qtr
CO	2.70	g/hp-hr x	693,980	hp-hr ÷	442.38	g/lb =	1,040	lb/qtr
VOC	0.68	g/hp-hr x	693,980	hp-hr ÷	442.38	g/lb =	4,131	lb/qtr
Quarter 4								
NOx	8.38	g/hp-hr x	540,129	hp-hr ÷	442.38	g/lb =	9,979	lb/qtr
SOx	0.367	g/hp-hr x	540,129	hp-hr ÷	442.38	g/lb =	437	lb/qtr
PM ₁₀	0.40	g/hp-hr x	540,129	hp-hr ÷	442.38	g/lb =	476	lb/qtr
CO	2.70	g/hp-hr x	540,129	hp-hr ÷	442.38	g/lb =	3,215	lb/qtr
VOC	0.68	g/hp-hr x	540,129	hp-hr ÷	442.38	g/lb =	810	lb/qtr

We understand that his project is ready for public comment; however, we feel that it is imperative that the correct data be utilized in calculating the available ERCs. We apologize for providing this information at such a late date in the process.

Should you have any questions or wish to discuss these issues in person, do not hesitate to contact me by E-mail at dwmccorm@insenv.com or by phone at (661) 282-2200.

Sincerely,

Doug McCormick, P.E., CAPP

Attachments

Cc: Dick McCabe
Tobbie Hopper

The watering figures which follow are from State of California, Department of Water Resources, San Joaquin District Publication Field Irrigation Deliveries in the San Joaquin Valley (11/83). Water use is based on actual field deliveries and already accounts for rainfall.

O'Neill Farming Unit 1: Reference DAU 244, 216, & 259											
Aera	Acers	1999	Crop Water Req'd in Feet				Total Acre Feet Req'd				Annual
Field		Crop	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Total
4-1	154	Cotton	0	0.34	1.17	0.82	0.00	52.36	180.18	126.28	
4-2	85	Cotton	0	0.34	1.17	0.82	0.00	28.90	99.45	69.70	
4-A2	78	Tomato	0.26	0.98	0.49	0.18	20.28	76.44	38.22	14.04	
4-3	156	Lettuce*	0.73	0.37	1.44	0.61	113.88	57.72	224.64	95.16	
4-4	150	Lettuce*	0.73	0.37	1.44	0.61	109.50	55.50	216.00	91.50	
Total	623						243.66	270.92	758.49	396.68	1,669.75

O'Neill Farming Unit 1: Reference DAU 244, 216, & 259											
Aera	Acers	2000	Crop Water Req'd in Feet				Total Acre Feet Req'd				Annual
Field		Crop	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Total
4-1	154	Cotton	0	0.34	1.17	0.82	0.00	52.36	180.18	126.28	
4-2N	85	Onions	0.63	1.57	0.21	0.53	53.55	133.45	17.85	45.05	
4-2S	78	Garlic	0.63	1.57	0.21	0.53	49.14	122.46	16.38	41.34	
4-3	156	Cotton	0	0.34	1.17	0.82	0.00	53.04	182.52	127.92	
4-4	150	Wheat	0.17	0.93	0	1.08	25.50	139.50	0.00	162.00	
Total	623						128.19	500.81	396.93	502.59	1,528.52

Average Acre Feet per Quarter				
	Q1	Q2	Q3	Q4
1999	243.66	270.92	758.49	396.68
2000	128.19	500.81	396.93	502.59
Average	185.93	385.87	577.71	449.64

NOTES:

- Cotton From DAU 244 - furrow irrigated
- Tomato From DAU 244 - sprinkler irrigated
- Lettuce Two crops per year - total water requirements shown
- Garlic From DAU 259 for similar clay-loam soil characteristics
- Onion From DAU 259 for similar clay-loam soil characteristics

Irrigation Pump Energy Requirement Calculations (Unit #1)

Constants															
	43,560	sq-ft	per	acre											
	43,560	cu-ft	per	acre	ft										
	7.4805	gal	per	cu-ft											
	5.05E-07	hp-hr	per	ft-lbf											
	62.4	lb/cu-ft	water												
Water Requirement Data															
Water required (acre-feet/acre per Quarter)															
Quarter 1	0.2984	acre-ft/acre	x	43,560	cu-ft/acre-ft	x	623	acre =	8,098,893	cu-ft/qtr					
Quarter 2	0.6194	acre-ft/acre	x	43,560	cu-ft/acre-ft	x	623	acre =	16,808,279	cu-ft/qtr					
Quarter 3	0.9273	acre-ft/acre	x	43,560	cu-ft/acre-ft	x	623	acre =	25,165,048	cu-ft/qtr					
Quarter 4	0.7217	acre-ft/acre	x	43,560	cu-ft/acre-ft	x	623	acre =	19,586,101	cu-ft/qtr					
Water Distribution System Data															
Pumping Rate	2000	gal/min		0.133681	cu-ft/gal	x	60	min/hr =	16,041.71	cu-ft/hr					
Water Table Data															
Groundwater Depth	372.0	feet									water table depth below ground surface				
Water Level Depression	61.0	feet									amount water table depresses when water is being pumped				
Surface Discharge Pressure	46.8	feet									head at pump discharge				
Pipe Head Loss	9.0	feet									pressure loss in pipes due to friction				
Total Pumping Head	488.8	feet									sum of total pumping pressure required				
Mechanical Data															
Pump Efficiency	60%										for pump head, estimated				
Gearhead Shaft Efficiency	95%										for gearbox, estimated				
Line Shaft Efficiency	98%										line bearings and such, applicant				
Overall System Efficiency	55.860%										calculated				
Horsepower Required															
For System	16,041.71	cu-ft/hr	x	62.4	lb/cu-ft	x	488.8	ft	x	5.05E-07	hp/(ft-lb/hr) /	55.860%	eff =	442.38	hp
Quarterly Irrigation System Output															
Quarter 1	8,098,893	cu-ft	x	488.8	ft	x	62.4	lb-cu-ft	x	5.05E-07	hp-hr/ft-lb /	55.860%	eff =	223,344	hp-hr
Quarter 2	16,808,279	cu-ft	x	488.8	ft	x	62.4	lb-cu-ft	x	5.05E-07	hp-hr/ft-lb /	55.860%	eff =	463,524	hp-hr
Quarter 3	25,165,048	cu-ft	x	488.8	ft	x	62.4	lb-cu-ft	x	5.05E-07	hp-hr/ft-lb /	55.860%	eff =	693,980	hp-hr
Quarter 4	19,586,101	cu-ft	x	488.8	ft	x	62.4	lb-cu-ft	x	5.05E-07	hp-hr/ft-lb /	55.860%	eff =	540,129	hp-hr

COMPANY NAME: O'Neill Farming Unit #1

EQUIPMENT DESCRIPTION: Caterpillar Model 3412
Fuel Type Diesel

Operational Data	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
Required Pump hp	442.38	442.38	442.38	442.38
Total hours of operation (hp-hr)	223,344	463,524	693,980	540,129

EMISSION FACTORS (g/hp - hour)	PM ₁₀	SO ₂	NOx	VOC	CO
	0.400	0.367	8.380	0.680	2.700

Quarterly Emissions	1st Qtr lb/qtr	2nd Qtr lb/qtr	3rd Qtr lb/qtr	4th Qtr lb/qtr	Total Ton/year
PM ₁₀	197	409	612	476	0.85
SO ₂	181	375	561	437	0.78
NOx	4,126	8,563	12,821	9,979	17.74
VOC	335	695	1,040	810	1.44
CO	1,329	2,759	4,131	3,215	5.72

Cathy Pollastrini

From: Steve Roeder
Sent: Wednesday, November 07, 2001 3:31 PM
To: Cathy Pollastrini
Cc: Dave Warner

C-1011235

Doug McCormick (the Applicant) asked me to hold the ERC project until the comments are addressed from the first one.

Steve Roeder
Senior Air Quality Engineer
San Joaquin Valley APCD
(559) 230-5905
(559) 230-6061 fax
steve.roeder@valleyair.org

- NORTHERN REGION
- CENTRAL REGION
- SOUTHERN REGION

ERC/PUBLIC NOTICE CHECK LIST

PROJECT #s: C-1011235 MODEM FILE NAME: none

√ √
REQST. COMPL.

- — ERC TRANSFER OF PREVIOUSLY BANKED CREDITS
- √ — ERC PRELIMINARY PUBLIC NOTICE
- — ERC FINAL PUBLIC NOTICE
- — NSR/CEQA PRELIMINARY PUBLIC NOTICE
- — NSR/CEQA FINAL PUBLIC NOTICE

*OK, S
DU
(Seyed, same as 1st one,
just different #'s).*

ENCLOSED DOCUMENTS REQUIRE:

- √ — Obtain Directors Signature
- √ — Send **PRELIMINARY** Notice Letters to CARB, EPA and Applicant;
Including the Following Attachments:
 - √ Application Evaluation
 - √ Other Public Notice
- √ — Send **PRELIMINARY** Public Notice for Publication to Fresno Bee
- √ — Send Signed Copies of **PRELIMINARY** Notice Letters to Regional Office
Attn: Steve Roeder
- — Director's Signature and District Seal Embossed on ERC Certificates
- — Director's Signature on Cover Letter and Mail Cover Letter & ERC
Certificates by Certified Mail to:
 - Applicant:
 - Applicant and Additional Addressees (see cover letters)
 - Other
- — Send Copies of Signed and Seal Embossed ERC Certificates and Signed
cover letter to Regional Office Attn:
- — Other Special Instructions (please specify): _____

Date Completed 11/08/01 By Joven Refuerzo

Date Added to Seyed Directory:
Upon Completion FAX to Regional Office Attn:



San Joaquin Valley
Air Pollution Control District

November 8, 2001

Tobbie Hopper
Valley Air Conditioning and Repair
1350 F Street
Fresno, CA 93706

**Re: Notice of Preliminary Decision - Emission Reduction Credits
Project Number: C-1011235**

Dear Mr. Hopper:

Enclosed for your review and comment is the District's analysis of Valley Air Conditioning and Repair's application for Emission Reduction Credits (ERCs) resulting from the shutdown of one ag-pump engine, at O'Neill Farming in Five Points. The quantity of ERCs proposed for banking is 9.8 ton-NOx/year, 0.2 ton-SOx/year, 0.5 ton-PM10/year, 2.7 ton-CO/year and 1.0 ton-VOC/year.

The notice of preliminary decision for this project will be published approximately three days from the date of this letter. Please submit your written comments on this project within the 30-day public comment period which begins on the date of publication of the public notice.

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. Steve Roeder of Permit Services at (559) 230-5905.

Sincerely,

A handwritten signature in black ink, appearing to read "Seyed Sadredin", written over a horizontal line.

Seyed Sadredin
Director of Permit Services

SS:SR

Enclosures

c: David Warner, Permit Services Manager

David L. Crow
Executive Director/Air Pollution Control Officer

Northern Region Office
4230 Kiernan Avenue, Suite 130
Modesto, CA 95356-9322
(209) 557-6400 • FAX (209) 557-6475

Central Region Office
1990 East Gettysburg Avenue
Fresno, CA 93726-0244
(559) 230-6000 • FAX (559) 230-6061
www.valleyair.org

Southern Region Office
2700 M Street, Suite 275
Bakersfield, CA 93301-2373
(661) 326-6900 • FAX (661) 326-6985



San Joaquin Valley
Air Pollution Control District

November 8, 2001

Bridget Tollstrup
Sacramento Metro AQMD
777 12th St, 3rd Floor
Sacramento, CA 95814-1908

**Re: Notice of Preliminary Decision - Emission Reduction Credits
Project Number: C-1011235**

Dear Ms. Tollstrup:

Enclosed for your review and comment is the District's analysis of Valley Air Conditioning and Repair's application for Emission Reduction Credits (ERCs) resulting from the shutdown of one ag-pump engine, at O'Neill Farming in Five Points. The quantity of ERCs proposed for banking is 9.8 ton-NOx/year, 0.2 ton-SOx/year, 0.5 ton-PM10/year, 2.7 ton-CO/year and 1.0 ton-VOC/year.

The notice of preliminary decision for this project will be published approximately three days from the date of this letter. Please submit your written comments on this project within the 30-day public comment period which begins on the date of publication of the public notice.

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. Steve Roeder of Permit Services at (559) 230-5905.

Sincerely,

A handwritten signature in black ink, appearing to read "Seyed Sadredin".

Seyed Sadredin
Director of Permit Services

SS:SR
Enclosures

c: David Warner, Permit Services Manager
David L. Crow
Executive Director/Air Pollution Control Officer



San Joaquin Valley
Air Pollution Control District

November 8, 2001

Larry Green
Yolo-Solano AQMD
1947 Galileo Ct, Suite 103
Davis, CA 95616

Re: Notice of Preliminary Decision - Emission Reduction Credits
Project Number: C-1011235

Dear Mr. Green:

Enclosed for your review and comment is the District's analysis of Valley Air Conditioning and Repair's application for Emission Reduction Credits (ERCs) resulting from the shutdown of one ag-pump engine, at O'Neill Farming in Five Points. The quantity of ERCs proposed for banking is 9.8 ton-NOx/year, 0.2 ton-SOx/year, 0.5 ton-PM10/year, 2.7 ton-CO/year and 1.0 ton-VOC/year.

The notice of preliminary decision for this project will be published approximately three days from the date of this letter. Please submit your written comments on this project within the 30-day public comment period which begins on the date of publication of the public notice.

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact Mr. Steve Roeder of Permit Services at (559) 230-5905.

Sincerely,

A handwritten signature in black ink, appearing to read "Seyed Sadredin".

Seyed Sadredin
Director of Permit Services

SS:SR

Enclosures

c: David Warner, Permit Services Manager

David L. Crow
Executive Director/Air Pollution Control Officer

Northern Region Office
4230 Kiernan Avenue, Suite 130
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2700 M Street, Suite 275
Bakersfield, CA 93301-2373
(661) 326-6900 • FAX (661) 326-6985



San Joaquin Valley
Air Pollution Control District

November 8, 2001

Mike Tollstrup, Chief
Project Assessment Branch
Stationary Source Division
California Air Resources Board
PO Box 2815
Sacramento, CA 95812-2815

Re: Notice of Preliminary Decision - Emission Reduction Credits
Project Number: C-1011235

Dear Mr. Tollstrup:

Enclosed for your review and comment is the District's analysis of Valley Air Conditioning and Repair's application for Emission Reduction Credits (ERCs) resulting from the shutdown of one ag-pump engine, at O'Neill Farming in Five Points. The quantity of ERCs proposed for banking is 9.8 ton-NOx/year, 0.2 ton-SOx/year, 0.5 ton-PM10/year, 2.7 ton-CO/year and 1.0 ton-VOC/year.

The notice of preliminary decision for this project will be published approximately three days from the date of this letter. Please submit your written comments on this project within the 30-day public comment period which begins on the date of publication of the public notice.

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Sincerely,

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Seyed Sadredin
Director of Permit Services

SS:SR
Enclosure

c: David Warner, Permit Services Manager

David L. Crow

Executive Director/Air Pollution Control Officer

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(661) 326-6900 • FAX (661) 326-6985



San Joaquin Valley
Air Pollution Control District

November 8, 2001

Gerardo C. Rios (AIR 3)
Acting Chief, Permits Office
Air Division
U.S. E.P.A. - Region IX
75 Hawthorne Street
San Francisco, CA 94105

Re: Notice of Preliminary Decision - Emission Reduction Credits
Project Number: C-1011235

Dear Mr. Rios:

Enclosed for your review and comment is the District's analysis of Valley Air Conditioning and Repair's application for Emission Reduction Credits (ERCs) resulting from the shutdown of one ag-pump engine, at O'Neill Farming in Five Points. The quantity of ERCs proposed for banking is 9.8 ton-NOx/year, 0.2 ton-SOx/year, 0.5 ton-PM10/year, 2.7 ton-CO/year and 1.0 ton-VOC/year.

The notice of preliminary decision for this project will be published approximately three days from the date of this letter. Please submit your written comments on this project within the 30-day public comment period which begins on the date of publication of the public notice.

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Seyed Sadredin
Director of Permit Services

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Enclosure

c: David Warner, Permit Services Manager

David L. Crow

Executive Director/Air Pollution Control Officer

Fresno Bee

**NOTICE OF PRELIMINARY DECISION
FOR THE PROPOSED ISSUANCE OF
EMISSION REDUCTION CREDITS**

NOTICE IS HEREBY GIVEN that the San Joaquin Valley Unified Air Pollution Control District solicits public comment on the proposed issuance of Emission Reduction Credits (ERCs) to Valley Air Conditioning and Repair for the shutdown of one ag-pump engine, at O'Neill Farming in Five Points. The quantity of ERCs proposed for banking is 9.8 ton-NOx/year, 0.2 ton-SOx/year, 0.5 ton-PM10/year, 2.7 ton-CO/year and 1.0 ton-VOC/year.

The analysis of the regulatory basis for these proposed actions, Project #C-1011235, is available for public inspection at the District office at the address below. Written comments on this project must be submitted within 30 days of the publication date of this notice to **SEYED SADREDIN, DIRECTOR OF PERMIT SERVICES, SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT, 1990 EAST GETTYSBURG AVENUE, FRESNO, CA 93726.**

ERC APPLICATION

Final Review

Project Number: 1011235

Processing Engineer: **Steve Roeder**
Lead Engineer: **Jovencio Refuerzo**
Date: **November 4, 2001**

Facility Name: **Valley Air Conditioning**
Facility ID: **C-3892**
Mailing Address: **1350 F Street**
Fresno, CA 93706

Contact Name: **Tobbie Hopper**

Telephone: **(559) 237-3188 Ext 14**

Date Received: **September 18, 2001**
Deemed Complete: **October 17, 2001**

I. Summary

Valley Air Conditioning is applying to bank the emission reduction credits (ERCs) resulting from the replacement of a diesel-fired ag-pump engine with an electric motor. The 750 hp Caterpillar model 3412 engine (SN 038S15467) has already been removed.

II. Applicable Rules

Rule 2201 New and Modified Stationary Source Review Rule (6/15/95)
Rule 2301 Emission Reduction Credit Banking (12/17/92)
Rule 4701 Internal Combustion Engines (5/21/92)

III. Location of Reduction

The removed engine was owned and operated by O'Neill Farming and was located at the Southeast corner of Section 4, Township 18S, Range 17E in Five Points, CA.

IV. Method of Generating Reductions

Valley Air Conditioning has replaced one 750 hp Caterpillar model 3412 (1974 year) diesel-fired ag-pump engine with an electric motor. The diesel engine will be destroyed, and the destruction confirmed by the District prior to the issuance of any ERC Certificates.

V. Actual Emissions

Actual Emissions are emissions from a source which can be demonstrated as having actually occurred. The actual emissions will be determined as follows. First, a set of realistic emission factors will be produced. Then a baseline period will be established. For the duration of the baseline period, the engines horsepower-hour output will be determined. Finally, the actual emissions will be established.

A. Engine Emission Factors

1. Assumptions

- Since no fuel records were maintained, we will conservatively assume that the diesel fuel was not ag diesel, but low-sulfur diesel, and contained 0.05% Sulfur by weight
- Emission Factors for VOC and CO come from AP-42 5th Edition (10/96), since engine-specific source-test data is not available for this 1974 engine
- Emission Factors for NO_x and PM₁₀ come from the Carl Moyer Program (Appendix C), which are more conservative than the AP-42 numbers for these 2 pollutants
- Emission Factor for SO_x is calculated based on the mass balance of fuel sulfur as follows:

$$0.05\% \text{ S} \times \frac{7.1 \text{ lb} \cdot \text{fuel}}{\text{gallon}} \times \frac{2 \text{ lb} \cdot \text{SO}_2}{1 \text{ lb} \cdot \text{S}} \times \frac{1 \text{ gal}}{137,000 \text{ Btu}} \times \frac{1 \text{ hp input}}{0.35 \text{ hp out}} \times \frac{2,542.5 \text{ Btu}}{\text{hp} \cdot \text{hr}} \times \frac{453.6 \text{ g}}{\text{lb}} = 0.171 \frac{\text{g} \cdot \text{SO}_x}{\text{hp} \cdot \text{hr}}$$

2. Emission Factors

IC Engine Emission Factors			
NO _x	11.0	g/hp·hr	Carl Moyer Program
SO _x	0.171	g/hp·hr	Mass Balance
PM ₁₀	0.53	g/hp·hr	Carl Moyer Program
CO	3.03	g/hp·hr	AP-42 5 th Edition (10/96)
VOC	1.12	g/hp·hr	AP-42 5 th Edition (10/96)

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B. Baseline Period

A baseline period is a timeframe within which a realistic normal operating history of an emission unit can be established. Pursuant to Rule 2201 Section 3.8, the baseline period consists of two years immediately preceding the submission date of the complete application, or at least two consecutive years within five years prior to the submission date of the complete application, if they are more representative of "normal source operation".

The engine was taken out of service on 8/31/2001, and the application was filed on 9/18/01. The application package includes exactly 2 consecutive calendar years of crop data from January 1999 through December 2000. In addition, the water-use data which is referenced below is reported on a calendar annual basis. Since the supplied crop and water-use data is continuous and chronological, and represents the two calendar years immediately prior to the cessation of emissions, the baseline period shall be identified as

the calendar years of 1999 and 2000. This period is representative of normal source operations.

C. Baseline Engine-Use

As discussed above, actual fuel-use records have not been maintained for this engine. However, we do know the irrigation service area includes 3 fields totaling 460 acres, and that the operator has maintained records of the types of crops which have been planted in these fields during the baseline period.

Knowing the field size and the type of crop planted allows us to determine the amount of water which is required to grow the crops. Once the water-use is detailed, based on the physical characteristics of the irrigation system, the amount of work required to pump the water can be quantified, and thus the engine-use is established.

1. Crop History

The irrigation service area includes 3 fields, Fields 4-1, 4-3 and 4-4, which occupy 154, 156 and 150 acres respectively. In 1999, cotton was planted in Field 4-1, while lettuce was planted in Fields 4-3 and 4-4. In 2000, cotton was planted in Fields 4-1 and 4-3, while Wheat was planted in field 4-4. This data is presented in the following table:

Baseline Crop History			
Field	Acres	1999 Crop	2000 Crop
4-1	154	Cotton	Cotton
4-3	156	Lettuce	Cotton
4-4	150	Lettuce	Wheat

2. Baseline Water-Use

The California Department of Engineering Bulletin 1, *Progress Report of Cooperative Investigations in California, 1912-1914* (1915) first quantified the actual field-use of water for growing alfalfa. Since then, water-use in California has been widely studied and well documented.

In 1983, the Department of Water Resources (DWR), *Field Irrigation Deliveries in the San Joaquin Valley*, was published. It includes actual monthly water delivery data from more than 2,350 fields totaling over 430,000 acres, representing various combinations of 49 crops and 9 irrigation methods in 11 areas within the San Joaquin Valley (see map and other related pages in Appendix A). The DWR document provides charts which identify the amount of water that has been historically delivered to the crops in the fields which were part of the survey. Using the DWR charts to determine how much water has been historically delivered to cotton, lettuce and wheat, we can establish the baseline water-use within the irrigation service area.

Since the DWR water-use charts represent the actual field delivery of water, the figures already account for typical rainfall, other weather variations, and irrigation system distribution water losses. Therefore, the chart figures will be used "as is" and require no adjustment for rain or weather.

The baseline water-use data is presented in monthly figures (in acre·feet/acre) in Appendix A, where it is combined into quarterly values (acre·feet/acre/quarter) and finally multiplied out into total acre·feet/quarter. The quarterly data from both of the baseline years is then averaged in order to represent normal operating quarters and the results are listed in the following table.

Baseline Water Requirement in Acre·Feet			
Quarter 1	Quarter 2	Quarter 3	Quarter 4
105.2 acre·ft	175.7 acre·ft	436.7 acre·ft	309.9 acre·ft

3. Baseline Engine-Use

The amount of engine-use (in horsepower-hours) which is required to pump the amount of water indicated above through the irrigation system and into the field can be calculated by considering the following mechanical parameters of the irrigation system:

- depth of the well
- water table depression during pumping
- discharge pressure
- system pressure loss
- the mechanical water-pump driveline efficiency
- the mechanical gearhead efficiency

By adding the well depth, the water table depression depth, irrigation system dynamic pressure loss and the system discharge pressure, total pressure head (in feet) required to drive the irrigation system is identified.

For example, this particular well is 372 feet deep. The water table depression level is 0 ft during pumping, the dynamic pressure drop of the water in the pipes is 2 feet and the discharge pressure is 46.1 feet. Therefore, the total pressure head required to drive this system is 420.1 feet.

In order to pump the 105.2 acre·ft of water (1st Quarter water-use) against 420.1 feet of pressure head, the irrigation system work output requirement is:

$$105.2 \text{ acre} \cdot \text{ft} \times \frac{43,560 \text{ ft}^2}{\text{acre}} \times \frac{62.4 \text{ lb}}{\text{ft}^3} \times 420.14 \text{ ft} \times \frac{1 \text{ ft} \cdot \text{lb}}{1,980,000 \text{ hp} \cdot \text{hr}} = 60,675.8 \text{ hp} \cdot \text{hr}$$

Considering the mechanical efficiency of the irrigation system, we can now calculate the amount of gearhead input-shaft-work which is required to operate the irrigation system for the 1st Quarter. This gearhead shaft input directly corresponds to engine work output, which is the value we wish to obtain.

The pump impeller in this system is 70% mechanically efficient (*Marks Standard Handbook for Mechanical Engineers*), the gearhead gears and bearings are 95% mechanically efficient (estimated) and the line shaft and bearings are 98% mechanically efficient (applicant). Therefore, the total system mechanical efficiency is: $0.70 \times 0.95 \times 0.98 = 0.6517$, or 65.17% efficient.

Thus in order to produce 60,670 hp·hr of work output, the irrigation system requires the following amount of work input:

$$\frac{60,675.8 \text{ hp} \cdot \text{hr} \text{ (work output)}}{0.6517 \text{ (efficiency)}} = 93,104 \text{ hp} \cdot \text{hr} \text{ (work input)}$$

The engine-use data for all quarters is calculated in the spreadsheet in Appendix B, and the final results are posted in the following table.

Baseline Engine-Use	
Quarter 1	93,104 hp·hr
Quarter 2	155,498 hp·hr
Quarter 3	386,488 hp·hr
Quarter 4	274,268 hp·hr

D. Actual Emissions

Engine emissions are calculated by multiplying the emission factors for this engine by the horsepower-hour figures listed above for each quarter of the year as follows:

Actual Emission Reductions					
Quarter 1					
NO _x	11	g/hp·hr x	93,104	hp·hr ÷ 453.6 g/lb =	2,258 lb/qtr
SO _x	0.171	g/hp·hr x	93,104	hp·hr ÷ 453.6 g/lb =	35 lb/qtr
PM ₁₀	0.53	g/hp·hr x	93,104	hp·hr ÷ 453.6 g/lb =	109 lb/qtr
CO	3.03	g/hp·hr x	93,104	hp·hr ÷ 453.6 g/lb =	622 lb/qtr
VOC	1.12	g/hp·hr x	93,104	hp·hr ÷ 453.6 g/lb =	230 lb/qtr
Quarter 2					
NO _x	11	g/hp·hr x	155,498	hp·hr ÷ 453.6 g/lb =	3,771 lb/qtr
SO _x	0.171	g/hp·hr x	155,498	hp·hr ÷ 453.6 g/lb =	59 lb/qtr
PM ₁₀	0.53	g/hp·hr x	155,498	hp·hr ÷ 453.6 g/lb =	182 lb/qtr
CO	3.03	g/hp·hr x	155,498	hp·hr ÷ 453.6 g/lb =	1,039 lb/qtr
VOC	1.12	g/hp·hr x	155,498	hp·hr ÷ 453.6 g/lb =	384 lb/qtr
Quarter 3					
NO _x	11	g/hp·hr x	386,488	hp·hr ÷ 453.6 g/lb =	9,373 lb/qtr
SO _x	0.171	g/hp·hr x	386,488	hp·hr ÷ 453.6 g/lb =	146 lb/qtr
PM ₁₀	0.53	g/hp·hr x	386,488	hp·hr ÷ 453.6 g/lb =	452 lb/qtr
CO	3.03	g/hp·hr x	386,488	hp·hr ÷ 453.6 g/lb =	2,582 lb/qtr
VOC	1.12	g/hp·hr x	386,488	hp·hr ÷ 453.6 g/lb =	954 lb/qtr
Quarter 4					
NO _x	11	g/hp·hr x	274,268	hp·hr ÷ 453.6 g/lb =	6,651 lb/qtr
SO _x	0.171	g/hp·hr x	274,268	hp·hr ÷ 453.6 g/lb =	103 lb/qtr
PM ₁₀	0.53	g/hp·hr x	274,268	hp·hr ÷ 453.6 g/lb =	320 lb/qtr
CO	3.03	g/hp·hr x	274,268	hp·hr ÷ 453.6 g/lb =	1,832 lb/qtr
VOC	1.12	g/hp·hr x	274,268	hp·hr ÷ 453.6 g/lb =	677 lb/qtr

VI. Adjustments

In order to quantify Actual Emissions Reductions (AER) and ultimately Bankable Emission Reductions, the baseline emissions calculated above must be adjusted in several areas. The baseline emissions must be adjusted for:

- Replacement Unit Emissions
- Applicable District Rules
- Requirements in the State Implementation Plan
- The Air Quality Improvement Deduction

A. Emissions from the Replacement Unit

The baseline emissions must be adjusted by subtracting the emissions from the replacement unit in order to determine emissions reductions. In this case, the engine is being replaced with an electric motor.

While the motor will not be permitted, and although it does not directly emit pollution, the electricity required to operate the motor must now be produced by a utility power generator. Therefore, the increase in emissions resulting from the increase in utility power required to run the new electric motor must be subtracted.

Within the District, the average emission factor for NO_x for the generation of grid electric power is 0.17 grams/hp·hr. By multiplying this emission factor for NO_x by the amount of horsepower·hours the new electric motor will be required to operate, the replacement emissions are determined.

NO _x Electrification Emissions					
Quarter 1	0.17	g/hp·hr x	93,104	hp·hr/qtr ÷ 453.6 g/lb =	35 lb/qtr
Quarter 2	0.17	g/hp·hr x	155,498	hp·hr/qtr ÷ 453.6 g/lb =	58 lb/qtr
Quarter 3	0.17	g/hp·hr x	386,488	hp·hr/qtr ÷ 453.6 g/lb =	145 lb/qtr
Quarter 4	0.17	g/hp·hr x	274,268	hp·hr/qtr ÷ 453.6 g/lb =	103 lb/qtr

Subtracting the preceding values from the baseline NO_x emissions yields the following Actual Emission Reductions for NO_x:

NO _x Emissions Reductions Adjusted for Electrification					
Quarter 1	2,258	lb/qtr -	35	lb/qtr =	2,223 lb/qtr
Quarter 2	3,771	lb/qtr -	58	lb/qtr =	3,713 lb/qtr
Quarter 3	9,373	lb/qtr -	145	lb/qtr =	9,228 lb/qtr
Quarter 4	6,651	lb/qtr -	103	lb/qtr =	6,548 lb/qtr

B. Applicable District Rules

Pursuant to District Rule 2201 Section 3.2.2.1, AER shall be in excess of any reductions required or encumbered by any laws, rules, regulations, agreements or orders.

Engines are regulated by District Rule 4701 *Internal Combustion Engines*. Therefore, the emission factors used for calculating emission reductions for engines may not exceed the emission factor limits established in Rule 4701.

Pursuant to Section 4.1 of Rule 4701, the provisions of this rule do not apply to engines in agricultural operations in the growing of crops or raising of fowl or animals. Since this engine is a farm engine used in the growing of crops, no adjustments are required.

C. State Implementation Plan (SIP)

Pursuant to Rule 2201 Section 3.2.2.2, AER shall be in excess or any reductions which are attributed to a control measure noticed for workshop, or proposed or contained in a State Implementation plan.

California Air Resources Board (CARB) has workshopped or proposed Best Available Retrofit Controls (BARCT) and Air Toxic Control Measures (ATCM) for internal combustion engines. The BARCT measure will be aimed at reducing NOx emissions and the ATCM will target toxic particulate emissions from internal combustion engines. Currently, none of CARB's proposals require mandatory emission reductions from existing agricultural engines. Therefore, no adjustments are necessary.

D. Air Quality Improvement Deduction (AQID)

Pursuant to Rule 2201 Section 4.12.1, prior to banking, AER shall be discounted by 10% for an AQID. In the following table, the 10% AQID is subtracted from the adjusted emissions reductions in order to quantify the amount which is eligible for banking.

Emissions Reductions Credits Adjusted for AQID					
Quarter 1					
NO _x	2,223	lb/qtr -	222	lb/qtr =	2,001 lb/qtr
SO _x	35	lb/qtr -	4	lb/qtr =	32 lb/qtr
PM ₁₀	109	lb/qtr -	11	lb/qtr =	98 lb/qtr
CO	622	lb/qtr -	62	lb/qtr =	560 lb/qtr
VOC	230	lb/qtr -	23	lb/qtr =	207 lb/qtr
Quarter 2					
NO _x	3,713	lb/qtr -	371	lb/qtr =	3,342 lb/qtr
SO _x	59	lb/qtr -	6	lb/qtr =	53 lb/qtr
PM ₁₀	182	lb/qtr -	18	lb/qtr =	164 lb/qtr
CO	1,039	lb/qtr -	104	lb/qtr =	935 lb/qtr
VOC	384	lb/qtr -	38	lb/qtr =	346 lb/qtr
Quarter 3					
NO _x	9,228	lb/qtr -	923	lb/qtr =	8,305 lb/qtr
SO _x	146	lb/qtr -	15	lb/qtr =	131 lb/qtr
PM ₁₀	452	lb/qtr -	45	lb/qtr =	407 lb/qtr
CO	2,582	lb/qtr -	258	lb/qtr =	2,324 lb/qtr
VOC	954	lb/qtr -	95	lb/qtr =	859 lb/qtr
Quarter 4					
NO _x	6,548	lb/qtr -	655	lb/qtr =	5,893 lb/qtr
SO _x	103	lb/qtr -	10	lb/qtr =	93 lb/qtr
PM ₁₀	320	lb/qtr -	32	lb/qtr =	288 lb/qtr
CO	1,832	lb/qtr -	183	lb/qtr =	1,649 lb/qtr
VOC	677	lb/qtr -	68	lb/qtr =	609 lb/qtr

E. Bankable Emissions Reductions Credits

The bankable Emission Reduction Credits as determined in this evaluation are posted in the following table.

Bankable Emissions Reductions Credits		
Quarter 1		
NO _x	2,001	lb/qtr
SO _x	32	lb/qtr
PM ₁₀	98	lb/qtr
CO	560	lb/qtr
VOC	207	lb/qtr
Quarter 2		
NO _x	3,342	lb/qtr
SO _x	53	lb/qtr
PM ₁₀	164	lb/qtr
CO	935	lb/qtr
VOC	346	lb/qtr
Quarter 3		
NO _x	8,305	lb/qtr
SO _x	131	lb/qtr
PM ₁₀	407	lb/qtr
CO	2,324	lb/qtr
VOC	859	lb/qtr
Quarter 4		
NO _x	5,893	lb/qtr
SO _x	93	lb/qtr
PM ₁₀	288	lb/qtr
CO	1,649	lb/qtr
VOC	609	lb/qtr

VIII. Compliance

Pursuant to District Rules 2201 and 2301, Bankable Emissions Reductions must be:

- Real
- Surplus
- Permanent
- Quantifiable
- Enforceable
- Not already used to offset an Authority to Construct
- Based on a timely application
- For non-permitted emissions units, the emissions must have been included in the 1987 emissions inventory.

A. Real

These emissions reductions have been created by the shutdown of an ag-pump engine. Since the baseline crop history is real and the emission factors are from widely accepted sources such as the Carl Moyer program and AP-42, and have been demonstrated to be conservative in the emission factor section of this evaluation, the baseline emissions are considered to be real.

The grower has signed a contract (See Growers Agreement in Appendix E) agreeing to destroy the removed engine, and not supplement the irrigation system with power from any internal combustion engine for 30 years. Since verification of the destruction of the engine will be conducted by the District prior to the issuance of any ERC Credits, the emission reductions are also considered to be real.

B. Surplus

Surplus emission reductions are reductions that are in excess of those required by any laws, rules, regulations, agreements, orders or State Implementation Plan.

The baseline emissions from this engine have been adjusted in Section VII *Adjustments* (above) for all of these. Therefore, the remaining emissions reductions are considered to be surplus.

C. Permanent

The grower has signed a contract (Appendix E) agreeing to destroy the removed engine. Furthermore, the contract requires that the irrigation system not be supplemented with power from any internal combustion engine for 30 years. In addition, the contract requires that these provisions be legally binding to any future owner/operator of the equipment. The applicant has agreed to disclose in writing the existence of the agreement to any other entity which may come to own or become responsible for operating the irrigation system for the service area. To ensure the permanence of the agreement and the notice of interested parties, the contract, or a similar document as approved by the District, will be recorded by the County Registrar so that future title searches will disclose its existence and requirements.

D. Quantifiable

The reduction amounts have been calculated based on historic crop data, field water-use data, irrigation system parameters and engine emission factors. The accuracy of determining historic engine-use from crop history, field size and irrigation system parameters has been demonstrated on five irrigation systems for which accurate fuel-use records have been kept. An analysis of the data indicated that in all five tests (averaged together) the predicted fuel-use was within 1.2% of the actual fuel-use. This close correlation does yield some credibility to the methodology. However, comparing the predicted fuel-use to the actual fuel-use on an engine-by-engine basis, the difference ranged from -13.3% to

+17.1%. Therefore, the District is proposing the following to ensure, with an abundance of caution, the accuracy and supportability of our quantification.

The ERCs will be issued in two stages. Eighty percent of the total bankable ERCs will be issued following the Public Noticing Period, and a conservative "reserve" of 20% will be set aside pending validation of the assumptions made during quantification. The validation period will be at least 12 calendar months.

The signed agreement (Appendix E) includes a provision to install either a water-meter on the irrigation system or fit the power supply to the new electric motor with a kilowatt · hour meter. Records of irrigation system use shall also be maintained for the validation period of at least 12 full calendar months. By reviewing the post-project records, the District will determine if the post-project water-use correlates with the calculated pre-project water-use, ultimately determining if the calculated baseline engine-use figures were reasonably accurate.

The proposed distribution of ERCs is presented in the following table.

Proposed ERCs						
Quarter 1	Bankable ERC's		Primary Issuance (80%)		Secondary Issuance (20%)	
NO _x	2,001	lb/qtr	1,601	lb/qtr	400	lb/qtr
SO _x	32	lb/qtr	26	lb/qtr	6	lb/qtr
PM ₁₀	98	lb/qtr	78	lb/qtr	20	lb/qtr
CO	560	lb/qtr	448	lb/qtr	112	lb/qtr
VOC	207	lb/qtr	166	lb/qtr	41	lb/qtr
Quarter 2						
NO _x	3,342	lb/qtr	2,674	lb/qtr	668	lb/qtr
SO _x	53	lb/qtr	42	lb/qtr	11	lb/qtr
PM ₁₀	164	lb/qtr	131	lb/qtr	33	lb/qtr
CO	935	lb/qtr	748	lb/qtr	187	lb/qtr
VOC	346	lb/qtr	277	lb/qtr	69	lb/qtr
Quarter 3						
NO _x	8,305	lb/qtr	6,644	lb/qtr	1,661	lb/qtr
SO _x	131	lb/qtr	105	lb/qtr	26	lb/qtr
PM ₁₀	407	lb/qtr	326	lb/qtr	81	lb/qtr
CO	2,324	lb/qtr	1,859	lb/qtr	465	lb/qtr
VOC	859	lb/qtr	687	lb/qtr	172	lb/qtr
Quarter 4						
NO _x	5,893	lb/qtr	4,714	lb/qtr	1,179	lb/qtr
SO _x	93	lb/qtr	74	lb/qtr	19	lb/qtr
PM ₁₀	288	lb/qtr	230	lb/qtr	58	lb/qtr
CO	1,649	lb/qtr	1,319	lb/qtr	330	lb/qtr
VOC	609	lb/qtr	487	lb/qtr	122	lb/qtr

E. Enforceable

District Rule 2301 Section 4.2.4 states that for non-permitted emission units, the source creating ERCs shall apply for and acquire a Permit to Operate subject to enforceable permit conditions. If the District, pursuant to state laws, is prohibited to permit the emission unit, the Rule requires that the stationary source creating ERCs execute a legal binding contract with the District which ensures that the emission reductions will be provided in accordance with the provisions of this rule, and shall continue for the reasonable expected life of the proposed source.

In this case, the District cannot require permits for engines used in agricultural operations. However, in order to enforce the proposed reductions in emissions, a signed legal binding contract will be required. The contract is included in Appendix E of this evaluation and includes provisions as necessary to ensure the enforceability of the proposed emission reductions. The provisions from the contract, along with a brief explanation of the basis for such provisions, are included below.

Conditions 2 and 9 ensure that all of the power required to drive the entire irrigation system will forever come from an electric motor, and no internal combustion engine(s) will be hooked up to the irrigation system anywhere which can supplement the electric motor and create emissions.

- O'Neill Farming agrees to replace all of its existing high emissions irrigation engines as identified in Exhibit A, which completely irrigates Service Area as completely identified in Exhibit B, attached hereto and incorporated herein, with new, non-polluting electric motor(s) provided by Valley Air Conditioning and Repair.
- O'Neill Farming agrees that the Service Area covered by this Agreement shall not be irrigated in whole or in part by any other IC engine power source.

Condition 10 ensures that the replacement of the engine with the electric motor will be in effect for 30 years, and that any future owner/operator will be bound by this agreement for the full 30 years of the contract.

- O'Neill Farming agrees that replacement of the Existing Engine(s) with Electric Motors(s) will be in effect for thirty (30) years and agrees to disclose in writing the existence of this Agreement to any other entity which may come to own or become responsible for operating the irrigation pumping system for the Service Area described. To ensure the permanence of this Agreement, this Agreement, or a similar document as approved by the District, shall be recorded by the County Registrar. Any future entity which becomes responsible for the irrigation system shall agree to the terms contained in this Agreement.

Conditions 7 and 8 guarantee the destruction of the removed engine by ensuring it's destruction.

- O'Neill Farming agrees to render the removed Engine(s) inoperable by drilling or knocking a hole in the block, welding the cylinder head shut, obtaining written proof from a scrap yard that the removed Engine(s) has been destroyed or otherwise rendered inoperable, or other method approved by the District, and to submit proof of such destruction of the removed Engine(s) to the District.
- The District maintains the right to witness the destruction of the Engine(s) and Parties agree to notify the District at least 14 days prior to the destruction of any Engine(s).

Condition 12 allows the District access to the service area in order to verify compliance with the terms of this agreement.

- O'Neill Farming grants to Valley Air Conditioning and Repair and the District, for the specific and sole purpose of exercising their respective responsibilities as defined in this Agreement and applicable law, the right of reasonable entry to Service Area to monitor compliance with this Agreement during normal business hours.

Finally, conditions 14 and 15 ensure that all parties agree that this is in fact a legal binding contract, and that the District has jurisdiction over all of the related matters.

- All parties agree that this Agreement constitutes a legal, valid and binding obligation on all parties, enforceable in accordance with its terms and applicable law, and that its contents, including that of other documents incorporated by reference, are true and correct.
- O'Neill Farming and Valley Air Conditioning and Repair agree to, and will not contest the District's jurisdiction over matters related to this Agreement.

These provisions in conjunction with the rest of the contract will ensure that the terms of this ERC project are enforceable.

F. Not used for the approval of an Authority to Construct or as Offsets

The ERCs generated by the this project have not been used as offsets for the approval of any Authority to Construct.

G. Based on a Timely Submittal of Application

Applications for ERCs must be received within 180 days of the reduction. According to the ERC application dated 9/18/01, the date of reductions is 8/31/01. Therefore, pursuant to Sections 4.2.3 and 5.5 of Rule 2301, this application is considered to be timely.

H. Included in Emissions Inventory

Emissions from agricultural irrigation pump internal combustion engines are contained in the 1987 inventory in the "Farm Equipment" area source category. This category includes tractors, balers, combines, mowers, and an "others" category - it is in the latter that irrigation pumps are included. This has been confirmed with Ray Asregadoo of the ARB's Emissions Inventory group. Of the 35.8 tons · NO_x/day listed in the 1987 inventory, it is possible to estimate the amount emitted by ag irrigation pumps, as follows:

From the ARB methodology for the Farm Equipment category (Appendix D), Table II indicates that 11,600 tons/year was emitted in the San Joaquin Valley, from diesel-powered equipment. From Table IV, the "other" category is responsible for 31.7 % of the total average hours of operation for diesel farm equipment (436 "other" hours/1,377 total hours). Conservatively assuming that only 50% of the "other" category is ag irrigation pump engines, the total 1987 emissions inventory was:

$$\frac{11,600 \text{ ton}}{\text{year}} \times \frac{436 \text{ hours}}{1,377 \text{ hours}} \times 50\% = 1,836.5 \frac{\text{ton} \cdot \text{NO}_x}{\text{year}}$$

Therefore, the 9.8 tons · NO_x/year we are proposing to issue as ERCs were included in the 1987 emissions inventory. The discussion that the other pollutants which are proposed for banking are also included in the 1987 emissions inventory is identical.

IX. Recommendation

Issue Primary ERC certificates with the quarterly values attached.

List of Appendixes

- A DWR Water Requirement Data
- B Irrigation Pump Energy Requirement Calculations
- C Carl Moyer Emission Factors
- D Emissions Inventory "Farm Equipment" Category
- E Growers Agreement
- F Draft ERC Certificates

Appendix A Water Requirement Data

The watering figures which follow are from State of California, Department of Water Resources, San Joaquin District Publication *Field Irrigation Deliveries in the San Joaquin Valley (11/83)*. This data represents the baseline crop history and the watering requirement for the fields in service area, and is averaged together to establish quarterly baseline water-use. Note that the water amounts listed in the following table are based on actual field deliveries and already account for rainfall.

O'Neill Farming Unit 2*														
1999 Data			1999 Monthly Watering Requirement: $\frac{\text{acre} \cdot \text{ft}}{\text{acre}}$											
Field	Acres	Plant	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
4-1	154	Cotton ¹	0	0	0	0	0	0.34	0.48	0.64	0.05	0.08	0.22	0.52
4-3	156	Lettuce ²	0.08	0.19	0.28	0.20	0	0.08	0.14	0.47	0.47	0.18	0.01	0.18
4-4	150	Lettuce ²	0.08	0.19	0.28	0.20	0	0.08	0.14	0.47	0.47	0.18	0.01	0.18
Water Required: acre · feet			168.3 acre · feet			138.04 acre · feet			510.66 acre · feet			239.5 acre · feet		
2000 Data			2000 Monthly Watering Requirement: $\frac{\text{acre} \cdot \text{ft}}{\text{acre}}$											
Field	Acres	Plant	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
4-1	154	Cotton ¹	0	0	0	0	0	0.34	0.48	0.64	0.05	0.08	0.22	0.52
4-3	156	Cotton ¹	0	0	0	0	0	0.34	0.48	0.64	0.05	0.08	0.22	0.52
4-4	150	Wheat ¹	0	0	0.28	0.59	0.13	0	0	0	0	0	0	0.84
Water Required: acre · ft			42.0 acre · feet			213.4 acre · feet			362.7 acre · feet			380.2 acre · feet		
Baseline Water Requirement:			105.2 $\frac{\text{acre} \cdot \text{ft}}{\text{quarter}}$			175.7 $\frac{\text{acre} \cdot \text{ft}}{\text{quarter}}$			436.7 $\frac{\text{acre} \cdot \text{ft}}{\text{quarter}}$			309.9 $\frac{\text{acre} \cdot \text{ft}}{\text{quarter}}$		

Notes:

Service Area is based in DAU 244.

¹Cotton and Wheat water-use data is from DAU 244

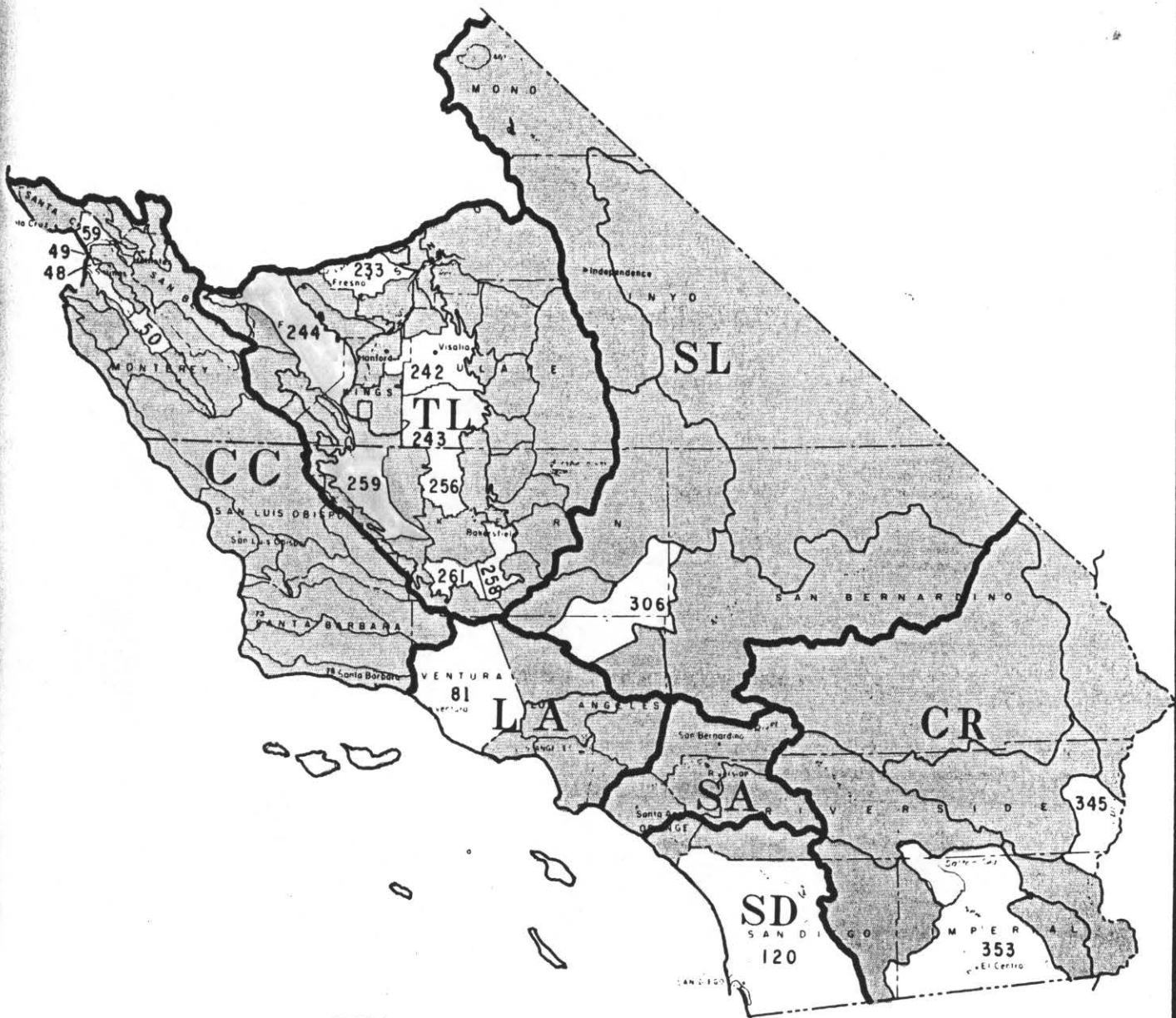
²Lettuce is double cropped, water-use data is from DAU 259

DAU 259 is 50 miles South of DAU 244. Due to the distance between the 2 DAU's, an analysis must be conducted in order to determine if the data from DAU 259 may be used to represent water deliveries for the crops in DAU 244. It is immediately apparent that the water requirements for similar crops with similar irrigation methods are significantly higher (an average of 1.32 times higher) in DAU 259 than in DAU 244, as shown in the following table. Therefore, in order to use the water delivery figures from DAU 259 to represent water deliveries in DAU 244, the DAU 259 figures will be reduced by the factor of 1.32, as shown in the second table below.

Comparison of DAU 244 and DAU 259				
Crop	Irrigation Type	Water Deliveries in DAU 244	Water Deliveries in DAU 259	Factor
Wheat and Barley	Sprinkler	1.71	1.76	1.02
Cotton	Sprinkler	1.96	3.46	1.76
Tomato	Furrow	1.88	2.27	1.20
Overall Average Factor				1.32

Correction of Lettuce Watering Requirement from DAU 259 to DAU 244													
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
259	0.11	0.25	0.37	0.26	0	0.11	0.19	0.62	0.63	0.24	0.01	0.24	
244	0.08	0.19	0.28	0.20	0	0.08	0.14	0.47	0.47	0.18	0.01	0.18	

LOCATIONS OF MEASURED IRRIGATION DELIVERIES (Cont.)



DETAILED ANALYSIS UNITS (DAU)

- | | | |
|------------------------|------------------------------|-------------------------|
| (CC) CENTRAL COAST HSA | (TL) TULARE LAKE HSA | (SL) SOUTH LAHONTAN HSA |
| 48 - Pressure | 233 - Fresno | 306 - Rosemond-Palmdale |
| 49 - East Side | 242 - Kaweah Delta | (CR) COLORADO RIVER HSA |
| 50 - Forebay | 243 - Tule Delta | 345 - Palo Verde |
| 59 - Watsonville | 244 - Westlands | 353 - Imperial |
| (LA) LOS ANGELES HSA | 256 - North Kern | |
| 81 - Ventura County | 258 - Arvin-Edison | |
| (SD) SAN DIEGO HSA | 259 - Antelope Plain | |
| 120 - San Diego County | 261 - Wheeler Ridge-Maricopa | |

TABLE H-24
 AVERAGE MEASURED IRRIGATION DELIVERIES
 TULARE LAKE HSA
 DAU 244

CROP	IRRIGATION METHOD	AGE (TREES/VINES)	NO. OF FIELDS	ACRES IRRIGATED	AVERAGE MEASURED MONTHLY AND ANNUAL DELIVERIES (ACRE-FEET/ACRE)												
					JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Field Crops																	
Cotton	Furrow	-	14	2,546	-	-	-	-	0.00	0.34	0.48	0.64	0.05	0.08	*0.22	*0.52	2.33
Cotton	sprinkler	-	10	1,881	-	0.05	-	-	0.11	0.43	0.52	0.50	0.02	-	0.20	*0.13	1.96
Safflower	Furrow	-	1	65	-	0.00	0.49	0.39	0.30	0.00	0.00	0.00	-	-	-	-	1.18
Sugar beets	Furrow	-	2	320	-	-	-	0.00	0.56	0.88	0.48	0.00	0.00	0.00	0.00	0.58	2.50
Grains																	
Barley	Furrow	-	13	1,819	-	0.05	0.34	0.49	0.20	-	-	-	-	-	0.09	0.11	1.28
Barley	Sprinkler	-	1	165	0.77	-	0.00	0.46	0.00	-	-	-	-	-	-	-	1.23
Wheat	Furrow	-	2	297	-	-	0.28	0.59	0.13	-	-	-	-	-	-	0.84	1.84
Wheat	Sprinkler	-	1	128	-	-	0.17	0.58	0.35	-	-	-	-	-	0.54	0.54	2.18
Truck Crops																	
Tomatoes (processing)	Furrow	-	5	602	-	-	0.26	0.21	0.56	0.36	0.36	0.13	-	-	-	-	1.88
Tomatoes (processing)	Sprinkler & furrow ^{2/}	-	8	950	-	-	0.09	0.06	0.44	0.56	0.30	0.07	0.01	-	-	0.18	1.71

^{1/}Area from which irrigation deliveries were obtained is underlain by perched water at shallow depths.

^{2/}Germination and first crop irrigations were with hand-move sprinklers; irrigations after flowering were by furrow. Data for one field were abstracted from "Use of Water on Federal Irrigation Projects, Central Valley Project, 1967-1970," Summary Report, Volume 2, U. S. Bureau of Reclamation, August 1971.

*Preirrigation

TABLE H-27
AVERAGE MEASURED IRRIGATION DELIVERIES
TULARE LAKE HSA
DAU 259

CROP	IRRIGATION METHOD	AGE (TREES/VINES)	NO. OF FIELDS	ACRES IRRIGATED	AVERAGE MEASURED MONTHLY AND ANNUAL DELIVERIES (ACRE-FEET/ACRE)													
					JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL	
Field Crops																		
Beans (dry)	Sprinkler	-	2	340	-	-	-	-	-	-	-	-	-	-	-	-	-	1.67
Cotton	Sprinkler	-	29	14,497	0.01	0.20	0.38	0.10	0.27	0.55	1.02	1.04	0.01	0.00	0.00	0.00	3.58	
Cotton	Sprinkler	-	2	2,350	-	-	-	-	-	-	-	-	-	-	-	-	-	3.34
Sugar beets	Sprinkler	-	4	11,251	0.03	0.05	0.28	0.38	0.67	0.91	1.06	1.12	0.83	0.26	0.00	0.00	5.59	
Grains																		
Wheat and barley	Sprinkler	-	6	5,085	0.24	0.23	0.31	0.66	0.28	0.03	0.00	0.00	0.00	0.00	0.00	0.04	1.79	
Wheat and barley	Sprinkler	-	3	3,727	-	-	-	-	-	-	-	-	-	-	-	-	-	1.74
Truck Crops																		
Broccoli	Sprinkler	-	1	100	-	-	-	-	-	-	-	-	-	-	-	-	-	1.78
Carrots	Sprinkler	-	2	660	-	-	-	-	-	-	-	-	-	-	-	-	-	2.13
Lettuce (spring)	Furrow	-	5	1,400	0.11	0.25	0.37	0.26	0.00	0.00	0.00	0.00	0.00	0.11	0.01	0.24	1.35	
Lettuce (fall)	Furrow	-	6	2,100	0.00	0.00	0.00	0.00	0.00	0.11	0.19	0.62	0.63	0.24	0.01	0.00	1.80	
Melons	Furrow	-	7	2,210	0.24	0.27	0.14	0.05	0.25	0.64	0.52	0.02	0.00	0.00	0.00	0.00	2.13	
Onions and garlic	Sprinkler	-	10	3,147	0.17	0.21	0.25	0.52	0.65	0.40	0.07	0.12	0.02	0.06	0.30	0.17	2.94	
Onions and garlic	Sprinkler	-	5	1,841	-	-	-	-	-	-	-	-	-	-	-	-	-	3.06
Peas	Sprinkler	-	2	585	-	-	-	-	-	-	-	-	-	-	-	-	-	1.92
Peppers	Sprinkler	-	1	96	0.00	0.00	0.04	0.87	1.19	0.43	1.46	1.83	0.58	0.00	0.00	0.00	6.40	
Peppers	Sprinkler	-	1	95	-	-	-	-	-	-	-	-	-	-	-	-	-	3.00
Potatoes	Sprinkler	-	3	578	0.00	0.06	0.09	0.29	0.77	0.57	0.11	0.00	0.00	0.00	0.00	0.00	1.89	
Spinach	Sprinkler	-	1	220	-	-	-	-	-	-	-	-	-	-	-	-	-	1.89
Tomatoes (processing)	Furrow	-	2	331	0.42	0.02	0.06	0.03	0.47	0.75	0.50	0.02	0.00	0.00	0.00	0.00	2.27	
Tomatoes (processing)	Furrow	-	1	140	-	-	-	-	-	-	-	-	-	-	-	-	-	2.51
Deciduous Orchard																		
Almonds	Drip	1-3 yrs	1	80	0.09	0.00	0.20	0.00	0.09	0.06	0.30	0.49	0.00	0.00	0.00	0.00	1.23	
Almonds	Drip	4-7 yrs	4	320	0.08	0.12	0.07	0.25	0.33	0.39	0.43	0.28	0.11	0.15	0.11	0.05	2.37	
Almonds	Drip	8+ yrs	1	80	0.11	0.29	0.19	0.34	0.51	0.69	0.70	0.41	0.24	0.28	0.13	0.18	4.07	
Almonds	Sprinkler	1-3 yrs	16	8,296	0.05	0.19	0.23	0.33	0.35	0.55	0.52	0.43	0.14	0.17	0.04	0.11	3.11	
Almonds	Sprinkler	4-7 yrs	45	7,994	0.03	0.19	0.24	0.34	0.56	0.67	0.72	0.42	0.06	0.04	0.05	0.06	3.38	
Almonds	Sprinkler	8+ yrs	36	20,131	0.10	0.06	0.17	0.40	0.51	0.62	0.63	0.27	0.08	0.30	0.11	0.23	3.48	
Almonds	Sprinkler	8+ yrs	33	18,529	-	-	-	-	-	-	-	-	-	-	-	-	-	4.63
Almonds	Hose-pull	1-3 yrs	29	7,829	0.03	0.09	0.11	0.22	0.27	0.30	0.29	0.25	0.18	0.09	0.05	0.04	1.92	
Almonds	Hose-pull	4-7 yrs	32	18,503	0.16	0.09	0.17	0.33	0.41	0.47	0.46	0.25	0.12	0.20	0.07	0.12	2.85	
Almonds	Hose-pull	8+ yrs	8	764	0.21	0.14	0.28	0.47	0.63	0.92	0.50	0.09	0.14	0.21	0.03	0.11	3.73	
Apricots	Sprinkler	1-3 yrs	1	89	0.00	0.16	0.27	0.45	0.30	0.30	0.30	0.28	0.17	0.24	0.01	0.00	2.48	
Peaches & nectarines	Drip	4-7 yrs	6	2,830	0.15	0.08	0.30	0.24	0.36	0.36	0.35	0.42	0.35	0.18	0.02	0.08	2.89	
Peaches & nectarines	Hose-pull	1-3 yrs	27	2,853	0.09	0.14	0.18	0.21	0.33	0.33	0.31	0.26	0.26	0.14	0.06	0.05	2.36	
Peaches & nectarines	Hose-pull	4-7 yrs	25	913	0.12	0.11	0.26	0.42	0.50	0.52	0.32	0.35	0.32	0.20	0.04	0.11	3.27	
Peaches & nectarines	Hose-pull	8+ yrs	6	176	0.22	0.00	0.29	0.27	0.46	0.54	0.36	0.46	0.52	0.00	0.00	0.22	3.34	
Peaches & nectarines	Furrow	1-3 yrs	3	30	0.10	0.11	0.27	0.50	0.58	0.35	0.29	0.24	0.27	0.09	0.00	0.00	2.80	
Peaches & nectarines	Furrow	4-7 yrs	1	10	0.44	0.53	0.80	1.59	0.35	0.66	0.88	0.88	0.44	0.44	0.00	0.00	7.01	
Pecans	Sprinkler	1-3 yrs	1	50	-	-	-	-	-	-	-	-	-	-	-	-	-	2.66
Pistachios	Hose-pull	1-4 yrs	2	22	0.00	0.16	0.24	0.32	0.32	0.64	0.36	0.59	0.48	0.24	0.00	0.00	3.35	
Pistachios	Hose-pull	5-8 yrs	4	44	0.00	0.10	0.12	0.28	0.46	0.48	0.50	0.35	0.24	0.08	0.02	0.17	2.80	
Pistachios	Hose-pull	9-12 yrs	4	1,844	0.04	0.00	0.09	0.29	0.19	0.35	0.47	0.48	0.03	0.17	0.15	0.13	2.54	
Pistachios	Drip	1-4 yrs	28	10,404	0.03	0.10	0.20	0.17	0.34	0.26	0.27	0.22	0.03	0.01	0.00	0.01	1.49	
Pistachios	Drip	5-8 yrs	27	18,907	0.02	0.02	0.05	0.12	0.17	0.23	0.24	0.24	0.06	0.09	0.06	0.07	1.37	
Pistachios	Drip	1-4 yrs	1	812	-	-	-	-	-	-	-	-	-	-	-	-	-	0.45
Pistachios	Drip	5-8 yrs	34	6,958	-	-	-	-	-	-	-	-	-	-	-	-	-	1.60
Plums	Hose-pull	1-3 yrs	6	492	0.06	0.14	0.19	0.21	0.43	0.43	0.48	0.30	0.41	0.20	0.12	0.00	2.97	
Plums	Hose-pull	4-7 yrs	7	669	0.16	0.19	0.29	0.33	0.50	0.48	0.40	0.39	0.41	0.21	0.02	0.00	3.38	
Plums	Hose-pull	8+ yrs	6	636	0.07	0.14	0.20	0.33	0.46	0.50	0.40	0.30	0.45	0.17	0.02	0.09	3.13	
Subtropical Orchard																		
Citrus	Drip	4-7 yrs	6	251	0.01	0.04	0.06	0.10	0.15	0.16	0.17	0.39	0.21	0.14	0.08	0.00	1.51	
Citrus	Drip	8+ yrs	8	168	0.01	0.03	0.06	0.15	0.14	0.28	0.39	0.89	0.21	0.32	0.05	0.10	2.63	
Citrus	Sprinkler	1-3 yrs	3	769	0.00	0.00	0.15	0.14	0.40	0.38	0.39	0.30	0.34	0.17	0.11	0.00	2.38	
Citrus	Hose-pull	1-3 yrs	39	4,743	0.00	0.07	0.11	0.18	0.31	0.27	0.23	0.28	0.17	0.19	0.06	0.00	1.87	
Citrus	Hose-pull	4-7 yrs	47	6,147	0.02	0.08	0.13	0.20	0.30	0.33	0.32	0.36	0.32	0.19	0.10	0.01	2.36	
Citrus	Hose-pull	8+ yrs	17	2,706	0.02	0.08	0.08	0.19	0.44	0.54	0.45	0.49	0.37	0.24	0.16	0.04	3.10	
Olives	Hose-pull	1-3 yrs	8	1,161	0.01	0.07	0.09	0.09	0.20	0.22	0.25	0.22	0.12	0.14	0.10	0.00	1.51	
Olives	Hose-pull	4-7 yrs	21	3,009	0.00	0.15	0.22	0.28	0.34	0.36	0.40	0.38	0.29	0.11	0.05	0.05	2.63	
Olives	Hose-pull	8+ yrs	16	2,175	0.01	0.10	0.13	0.27	0.38	0.45	0.45	0.41	0.21	0.12	0.16	0.19	2.88	
Vineyard																		
Grapes	Drip	1-2 yrs	2	144	0.00	0.00	0.02	0.02	0.02	0.19	0.16	0.14	0.05	0.00	0.02	0.00	0.62	
Grapes	Sprinkler	1-2 yrs	2	800	0.53	0.60	0.20	0.02	0.20	0.51	0.64	0.23	0.00	0.00	0.00	0.00	2.93	
Grapes	Sprinkler	3+ yrs	12	19,458	0.05	0.02	0.05	0.15	0.25	0.38	0.50	0.39	0.17	0.15	0.04	0.15	2.30	
Grapes	Furrow	1-2 yrs	3	190	0.00	0.18	0.04	0.66	0.54	0.94	0.32	0.15	0.10	0.08	0.06	0.00	3.07	
Grapes	Furrow	3+ yrs	1	70	0.00	0.00	1.25	0.59	0.43	0.48	0.35	0.04	0.22	0.00	0.00	0.00	3.36	

*Preirrigation

Appendix B

Irrigation Pump Energy Requirement Calculations

Irrigation Pump Energy Requirement Calculations												
Constants:												
43,560 sq-ft per acre												
43,560 cu-ft per acre ft												
7.4805 gal per cu-ft												
5.0505E-07 hp-hr per ft-lbf												
62.4 lb/cu-ft water												
Water Requirement Data:												
Water Required (acre-feet/acre per Quarter)												
Quarter 1	105.2	acre-feet x	43,560	sq-ft/acre =	4,582,512	cu-ft/qtr						
Quarter 2	175.7	acre-feet x	43,560	sq-ft/acre =	7,653,492	cu-ft/qtr						
Quarter 3	436.7	acre-feet x	43,560	sq-ft/acre =	19,022,652	cu-ft/qtr						
Quarter 4	309.9	acre-feet x	43,560	sq-ft/acre =	13,489,244	cu-ft/qtr						
Water Distribution System Data												
Pumping Rate	2,000	gal/min /	7.4805	cu-ft/gal x	60	min/hr =	16,041.7	cu-ft/hr				
Water Table Data												
Groundwater Depth	372.0	feet	water table depth below ground surface									
Water Level Depression	0.0	feet	amount water table depresses when water is being pumped									
Surface Discharge Pressure	46.1	feet	head at pump discharge									
Pipe Head Loss	2.0	feet	pressure loss in pipes due to friction									
Total Pumping Head	420.14	feet	sum of total pumping pressure required									
Mechanical Data												
Pump Efficiency	70	%	Marks Standard Handbook for Mechanical Engineers Worst Case %									
Gearhead/Shaft Efficiency	95	%	for gearbox, estimated									
Line Shaft Efficiency	98	%	line bearings and such, applicant									
Overall System Efficiency	0.651700		calculated									
Horsepower Required												
For System	16,041.7	cu-ft/hr x	62.4	lb/cu-ft x	420.1	ft x	5.051E-07	hp / (ft-lb/hr) /	0.65170	(eff) =	325.9	hp
Quarterly Irrigation System Output												
Quarter 1	4,582,512	cu-ft x	420.14	ft x	62.4	lb/cu-ft x	5.0505E-07	hp-hr/ft-lb /	0.6517	(eff) =	93,104	hp-hr
Quarter 2	7,653,492	cu-ft x	420.14	ft x	62.4	lb/cu-ft x	5.0505E-07	hp-hr/ft-lb /	0.6517	(eff) =	155,498	hp-hr
Quarter 3	19,022,652	cu-ft x	420.14	ft x	62.4	lb/cu-ft x	5.0505E-07	hp-hr/ft-lb /	0.6517	(eff) =	386,488	hp-hr
Quarter 4	13,489,244	cu-ft x	420.14	ft x	62.4	lb/cu-ft x	5.0505E-07	hp-hr/ft-lb /	0.6517	(eff) =	274,268	hp-hr

Appendix C

Carl Moyer Emission Factors

NOx FACTORS OFF-ROAD		
MODEL YEAR	HORSEPOWER	G/BHP-HR
1987 and earlier	50 - 120	13.00
	121 and greater	11.00
1988 - 1995	50 - 120	8.75
	121 and greater	8.17
1996 - 2000	50 - 750	6.90
2001 and later	50 - 174	6.90
	175 - 750	6.90
	751 and greater	6.90

PM FACTORS OFF-ROAD		
HORSEPOWER	MODEL YEAR	G/BHP-HR
50 - 120	1987 and earlier	0.84
	1988 - 2003	0.69
	2004	0.39
	2005	0.29
121 - 175	1969 and earlier	0.77
	1970 - 1971	0.66
	1972 - 1987	0.55
	1988 - 2002	0.38
	2003	0.24
	2004	0.19
176 - 250	1969 and earlier	0.77
	1970 - 1971	0.66
	1972 - 1987	0.55
	1988 - 2002	0.38
	2003	0.24
	2004	0.19
251 - 500	1969 and earlier	0.74
	1970 - 1971	0.63
	1972 - 1987	0.53
	1988 - 1995	0.38
	1996 - 2000	0.15
	2001	0.12
501 - 750	1969 and earlier	0.74
	1970 - 1971	0.63
	1972 - 1987	0.53
	1988 - 1995	0.38
	1996 - 2001	0.15
	2002	0.12
751 and greater	1969 and earlier	0.74
	1970 - 1971	0.63
	1972 - 1987	0.53
	1988 - 1999	0.38
	2000 - 2005	0.15

Default Project Life - Ag Pumps		
Type	Without Documentation	With Documentation
Ag Pump - New/ Repower	7 years	10 years

Appendix D
Emissions Inventory "Farm Equipment" Category

SECTION 8-5

FARM EQUIPMENT

(Updated November 21, 1990)

CATEGORY OF EMISSION SOURCE NUMBERS AND DESCRIPTION

81919 Heavy-Duty Farm Equipment . Gasoline Combustion

81927 Heavy-Duty Farm Equipment . Diesel Combustion

METHODS AND SOURCES

These categories are used to inventory the combustion emissions from the use of tractors, combines, balers, combines, mowers, and other equipment used in agricultural production. The results of the inventory for 1987 are presented in Tables I and II.

The methodology for estimating equipment population for 1987 was developed by Power System Research (PSR) under contract from Energy and Environmental Analysis, INC. (EEA).¹ PSR maintains detailed population inventory by equipment type, horsepower category, and engine type. The equipment population is derived from yearly sales records (taking into account adjustments for exported and imported equipment). PSR also establishes a scrappage or attrition rate that allows them to calculate the number of equipment in service at any specific time. Tables III and IV show a breakdown of statewide diesel and gasoline equipment population by equipment type, horsepower, annual hourly usage, and load factors.

Process rates (BHP-hr) for each county were derived as follow: A total process rate for each type of equipment was first calculated by multiplying equipment population for each horsepower range by average annual hourly usage, average Horsepower, and load factor. Then, a 1987 process rate was allocated to each county by its respective agricultural activity. Table V

shows agricultural activity for each county. Table V shows the harvested acreage activity for each county.²

For Diesel powered equipment, the emission factors for HC, NOx, and PM were taken from EEA's report¹. The CO emission factor is the same used for heavy duty diesel trucks. The SOx emission factor is the same used in the 1983 inventory for heavy duty non-farm equipment. The emission factors for gasoline powered equipment are also the same used in 1983 for heavy duty non-farm equipment which were derived from AP-42.³ EEA's study have concluded that farm and construction heavy duty equipment have similar engines installed on equipment used in both industries. Table VI shows emission factors for diesel and gasoline equipment.

ASSUMPTIONS

1. The farm operational data obtained by EEA are representative of the practices of farmers.
2. The emission factors from AP-42 and the EEA study are representative of the farm equipment used.

CHANGES IN METHODOLOGY

Previous emission estimates for farm equipment inventory were based crop acreage and fuel used. This was due to the lack of equipment population data available. The emission estimates for 1987 are based on actual equipment population and operational data.

DIFFERENCES BETWEEN 1983 AND 1987 EMISSION ESTIMATES

Overall, emissions are lower for 1987. This is mainly due to changes in methodology.

TEMPORAL ACTIVITY

The annual activity increases during the spring and fall and is uniform for the rest of the year. The weekly activity is nearly uniform with slightly lower activity on weekends. The daily activity occurs during daylight hours. The annual activity is estimated based on information from the county agricultural commissioners. The weekly and daily activity estimates are made by ARB staff.

SAMPLE CALCULATIONS

Farm equipment - Diesel Combustion NOx Emissions for San Joaquin County are calculated as follows:

Statewide Process Rates (BHP-hr) = 2600314529(A)
Alameda County Harvested Acreage = 638969(B)
Statewide Harvested Acreage = 27341187(C)

NOx Emission Factor = 11.0 g/BHP-hr

Process Rate = A X B/C

= 2600314529 X 638969/27341187
= 60769870 BHP-hr

NOx Emissions = Process Rate X Emission Factor

= 60769870 BHP-hr X 11.0 g/BHP-hr X .002205 lbs/g /2000 lbs/Ton
= 737.0 Tons/Year

REFERENCES

1. EEA, Inc. "Feasibility of Controlling Emissions from Off-Road, Heavy duty construction equipment, Power System Research Inventory." Attachment to Final Report. (August 1988).
2. 1987 Annual Agricultural Crop Report, County Agricultural Commissioner.
3. California Air Resources Board, "Methods for Assessing Area Source Emissions in California", Section 8-3.

PREPARED BY

Nestor Castillo
(November 1990)
(N43649)

TABLE I
FARM EQUIPMENT
GASOLINE COMBUSTION EMISSIONS
CES - 81919

EMISSION UNITS: TONS/YEAR
PROCESS RATE UNITS: 1000 HORSEPOWER-HOUR/YEAR

AIR BASIN	COUNTY	PROCESS RATE	CO EMISSIONS (TONS/YEAR)	NOX EMISSIONS (TONS/YEAR)	SOX EMISSIONS (TONS/YEAR)	PM EMISSIONS (TONS/YEAR)
GBV	INYO	4436	41.40	831.40	27.20	1.60
	MONO	2674	24.90	501.20	16.40	1.00
LC	LAKE	3350	31.20	627.90	20.50	.90
NC	AMADOR	4271	39.80	800.50	26.20	1.60
	CALAVERAS	437	4.10	84.20	2.70	.10
	EL DORADO	5287	49.30	981.00	32.20	1.90
	NEVADA	2292	21.40	429.70	14.10	.90
	PLACER	876	8.30	166.00	5.40	.30
	SUTTER	1290	12.10	242.00	7.80	.50
	TOULUHNE	4247	41.70	831.50	27.20	1.60
NC	DEL NORTE	627	5.80	117.50	3.80	.20
	HUMBOLDT	7159	68.80	1341.50	43.90	2.70
	HENNING	14293	134.20	2692.40	88.20	5.30
	SONOMA	1874	17.70	352.10	11.20	.70
TRINITY	870	8.10	163.10	5.30	.30	
NCC	MONTREY	27148	253.20	5088.20	166.40	10.80
	SANTA BENITO	12128	113.50	2284.60	74.00	4.60
NEP	SANTA CRUZ	349	3.30	68.50	2.10	.10
	LAGUNA	10415	97.30	1955.70	61.00	3.80
SC	SISKIYOU	16310	150.80	3421.90	112.20	6.90
	LOS ANGELES	5522	51.50	1038.00	33.80	2.10
SCC	ORANGE	1871	17.80	353.30	11.20	.70
	RIVERSIDE	4092	38.30	764.30	25.20	1.50
	SAN BERNARDINO	1066	10.00	199.80	6.60	.40
	SAN LUIS OBISPO	28416	265.20	5329.60	174.50	10.50
SD	SANTA BARBARA	18242	172.80	3422.40	110.20	6.80
	VENTURA	9191	86.70	1722.70	56.30	3.40
SED	SAN DIEGO	3465	32.30	649.40	21.20	1.30
SF	IMPERIAL	14068	131.20	2634.60	86.20	5.20
	KERN	8562	81.10	1609.80	52.40	3.20
	LOS ANGELES	113	1.10	21.80	.70	.00
	RIVERSIDE	1440	13.40	270.90	8.80	.50
SAN BERNARDINO	250	2.30	46.90	1.50	.10	
SJV	ALAMEDA	4518	42.10	846.70	27.70	1.70
	COSTA MESA	4377	40.70	818.80	26.80	1.60
	MARIN	4377	40.70	818.80	26.80	1.60
	NAPA	3309	30.90	618.80	20.50	1.30
	SAN MATEO	754	7.00	141.40	4.60	.30
	SANTA CLARA	5511	51.40	1028.80	33.80	2.10
SV	SONOMA	8266	77.10	1549.40	50.60	3.10
	FRESNO	47487	447.90	8900.00	291.10	17.50
	KERN	21728	203.20	4064.00	132.10	8.10
	KINGS	15092	142.80	2856.00	92.20	5.70
	MADERA	15782	149.80	2996.00	97.20	6.00
	MERCED	22282	207.80	4156.00	137.60	8.50
	SAN JOAQUIN	13282	124.80	2496.00	81.20	5.00
	SAN JUAN	13282	124.80	2496.00	81.20	5.00
	SAN JUAN	13282	124.80	2496.00	81.20	5.00
	TULARE	29903	278.90	5578.00	183.30	11.40
SV	BUTTE	10486	97.80	1956.00	64.20	3.90
	COLUSA	6886	64.80	1296.00	42.20	2.50
	GLENN	9886	92.80	1856.00	60.20	3.60
	PLACER	4886	45.80	916.00	30.20	1.80
	SACRAMENTO	10286	96.80	1936.00	62.20	3.70
	SUTTER	10286	96.80	1936.00	62.20	3.70
	YUBA	10286	96.80	1936.00	62.20	3.70
	YUBA	10286	96.80	1936.00	62.20	3.70
	YUBA	10286	96.80	1936.00	62.20	3.70
	YUBA	10286	96.80	1936.00	62.20	3.70
	YUBA	10286	96.80	1936.00	62.20	3.70
	YUBA	10286	96.80	1936.00	62.20	3.70
TOTAL			5334.57	107214.56	3506.19	210.90

TABLE II
FARM EQUIPMENT
DIESEL COMBUSTION EMISSIONS
CES - 81927

EMISSION UNITS: TONS/YEAR
PROCESS RATE UNITS: 1000 HORSEPOWER-HOUR/YEAR

AIR BASIN	COUNTY	PROCESS RATE	TOP EMISSIONS (TONS/YEAR)	CO EMISSIONS (TONS/YEAR)	NOX EMISSIONS (TONS/YEAR)	SOX EMISSIONS (TONS/YEAR)	PM EMISSIONS (TONS/YEAR)
GBV	INYO	22207	26.70	109.30	299.10	21.50	11.30
	HONO	12181	18.10	22.80	149.70	13.80	6.70
LC	LAKE	15261	20.20	78.70	185.10	16.30	8.40
MC	AMADOR	19456	25.70	100.40	235.90	20.70	10.70
	CALAVERAS	387	0.60	2.40	7.60	0.70	0.30
	EL DORADO	24086	31.90	124.30	272.10	25.70	13.50
	FLYCA	10443	13.40	48.90	126.60	11.10	5.80
	ELIERS	10889	7.40	27.90	67.90	5.90	2.70
	SIERRA	2817	1.70	6.10	18.60	1.70	0.90
	TOULUMNE	20209	26.70	104.30	240.10	21.50	11.10
NC	DEL NORTE	2987	3.80	14.70	34.60	3.00	1.60
	FRYBOL	28213	33.10	128.30	322.50	28.70	16.00
	GUADALUPE	62563	86.70	338.30	729.20	63.90	32.10
	SANTA TERESA	3363	2.50	8.70	22.00	2.00	1.00
	TRINITY	3363	5.20	20.40	48.10	4.20	2.20
NCC	MONTEREY	123665	163.60	638.10	1492.80	131.70	68.20
	SAN BENITO SANTA CRUZ	22434 1591	73.30 2.10	286.00 8.20	272.00 19.30	24.00 1.70	30.20 9.90
NEP	LASSEN	47532	62.90	249.30	576.50	50.60	26.20
	SIKIYOU	25405	110.30	430.30	1011.50	88.80	46.00
SC	LOS ANGELES	28154	33.30	122.80	305.10	26.80	13.80
	ORANGE	8728	7.70	27.90	70.30	6.20	3.20
	RIVERSIDE SAN BERNARDINO	18678 4857	29.70 6.40	98.30 28.00	224.40 58.90	19.20 6.20	10.30 2.70
SCC	SAN LUIS OBISPO	129531	171.40	649.20	1579.20	138.00	71.40
	SANTA BARBARA	84008	111.10	419.30	1079.20	92.90	48.10
	VENTURA	41829	55.40	210.80	507.80	44.80	23.10
SD	SAN DIEGO	15783	20.90	81.40	191.40	16.80	8.70
SED	IMPERIAL	44081	84.80	320.60	772.10	69.20	35.10
	REYN	20821	51.70	203.70	472.10	41.80	21.70
	LOS ANGELES	50821	8.70	31.70	78.20	6.80	3.50
	RIVERSIDE SAN BERNARDINO	1139 1139	1.50 1.50	5.90 5.90	13.80 13.80	1.20 1.20	0.60 0.60
SF	ALAMEDA	28572	27.80	106.20	222.60	21.70	11.30
	CONTRA COSTA	12829	16.70	62.60	151.20	13.20	6.80
	ELIERS	15076	19.90	77.90	181.90	16.10	8.30
	NAPA	2852	4.50	17.70	41.90	3.80	2.00
	SAN MATEO	2852	4.50	17.70	41.90	3.80	2.00
	SANTA CLARA SONOMA	28102 27556	33.80 49.80	129.50 194.30	304.40 426.70	26.70 43.10	14.00 20.80
SVJ	FRESNO	216715	296.20	1136.10	2622.40	220.40	112.20
	KINGS	48746	61.80	232.30	548.70	46.80	24.40
	MERCED	71842	95.10	352.40	848.70	72.80	37.70
	PLACER	101892	132.20	493.70	1231.00	106.10	54.60
	SAN JACUIN	60823	80.60	302.20	720.50	62.90	32.60
	SAN JACUIN TULARE	70823 130217	92.10 120.20	342.20 702.80	822.50 1452.00	70.90 145.10	36.00 75.10
	SV	BUTTE	27766	33.20	124.50	279.30	20.90
COLUSA		20678	23.80	88.30	201.30	15.10	7.80
ELIERS		28109	35.60	131.30	271.10	20.90	10.70
ELIERS		28109	35.60	131.30	271.10	20.90	10.70
ELIERS		28109	35.60	131.30	271.10	20.90	10.70
ELIERS		28109	35.60	131.30	271.10	20.90	10.70
ELIERS		28109	35.60	131.30	271.10	20.90	10.70
ELIERS		28109	35.60	131.30	271.10	20.90	10.70
ELIERS		28109	35.60	131.30	271.10	20.90	10.70
ELIERS		28109	35.60	131.30	271.10	20.90	10.70
ELIERS		28109	35.60	131.30	271.10	20.90	10.70
ELIERS		28109	35.60	131.30	271.10	20.90	10.70
ELIERS		28109	35.60	131.30	271.10	20.90	10.70
TOTAL			3447.10	13444.65	31601.63	2775.30	1436.89

TABLE IV

**EQUIPMENT POPULATION AND FACTORS
FOR 1987 FARM EQUIPMENT
DIESEL COMBUSTION**

EQUIPMENT TYPE (AVG. HRS/YR)	POPULATION(LOAD FACTOR)				
	<50HP	51-120HP	121-240HP	241-480HP	>480HP
AGTRACTOR(463)	16493(0.48)	16341(0.55)	31512(0.60)	358(0.63)	0(0.00)
BALER(163)	791(0.25)	230(0.29)	0(0.32)	0(0.29)	0(0.00)
COMBINE(230)	5077(0.32)	3746(0.37)	6179(0.41)	44(0.36)	0(0.00)
MOWER(85)	527(0.27)	0(0.30)	0(0.34)	0(0.30)	0(0.00)
OTHER(436)	3468(0.43)	2728(0.50)	6475(0.55)	35(0.48)	0(0.00)
TOTAL	26356	23045	43166	437	0

TABLE III

EQUIPMENT POPULATION AND FACTORS
FOR 1987 FARM EQUIPMENT
GASOLINE COMBUSTION

EQUIPMENT TYPE (AVG. HRS/YR)	POPULATION(LOAD FACTOR)				
	<60HP	51-120HP	121-240HP	241-480HP	>480HP
AGTRACTOR(200)	3086(0.67)	18898(0.58)	1352(0.58)	0(0.53)	0(0.00)
BALER(140)	296(0.43)	6473(0.37)	0(0.37)	0(0.33)	0(0.00)
COMBINE(156)	72(0.54)	14597(0.47)	2928(0.47)	268(0.42)	0(0.00)
MOWER(102)	44286(0.43)	1384(0.37)	0(0.33)	0(0.30)	0(0.00)
OTHER(161)	4318(0.62)	4777(0.53)	1583(0.53)	606(0.49)	0(0.00)
TOTAL	52058	46129	5863	874	0

TABLE V
FACTORS FOR ALLOCATING FARM EQUIPMENT EMISSIONS TO COUNTIES

	HARVEST ACREAGE
ALAMEDA	215924
ALPINE	0
AMADOR	284137
BUTTE	501180
CALAVERAS	4161
COLUSA	424714
CONTRA COSTA	208724
DEL NORTE	29975
EL DORADO	252709
FRESNO	2269688
GLENN	443913
HUMBOLT	342200
IMPERIAL	872374
INYO	212019
KERN	2930453
KINGS	721317
LAKE	160124
LASSEN	490734
LOS ANGELES	269311
MADERA	754321
MARIN	158320
MARIPOSA	0
MENDOCINO	687921
MERCED	1065013
MODOC	452030
MONO	127007
MONTEREY	1297558
NAPA	150177
NEVADA	109573
ORANGE	50769
PLACER	289280
PLUMAS	114250
RIVERSIDE	204749
SACRAMENTO	250180
SAN BENITO	581646
SAN BERNARDINO	62915
SAN DIEGO	165602
SAN FRANCISCO	0
SAN JOAQUIN	638969
SAN LUIS OBISPO	1359106
SAN MATEO	36058
SANTA BARBARA	881429
SANTA CLARA	263384
SANTA CRUZ	16692
SHASTA	499110
SIERRA	61040
SISKIYOU	875123
SOLANO	363375
SONOMA	470360
STANISLAUS	770338
SUTTER	300677
TEHAMA	1019440
TRINITY	41584
TULARE	1429258
TUOLUMNE	212044
VENTURA	439310
YOLO	443671
YUBA	270455
TOTAL	27,341,187

TABLE VI

EMISSION FACTORS FOR FARM EQUIPMENT
(G/BHP-HR)

	CO	NOX	SOX	HC	PM
	-----	-----	-----	-----	-----
DIESEL	4.68	11.0	.966	1.2	.5
GASOLINE	170.00	5.56	.247	8.46	.334

Appendix E

Growers Agreement

Diesel Engine Retirement Agreement

This agreement is made between O'Neill Farming, Valley Air Conditioning and Repair, and the San Joaquin Valley Unified Air Pollution Control District (the "District") (collectively, the "Parties"). The effective date of this Agreement shall be the date of acceptance by the District, and the Agreement expires thirty (30) full calendar years after the Effective Date. This Agreement shall cover all engines and electric motors used for irrigating the land area described as: SE Quarter Section 4, Parcel 18S, Range 17E (the "Service Area"). Service Area includes 460 acres, fields 4-1, 4-3 and 4-4.

RECITALS

WHEREAS, the District is a duly formed governmental entity responsible for achieving and maintaining clean air quality in the San Joaquin Valley;

WHEREAS, pursuant to California Health and Safety Code sections 40709 through 40714.5, the District has adopted Rules and Regulations providing for the creation and use of emission offset credits ("ERCs") which are real, surplus, quantifiable, permanent and enforceable.

WHEREAS, O'Neill Farming wishes to have its existing engine(s) in Service Area replaced with non-polluting electric motors;

WHEREAS, O'Neill Farming enters this agreement for the purpose of generating emissions reductions within the San Joaquin Valley Air Basin and to create ERCs to be banked with District;

WHEREAS, Valley Air Conditioning and Repair seeks to create ERCs through this agreement for its benefit and for the benefit of air quality in the region by reducing emissions from agricultural equipment which is currently exempt from the requirement of having a written permit;

NOW, THEREFORE, the Parties hereto agree as follows:

Agreement

- 1.0 District agrees that O'Neill Farming and Valley Air Conditioning and Repair are voluntarily reducing air pollution by replacing Existing Engine(s) with electric motor(s) for the purpose of creating ERCs, and District is aware of no regulatory impediment, existing or pending, which would prevent the use of ERCs generated pursuant to this Agreement.
- 2.0 O'Neill Farming agrees to replace all of its existing high emissions irrigation engines as identified in Exhibit A, which completely irrigates Service Area as completely identified in Exhibit B, attached hereto and incorporated herein, with new, non-polluting electric motor(s) provided by Valley Air Conditioning and Repair.
- 3.0 District agrees to issue ERCs to Valley Air Conditioning and Repair for actual emission reductions as quantified by the District in accordance with District Rules and Regulations. 80% of the Bankable ERCs will be issued pending a successful Public Noticing period. The remaining 20% will be issued pending a site-specific validation of the assumptions made in evaluating the Baseline Emissions.

- 4.0 Valley Air Conditioning and Repair and O'Neill Farming agree that the post-project irrigation system serving the Service Area will be fitted with an appropriate District-approved monitoring instrument, such as a non-resettable water meter or a non-resettable kilowatt-hour meter.
- 5.0 O'Neill Farming agrees to maintain monthly water-use or kilowatt-hour use of the irrigation system serving the Service Area for a period of at least 12 months. The District will use said records to validate the Baseline emissions prior to issuing the final 20% of the Bankable ERCs.
- 6.0 O'Neill Farming represents and warrants that it owns the land upon which the Existing Engine(s) are situated, that O'Neill Farming owns the Existing Engine(s) covered by this Agreement, and that O'Neill Farming has all rights and authority to enter into this binding Agreement. If O'Neill Farming leases the land or Existing Engine(s), O'Neill Farming shall obtain the approval and a release from the land owner to allow O'Neill Farming to enter into this Agreement.
- 7.0 O'Neill Farming agrees to render the removed Engine(s) inoperable by drilling or knocking a hole in the block, welding the cylinder head shut, obtaining written proof from a scrap yard that the removed Engine(s) has been destroyed or otherwise rendered inoperable, or other method approved by the District, and to submit proof of such destruction of the removed Engine(s) to the District.
- 8.0 The District maintains the right to witness the destruction of the Engine(s) and Parties agree to notify the District at least 14 days prior to the destruction of any Engine(s).
- 9.0 O'Neill Farming agrees that the Service Area covered by this Agreement shall not be irrigated in whole or in part by any other IC engine power source.
- 10.0 O'Neill Farming agrees that replacement of the Existing Engine(s) with Electric Motors(s) will be in effect for thirty (30) years and agrees to disclose in writing the existence of this Agreement to any other entity which may come to own or become responsible for operating the irrigation pumping system for the Service Area described. To ensure the permanence of this Agreement, this Agreement, or a similar document as approved by the District, shall be recorded by the County Registrar. Any future entity which becomes responsible for the irrigation system shall agree to the terms contained in this Agreement.
- 11.0 O'Neill Farming, upon the sale or lease of land upon which the Electric Motor(s) is located, may assign this Agreement and all rights, duties and obligations hereto. Assignment of this Agreement and all rights, duties and obligation may only occur after notice is given to all Parties (including the District). Nothing in this Agreement shall be construed to diminish the District's authority to implement and enforce applicable state, federal, and local laws, rules and regulations.
- 12.0 O'Neill Farming grants to Valley Air Conditioning and Repair and the District, for the specific and sole purpose of exercising their respective responsibilities as defined in this Agreement and applicable law, the right of reasonable entry to Service Area to monitor compliance with this Agreement during normal business hours.

- 13.0 All parties to this Agreement warrant that each is duly authorized and empowered to bind such Party and there are no actions, suits, proceedings or other impediments, pending or threatened, which affect the performance of each Party's obligations under this Agreement.
- 14.0 All parties agree that this Agreement constitutes a legal, valid and binding obligation on all parties, enforceable in accordance with its terms and applicable law, and that its contents, including that of other documents incorporated by reference, are true and correct.
- 15.0 O'Neill Farming and Valley Air Conditioning and Repair agree to, and will not contest the District's jurisdiction over matters related to this Agreement.
- 16.0 This Agreement, including the exhibits, made a part hereof, attached hereto and incorporated herein, forms the whole of the Agreement and may not be modified except in writing with the concurrence of all Parties.
- 17.0 If any condition of this Agreement, or the application of such condition shall be determined to be invalid, illegal or unenforceable for any reason, the remainder of the Agreement shall not be affected and every other condition of this Agreement shall be valid and enforceable to the fullest extent provided by law. Venue for any action to enforce this Agreement or its terms shall only occur in the appropriate court in Fresno County.

18.0 Exhibits and documents incorporated herein by reference:

- Exhibit A: Existing Engine Identification and Data Request Form
- Exhibit B: Map/Description of Service Area

19.0 Notices shall be deemed to be given when faxed if proper documentation shows that the fax was received, or on the date registered mail is certified received to the following:

To O'Neill Farming	To Valley Air Conditioning and Repair	To District
_____	_____	Director of Permit Services
_____	_____	San Joaquin Valley APCD
_____	_____	1990 E Gettysburg Avenue
_____	_____	Fresno, CA 93726-0244
_____	_____	(559) 230-6000 (phone)
		(559) 230-6061 (fax)

THE PARTIES, having read and approved the foregoing and as approved by their authorized officers, agree to be bound by the terms and conditions contained in this Agreement, execute this Agreement as of the Effective Date set forth above:

For O'Neill Farming:	For Valley Air Conditioning and Repair:	For District:
_____	_____	_____
_____	_____	_____
Dated: _____	Dated: _____	Dated: _____

Appendix F

Draft ERC Certificates



San Joaquin Valley
Air Pollution Control District

Central Regional Office • 1990 E. Gettysburg Ave. • Fresno, CA 93726

Emission Reduction Credit Certificate
C-438-1

ISSUED TO: VALLEY AIR CONDITIONING & REPAIR INC
ISSUED DATE: <DRAFT>
LOCATION OF REDUCTION: O'NIELL FARMING
FIVE POINTS, CA
SECTION: 4 TOWNSHIP: 18S RANGE: 17E

For VOC Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
166 lbs	277 lbs	687 lbs	487 lbs

Conditions Attached

Method Of Reduction

- Shutdown of Entire Stationary Source
- Shutdown of Emissions Units
- Other

Ag-Pump IC Engine

Use of these credits outside the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) is not allowed without express written authorization by the SJVUAPCD.

David L. Crow, Executive Director / APCO

DRAFT

Seyed Sadredin, Director of Permit Services

San Joaquin Valley
Air Pollution Control District

Central Regional Office • 1990 E. Gettysburg Ave. • Fresno, CA 93726

Emission Reduction Credit Certificate
C-438-2

ISSUED TO: VALLEY AIR CONDITIONING & REPAIR INC
ISSUED DATE: <DRAFT>
LOCATION OF REDUCTION: O'NIELL FARMING
FIVE POINTS, CA
SECTION: 4 TOWNSHIP: 18S RANGE: 17E

For NOx Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
1,601 lbs	2,674 lbs	6,644 lbs	4,714 lbs

Conditions Attached

Method Of Reduction

- Shutdown of Entire Stationary Source
 Shutdown of Emissions Units
 Other

Ag-Pump IC Engine

Use of these credits outside the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) is not allowed without express written authorization by the SJVUAPCD.

David L. Crow, Executive Director / APCO

DRAFT

Seyed Sadredin, Director of Permit Services

San Joaquin Valley
Air Pollution Control District

Central Regional Office • 1990 E. Gettysburg Ave. • Fresno, CA 93726

Emission Reduction Credit Certificate
C-438-3

ISSUED TO: VALLEY AIR CONDITIONING & REPAIR INC
ISSUED DATE: <DRAFT>
LOCATION OF REDUCTION: O'NIELL FARMING
FIVE POINTS, CA
SECTION: 4 TOWNSHIP: 18S RANGE: 17E

For CO Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
448 lbs	748 lbs	1,859 lbs	1,319 lbs

Conditions Attached

Method Of Reduction

- Shutdown of Entire Stationary Source
 Shutdown of Emissions Units
 Other

Ag-Pump IC Engine

Use of these credits outside the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) is not allowed without express written authorization by the SJVUAPCD.

David L. Crow, Executive Director / APCO

DRAFT

Seyed Sadredin, Director of Permit Services

San Joaquin Valley
Air Pollution Control District

Central Regional Office • 1990 E. Gettysburg Ave. • Fresno, CA 93726

Emission Reduction Credit Certificate
C-438-4

ISSUED TO: VALLEY AIR CONDITIONING & REPAIR INC
ISSUED DATE: <DRAFT>
LOCATION OF REDUCTION: O'NIELL FARMING
FIVE POINTS, CA
SECTION: 4 TOWNSHIP: 18S RANGE: 17E

For PM10 Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
78 lbs	131 lbs	326 lbs	230 lbs

Conditions Attached

Method Of Reduction

- Shutdown of Entire Stationary Source
 Shutdown of Emissions Units
 Other

Ag-Pump IC Engine

Use of these credits outside the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) is not allowed without express written authorization by the SJVUAPCD.

David L. Crow, Executive Director / APCO

DRAFT

Seyed Sadredin, Director of Permit Services

San Joaquin Valley
Air Pollution Control District

Central Regional Office • 1990 E. Gettysburg Ave. • Fresno, CA 93726

Emission Reduction Credit Certificate
C-438-5

ISSUED TO: VALLEY AIR CONDITIONING & REPAIR INC
ISSUED DATE: <DRAFT>
LOCATION OF REDUCTION: O'NIELL FARMING
FIVE POINTS, CA
SECTION: 4 TOWNSHIP: 18S RANGE: 17E

For SOx Reduction In The Amount Of:

Quarter 1	Quarter 2	Quarter 3	Quarter 4
26 lbs	42 lbs	105 lbs	74 lbs

Conditions Attached

Method Of Reduction

- Shutdown of Entire Stationary Source
 Shutdown of Emissions Units
 Other

Ag-Pump IC Engine

Use of these credits outside the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) is not allowed without express written authorization by the SJVUAPCD.

David L. Crow, Executive Director / APCO

DRAFT

Seyed Sadredin, Director of Permit Services



San Joaquin Valley
Air Pollution Control District

October 17, 2001

Tobbie Hopper
Valley Air Conditioning
1350 F Street
Fresno, CA 93706

**Re: Notice of Receipt of Complete Application - Emission Reduction Credits
Project Number: 1011235**

Dear Mr. Hopper:

The District has completed a preliminary review of your application for Emission Reduction Credits (ERCs) resulting from the replacement of a Caterpillar Model 3412 diesel-fired IC engine with an electric motor at O'Neill Farming in Five Points.

Based on this preliminary review, the application appears to be complete. However, during processing of your application, the District may request additional information to clarify, correct, or otherwise supplement, the information on file.

In general, complete applications are processed on a first-come first-served basis. However, you have requested that your application be processed as reimbursable overtime. The estimated evaluation fee for the reimbursable overtime process is \$3,224 (40 hours @ \$80.60/hr), in accordance with District Rule 3010. No payment is due at this time; an invoice will be sent to you upon completion of the evaluation.

Thank you for your cooperation. Should you have any questions, please contact Mr. David Warner at (559) 230-5900.

Sincerely,

Seyed Sadredin
Director of Permit Services

for
A handwritten signature in black ink, appearing to read "David Warner".

David Warner
Permit Services Manager
SR

cc: Douglas McCormick

David L. Crow
Executive Director/Air Pollution Control Officer

ERC APPLICATION

Preliminary Review

Project Number: 1011235

Processing Engineer: **Steve Roeder**
Lead Engineer: **Jovencio Refuerzo**
Date: **October 17, 2001**

Facility Name: **Valley Air Conditioning**
Facility ID: **C-3892**
Mailing Address: **1350 F Street**
Fresno, CA 93706

Contact Name: **Tobbie Hopper**

Telephone: **(559) 237-3188 Ext 14**

Date Received: **September 18, 2001**

Deemed Complete: **October 17, 2001**

I. Summary

Valley Air Conditioning is applying to bank the emission reduction credits (ERCs) resulting from the replacement of a diesel-fired ag-pump engine with an electric motor. The 750 hp Caterpillar model 3412 engine has already been removed.

II. Applicable Rules

Rule 2201 New and Modified Stationary Source Review Rule (6/15/95)
Rule 2301 Emission Reduction Credit Banking (12/17/92)
Rule 4701 Internal Combustion Engines (5/21/92)

III. Location of Reduction

The removed engine was owned and operated by O'Neill Farming and was located at the Southeast corner of Block 9-4, Section 4, Parcel 15S, Range 17E in Five Points, CA.

IV. Method of Generating Reductions

Valley Air Conditioning has replaced one 750 hp Caterpillar model 3412 (1974 year) diesel-fired ag-pump engine, serial number 038S15467, with an electric motor. The diesel engine will be destroyed, and the destruction confirmed by the District prior to the issuance of any ERC Certificates.

*ERC REVIEW WILL BE IDENTICAL TO PROJECT 1010806.
EXCEPT FOR THE NUMBERS.*

Please see their Preliminary EVAL for details.

September 18, 2001

RECEIVED

SEP 18 2001

**PERMIT SERVICES
SJVUAPCD**

Mr. Seyed Sadredin
Director of Permit Manager
San Joaquin Valley Unified APCD
1990 east Gettysburg Avenue
Fresno, CA 93726-0244

**re: Application For Emission Reduction Credit
Banking Certificates**

Attn: Mr. Dave Warner

Dear Mr. Sadredin:

Valley Air Conditioning and Repair, Inc. completed the replacement of a diesel fired internal combustion engine driven water pump with an electric motor on August 31, 2001. Therefore, attached please find a check in the amount of \$650 for the filing fees and an application package requesting Banking Certificates for the actual historical emission reduction credits which have been made available with this engine replacement.

As shown in the attached application, the emission reductions are real, quantifiable, permanent, and enforceable. Therefore, your assistance in issuing the requested Banking Certificates by October 1, 2001 would be greatly appreciated.

Should you have any questions concerning this request or need additional information, do not hesitate to contact me at (661) 282 - 2200 or by E-mail at dwmccorm@insenv.com.

Sincerely,



Douglas W. McCormick, P.E.

Attachment

APPLICATION FOR EMISSION REDUCTION CREDIT BANKING CERTIFICATES

**For Actual Historical Emissions Reductions Due to the
Removal and Replacement of an Existing Diesel-Fired
Agricultural Pump Engine with an Electric Motor**

Equipment Location

SE ¼ Sec. 4, T18S, R17E

Submitted to

San Joaquin Valley Unified
Air Pollution Control District
1990 E. Gettysburg Avenue
Fresno, CA 93726-0244

Prepared By

Insight Environmental Consultants Inc.
1200 Twenty-first Street, Second Floor
Bakersfield, CA 93301

For

Valley Air Conditioning & Repair, Inc.
1350 "F" Street
Fresno, CA 93706

September 10, 2001

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1 Project Summary:

Valley Air Conditioning & Repair, Inc., in an agreement with O'Neill Farming, is requesting Banking Certificates for the actual historical emission reduction credits (ERCs) which have resulted from the replacement of a 750 Bhp Caterpillar Model 3412 diesel-fired engine (Serial Number 038S15467) with an electric motor. This well and associated pump driver is located near Five Points, CA on SE ¼ Sec. 4, T18S, R17E. A location map for this facility is provided in Attachment A.

The internal combustion engine was replaced with an electric motor driver in August 31, 2001. Documentation of the installation of the electric motor is provided in Attachment B.

2 Applicable Rules and Regulations:

This application represents an engine used in agricultural service, which is exempted from permitting requirements by state law. Further, it is exempted from SJVAPCD Rule 4701 internal combustion engine emission limitations. However, to qualify the emission reductions as ERCs, it is agreed that compliance with the emission reduction banking requirements of the following SJVAPCD rules must be demonstrated.

Rule 2201 New and Modified Stationary Source Review: (6/12/2001)

Section 3.1 defines "actual emissions" as emissions having occurred from a source, based on test or monitoring data, actual fuel consumption, and process data. If source test or monitoring data is not available, other appropriate, APCo-approved emission factors may be used.

Section 3.2 defines "actual emission reductions" as the decrease of actual emissions, compared to the Baseline Period, from an emissions unit and selected for use as emission offsets or ERC banking. Actual emission reductions shall meet the

following criteria: 1) shall be real, enforceable, quantifiable, surplus and permanent; and 2) shall be in excess, at the time of application for an Emission Reduction Credit or an Authority to Construct authorizing such reductions is deemed complete of any emissions reduction which: a) is required or encumbered by any laws, rules, regulations, agreements, orders, or b) is attributed to a control measure noticed for workshop, or proposed, or contained in a state implementation plan; or c) is proposed in the APCO's adopted Air Quality Plan pursuant to the California Clean Air Act.

Section 3.8 defines the "baseline period" as 1) the two consecutive years of operation immediately prior to the submission of the Complete Application; or 2) at least two consecutive years with five years immediately prior to the submission of the Complete Application if determined by the APCO as more representative of normal source operation; or 3) a shorter period of at least one year if the emissions unit has not been in operation for two years so long as this represents the full operation history of the emission unit; or d) zero years if an emissions unit has been in operation for less than one year (only for use when calculating AER).

Section 3.23 defines "Historical Actual Emissions" (HAE) as actual emissions having occurred during the baseline period. Historical actual emissions must be discounted for any emission reduction which is: 1) required or encumbered by any laws, rules, regulations, agreements, orders, or 2) attributed to a control measure noticed for workshop, or proposed or contained in a State Implementation Plan, or 3) proposed in the District Air Quality Plan for attaining the annual reductions required by the California Clean Air Act.

Section 4.12 specifies the calculation procedures for determining actual emission reductions (AER) and requires the AER to be discounted by 10% for Air Quality Improvement Deduction, and shall comply with all applicable provisions of Rule 2301 (Emission Reduction Credit Banking).

Pursuant to Section 40714.5 of the California Health and Safety Code, the 10% Air Quality Improvement Deduction does not apply to this proposal.

Rule 2301 Emission Reduction Credit Banking: (12/17/92)

Section 3.1 defines "Actual Emission Reductions" as those defined in the District's New Source Review Rule.

Section 3.2 defines "Bankable Emission Reductions" as emission reductions of pollutants and their precursors for which ambient air quality standards exist, and which meet the provisions of this Rule. Such reductions may be deposited in the District's ERC Banking system. Once banked and certified, the emission reductions become Emission Reduction Credits (ERCs).

Section 3.6 defines "Emission Reduction Credits" (ERCs) as reductions of actual emissions recognized by the District as available for use as tradeoffs or offsets in accordance with the requirements of this rule. To be eligible for certification as ERCs, emission reductions must be real, surplus, permanent, quantifiable and enforceable. All emission reductions meeting these requirements may be certified as ERCs.

Section 4.2 specifies the following emission reduction criteria for emission reductions occurring after the date of adoption of this rule: 1) the emission reduction must be real, surplus, permanent, quantifiable, and enforceable; 2) the emission reduction must be calculated in accordance with District's New Source Review Rule; 3) an application for the emission reduction must be filed within 180 days after the emission reduction occurred; and 4) for non-permitted emissions units, the emissions must have been included in the 1987 emissions inventory.

Section 4.4 specifies equipment shutdowns, which generate emission reductions and are not eligible as Emission Reduction Credits for banking.

Section 5.0 specifies the procedures, which must be followed in order to obtain an ERC certificate including filing an application for each air contaminant and filing such applications within 180 days after such reductions occur.

Section 6.0 specifies that an ERC Certificate may be granted only after the reductions have actually occurred and the Permits to Operate for the emissions unit have been appropriately modified.

Section 7.0 specifies that ERCs may be used at the time of, or anytime after deposit into the District's ERC Bank by the owner of the ERC Certificate to provide contemporaneous offsets for increases in onsite emissions from new or modified emission units. This section also allows for the transfer or lease of an ERC certificate and states that contemporaneous emission reductions to be used as offsets need not be banked.

Section 8.0 specifies the administrative requirements for filing ERC Certificate applications.

3 **Equipment Listing:**

Caterpillar, Compression Ignition, Four Stroke Cycle, Turbocharged-Intercooled, 6-Cylinder, Model 3412, Serial Number 038S15467, 750 Hp, Diesel-Fired internal combustion engine, Driving an Agricultural Water Pump NOTE: This engine has been replaced with an electric motor.

4 **Operational Parameters:**

In the San Joaquin Valley pumping water from onsite wells is a common technique for agricultural operations. Many of these wells are driven by high emitting diesel engines. A

pump in an affected well will remain in the same service and provide water to crops as it had done before the conversion. The only difference is the method used to drive the pump.

In assessing emissions or operating characteristics of existing engines, it is common to use the fuel used over a period of time as a basis of determining the operating engine load. Since engines in agricultural service are exempt from permitting and associated recordkeeping requirements, adequate fuel usage records for existing engines will not always be available. That is the situation with this specific engine.

For those cases where sufficient fuel data are not available, 21st Century Design Associates developed a Well Pump/Engine Model to provide data on the operating requirements for engines driving specific pumps. This model employs well information, crop and associated water demand, water distribution method, water head, pipe and pump head characteristics, and mechanical losses (see Attachment C) to determine the horsepower required to drive the pump. Then, fuel requirements and emissions can be calculated for both the existing and replacement engines on hourly, quarterly and annual bases.

The Well Pump/Engine model has been used for this engine replacement to determine the quarterly horsepower and fuel requirements for the existing engine (see Attachment D). This data is used in the next section to determine the historical emissions associated with the replaced engine. The Well Pump/Engine model has been reviewed and approved by Cal EPA as an appropriate method for estimating actual historical operational parameters for well pump engines.

Engine Horsepower Requirements Determined from the Well Pump/Engine Model

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Required Engine Bhp	469.37	469.37	469.37	469.37
Bhp-hrs	337.91	526.95	1322.74	840.40

5 Emission Calculations:

5.1 Historical Actual Emission Rates:

Assumptions:

- Engine specific data, based on the approved Well Pump/Engine model, is included in Attachment D. This data provides the best available information of the actual historical operation of this engine.
- AP-42, Table 3.3-1 provides the best estimate of emission rates for this class and category of equipment.

Historical Actual Emission Reductions (See calculation in Attachment E)

Emission Reductions	1st Qtr (Lb/Qtr)	2nd Qtr (Lb/Qtr)	3rd Qtr (Lb/Qtr)	4th Qtr (Lb/Qtr)	Total (ton/Yr)
NO _x	2329	6619	10847	7752	13.77
VOC	189	537	880	629	1.12
CO	750	2133	3495	2498	4.44
PM ₁₀	111	316	518	370	0.66
SO _x	102	290	475	339	0.60

5.2 Reasonable Further Progress Deduction:

Pursuant to Rule 2201, Section 4.12, AER's after a ten (10) percent air quality improvement deduction can be banked for future use or transfer to other entities, subject to the requirements of this rule and Rule 2301 (Emission Reduction Credit Banking). Pursuant to Section 40714.5 of the California Health and Safety Code, a ten percent RFP cannot be applied to these emission reduction credits.

5.3 Emissions Available and Requested for ERC:

Bankable ERC's

Emission Reductions	1st Qtr (Lb/Qtr)	2nd Qtr (Lb/Qtr)	3rd Qtr (Lb/Qtr)	4th Qtr (Lb/Qtr)	Total (ton/Yr)
NO _x	2329	6619	10847	7752	13.77
VOC	189	537	880	629	1.12

CO	750	2133	3495	2498	4.44
PM ₁₀	111	316	518	370	0.66
SO _x	102	290	475	339	0.60

6 Compliance with Rules 2201 and 2301, ERC Banking:

6.1 Compliance with Rule 2201 Section 3.2:

Section 3.2 of Rule 2201 defines Actual Emission Reductions as reductions of actual emissions from an emissions unit selected for emission offsets or banking, from the baseline period. Actual emission reductions must be calculated pursuant to Section 4.12 of Rule 2201 and they must meet following criteria:

Actual reductions shall be real, enforceable, surplus, quantifiable and permanent.

As shown in Section 5 of this application, these reductions resulted from the replacement of a permit-exempt existing emissions unit with a cleaner burning natural gas-fired IC engine. Since the replacement electric motor operates with lower emissions, the emission reductions are real. Since these emissions reductions have not been required by any existing or proposed Rule or Regulation, they are surplus. Consistent with the contract between O'Neill Farms and the SJVAPCD, the emission reductions will be permanent and enforceable. As shown in Section 5 of this application package, the reductions are also quantifiable.

6.2 Compliance with Rule 2201, Section 3.23, Definition of HAE:

These emission reductions were generated by the replacement of an existing permit-exempt emission unit. These emission reductions satisfy the definitions of historical actual emissions and actual emission reductions in Rule 2201, Section 3.23; therefore, these reductions are creditable reductions and can be validated as ERC's if all other requirements of Rules 2201 and 2301 are satisfied.

6.3 Compliance with Rule 2201, Section 4.12, Definition of AER:

Section 4.12 of Rule 2201 specifies that the $AER = HAE - PE2$. for this project the emission reductions are the result of equipment shutdown; therefore, the $PE2 = 0.0$ for all air contaminants and the $AER = HAE$.

As shown in Section 5 of this application, the emission reductions have been calculated in accordance with the requirements of Rule 2201, Section 4.12. Therefore, these emission reductions may be banked in accordance with the provisions of Rule 2301, Section 7.0.

6.4 Compliance with Rule 2301, Section 3.1:

Rule 2301, Section 3.1 states that an actual emission reduction for the purposes of this rule is an actual emission reduction as defined in Rule 2201 Section 3.2. As discussed in Section 5 of this application, the reductions to be banked meet the definition of actual emission reductions in Rule 2201, Section 3.2 as required by Rule 2301, Section 3.1.

6.5 Compliance with Rule 2301, Section 3.2:

The pollutants for which ERCs have been requested satisfy the requirements of Rule 2301, Section 3.2 since ambient air quality standards exist for each compound; or in the case of VOC are a precursor to a pollutant with an ambient air quality standard. Therefore, they are bankable and may be deposited as ERCs provided all other rule requirements are satisfied.

6.6 Compliance with Rule 2301, Section 3.6:

Rule 2301, Section 3.6 states that all emission reductions meeting the following requirements may be certified as ERCs:

1. The reductions must be recognized by the District as available for use as tradeoffs or offsets in accordance with the requirements of this Rule.
2. The reductions must be real, surplus, permanent, quantifiable, and enforceable.

REAL – Emissions from the existing replaced engine were actual and quantifiable. This engine has been replaced by a lower emitting electric motor. Thus, emission reductions created by this replacement are real.

SURPLUS – No rule or SIP strategy has been identified that would require reduction of some or all of the emissions from the existing engine. The existing engine is exempted from permitting requirements and SJVAPCD BARCT Rule (4701). Thus, all emission reductions resulting from this engine replacement are surplus.

QUANTIFIABLE – As demonstrated through the use of the Well Pump/Engine model and AP-42 emission factors, the emission reductions can be quantified.

PERMANENT – This is accomplished through operation of the Grower's Agreement between the SJVAPCD and O'Neill Farms. This agreement, signed by O'Neill Farms is included as Attachment F.

ENFORCEABLE – As demonstrated in the Grower's Agreement O'Neill Farms is prohibited from replacing the new electric motor with an internal combustion engine. This contract has been structured to provide the necessary enforcement mechanisms to satisfy the requirements to certify ERCs.

6.7 Compliance with Rule 2301, Subsection 4.2:

Rule 2301, Subsection 4.2 sets conditions for eligibility of emission reductions occurring after September 19, 1991. Since the emission reductions occurred after September 19, 1991, the following provisions apply:

1. The emission reductions are real, surplus, permanent, quantifiable, and enforceable.

As previously discussed, these reductions are real, surplus, permanent, quantifiable and enforceable.

2. Actual emission reductions are calculated in accordance with Rule 2201 calculation procedures and they comply with the definition of Actual Emission Reductions. A ten percent adjustment for air quality improvement shall be made at the time the emission reductions are quantified.

As shown in Section 5 (calculations) of this application, Rule 2201 calculation procedures were used. In accordance with California Health and Safety Code Section 40714.5, the 10% adjustment does not apply to this project. As discussed in Section 6.1 of this application, these reductions comply with the definition of actual emission reductions.

3. An application for ERC has been filed no later than 180 days after the emission reductions occurred.

The existing engine was replaced in February of 2001; therefore, the application was submitted within 180 days of the date the reduction occurred.

Rule 2301, Section 4.2.3 allows a source to file an application to bank offsets upon surrender of the Permits to Operate, provided the application has been submitted within 180 days after the emission reductions have occurred.

IC Engines in agricultural service are exempted from permitting. The contract satisfies the requirement for enforceability of the ERC's.

7 Conclusions:

The requirements of Rules 2201 and 2301 have been satisfied as discussed in Section 6 of this application.

As calculated above, O'Neill Farms is entitled to bank the Actual Historical Emission Reduction Credits which have been made available through the permanent replacement of an existing agricultural pump engine with a new cleaner burning natural gas-fired IC engine.

ERC's by Pollutant

Emission Reductions	1st Qtr (Lb/Qtr)	2nd Qtr (Lb/Qtr)	3rd Qtr (Lb/Qtr)	4th Qtr (Lb/Qtr)	Total (ton/Yr)
NO _x	2329	6619	10847	7752	13.77
VOC	189	537	880	629	1.12
CO	750	2133	3495	2498	4.44
PM ₁₀	111	316	518	370	0.66
SO _x	102	290	475	339	0.60

8 Additional Information:

If any additional information is needed to process this application, or if you would like to discuss any aspect of this application further, please don't hesitate to call Mr. Tobbie Hopper of Valley Air Conditioning and Repair (559) 237-3188 or Mr. Douglas W. McCormick of Insight Environmental Consultants at (661) 282 - 2200. Mr. McCormick has assisted in the preparation of this modification to the original application package.

9 Attachments:

- A. Project Location Map
- B. Documentation of Engine Replacement
- C. Crop & Well Data
- D. Well Pump/Engine Energy Requirement Data

- E. Actual Emission Reductions (AER) Calculations
- F. Grower/APCD Agreement

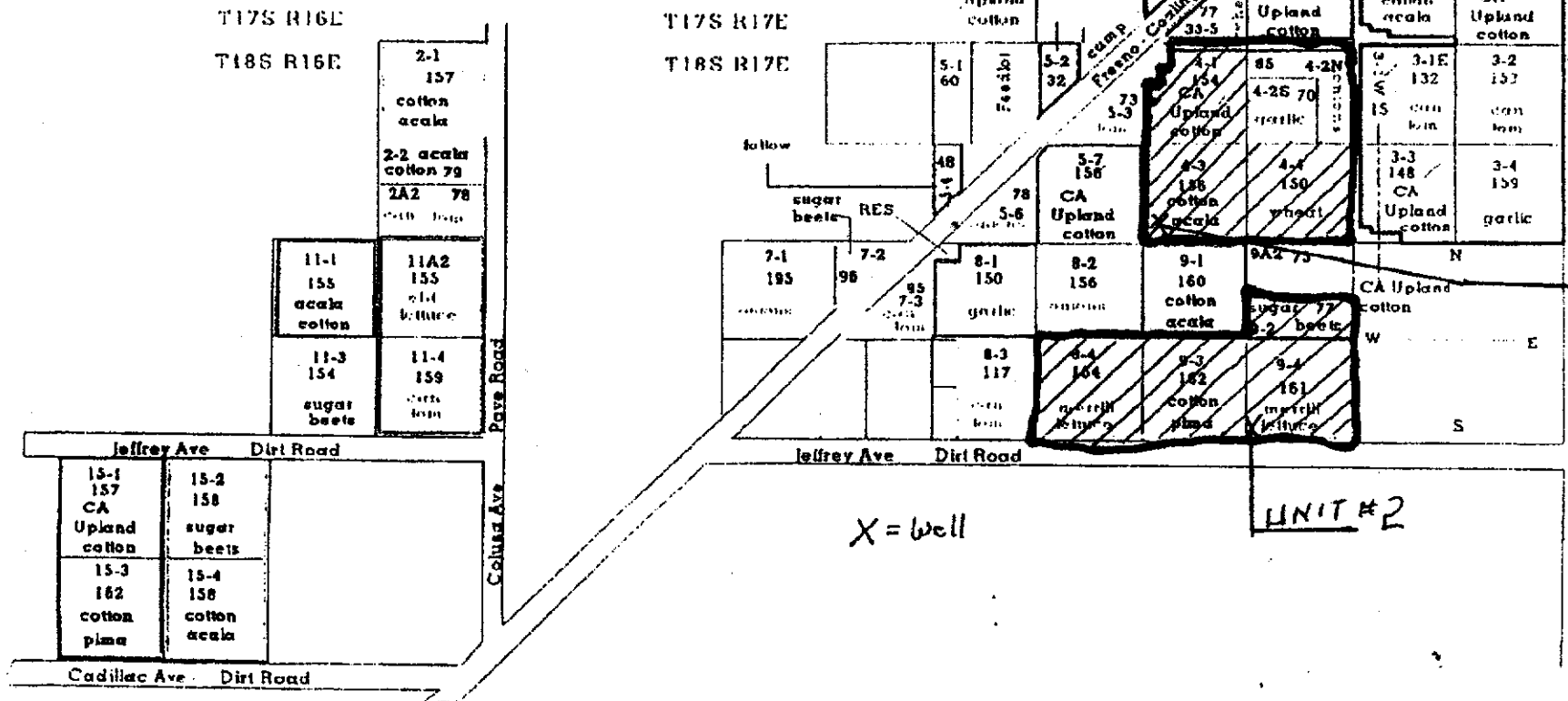
Attachment A

Project Location Map

2000 Crop Map
05-12-2000

21-1
159
CA
Upland
cotton

	ASCS ACRES
- Cotton Acala	1252
- Cotton Pima	324
✓ CA Upland Cotton	1590
✓ Garlic	379
✓ Merrill Lettuce (Dbl Crop)	630
✓ EBF Lettuce (Dbl Crop)	310
✓ Onions	514
Wheat	227
Sugar Beets	485
Canning Tomato	959
Fallow	48
Total	6718



Attachment B

Documentation of Engine Replacement



Farm Pump and Irrigation Co.

15499 Ave. 280 • Visalia, CA 93292-9718 • (559) 747-0755 • FAX (559) 747-3881

Mr. Toby Hopper
Valley Air Conditioning and Repair
1350 F St.
Fresno, Ca. 93706

9/12/01

Re: Wells #7 and #9 O'Neill Farms

Toby,

The diesel engines have been removed from wells 7 and 9 and the electric motors, panels and services installed. Both pumps are operational.

Should you have questions or comments, please call.

Sincerely,

A handwritten signature in black ink, appearing to read "Bill Gargan", is written over the word "Sincerely,".

Bill Gargan

Attachment C

Crop & Well Data

O'Neill Farming Enterprises Crop irrigation Water requirements**

O'Neil Farming - Unit #1		Crop water requirement in acre feet				Total water requirement in Acre/feet				Annual total in A/F
Area	acres	1999 crop	1st 1/4	2nd 1/4	3rd 1/4	4th 1/4	1st 1/4	2nd 1/4	3rd 1/4	
Field 4-3	156	lettuce*	0.73	0.37	1.44	0.25	113.88	57.72	224.64	39
Field 4-4	150	lettuce	0.73	0.37	1.44	0.25	109.5	55.5	216	37.5
Field 4-1	154	cotton	0	0.34	1.15	0.82	0	52.36	177.1	126.28
Totals	460						223.38	113.22	617.74	202.78
Annual Average inches of water applied							5.8273	2.95357	16.115	5.28991

Area	acres	2000 crop	1st 1/4	2nd 1/4	3rd 1/4	4th 1/4	1st 1/4	2nd 1/4	3rd 1/4	4th 1/4	Annual total in A/F
Field 4-3	156	cotton	0	0.34	1.15	0.82	0	53.04	179.4	127.92	
Field 4-4	150	wheat	0.17	1.13	0	1.08	25.5	169.5	0	162	
Field 4-1	154	cotton	0	0.34	1.15	0.82	0	52.36	177.1	126.28	
Totals	460						25.5	274.9	356.5	416.2	
Annual Average inches of water applied							0.66522	7.1713	9.3	10.8574	

Two year average in inches							3.24626	5.06243	12.7076	8.07366
-----------------------------------	--	--	--	--	--	--	----------------	----------------	----------------	----------------

O'Neil Farming - Unit #2		Crop water requirement in acre feet				Total water requirement in Acre/feet				Annual total in A/F
Area	acres	1999 crop	1st 1/4	2nd 1/4	3rd 1/4	4th 1/4	1st 1/4	2nd 1/4	3rd 1/4	
Field 9-2	77	cotton	0	0.34	1.15	0.82	0	26.18	88.55	63.14
Field 9-3	162	cotton	0	0.34	1.15	0.82	0	55.08	186.3	132.84
Field 9-4	161	onions	0.09	1.73	0.06	1.46	14.49	278.53	9.66	235.06
Field 8-4	154	cotton	0	0.34	1.15	0.82	0	52.36	177.1	126.28
Totals	554						14.49	412.15	461.61	557.32
Annual Average Inches of water applied							0.31386	8.92744	9.99877	12.0719

Area	acres	2000 crop	1st 1/4	2nd 1/4	3rd 1/4	4th 1/4	1st 1/4	2nd 1/4	3rd 1/4	4th 1/4	Annual total in A/F
Field 9-2	77	beets	0	1.44	0.48	0.58	0	110.88	36.96	44.66	
Field 9-3	162	cotton	0	0.34	1.15	0.82	0	55.08	186.3	132.84	
Field 9-4	161	lettuce*	0.73	0.37	1.44	0.25	117.53	59.57	231.84	40.25	
Field 8-4	154	lettuce*	0.73	0.37	1.44	0.25	112.42	56.98	221.76	38.5	
Totals	554						229.95	282.51	676.86	256.25	
Annual Average inches of water applied							4.98087	6.11935	14.6612	5.55054	

Two year average in inches							2.64736	7.62339	12.93	8.81123
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*Lettuce is double cropped: Spring and Fall

** Water requirements obtained from State of California, Department of Water Resources Bulletin 113-4

Attachment D

Well Pump/Engine Energy Requirement Data

Irrigation Pumping Energy Requirement Data

Page 1 of 2

Site # 04-1-01

Application #

Grower O'Neill Farming

Address 1265 W. Shaw Avenue, Suite 101

City/State Fresno, California 93711-1265

Telephone 559-224-2000

Well site Note 1, S.E. corner block 9-4

Fax No. 559-224-2384

Global Coordinates

State Well I.D. # unknown

	Crop	Annual Water*
1	Almonds	
2	Citrus	
3	Grapes	
4	Pistachios	
5	Stone Fruit	
6	Walnuts	
7	Corn	
8	Hay	
9	Legumes	
10	Row crops	attached

Delivery System	Delivery Efficiency
Drip	
Flood	
Furrow	
Impulse	xxxxxxxx
Micro	
Other - list	

Area served	See note 1
Acres	554
Assessors Map # APN book	060
Page #	42
Parcel No.	15S, range 17E, sect. 4

* Enter if known.
 Check box if not known.
 **Other - specify

Pump Lift 372 feet

Depth to Pump 600 ft.

Pressure 20 psig

Pump flow rate 2600 gpm

11	Pump Mfr	
12	Pump model*	unknown
13	year made*	1991

Engine mfr	Caterpillar
Model	3412
S/N	038S15467
Date made	1991

14	Gear Mfr.	
15	Gear Model	
16	Gear HP	
17	Gear Ratio	

Fuel 2000	unknown	gallons
Fuel 1999	unknown	gallons
Fuel 1998	unknown	gallons
Fuel 1997	unknown	gallons
Fuel 1996	unknown	gallons

Comments: Attached: Original Engine Invoice, representative crop maps and water requirements.

Note 1: Section 4, Township 18 South, Range 17
 East Mt. Diablo Base and Meridian

Prepared by: McCabe
 name

Date: 4-8-01

Approved by: _____
 Grower

Date:

Irrigation Pumping Energy Requirement Model

Page 2 of 2

Site# 04-1-02

Grower O'Neill Farming

Application # _____

Address 1265 W. Shaw Avenue, Suite 101

City/State Fresno, California 93711-1265

	1 st Qtr.	2nd Qtr.	3rd. Qtr.	4th Qtr.
1 Crop water inch demand - page -1 or App. "A"	3.24626	5.06243	12.7075	8.07365
2 Line 1 / by distribution eff. from Append. B*	3.24626	5.06243	12.7075	8.07365
3 Line 2 / by evaporation eff. from Append. C*	3.24626	5.06243	12.7075	8.07365
4 AF required (line 3 in inches / 12)	0.27	0.42	1.06	0.67
5 Total AF required (line 4 x acres served - page	124.440	194.060	487.121	309.490
6 Gallons in millions (line 5 x .325851)	40.54889	63.23459	158.72881	100.84760
7 Pump flow rate - page 1, line 10	2000	2000	2000	2000
8 Estimated pumping hours (line 6 / (line 7 x 60))	337.91	526.96	1322.74	840.40

* If applicable

9 Pumping depth (in ft. w.c.) page 1, line 8	471	471	471	471
10 Add pump pipe loss (in ft. w.c.)**	2	2	2	2
11 Add wellhead pressure required - page1, line 1	46.14	46.14	46.14	46.14
Total pump head pressure (ft. w.c.) 12 (line 9 + line 10 + line 11)	519.14	519.14	519.14	519.14

** If applicable

13 Water HP -(Line 7 x line 12) / 3960 WBHP	262.19	262.19	262.19	262.19
--	--------	--------	--------	--------

14 Adjust for pump efficiency- Line13 / .60	436.99	436.99	436.99	436.99
15 Adjust for pump shaft/column loss efficiency (Line 14 / .98/100 ft.)	445.90	445.90	445.90	445.90
16 Adjust for Gearhead/driveshaft efficiency (Line 15 / .95) Gross BHP	469.37	469.37	469.37	469.37

18 BHP hours (line 8 x line 16)	158604.71	247338.54	620858.87	394459.74
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19 Diesel fuel in gallons - (line 18 x 0.0516)	8184.00	12762.67	32036.32	20354.12
20 Fuel energy required in mmbtuh Line 19 x .139 mmbtu (HHV) per gallon	1137.58	1774.01	4453.05	2829.22
21 Natural gas fuel equivalent adjusted for efficiency [(line 20 / 31) x 35] x 10 = therms	12843.60	20029.16	50276.35	31942.84

Comments See attached crop map and 2 year crop water requirements

Prepared by McCabe

Date 4-10-01

Checked by _____

Date _____

name

Attachment E

Actual Emission Reductions (AER) Calculations

Existing Diesel Fired Water Pump Engine

Internal Combustion Engine Emission Calculations					
COMPANY NAME:	Emission Reduction Technologies LLC				
EQUIPMENT DESCRIPTION:	Caterpillar Model 3412				
Fuel Type	Diesel				
Operational Data (1)	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	
Required Pump hp	255.29	725.5	1189.01	849.69	
Total hours of operation	493.82	493.82	493.82	493.82	
EMISSION FACTORS (2)	PM10	SO2	NOx	VOC	CO
(grams/hp - hour)	0.40	0.367	8.38	0.68	2.70
Quarterly Emissions	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Total
	lb/qtr	lb/qtr	lb/qtr	lb/qtr	Ton/year
PM10	111	316	518	370	0.66
SO2	102	290	475	339	0.60
NOx	2329	6619	10847	7752	13.77
VOC	189	537	880	629	1.12
CO	750	2133	3495	2498	4.44
(1) - Derived from well-specific information and the ERT Well Pump/Engine Model					
(2) - Diesel Emission factors taken from USEPA Report NR-009A, Exhaust Emission Factors for Nonroad Engine Modeling – Compression Ignition, June 15, 1998 Revision					

Attachment F

Grower/APCD Agreement

Diesel Engine Retirement Agreement

This agreement is made between O'Neill Farming Enterprises (Grower), and the San Joaquin Valley Unified Air Pollution Control District (District). The effective date (Date) of this agreement shall be the date of acceptance by District, and it expires 30 full calendar years after Date.

Recitals

A. Grower agrees to permanent replacement of existing high pollutant emissions irrigation pumping engine(s) identified as a Caterpillar Model 3412, S/N038S15467 powering a well located in block 4, Section 4, Parcel 15S, Range 17E, APN book 060, page 042, and Caterpillar model 3408, S/N 67U6614, located on block 4, section 9, Parcel 18S, Range 17E, APN book 060, page 042, with electric motor(s).

B. Grower shall generate emission reduction credits (ERC's) by eliminating emissions from Existing Engine(s) which are presently exempted from statutory or regulatory emissions controls.

C. District agrees that Grower, within the context of this agreement, is voluntarily making a good faith effort to reduce air pollution resulting from Grower's permanent retirement of existing diesel pumping engine(s), and that there is no regulatory impediment, existing or pending, which would cloud the legitimacy and permanency of the ERC's generated by this agreement.

Agreement:

1.0 Grower attests and certifies that he is the controlling entity responsible for the operation of Existing engine(s) included in this agreement.

1.1 Grower shall provide District with such records and documents as are available or which may reasonably be required to reasonably project representative operating service and fuel requirements.

1.2 Grower agrees that the Existing Engine(s) shall not be operated again.

1.3 Grower agrees the land parcel identified as blocks 1, 3 and 4 of Section 4, Parcel 15S, Range 17E, APN book 060, page 042, block 4 of section 8 and blocks 2, 3 and 4 of section 9, Parcel 18S, Range 17E, APN book 060, page 042, shall not be provided with irrigation water from any other internal combustion engine powered source.

1.4 Grower agrees that replacement of high emissions engine(s) with electric motor(s) is permanent and agrees to disclose the existence of this agreement to any other party which may in future become responsible for operation of a powered irrigation pumping system for the land parcel described, and to bind any future Grower and/or Operator to the terms contained herein.

2.0 District agrees that Grower has agreed to undertake substantial air pollution reduction from an uncontrolled pollutant emissions source(s), on a voluntary basis.

2.1 District agrees to issue ERC's for the emission reductions defined in the final approved calculation, which method is defined elsewhere, in accordance with existing District Policy affecting such ERC's, which shall be considered permanent.

Diesel Engine Retirement Agreement

3.0 The parties to this agreement warrant, as demonstrated by signing this agreement, that each is duly authorized and empowered to do so, that, to the best of all parties' knowledge, there are no actions, suits, proceedings or other impediments pending or threatened which affect the faithful performance of each party's obligations under this agreement.

4.0 The parties agree that this Agreement constitutes a legal, valid and binding obligation on the parties, enforceable in accordance with it's terms and applicable law, and that it's contents, including that of other documents incorporated by reference, are true and correct, to the signator's best knowledge and belief.

5.0 This agreement, including it's identified attachments, forms the whole of the agreement and may not be modified except in writing with the concurrence of the affected party's.

6.0 If any part of this agreement shall in future be adjudged unlawful the balance shall be unaffected.

7.0 Attachments and documents incorporated by reference:
Emissions Reduction Credit Application and support documents

8.0 Notices, when and as required, shall be deemed to be given when faxed and/or confirmed by registered mail to the following:

Edwin R. O'Neill, pres
Grower *O'Neill Farming Enterprises, Inc.* For District

Name *Edwin R. O'Neill, pres* Name
O'Neill Farming Enterprises, Inc.

1265 W. Shaw Ave.
Fresho, Ca., 93711



Winston H. Hickox
Agency Secretary

Air Resources Board

Alan C. Lloyd, Ph.D.
Chairman

1001 I Street • P.O. Box 2815 • Sacramento, California 95812 • www.arb.ca.gov



Gray Davis
Governor

Facsimile Message from the Planning and Technical Support Division

Date: OCT 9, 2001

Number of Pages: 11
(Including this cover sheet)

To: Name: DAVID Warner
Agency: SJVARD
Fax No.: (559) 230 - 6061
Phone No.: (559) 230 - 5078

From: Name: Ray Arregado
Fax No.: (916) 323 - 1075
Phone No.: (916) 324 - 7901

Comments: Methodology for Farm Equipment

If you do not receive all the pages, please call Ray at (916) 324 - 7901

D:\p\tsd\forms\FAX Cover Sheet 3-22-01.doc

California Environmental Protection Agency

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our web-site at <http://www.arb.ca.gov>

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EMISSIONS BY CATEGORY

2000 ESTIMATED ANNUAL AVERAGE EMISSIONS

SAN JOAQUIN VALLEY AIR BASIN

All emissions are represented in Tons per Day and reflect the most current data provided to ARB
Download this data as a comma delimited file.

STATIONARY SOURCES							
SUMMARY CATEGORY NAME	TOG	ROG	CO	NOX	SOX	PM	PM10
FUEL COMBUSTION							
ELECTRIC UTILITIES	0.38	0.09	1.83	2.97	0.91	0.60	0.23
COGENERATION	2.98	0.22	7.25	13.17	0.65	1.24	0.83
OIL AND GAS PRODUCTION (COMBUSTION)	21.66	4.21	14.97	45.06	8.02	3.08	2.88
PETROLEUM REFINING (COMBUSTION)	0.25	0.06	0.44	1.73	1.62	0.23	0.18
MANUFACTURING AND INDUSTRIAL	0.65	0.28	5.08	31.23	5.66	0.98	0.72
FOOD AND AGRICULTURAL PROCESSING	3.29	2.76	22.74	36.13	3.05	3.20	2.97
SERVICE AND COMMERCIAL	6.83	2.70	4.19	30.00	1.29	1.21	1.15
OTHER (FUEL COMBUSTION)	0.01	0.00	0.15	0.19	0.09	0.03	0.02
* TOTAL FUEL COMBUSTION	36.05	10.32	56.65	160.47	21.30	10.58	8.99
WASTE DISPOSAL							
SEWAGE TREATMENT	0.02	0.01	-	-	-	-	-
LANDFILLS	214.58	2.81	-	-	-	0.18	0.01
INCINERATORS	0.00	0.00	0.01	0.04	0.00	0.00	0.00
SOIL REMEDIATION	0.01	0.00	-	0.00	-	-	-
OTHER (WASTE DISPOSAL)	2.75	1.21	-	-	-	0.03	0.00
* TOTAL WASTE DISPOSAL	217.35	4.03	0.01	0.04	0.00	0.21	0.01
CLEANING AND SURFACE COATINGS							
LAUNDERING	0.70	0.05	-	-	-	-	-
DEGREASING	15.04	12.52	-	-	-	-	-
COATINGS AND RELATED PROCESS SOLVENTS	14.39	13.85	-	-	-	0.04	0.04
PRINTING	1.49	1.49	-	-	-	0.06	0.05
ADHESIVES AND SEALANTS	0.84	0.75	-	-	-	-	-

OTHER (CLEANING AND SURFACE COATINGS)	3.94	2.75	-	-	-	-	-
* TOTAL CLEANING AND SURFACE COATINGS	36.41	31.41	-	-	-	0.10	0.09
PETROLEUM PRODUCTION AND MARKETING							
OIL AND GAS PRODUCTION	94.22	45.15	0.05	0.15	0.10	0.01	0.01
PETROLEUM REFINING	1.77	1.49	0.22	0.08	0.25	1.52	1.44
PETROLEUM MARKETING	12.36	5.38	-	-	-	-	-
OTHER (PETROLEUM PRODUCTION AND MARKETING)	0.01	0.01	-	-	-	-	-
* TOTAL PETROLEUM PRODUCTION AND MARKETING	108.36	52.04	0.27	0.23	0.35	1.53	1.44
INDUSTRIAL PROCESSES							
CHEMICAL	2.55	1.79	0.00	0.13	0.33	4.18	3.24
FOOD AND AGRICULTURE	10.53	9.75	2.16	9.25	0.99	17.56	9.97
MINERAL PROCESSES	0.32	0.25	0.24	1.79	1.25	7.30	4.23
METAL PROCESSES	0.22	0.15	0.09	0.02	0.07	0.25	0.18
WOOD AND PAPER	0.00	0.00	-	0.00	-	0.58	0.37
GLASS AND RELATED PRODUCTS	0.09	0.07	0.23	12.17	3.63	0.81	0.55
ELECTRONICS	0.03	0.02	0.00	0.00	-	-	-
OTHER (INDUSTRIAL PROCESSES)	0.08	0.05	-	-	-	0.10	0.07
* TOTAL INDUSTRIAL PROCESSES	13.80	12.08	2.72	23.36	6.27	30.78	18.61
** TOTAL STATIONARY SOURCES	411.97	109.88	59.65	184.11	27.92	43.19	29.14
AREA-WIDE SOURCES							
<i>SUMMARY CATEGORY NAME</i>	<i>TOG</i>	<i>ROG</i>	<i>CO</i>	<i>NOX</i>	<i>SOX</i>	<i>PM</i>	<i>PM10</i>
SOLVENT EVAPORATION							
CONSUMER PRODUCTS	30.21	25.25	-	-	-	-	-
ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	12.39	11.89	-	-	-	-	-
PESTICIDES/FERTILIZERS	34.38	34.36	-	-	-	-	-
ASPHALT PAVING / ROOFING	2.57	2.20	-	-	-	-	-
REFRIGERANTS	-	-	-	-	-	-	-
OTHER (SOLVENT EVAPORATION)	-	-	-	-	-	-	-
* TOTAL SOLVENT EVAPORATION	79.54	73.69	-	-	-	-	-
MISCELLANEOUS PROCESSES							
RESIDENTIAL FUEL COMBUSTION	14.62	6.41	80.56	6.71	0.31	12.82	12.02
FARMING OPERATIONS	875.92	70.07	-	-	-	243.56	111.28
CONSTRUCTION AND DEMOLITION	-	-	-	-	-	49.99	24.46

PAVED ROAD DUST	-	-	-	-	-	139.87	63.95
UNPAVED ROAD DUST	-	-	-	-	-	187.65	111.52
FUGITIVE WINDBLOWN DUST	-	-	-	-	-	110.96	51.13
FIRES	0.12	0.09	1.14	0.03	-	0.16	0.16
WASTE BURNING AND DISPOSAL	56.25	31.45	373.57	4.67	0.09	52.12	51.09
UTILITY EQUIPMENT	-	-	-	-	-	-	-
COOKING	0.61	0.43	-	-	-	2.76	1.93
OTHER (MISCELLANEOUS PROCESSES)	-	-	-	-	-	0.03	0.02
* TOTAL MISCELLANEOUS PROCESSES	947.52	108.45	455.27	11.40	0.40	799.93	427.56
** TOTAL AREA-WIDE SOURCES	1027.06	182.15	455.27	11.40	0.40	799.93	427.56

MOBILE SOURCES

<i>SUMMARY CATEGORY NAME</i>	<i>TOG</i>	<i>ROG</i>	<i>CO</i>	<i>NOX</i>	<i>SOX</i>	<i>PM</i>	<i>PM10</i>
ON-ROAD MOTOR VEHICLES							
LIGHT DUTY PASSENGER (LDA)	78.07	71.42	660.86	60.58	0.63	1.99	1.95
LIGHT AND MEDIUM DUTY TRUCKS	-	-	-	-	-	-	-
LIGHT DUTY TRUCKS - 1 (LDT1)	26.16	24.01	271.04	22.46	0.16	0.48	0.47
LIGHT DUTY TRUCKS - 2 (LDT2)	20.82	18.70	226.88	31.66	0.25	1.34	1.31
MEDIUM DUTY TRUCKS (MDV)	20.71	18.82	222.61	24.20	0.30	0.79	0.77
HEAVY DUTY GAS TRUCKS (ALL)	-	-	-	-	-	-	-
LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDV1)	13.29	12.29	206.14	12.19	0.04	0.06	0.06
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDV2)	0.78	0.69	9.67	2.00	0.01	0.01	0.01
MEDIUM HEAVY DUTY GAS TRUCKS (MHDV)	9.97	9.20	175.96	8.38	0.01	0.02	0.02
HEAVY HEAVY DUTY GAS TRUCKS (HHDV)	2.47	2.27	47.82	1.50	-	-	-
HEAVY DUTY DIESEL TRUCKS (ALL)	-	-	-	-	-	-	-
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDV1)	0.11	0.09	0.26	1.36	0.04	0.03	0.03
LIGHT HEAVY DUTY DIESEL TRUCKS - 2 (LHDV2)	0.16	0.14	0.39	2.06	0.06	0.04	0.04
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDV)	0.88	0.77	4.74	19.27	0.66	0.67	0.67
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDV)	4.64	4.08	17.96	62.47	2.20	1.96	1.95
MOTORCYCLES (MCY)	2.01	1.93	9.46	0.31	-	0.01	0.01

HEAVY DUTY DIESEL URBAN BUSES (UB)	0.10	0.09	0.35	2.01	0.07	0.03	0.03
HEAVY DUTY GAS URBAN BUSES (UB)	0.36	0.30	7.56	0.71	-	-	-
SCHOOL BUSES (SB)	0.37	0.33	7.87	1.33	0.03	0.03	0.03
MOTOR HOMES (MH)	0.67	0.56	12.62	2.35	0.01	0.01	0.01
OTHER (ON-ROAD MOTOR VEHICLES)	-	-	-	-	-	-	-
* TOTAL ON-ROAD MOTOR VEHICLES	181.57	165.69	1882.18	254.84	4.45	7.46	7.36
OTHER MOBILE SOURCES							
AIRCRAFT	12.70	11.33	62.95	3.40	0.33	0.43	0.42
TRAINS	0.92	0.81	2.89	19.65	0.24	0.39	0.39
SHIPS AND COMMERCIAL BOATS	0.08	0.07	0.22	0.28	0.41	0.05	0.05
RECREATIONAL BOATS	16.94	15.61	109.81	3.87	0.06	0.65	0.59
OFF-ROAD RECREATIONAL VEHICLES	5.15	4.75	24.37	0.45	0.01	0.03	0.03
OFF-ROAD EQUIPMENT	12.66	11.10	112.80	50.86	5.90	3.24	3.21
FARM EQUIPMENT	10.29	9.09	61.57	67.41	8.54	4.36	4.35
FUEL STORAGE AND HANDLING	-	-	-	-	-	-	-
OTHER (OTHER MOBILE SOURCES)	-	-	-	-	-	-	-
* TOTAL OTHER MOBILE SOURCES	58.74	52.76	374.62	145.91	15.48	9.15	9.04
** TOTAL MOBILE SOURCES	240.31	218.45	2256.80	400.76	19.93	16.61	16.40
NATURAL (NON-ANTHROPOGENIC) SOURCES							
<i>SUMMARY CATEGORY NAME</i>	<i>TOG</i>	<i>ROG</i>	<i>CO</i>	<i>NOX</i>	<i>SOX</i>	<i>PM</i>	<i>PM10</i>
NATURAL SOURCES							
GEOGENIC SOURCES	0.52	0.26	-	-	-	-	-
WILDFIRES	3.33	1.90	43.54	1.80	-	8.67	8.35
WINDBLOWN DUST	-	-	-	-	-	-	-
OTHER (NATURAL SOURCES)	-	-	-	-	-	-	-
* TOTAL NATURAL SOURCES	3.85	2.16	43.54	1.80	-	8.67	8.35
** TOTAL NATURAL (NON-ANTHROPOGENIC) SOURCES	3.85	2.16	43.54	1.80	-	8.67	8.35
GRAND TOTAL FOR SAN JOAQUIN VALLEY	1683.20	512.64	2815.27	598.06	48.26	868.40	481.45

EMISSIONS BY CATEGORY

1987 ESTIMATED ANNUAL AVERAGE EMISSIONS

SAN JOAQUIN VALLEY UNIFIED APCD DISTRICT

All emissions are represented in Tons per Day and reflect the most current data provided to ARB
Download this data as a comma delimited file.

STATIONARY SOURCES							
SUMMARY CATEGORY NAME	TOG	ROG	CO	NOX	SOX	PM	PM10
FUEL COMBUSTION							
ELECTRIC UTILITIES	0.05	0.02	1.16	0.86	0.05	0.13	0.13
COGENERATION	1.11	0.12	3.20	4.41	0.05	0.38	0.38
OIL AND GAS PRODUCTION (COMBUSTION)	24.39	3.34	28.29	105.98	17.28	7.20	6.51
PETROLEUM REFINING (COMBUSTION)	0.38	0.07	0.53	3.29	3.35	0.23	0.21
MANUFACTURING AND INDUSTRIAL	0.49	0.25	2.53	16.53	5.49	1.03	0.94
FOOD AND AGRICULTURAL PROCESSING	1.21	0.98	15.54	6.09	2.60	0.41	0.38
SERVICE AND COMMERCIAL	3.64	0.53	7.51	16.47	1.86	1.09	1.07
OTHER (FUEL COMBUSTION)	0.17	0.10	0.35	0.44	0.58	0.10	0.10
* TOTAL FUEL COMBUSTION	31.44	5.42	59.10	154.07	31.27	10.58	9.72
WASTE DISPOSAL							
SEWAGE TREATMENT	0.00	0.00	0.00	0.00	0.01	0.00	0.00
LANDFILLS	282.19	3.64	-	-	-	-	-
INCINERATORS	0.00	0.00	0.00	0.03	0.00	0.00	0.00
SOIL REMEDIATION	-	-	-	-	-	-	-
OTHER (WASTE DISPOSAL)	0.93	0.19	-	-	-	-	-
* TOTAL WASTE DISPOSAL	283.12	3.83	0.00	0.03	0.01	0.00	0.00
CLEANING AND SURFACE COATINGS							
LAUNDERING	2.79	0.12	-	-	-	-	-
DEGREASING	10.80	4.79	-	-	-	-	-
COATINGS AND RELATED PROCESS SOLVENTS	15.83	15.29	0.23	-	-	-	-
PRINTING	2.78	2.78	-	-	-	-	-
ADHESIVES AND SEALANTS	1.49	1.32	-	-	-	-	-
OTHER (CLEANING AND SURFACE COATINGS)	2.81	1.95	-	-	-	0.00	0.00
* TOTAL CLEANING AND SURFACE COATINGS	36.51	26.25	0.23	-	-	0.00	0.00

PETROLEUM PRODUCTION AND MARKETING							
OIL AND GAS PRODUCTION	446.69	299.80	0.01	0.10	0.29	0.02	0.01
PETROLEUM REFINING	5.38	4.04	0.17	0.78	1.27	0.04	0.04
PETROLEUM MARKETING	12.90	6.45	-	-	-	-	-
OTHER (PETROLEUM PRODUCTION AND MARKETING)	1.17	1.15	-	-	-	-	-
* TOTAL PETROLEUM PRODUCTION AND MARKETING	466.14	311.44	0.18	0.88	1.57	0.07	0.05
INDUSTRIAL PROCESSES							
CHEMICAL	3.10	2.25	-	0.08	4.20	1.59	1.43
FOOD AND AGRICULTURE	7.12	6.70	0.01	0.05	0.00	15.32	7.04
MINERAL PROCESSES	0.32	0.27	0.33	2.89	1.17	9.60	4.12
METAL PROCESSES	0.00	0.00	1.08	0.00	0.00	0.10	0.09
WOOD AND PAPER	-	-	-	-	-	0.83	0.41
GLASS AND RELATED PRODUCTS	0.12	0.08	0.09	6.14	1.72	0.67	0.63
ELECTRONICS	-	-	-	-	-	-	-
OTHER (INDUSTRIAL PROCESSES)	-	-	-	-	-	0.37	0.31
* TOTAL INDUSTRIAL PROCESSES	10.66	9.30	1.52	9.16	7.10	28.48	14.03
** TOTAL STATIONARY SOURCES	827.87	356.24	61.03	164.14	39.95	39.12	23.80
AREA-WIDE SOURCES							
<i>SUMMARY CATEGORY NAME</i>	<i>TOG</i>	<i>ROG</i>	<i>CO</i>	<i>NOX</i>	<i>SOX</i>	<i>PM</i>	<i>PM10</i>
SOLVENT EVAPORATION							
CONSUMER PRODUCTS	21.98	19.89	-	-	-	-	-
ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	16.26	15.78	-	-	-	-	-
PESTICIDES/FERTILIZERS	59.94	59.94	-	-	-	-	-
ASPHALT PAVING / ROOFING	4.81	4.57	-	-	-	-	-
REFRIGERANTS	-	-	-	-	-	-	-
OTHER (SOLVENT EVAPORATION)	-	-	-	-	-	-	-
* TOTAL SOLVENT EVAPORATION	102.99	100.19	-	-	-	-	-
MISCELLANEOUS PROCESSES							
RESIDENTIAL FUEL COMBUSTION	2.35	1.03	12.26	8.38	0.13	1.88	1.77
FARMING OPERATIONS	21.19	1.70	-	-	-	305.70	139.50
CONSTRUCTION AND DEMOLITION	-	-	-	-	-	87.16	42.65
PAVED ROAD DUST	-	-	-	-	-	416.55	190.45
UNPAVED ROAD DUST	-	-	-	-	-	246.59	146.55
FUGITIVE WINDBLOWN DUST	-	-	-	-	-	813.21	370.60
FIRES	0.18	0.13	1.78	0.04	-	0.22	0.22
WASTE BURNING AND DISPOSAL	29.73	16.58	193.82	0.33	0.06	23.86	23.42
UTILITY EQUIPMENT	5.26	4.86	41.96	0.18	0.01	0.10	0.10

COOKING	0.47	0.33	-	-	-	2.10	1.47
OTHER (MISCELLANEOUS PROCESSES)	-	-	-	-	-	0.02	0.02
* TOTAL MISCELLANEOUS PROCESSES	59.17	24.62	249.81	8.93	0.19	1897.39	916.75
** TOTAL AREA-WIDE SOURCES	162.16	124.82	249.81	8.93	0.19	1897.39	916.75
MOBILE SOURCES							
<i>SUMMARY CATEGORY NAME</i>	<i>TOG</i>	<i>ROG</i>	<i>CO</i>	<i>NOX</i>	<i>SOX</i>	<i>PM</i>	<i>PM10</i>
ON-ROAD MOTOR VEHICLES							
LIGHT DUTY PASSENGER (LDA)	81.89	75.78	564.58	69.14	3.31	7.92	7.89
LIGHT AND MEDIUM DUTY TRUCKS	47.92	44.17	347.64	41.12	2.09	3.97	3.95
LIGHT DUTY TRUCKS - 1 (LDT1)	-	-	-	-	-	-	-
LIGHT DUTY TRUCKS - 2 (LDT2)	-	-	-	-	-	-	-
MEDIUM DUTY TRUCKS (MDV)	-	-	-	-	-	-	-
HEAVY DUTY GAS TRUCKS (ALL)	7.79	7.20	138.10	14.40	0.84	0.88	0.86
LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDV1)	-	-	-	-	-	-	-
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDV2)	-	-	-	-	-	-	-
MEDIUM HEAVY DUTY GAS TRUCKS (MHDV)	-	-	-	-	-	-	-
HEAVY HEAVY DUTY GAS TRUCKS (HHDV)	-	-	-	-	-	-	-
HEAVY DUTY DIESEL TRUCKS (ALL)	15.11	13.28	47.01	115.81	18.21	23.81	23.81
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDV1)	-	-	-	-	-	-	-
LIGHT HEAVY DUTY DIESEL TRUCKS - 2 (LHDV2)	-	-	-	-	-	-	-
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDV)	-	-	-	-	-	-	-
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDV)	-	-	-	-	-	-	-
MOTORCYCLES (MCY)	1.73	1.60	4.85	0.47	0.02	0.04	0.04
HEAVY DUTY DIESEL URBAN BUSES (UB)	0.10	0.09	0.37	0.88	0.09	0.14	0.14
HEAVY DUTY GAS URBAN BUSES (UB)	-	-	-	-	-	-	-
SCHOOL BUSES (SB)	-	-	-	-	-	-	-
MOTOR HOMES (MH)	-	-	-	-	-	-	-
OTHER (ON-ROAD MOTOR VEHICLES)	-	-	-	-	-	-	-
* TOTAL ON-ROAD MOTOR VEHICLES	154.54	142.12	1102.55	241.83	24.56	36.76	36.70
OTHER MOBILE SOURCES							

AIRCRAFT	15.76	14.06	74.80	4.60	0.78	3.46	3.38
TRAINS	6.46	5.67	8.19	22.27	2.38	1.49	1.49
SHIPS AND COMMERCIAL BOATS	0.13	0.11	0.35	0.49	0.40	0.07	0.07
RECREATIONAL BOATS	12.00	10.68	45.19	1.51	0.14	0.02	0.02
OFF-ROAD RECREATIONAL VEHICLES	0.88	0.78	3.73	0.15	0.01	0.03	0.03
OFF-ROAD EQUIPMENT	5.29	4.55	31.79	34.98	3.04	2.39	2.36
FARM EQUIPMENT	8.96	7.93	123.05	35.80	2.99	1.68	1.66
FUEL STORAGE AND HANDLING	-	-	-	-	-	-	-
OTHER (OTHER MOBILE SOURCES)	-	-	-	-	-	-	-
* TOTAL OTHER MOBILE SOURCES	49.46	43.79	287.10	99.81	9.75	9.14	9.00
** TOTAL MOBILE SOURCES	204.00	185.91	1389.65	341.64	34.31	45.90	45.70
NATURAL (NON-ANTHROPOGENIC) SOURCES							
<i>SUMMARY CATEGORY NAME</i>	<i>TOG</i>	<i>ROG</i>	<i>CO</i>	<i>NOX</i>	<i>SOX</i>	<i>PM</i>	<i>PM10</i>
NATURAL SOURCES							
GEOGENIC SOURCES	-	-	-	-	-	-	-
WILDFIRES	32.21	18.35	332.15	5.06	-	53.65	51.56
WINDBLOWN DUST	-	-	-	-	-	-	-
OTHER (NATURAL SOURCES)	-	-	-	-	-	-	-
* TOTAL NATURAL SOURCES	32.21	18.35	332.15	5.06	-	53.65	51.56
** TOTAL NATURAL (NON-ANTHROPOGENIC) SOURCES	32.21	18.35	332.15	5.06	-	53.65	51.56
GRAND TOTAL FOR SAN JOAQUIN VALLEY UNIFIED APCD	1226.24	685.31	2032.65	519.77	74.45	2036.06	1037.82

Asgragao
916384
7901
some were large weren't

Booz
Allen
Hamilton

EMISSIONS BY CATEGORY

1987 ESTIMATED ANNUAL AVERAGE EMISSIONS

SAN JOAQUIN VALLEY UNIFIED APCD DISTRICT

All emissions are represented in Tons per Day and reflect the most current data provided to ARB
Download this data as a comma delimited file.

AREA-WIDE SOURCES							
SUMMARY CATEGORY NAME	TOG	ROG	CO	NOX	SOX	PM	PM10
SOLVENT EVAPORATION							
CONSUMER PRODUCTS	21.98	19.89	-	-	-	-	-
ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	16.26	15.78	-	-	-	-	-
PESTICIDES/FERTILIZERS	59.94	59.94	-	-	-	-	-
ASPHALT PAVING / ROOFING	4.81	4.57	-	-	-	-	-
REFRIGERANTS	-	-	-	-	-	-	-
OTHER (SOLVENT EVAPORATION)	-	-	-	-	-	-	-
* TOTAL SOLVENT EVAPORATION	102.99	100.19					
MISCELLANEOUS PROCESSES							
RESIDENTIAL FUEL COMBUSTION	2.35	1.03	12.26	8.38	0.13	1.88	1.77
FARMING OPERATIONS	21.19	1.70	-	-	-	305.70	139.50
CONSTRUCTION AND DEMOLITION	-	-	-	-	-	87.16	42.65
PAVED ROAD DUST	-	-	-	-	-	416.55	190.45
UNPAVED ROAD DUST	-	-	-	-	-	246.59	146.55
FUGITIVE WINDBLOWN DUST	-	-	-	-	-	813.21	370.60
FIRES	0.18	0.13	1.78	0.04	-	0.22	0.22
WASTE BURNING AND DISPOSAL	29.73	16.58	193.82	0.33	0.06	23.86	23.42
UTILITY EQUIPMENT	5.26	4.86	41.96	0.18	0.01	0.10	0.10
COOKING	0.47	0.33	-	-	-	2.10	1.47
OTHER (MISCELLANEOUS PROCESSES)	-	-	-	-	-	0.02	0.02
* TOTAL MISCELLANEOUS PROCESSES	59.17	24.62	249.81	8.93	0.19	1897.39	916.75
** TOTAL AREA-WIDE SOURCES	162.16	124.82	249.81	8.93	0.19	1897.39	916.75
GRAND TOTAL FOR SAN JOAQUIN VALLEY UNIFIED APCD	162.16	124.82	249.81	8.93	0.19	1897.39	916.75



Winston H. Hickox
Agency Secretary

Air Resources Board

Alan C. Lloyd, Ph.D.
Chairman

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Gray Davis
Governor

MEMORANDUM DRAFT -- DRAFT

TO: Kathleen Walsh
General Counsel

FROM: George T. Poppic, Jr.
Staff Counsel

DATE: 21 September 2001

SUBJECT: Permitting of untraditional emission reduction sources

Over the past month, ARB has been assisting the Yolo-Solano AQMD in resolving issues that have arisen with respect to the use of their ERC rule. The YSAQMD has been approached by Enron with a plan to control ag pump engines for the purpose of creating ERCs for their Roseville facility, a 900 MW powerplant currently under review at the CEC (the Roseville facility is located in the Placer APCD, not the Yolo-Solano AQMD). The YSAQMD's rule, Rule 3.14, is a SIP incorporated rule. Section 303.2 of Rule 3.14 provides that if a state or federal law prohibits the permitting of the emission source, the source must enter into a "legally binding contract" with the YSAQMD as a condition to the recognition of the reduction as an ERC.

Although SIP approved, the USEPA has been resisting telling the YSAQMD that they have an unqualified right to enter into transactions under 3.14. ARB has participated in a meeting at Region 9 with Jack Broadbent and (a lot of) USEPA staff, the YSAQMD (with their own counsel) and Barbara Lee for CAPCOA.

The clear desire of USEPA is to have source specific SIP rules. However, it did appear that they may be satisfied with having a SIP rule for untraditional sources which in turn calls for protocols outlining quantification and monitoring requirements for a source category (although there was some talk about submitting these protocols as SIP revisions). USEPA has expressed its desire that ARB take the lead in developing these protocols for sake of statewide uniformity.

USEPA raised several issues. These issues include the need for public participation in the development of the protocols; the need for statewide consistency in protocol requirements and enforceability. (USEPA said that contracts are not appropriate federally enforceable means despite the approval of Rule 3.14).

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our Website: <http://www.arb.ca.gov>.

California Environmental Protection Agency

At the same time, San Joaquin Valley Unified APCD has advised that they have met with USEPA and believe that they have the go-ahead from them to control ag pump engines (also at Enron's request). SJVUAPCD said they were initially going to use contracts, like YSAQMD, until they met with USEPA and then decided to use both contracts (for their own purposes) and permits (to satisfy USEPA enforceability concerns). The YSAQMD's rules do not provide for the use of permits, only contracts.

In the meanwhile, our SSD folks have decreed that they will not support anything going into the SIP, whether a generic rule or protocols.

We have approached this issue on two levels: (1) dealing with the specifics of Yolo-Solano's problem and (2) looking forward to how to deal with the issue on a statewide (districtwide) basis. On the first level, although I agree that the use of contracts as an enforcement mechanism is less than desirable, I think that it would be really difficult for USEPA to not approve a transaction under the AQMD Rule 3.14. But on the broader, statewide level, USEPA is going to have a lot more say in the matter. On this level, I can't see USEPA agreeing to anything short of some kind of SIP submittal. Given their views on contracts, that won't be an enforcement option. So we're looking at doing some kind of permitting.

The best way to address district permitting of sources exempt from permitting is to get legislation providing for a process for exempt sources to get permits. Districts could then use that authority to set up their voluntary permit programs. The legislation could also make clear that sources voluntarily submitting to district jurisdiction would be subject to the full panoply of rights and responsibilities set out in Division 26, set out minimum standards for protocols to insure statewide consistency and address the other issues of concern to USEPA such as monitoring and public participation. This approach, however, would not be of use in the immediate (YSAQMD) context.

The next best thing is for districts to adopt rules for voluntary permits based on current authority. Perhaps ARB could draft a model rule. Since there is no explicit authority for this, authority would have to be implied. The primary basis for this implied authority are §§40001 (general rulemaking authority of districts to achieve NAAQS) and 42310 (permit exemptions). Section 42310 provides that certain sources are not *required* to have permits. This language can be construed to imply that a source exempt from permitting is not precluded from obtaining a permit if it desires one.

The third option would be to imply the authority from existing law without need of rulemaking. This would entail relying solely on the non-preclusive argument made above and using existing permit regulations rather than adopting a specific rule for non-traditional sources (the second option).

USEPA has not yet questioned the use of voluntary permits and, in fact, seems to believe that they are acceptable from a federal enforceability standpoint. Air district counsel, however, have not been that enthused.

Voluntary Permit Program

Under H&SC §40001, air districts are mandated to adopt and enforce rules and regulations to achieve and maintain the state and federal ambient air quality standards. This charge is further bolstered by H&SC §40702 which mandates local air districts to adopt rules and regulations and take such actions necessary or proper to carry out the requirements of Division 26. Lastly, H&SC §40716 provides that in carrying out the duties imposed by Division 26, air districts may adopt and implement regulations that reduce or mitigate emissions from indirect and areawide sources of air pollution.

One of the requirements of Division 26 is the establishment by local air districts of an ERC banking system (H&SC §40709). Further, California relies on offset and ERC banking programs as a means of attaining the NAAQS. Given the mandated and important role of ERC creation, maintenance and enforcement, districts have clear authority to adopt appropriate enforcement means for that purpose.

The limitations found in H&SC §42310 are not a barrier to this rulemaking authority. The section provides exemption from permitting requirements for certain sources. The courts have repeatedly recognized that such exceptions must be construed narrowly (*Egg City v. VCAPCD [1981] 116 Cal. App. 3d. 741*). H&SC §42310 does preclude the issuance of permits; it only provides that they are not required.

Expansion of Jurisdiction

It is this latter point that is responsive to concerns that a voluntary permit program constitutes an impermissible expansion of air district jurisdiction. If H&SC §42310 precluded the issuance of a permit to the listed sources, then regardless of the desires of an owner of one of these sources, the air district could not issue a permit. Jurisdiction cannot be expanded by agreement (*Ferdig v. SPB [1969] 71 C 2d 96*). But the language of the statute indicates that, but-for the exemption, the equipment listed therein would be required to have permits. These items are therefore within the scope of an air district's jurisdiction. They have simply been exempted from permit requirements.

Enforceability

So assuming that the air districts can issue permits upon request of sources for which permits are not required, the issue becomes one of enforceability. Can an owner of an exempt (non-traditional) source under voluntary permit be subject to the enforcement mechanisms under Division 26 for violation of the voluntary permit? Can a district issue an order of abatement or issue an NOV? Are the criminal sanctions in §42400 applicable? Can such owner take advantage of the benefits of Division 26, such as variances? In short, what does the owner of a source with a voluntary permit buy into? Are successor owners similarly bound? I have not been able to find any indication that an air district has issued such a permit before.

Estoppel

Basically, this would seem to be an estoppel and/or waiver issue. The Supreme Court has addressed the estoppel issue in the context of conditional use permits (CUP). In *McDougall v. County of Imperial* (1977) 19 C. 3d 505, the purchaser of property subject to a CUP ignored certain conditions and operated outside the scope of the CUP. The Court held that the owner was subject to the permit terms and was estopped by the failure of his predecessor to challenge the permit terms at issue.

Since the effect of a defense of estoppel is to bar inquiry into an issue, courts are reluctant to apply it. For the issue of estoppel to arise, one party must have taken two inconsistent positions. Mere inconsistency, however, is insufficient. A change in position based on mistake or ignorance of the facts may be insufficient. The party to be estopped must be apprised of the situation (see discussion re representation by counsel below). Further, the party to be estopped must intend that his former position be relied upon by the other party and the other party must have, in fact, relied to his detriment.

Districts can take appropriate precautions during the issuance of the voluntary permit to insure that each of these requirements is met.

Applicability

There are several important factors that may present a basis for distinguishing *McDougall's* application outside the CUP context. First, it is well settled that CUPs run with the land (see *McDougall*, supra). Under California law, only certain agreements may be considered to run with the land (CC §1460). In essence a covenant will run with the land only if it benefits and/or burdens it. If an agreement is determined to be a covenant running with the land, then all subsequent purchasers/occupiers are bound by it without need of assuming or accepting it. It is upon this basis that these covenants can be enforced against those who did not take part in making the covenant (privity of contract versus privity of estate). This is not the case with a PTO.

With a PTO, there must be an assignment, or transfer, of the permit before it can be enforced against someone other than the permittee. If not used, or renewal fees not paid, the permit can be, or becomes, invalidated, revoked or suspended. These are not the traits of a covenant running with the land. The question becomes can a voluntary permit be made into such a covenant?

One possible means would be to draft the permit appropriate to covenants that runs with the land and record the permit. At this point the permit starts to look more like a contract than a permit, but that is really a large part of what a CUP is anyway so that may not be a bad thing. Further, since the YSAQMD rules calls for a contract, having a permit/contract may even be preferred.

Recordation

I do not think there would be an issue as to the recordability of the document if it contained the language required to entitle it to be considered as a covenant running

with the land. Only document that affect title or possession to property may be recorded (Govt Code §27280). The permit/contract would clearly not be title affecting but the ban on an otherwise allowed activity (no diesel engines can be used in operations conducted on the land) would certainly qualify as affecting possession.

So at this point we have a document issued under the authority of the district that can be recorded and enforced against subsequent owners/occupiers of the property at least as a covenant running with the land. But, assuming we have surmounted the CUP v. PTO issue, *McDougall* may require more.

Enforcement Options/ Successor Culpability

If *McDougall* is applicable precedent, does that mean that the district may have all the traditional Division 26 enforcement remedies available to it as well as the contractual enforcement contained in the permit/contract? The contractual enforcement options are primarily equitable (e.g.) injunctive relief. Certainly the contract could have liquidated damages provisions but, one, such provisions are not favored by the courts and, two, they are not (and cannot be) punitive. Liquidated damages are compensatory; it's just that the level of compensation for the harm has been predetermined. Trying to ascertain the various possible violations and then assess the "damage" of each category of violation is not really a productive effort.

Characterizing violations as causing damage opens up a Pandora's Box of issues that shouldn't arise in an enforcement action. For example, state law and many local rules provide for a right to judicial arbitration of damages. Further, there is a substantial body of law on damages for breach of contract, as well as tort, that could come into play with inevitably unpredictable results. But again, most compelling is the fact that we are dealing with a violation of law, and not remedying a civil wrongdoing. Confusing penal and compensatory activities, that is, enforcing the law as opposed to redressing damage, not only serves to distract from the underlying mission (compliance with air quality laws and regulations), but makes it more difficult to accomplish. The Health and Safety Code provides a clear set of factors to be used in assessing penalties through H&SC §42403. These factors, and only these factors, should be applied.

But back to the original question (scope of enforceability). *McDougall* holds that one who accepts the benefits of an entitlement must also bear the burden it imposes.

"A number of cases have held that a landowner or his successor in title is barred from challenging a condition imposed upon the granting of *511 a special permit if he has acquiesced therein by either specifically agreeing to the condition or failing to challenge its validity, and accepted the benefits afforded by the permit."
[*McDougall* at p.510]

Would this language support the ability to successfully argue that the source owner, by requesting a voluntary permit, has agreed to subject himself to civil penalties? And

what about criminal penalties? Certainly the case would be stronger if the permit/contract by its terms provides that §42400 et seq. applies. At the same time applicability of the Division 26 sanction provisions should not hinge on the inclusion of such language.

Critical here is a second aspect of *McDougall* that the Supreme Court considered important. McDougall's predecessor in title, being the one who obtained the permit, was represented by counsel when the permit terms were agreed to before the issuing entity. The court relied on the presence of the owner's attorney as evidence that the original owner was fully apprised of the matter and was therefore capable of making a knowing waiver of the right to challenge the restrictive condition and therefore estop his successors in interest from making such a challenge.

It's one thing to enforce the terms of the permit/contract. The transaction initiator should certainly be held to the permit/contract terms. Subsequent owners are put on notice of the requirements through the recordation of the permit/contract. Certainly if the successor owner received ongoing benefit from the transaction, such as ongoing maintenance, then it becomes easy to characterize the successor owner as having fully stepped into the shoes of the transaction originator. At that point the basis for distinguishing the two (former and current owners) virtually disappears.

But will *McDougall* support going the additional step after requiring compliance with the permit/contract and provide authority to punish for failure to comply? If the permit/contract is to have any meaning at all then the imposition of civil penalties or issuance of an abatement order against the transaction initiator must be allowed. This is not based solely on estoppel grounds but waiver as well (discussed below).

But would constructive notice, without more, be sufficient to support assessment of civil penalties or an abatement order against a subsequent owner? H&SC §42403 requires both the local air district and the court to take into account all relevant circumstances including those listed in the section. In terms of assessing a penalty, is it relevant that the violator did not initiate the regulated activity but simply became subject to it by virtue of acquiring the property? Again I think the answer will be determined based on whether the district will be able to show that the transaction initiator did not receive all the benefits but that there are ongoing benefits to the subsequent owners by virtue of land ownership. They (the benefits) may not be as great, but if they still have value, and subsequent owners get the benefit of that value, then holding them to the consequences for failure to comply should apply to these owners as well. If, however, a subsequent owner can argue that he gets no benefit, then I do not see the courts holding him responsible for compliance based on equity concerns if nothing else.

In this event a compliance action can still be taken against the emitting source. To my mind, the initial enforcement action should proceed against the emitting source in any event. Requiring the emitting source to maintain its offsets requirement, rather than the district assuming that function, makes a lot more sense. The APCO would have the

benefit of long understood and applied practices and procedures. It would likely relieve resource burdens on the district because of this. Mitigation through reduced operations pending replacement offsets could be effected quickly.

The emitting source would have damages from the breach of contract. Damages would be fairly clear, being the cost of obtaining new offsets and perhaps even the recoupment of any penalties paid.

Most importantly I wouldn't have had to discuss for seven pages how and what might happen if the district pursued enforcement against the emission reduction source rather than the emitting source. This would all be business as usual.

I would lastly note that the Civil Code has long recognized the estoppel argument outlined here. Civil Code §1589 provides that acceptance of the benefits of a transaction is consent to the obligations arising from it to the extent the facts are known. Again, this last phrase points out the importance

Waiver

In addition to the estoppel argument, there is also a waiver argument available to the districts. Waiver, though similar to estoppel in effect, is a different defense. Waiver is the knowing relinquishment of a known legal right. In this instance, it would be the voluntary permit holder's waiver of the right to challenge the district's authority to issue a voluntary permit or the exercise of its enforcement authority.

The critical issue here continues to be awareness of the permitholder of the ramifications of his actions. For a waiver to be effective the right must be known and the intention to waive clear (*Bickel v. City of Piedmont* [1997] 16 C.4th 1040). An honest mistake of law, especially where the state of the law is unsettled or debatable, is insufficient to establish a waiver (*Wells Fargo Bank v. Superior Court* [2000] 22 C4th 201). Absent the benefit of representation of counsel I do not believe that a district could successfully make a waiver argument. Since waiver will be a substantial component of a defensible voluntary permit program legal representation of the permit holder will be essential. There is simply no other effective way to demonstrate that the permit holder knew the legal consequences of his actions.

Under California law any right, unless "established for public reason" can be waived (CC §3513). What exactly is meant by that phrase is not clear. Generally it appears that if the right is for the general welfare, then it may not be waived. I do not think that exemption from obtaining a permit for certain types of equipment would fall into that category.

The district will bear the burden of proof as to both the estoppel and waiver issues. Every care should be given to recite, either directly in or by incorporation of a separate document, the permit/contract all the facts that would be relied upon in the event the action is contested at a later date. Those recitals should also address specifically the

legal requirements for estoppel and waiver. The permit holder's counsel should be required to sign off on the permit/contract. I'll probably think of some more stuff to do later on.

In sum, although legislation would be extremely helpful, there exists the legal framework for the districts to issue voluntary permits. USEPA seems to be on-board with this approach. The success of the effort will be almost exclusively dependent upon the drafting effort and the ability to ensure legal representation of the permit holder. The third major factor will be the existence and demonstrability of ongoing benefits from the original transaction. If all else fails action can be taken against the emitting source which, as I indicated above, to my mind should be the primary course of action anyway.

September 18, 2001

RECEIVED

SEP 18 2001

**PERMIT SERVICES
SJVUAPCD**

Mr. Seyed Sadredin
Director of Permit Manager
San Joaquin Valley Unified APCD
1990 east Gettysburg Avenue
Fresno, CA 93726-0244

**re: Application For Emission Reduction Credit
Banking Certificates**

Attn: Mr. Dave Warner

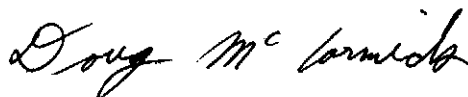
Dear Mr. Sadredin:

Valley Air Conditioning and Repair, Inc. completed the replacement of a diesel fired internal combustion engine driven water pump with an electric motor on August 31, 2001. Therefore, attached please find a check in the amount of \$650 for the filing fees and an application package requesting Banking Certificates for the actual historical emission reduction credits which have been made available with this engine replacement.

As shown in the attached application, the emission reductions are real, quantifiable, permanent, and enforceable. Therefore, your assistance in issuing the requested Banking Certificates by October 1, 2001 would be greatly appreciated.

Should you have any questions concerning this request or need additional information, do not hesitate to contact me at (661) 282 – 2200 or by E-mail at dwmccorm@insenv.com.

Sincerely,



Douglas W. McCormick, P.E.

Attachment



San Joaquin Valley
Unified Air Pollution Control District

RECEIVED

SEP 18 2001

PERMIT SERVICES
SJVUAPCD

APPLICATION FOR:

- EMISSION REDUCTION CREDIT (ERC) ERC WITHDRAWAL
 CONSOLIDATION OF ERC CERTIFICATES ERC TRANSFER OF OWNERSHIP

1. ERC TO BE ISSUED TO:
Valley Air Conditioning & Repair Inc.

2. MAILING ADDRESS:
Street/P.O. Box: 1350 "F" Street
City: Fresno State: CA 9-Digit Zip Code: 93706

3. LOCATION OF REDUCTION:
Street: O'Niell Farming
City: Five Points, CA
SE 1/4 SECTION 4 TOWNSHIP 18S RANGE 17E

4. DATE OF REDUCTION: February 2001

5. PERMIT NO(S): EXISTING ERC NO(S):

6. METHOD RESULTING IN EMISSION REDUCTION:
 SHUTDOWN RETROFIT PROCESS CHANGE OTHER
 DESCRIPTION:
 Bank the actual historical emission reductions associated with the shutdown of a diesel fired internal combustion engine driving a water pump.
 (Use additional sheets if necessary)

7. REQUESTED ERC's (In Pounds Per Calendar Quarter):

	VOC	NOx	CO	PM-10	SOx	OTHER
1ST QUARTER	189	2329	750	111	102	
2ND QUARTER	537	6619	2133	316	290	
3RD QUARTER	880	10847	3495	518	475	
4TH QUARTER	629	7752	2498	370	339	

8. SIGNATURE OF APPLICANT: TYPE OR PRINT TITLE OF APPLICANT:
Owner

9. TYPE OR PRINT NAME OF APPLICANT: DATE: TELEPHONE NO:
Tobbie Hopper (209) 237 - 2867

FOR APCD USE ONLY:

DATE STAMP	FILING FEE RECEIVED: \$ 650.00 CP #00629 DATE PAID: 9-18-01 CP PROJECT NO.: C-1011235 FACILITY ID.: C-3892
------------	--

APPLICATION FOR EMISSION REDUCTION CREDIT BANKING CERTIFICATES

**For Actual Historical Emissions Reductions Due to the
Removal and Replacement of an Existing Diesel-Fired
Agricultural Pump Engine with an Electric Motor**

Equipment Location

SE ¼ Sec. 4, T18S, R17E

Submitted to

San Joaquin Valley Unified
Air Pollution Control District
1990 E. Gettysburg Avenue
Fresno, CA 93726-0244

Prepared By

Insight Environmental Consultants Inc.
1200 Twenty-first Street, Second Floor
Bakersfield, CA 93301

For

Valley Air Conditioning & Repair, Inc.
1350 "F" Street
Fresno, CA 93706

September 10, 2001

Table of Contents

1 **Project Summary:** 1

2 **Applicable Rules and Regulations:** 1

4 **Operational Parameters:** 4

5 **Emission Calculations:** 6

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7 **Conclusions:** 11

8 **Additional Information:** 11

9 **Attachments:** 11

1 Project Summary:

Valley Air Conditioning & Repair, Inc., in an agreement with O'Neill Farming, is requesting Banking Certificates for the actual historical emission reduction credits (ERCs) which have resulted from the replacement of a 750 Bhp Caterpillar Model 3412 diesel-fired engine (Serial Number 038S15467) with an electric motor. This well and associated pump driver is located near Five Points, CA on SE ¼ Sec. 4, T18S, R17E. A location map for this facility is provided in Attachment A.

The internal combustion engine was replaced with an electric motor driver in August 31, 2001. Documentation of the installation of the electric motor is provided in Attachment B.

2 Applicable Rules and Regulations:

This application represents an engine used in agricultural service, which is exempted from permitting requirements by state law. Further, it is exempted from SJVAPCD Rule 4701 internal combustion engine emission limitations. However, to qualify the emission reductions as ERCs, it is agreed that compliance with the emission reduction banking requirements of the following SJVAPCD rules must be demonstrated.

Rule 2201 New and Modified Stationary Source Review: (6/12/2001)

Section 3.1 defines "actual emissions" as emissions having occurred from a source, based on test or monitoring data, actual fuel consumption, and process data. If source test or monitoring data is not available, other appropriate, APCo-approved emission factors may be used.

Section 3.2 defines "actual emission reductions" as the decrease of actual emissions, compared to the Baseline Period, from an emissions unit and selected for use as emission offsets or ERC banking. Actual emission reductions shall meet the

following criteria: 1) shall be real, enforceable, quantifiable, surplus and permanent; and 2) shall be in excess, at the time of application for an Emission Reduction Credit or an Authority to Construct authorizing such reductions is deemed complete of any emissions reduction which: a) is required or encumbered by any laws, rules, regulations, agreements, orders, or b) is attributed to a control measure noticed for workshop, or proposed, or contained in a state implementation plan; or c) is proposed in the APCO's adopted Air Quality Plan pursuant to the California Clean Air Act.

Section 3.8 defines the "baseline period" as 1) the two consecutive years of operation immediately prior to the submission of the Complete Application; or 2) at least two consecutive years with five years immediately prior to the submission of the Complete Application if determined by the APCO as more representative of normal source operation; or 3) a shorter period of at least one year if the emissions unit has not been in operation for two years so long as this represents the full operation history of the emission unit; or d) zero years if an emissions unit has been in operation for less than one year (only for use when calculating AER).

Section 3.23 defines "Historical Actual Emissions" (HAE) as actual emissions having occurred during the baseline period. Historical actual emissions must be discounted for any emission reduction which is: 1) required or encumbered by any laws, rules, regulations, agreements, orders, or 2) attributed to a control measure noticed for workshop, or proposed or contained in a State Implementation Plan, or 3) proposed in the District Air Quality Plan for attaining the annual reductions required by the California Clean Air Act.

Section 4.12 specifies the calculation procedures for determining actual emission reductions (AER) and requires the AER to be discounted by 10% for Air Quality Improvement Deduction, and shall comply with all applicable provisions of Rule 2301 (Emission Reduction Credit Banking).

Pursuant to Section 40714.5 of the California Health and Safety Code, the 10% Air Quality Improvement Deduction does not apply to this proposal.

Rule 2301 Emission Reduction Credit Banking: (12/17/92)

Section 3.1 defines "Actual Emission Reductions" as those defined in the District's New Source Review Rule.

Section 3.2 defines "Bankable Emission Reductions" as emission reductions of pollutants and their precursors for which ambient air quality standards exist, and which meet the provisions of this Rule. Such reductions may be deposited in the District's ERC Banking system. Once banked and certified, the emission reductions become Emission Reduction Credits (ERCs).

Section 3.6 defines "Emission Reduction Credits" (ERCs) as reductions of actual emissions recognized by the District as available for use as tradeoffs or offsets in accordance with the requirements of this rule. To be eligible for certification as ERCs, emission reductions must be real, surplus, permanent, quantifiable and enforceable. All emission reductions meeting these requirements may be certified as ERCs.

Section 4.2 specifies the following emission reduction criteria for emission reductions occurring after the date of adoption of this rule: 1) the emission reduction must be real, surplus, permanent, quantifiable, and enforceable; 2) the emission reduction must be calculated in accordance with District's New Source Review Rule; 3) an application for the emission reduction must be filed within 180 days after the emission reduction occurred; and 4) for non-permitted emissions units, the emissions must have been included in the 1987 emissions inventory.

Section 4.4 specifies equipment shutdowns, which generate emission reductions and are not eligible as Emission Reduction Credits for banking.

Section 5.0 specifies the procedures, which must be followed in order to obtain an ERC certificate including filing an application for each air contaminant and filing such applications within 180 days after such reductions occur.

Section 6.0 specifies that an ERC Certificate may be granted only after the reductions have actually occurred and the Permits to Operate for the emissions unit have been appropriately modified.

Section 7.0 specifies that ERCs may be used at the time of, or anytime after deposit into the District's ERC Bank by the owner of the ERC Certificate to provide contemporaneous offsets for increases in onsite emissions from new or modified emission units. This section also allows for the transfer or lease of an ERC certificate and states that contemporaneous emission reductions to be used as offsets need not be banked.

Section 8.0 specifies the administrative requirements for filing ERC Certificate applications.

3 Equipment Listing:

Caterpillar, Compression Ignition, Four Stroke Cycle, Turbocharged-Intercooled, 6-Cylinder, Model 3412, Serial Number 038S15467, 750 Hp, Diesel-Fired internal combustion engine, Driving an Agricultural Water Pump NOTE: This engine has been replaced with an electric motor.

4 Operational Parameters:

In the San Joaquin Valley pumping water from onsite wells is a common technique for agricultural operations. Many of these wells are driven by high emitting diesel engines. A

pump in an affected well will remain in the same service and provide water to crops as it had done before the conversion. The only difference is the method used to drive the pump.

In assessing emissions or operating characteristics of existing engines, it is common to use the fuel used over a period of time as a basis of determining the operating engine load. Since engines in agricultural service are exempt from permitting and associated recordkeeping requirements, adequate fuel usage records for existing engines will not always be available. That is the situation with this specific engine.

For those cases where sufficient fuel data are not available, 21st Century Design Associates developed a Well Pump/Engine Model to provide data on the operating requirements for engines driving specific pumps. This model employs well information, crop and associated water demand, water distribution method, water head, pipe and pump head characteristics, and mechanical losses (see Attachment C) to determine the horsepower required to drive the pump. Then, fuel requirements and emissions can be calculated for both the existing and replacement engines on hourly, quarterly and annual bases.

The Well Pump/Engine model has been used for this engine replacement to determine the quarterly horsepower and fuel requirements for the existing engine (see Attachment D). This data is used in the next section to determine the historical emissions associated with the replaced engine. The Well Pump/Engine model has been reviewed and approved by Cal EPA as an appropriate method for estimating actual historical operational parameters for well pump engines.

Engine Horsepower Requirements Determined from the Well Pump/Engine Model

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Required Engine Bhp	469.37	469.37	469.37	469.37
Bhp-hrs	337.91	526.95	1322.74	840.40

5 Emission Calculations:

5.1 Historical Actual Emission Rates:

Assumptions:

- Engine specific data, based on the approved Well Pump/Engine model, is included in Attachment D. This data provides the best available information of the actual historical operation of this engine.
- AP-42, Table 3.3-1 provides the best estimate of emission rates for this class and category of equipment.

Historical Actual Emission Reductions (See calculation in Attachment E)

Emission Reductions	1st Qtr (Lb/Qtr)	2nd Qtr (Lb/Qtr)	3rd Qtr (Lb/Qtr)	4th Qtr (Lb/Qtr)	Total (ton/Yr)
NOx	2329	6619	10847	7752	13.77
VOC	189	537	880	629	1.12
CO	750	2133	3495	2498	4.44
PM ₁₀	111	316	518	370	0.66
SOx	102	290	475	339	0.60

5.2 Reasonable Further Progress Deduction:

Pursuant to Rule 2201, Section 4.12, AER's after a ten (10) percent air quality improvement deduction can be banked for future use or transfer to other entities, subject to the requirements of this rule and Rule 2301 (Emission Reduction Credit Banking). Pursuant to Section 40714.5 of the California Health and Safety Code, a ten percent RFP cannot be applied to these emission reduction credits.

5.3 Emissions Available and Requested for ERC:

Bankable ERC's

Emission Reductions	1st Qtr (Lb/Qtr)	2nd Qtr (Lb/Qtr)	3rd Qtr (Lb/Qtr)	4th Qtr (Lb/Qtr)	Total (ton/Yr)
NOx	2329	6619	10847	7752	13.77
VOC	189	537	880	629	1.12

CO	750	2133	3495	2498	4.44
PM ₁₀	111	316	518	370	0.66
SOx	102	290	475	339	0.60

6 Compliance with Rules 2201 and 2301, ERC Banking:

6.1 Compliance with Rule 2201 Section 3.2:

Section 3.2 of Rule 2201 defines Actual Emission Reductions as reductions of actual emissions from an emissions unit selected for emission offsets or banking, from the baseline period. Actual emission reductions must be calculated pursuant to Section 4.12 of Rule 2201 and they must meet following criteria:

Actual reductions shall be real, enforceable, surplus, quantifiable and permanent.

As shown in Section 5 of this application, these reductions resulted from the replacement of a permit-exempt existing emissions unit with a cleaner burning natural gas-fired IC engine. Since the replacement electric motor operates with lower emissions, the emission reductions are real. Since these emissions reductions have not been required by any existing or proposed Rule or Regulation, they are surplus. Consistent with the contract between O'Neill Farms and the SJVAPCD, the emission reductions will be permanent and enforceable. As shown in Section 5 of this application package, the reductions are also quantifiable.

6.2 Compliance with Rule 2201, Section 3.23, Definition of HAE:

These emission reductions were generated by the replacement of an existing permit-exempt emission unit. These emission reductions satisfy the definitions of historical actual emissions and actual emission reductions in Rule 2201, Section 3.23; therefore, these reductions are creditable reductions and can be validated as ERC's if all other requirements of Rules 2201 and 2301 are satisfied.

6.3 Compliance with Rule 2201, Section 4.12, Definition of AER:

Section 4.12 of Rule 2201 specifies that the $AER = HAE - PE2$. for this project the emission reductions are the result of equipment shutdown; therefore, the $PE2 = 0.0$ for all air contaminants and the $AER = HAE$.

As shown in Section 5 of this application, the emission reductions have been calculated in accordance with the requirements of Rule 2201, Section 4.12. Therefore, these emission reductions may be banked in accordance with the provisions of Rule 2301, Section 7.0.

6.4 Compliance with Rule 2301, Section 3.1:

Rule 2301, Section 3.1 states that an actual emission reduction for the purposes of this rule is an actual emission reduction as defined in Rule 2201 Section 3.2. As discussed in Section 5 of this application, the reductions to be banked meet the definition of actual emission reductions in Rule 2201, Section 3.2 as required by Rule 2301, Section 3.1.

6.5 Compliance with Rule 2301, Section 3.2:

The pollutants for which ERCs have been requested satisfy the requirements of Rule 2301, Section 3.2 since ambient air quality standards exist for each compound; or in the case of VOC are a precursor to a pollutant with an ambient air quality standard. Therefore, they are bankable and may be deposited as ERCs provided all other rule requirements are satisfied.

6.6 Compliance with Rule 2301, Section 3.6:

Rule 2301, Section 3.6 states that all emission reductions meeting the following requirements may be certified as ERCs:

1. The reductions must be recognized by the District as available for use as tradeoffs or offsets in accordance with the requirements of this Rule.
2. The reductions must be real, surplus, permanent, quantifiable, and enforceable.

REAL – Emissions from the existing replaced engine were actual and quantifiable. This engine has been replaced by a lower emitting electric motor. Thus, emission reductions created by this replacement are real.

SURPLUS – No rule or SIP strategy has been identified that would require reduction of some or all of the emissions from the existing engine. The existing engine is exempted from permitting requirements and SJVAPCD BARCT Rule (4701). Thus, all emission reductions resulting from this engine replacement are surplus.

QUANTIFIABLE – As demonstrated through the use of the Well Pump/Engine model and AP-42 emission factors, the emission reductions can be quantified.

PERMANENT – This is accomplished through operation of the Grower's Agreement between the SJVAPCD and O'Neill Farms. This agreement, signed by O'Neill Farms is included as Attachment F.

ENFORCEABLE – As demonstrated in the Grower's Agreement O'Neill Farms is prohibited from replacing the new electric motor with an internal combustion engine. This contract has been structured to provide the necessary enforcement mechanisms to satisfy the requirements to certify ERCs.

6.7 Compliance with Rule 2301, Subsection 4.2:

Rule 2301, Subsection 4.2 sets conditions for eligibility of emission reductions occurring after September 19, 1991. Since the emission reductions occurred after September 19, 1991, the following provisions apply:

1. The emission reductions are real, surplus, permanent, quantifiable, and enforceable.

As previously discussed, these reductions are real, surplus, permanent, quantifiable and enforceable.

2. Actual emission reductions are calculated in accordance with Rule 2201 calculation procedures and they comply with the definition of Actual Emission Reductions. A ten percent adjustment for air quality improvement shall be made at the time the emission reductions are quantified.

As shown in Section 5 (calculations) of this application, Rule 2201 calculation procedures were used. In accordance with California Health and Safety Code Section 40714.5, the 10% adjustment does not apply to this project. As discussed in Section 6.1 of this application, these reductions comply with the definition of actual emission reductions.

3. An application for ERC has been filed no later than 180 days after the emission reductions occurred.

The existing engine was replaced in February of 2001; therefore, the application was submitted within 180 days of the date the reduction occurred.

Rule 2301, Section 4.2.3 allows a source to file an application to bank offsets upon surrender of the Permits to Operate, provided the application has been submitted within 180 days after the emission reductions have occurred.

IC Engines in agricultural service are exempted from permitting. The contract satisfies the requirement for enforceability of the ERC's.

7 Conclusions:

The requirements of Rules 2201 and 2301 have been satisfied as discussed in Section 6 of this application.

As calculated above, O'Neill Farms is entitled to bank the Actual Historical Emission Reduction Credits which have been made available through the permanent replacement of an existing agricultural pump engine with a new cleaner burning natural gas-fired IC engine.

ERC's by Pollutant

Emission Reductions	1st Qtr (Lb/Qtr)	2nd Qtr (Lb/Qtr)	3rd Qtr (Lb/Qtr)	4th Qtr (Lb/Qtr)	Total (ton/Yr)
NOx	2329	6619	10847	7752	13.77
VOC	189	537	880	629	1.12
CO	750	2133	3495	2498	4.44
PM ₁₀	111	316	518	370	0.66
SOx	102	290	475	339	0.60

8 Additional Information:

If any additional information is needed to process this application, or if you would like to discuss any aspect of this application further, please don't hesitate to call Mr. Tobbie Hopper of Valley Air Conditioning and Repair (559) 237-3188 or Mr. Douglas W. McCormick of Insight Environmental Consultants at (661) 282 - 2200. Mr. McCormick has assisted in the preparation of this modification to the original application package.

9 Attachments:

- A. Project Location Map
- B. Documentation of Engine Replacement
- C. Crop & Well Data
- D. Well Pump/Engine Energy Requirement Data

- E. Actual Emission Reductions (AER) Calculations
- F. Grower/APCD Agreement

Attachment A

Project Location Map

2000 Crop Map
05-12-2000

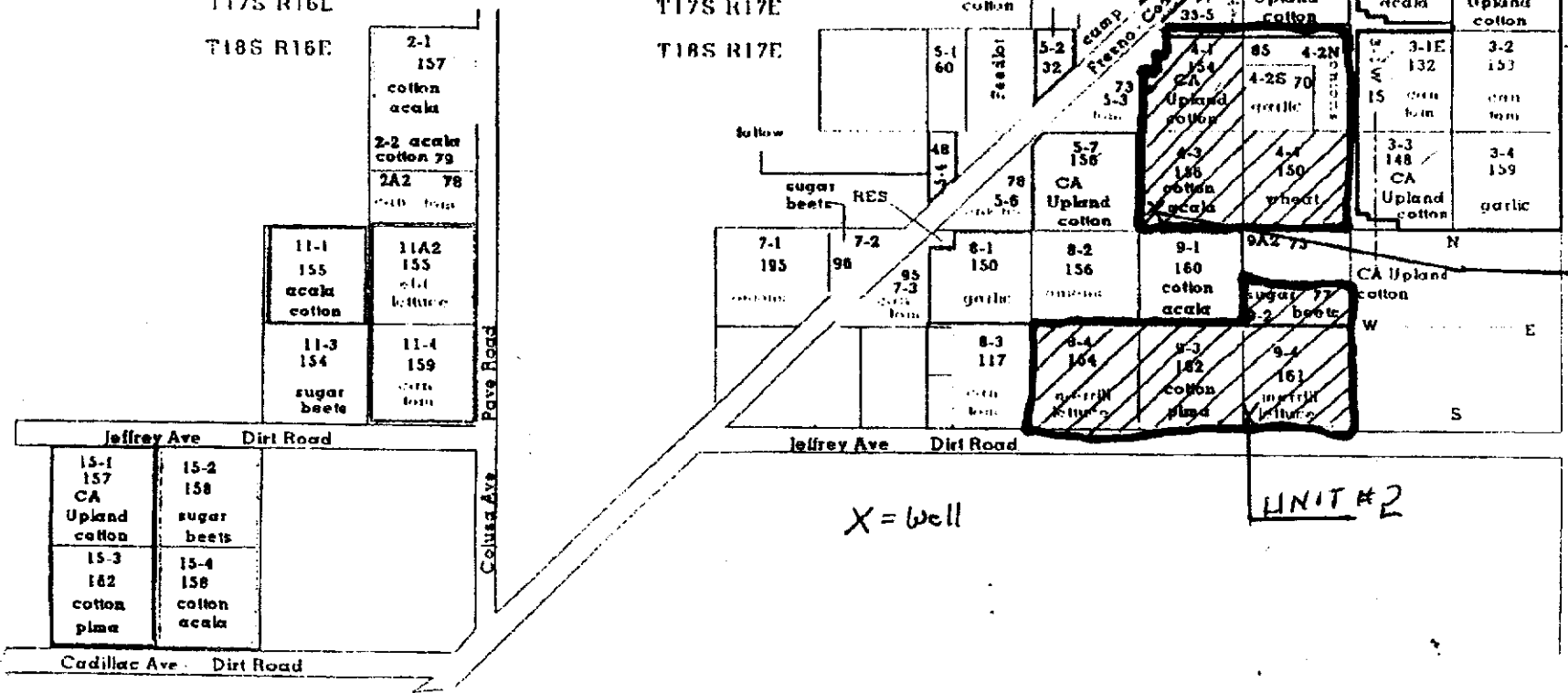
	ASCS ACRES
• Cotton Acala	1252
• Cotton Pima	324
✓ CA Upland Cotton	1590
• Garlic	379
• Merrill Lettuce (Dbl Crop)	630
✓ EFF Lettuce (Dbl Crop)	310
• Onions	514
• Wheat	227
• Sugar Beets	485
• Canning Tomato	959
• Fallow	48
Total	6718

21-1
159
CA
Upland
cotton

Mt. Whitney Ave

T17S R16E
T18S R16E

T17S R17E
T18S R17E



UNIT #1
CAT 3412

UNIT #2

X = well

Attachment B

Documentation of Engine Replacement



Farm Pump and Irrigation Co.

15499 Ave. 280 • Visalia, CA 93292-9718 • (559) 747-0755 • FAX (559) 747-3881

Mr. Toby Hopper
Valley Air Conditioning and Repair
1350 F St.
Fresno, Ca. 93706

9/12/01

Re: Wells #7 and #9 O'Neill Farms

Toby,

The diesel engines have been removed from wells 7 and 9 and the electric motors, panels and services installed. Both pumps are operational.

Should you have questions or comments, please call.

Sincerely,

A handwritten signature in black ink, appearing to read "Bill Gargan", is written over a horizontal line.

Bill Gargan

Attachment C

Crop & Well Data

O'Neill Farming Enterprises Crop irrigation Water requirements**

O'Neil Farming - Unit #1		Crop water requirement in acre feet				Total water requirement in Acre/feet				Annual total in A/F	
Area	acres	1999 crop	1st 1/4	2nd 1/4	3rd 1/4	4th 1/4	1st 1/4	2nd 1/4	3rd 1/4		4th 1/4
Field 4-3	156	lettuce*	0.73	0.37	1.44	0.25	113.88	57.72	224.64	39	
Field 4-4	150	lettuce	0.73	0.37	1.44	0.25	109.5	55.5	216	37.5	
Field 4-1	154	cotton	0	0.34	1.15	0.82	0	52.36	177.1	126.28	
Totals	460						223.38	113.22	617.74	202.78	
Annual Average inches of water applied							5.8273	2.95357	16.115	5.28991	

Area	acres	2000 crop	1st 1/4	2nd 1/4	3rd 1/4	4th 1/4	1st 1/4	2nd 1/4	3rd 1/4	4th 1/4	Annual total in A/F
Field 4-3	156	cotton	0	0.34	1.15	0.82	0	53.04	179.4	127.92	
Field 4-4	150	wheat	0.17	1.13	0	1.08	25.5	169.5	0	162	
Field 4-1	154	cotton	0	0.34	1.15	0.82	0	52.36	177.1	126.28	
Totals	460						25.5	274.9	356.5	416.2	1073.1
Annual Average inches of water applied							0.66522	7.1713	9.3	10.8574	

Two year average in inches							3.24626	5.06243	12.7075	8.07365	
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O'Neil Farming - Unit #2		Crop water requirement in acre feet				Total water requirement in Acre/feet				Annual total in A/F	
Area	acres	1999 crop	1st 1/4	2nd 1/4	3rd 1/4	4th 1/4	1st 1/4	2nd 1/4	3rd 1/4		4th 1/4
Field 9-2	77	cotton	0	0.34	1.15	0.82	0	26.18	88.55	63.14	
Field 9-3	162	cotton	0	0.34	1.15	0.82	0	55.08	186.3	132.84	
Field 9-4	161	onions	0.09	1.73	0.06	1.46	14.49	278.53	9.66	235.06	
Field 8-4	154	cotton	0	0.34	1.15	0.82	0	52.36	177.1	126.28	
Totals	554						14.49	412.15	461.61	557.32	1445.57
Annual Average inches of water applied							0.31386	8.92744	9.99877	12.0719	

Area	acres	2000 crop	1st 1/4	2nd 1/4	3rd 1/4	4th 1/4	1st 1/4	2nd 1/4	3rd 1/4	4th 1/4	Annual total in A/F
Field 9-2	77	beets	0	1.44	0.48	0.58	0	110.88	36.96	44.66	
Field 9-3	162	cotton	0	0.34	1.15	0.82	0	55.08	186.3	132.84	
Field 9-4	161	lettuce*	0.73	0.37	1.44	0.25	117.53	59.57	231.84	40.25	
Field 8-4	154	lettuce*	0.73	0.37	1.44	0.25	112.42	56.98	221.76	38.5	
Totals	554						229.95	282.51	676.86	256.25	1445.57
Annual Average inches of water applied							4.98087	6.11935	14.6612	5.55054	

Two year average in inches							2.64736	7.52339	12.33	8.81123	
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*Lettuce is double cropped: Spring and Fall

** Water requirements obtained from State of California, Department of Water Resources Bulletin 113-4

Attachment D

Well Pump/Engine Energy Requirement Data

Irrigation Pumping Energy Requirement Data

Page 1 of 2

Site # 04-1-01

Application #

Grower O'Neill Farming

Address 1265 W. Shaw Avenue, Suite 101

City/State Fresno, California 93711-1265

Telephone 559-224-2000

Well site Note 1, S.E. corner block 9-4

Fax No. 559-224-2384

Global Coordinates

State Well I.D. # unknown

	Crop	Annual Water*
1	Almonds	
2	Citrus	
3	Grapes	
4	Pistachios	
5	Stone Fruit	
6	Walnuts	
7	Corn	
8	Hay	
9	Legumes	
10	Row crops	attached

Delivery System	Delivery Efficiency
Drip	
Flood	
Furrow	
Impulse	xxxxxxxx
Micro	
Other - list	

Area served See note 1

Acres 554

Assessors Map # APN book 060

Page # 42

Parcel No. 15S, range 17E, sect. 4

* Enter if known.

Check box if not known.

**Other - specify

Pump Lift 372 feet

Depth to Pump 600 ft.

Pressure 20 psig

46.1 @

Pump flow rate 2600 gpm

11	Pump Mfgr	
12	Pump model*	unknown
13	year made*	1991

Engine mfgr.	Caterpillar
Model	3412
S/N	038S15467
Date made	1991

14	Gear Mfgr.	
15	Gear Model	
16	Gear HP	
17	Gear Ratio	

Fuel 2000	unknown	gallons
Fuel 1999	unknown	gallons
Fuel 1998	unknown	gallons
Fuel 1997	unknown	gallons
Fuel 1996	unknown	gallons

Comments: Attached: Original Engine Invoice, representative crop maps and water requirements.

Note 1: Section 4, Township 18 South, Range 17

East Mt. Diablo Base and Meridian

Prepared by: McCabe
name

Date: 4-8-01

Approved by: _____
Grower

Date:

Irrigation Pumping Energy Requirement Model

Page 2 of 2

Site# 04-1-02

Grower O'Neill Farming

Application # _____

Address 1265 W. Shaw Avenue, Suite 101

City/State Fresno, California 93711-1265

		1 st Qtr.	2nd Qtr.	3rd. Qtr.	4th Qtr.
1	Crop water inch demand - page -1 or App. "A"	3.24626	5.06243	12.7075	8.07365
2	Line 1 / by distribution eff. from Append. B*	3.24626	5.06243	12.7075	8.07365
3	Line 2 / by evaporation eff. from Append. C*	3.24626	5.06243	12.7075	8.07365
4	AF required (line 3 in inches / 12)	0.27	0.42	1.06	0.67
5	Total AF required (line 4 x acres served - page	124.440	194.060	487.121	309.490
6	Gallons in millions (line 5 x .325851)	40.54889	63.23459	158.72881	100.84760
7	Pump flow rate - page 1, line 10	2000	2000	2000	2000
8	Estimated pumping hours (line 6 / (line 7 x 60))	337.91	526.95	1322.74	840.40
* If applicable					
9	Pumping depth (in ft. w.c.) page 1, line 8	471	471	471	471
10	Add pump pipe loss (in ft. w.c.)**	2	2	2	2
11	Add wellhead pressure required - page1, line 1	46.14	46.14	46.14	46.14
12	Total pump head pressure (ft. w.c.) (line 9 + line 10 + line 11)	519.14	519.14	519.14	519.14
** If applicable					
13	Water HP -(Line 7 x line 12) / 3960 WBHP	262.19	262.19	262.19	262.19
14	Adjust for pump efficiency- Line13 / .60	436.99	436.99	436.99	436.99
15	Adjust for pump shaft/column loss efficiency (Line 14 / .98/100 ft.)	445.90	445.90	445.90	445.90
16	Adjust for Gearhead/driveshaft efficiency (Line 15 / .95) Gross BHP	469.37	469.37	469.37	469.37
18	BHP hours (line 8 x line 16)	158604.71	247338.54	620858.87	394459.74
19	Diesel fuel in gallons - (line 18 x 0.0516)	8184.00	12762.67	32036.32	20354.12
20	Fuel energy required in mmbtuh Line 19 x .139 mmbtu (HHV) per gallon	1137.58	1774.01	4453.05	2829.22
21	Natural gas fuel equivalent adjusted for efficiency [(line 20 / 31) x 35] x 10 = therms	12843.60	20029.16	50276.35	31942.84

Says 372

Comments See attached crop map and 2 year crop water requirements

Prepared by McCabe

Date 4-10-01

Checked by _____

Date _____

name

Attachment E

Actual Emission Reductions (AER) Calculations

Existing Diesel Fired Water Pump Engine

Internal Combustion Engine Emission Calculations					
COMPANY NAME:	Emission Reduction Technologies LLC				
EQUIPMENT DESCRIPTION:	Caterpillar Model 3412				
Fuel Type	Diesel				
Operational Data (1)	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	
Required Pump hp	255.29	725.5	1189.01	849.69	
Total hours of operation	493.82	493.82	493.82	493.82	
EMISSION FACTORS (2)	PM10	SO2	NOx	VOC	CO
(grams/hp - hour)	0.40	0.367	8.38	0.68	2.70
Quarterly Emissions	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Total
	lb/qtr	lb/qtr	lb/qtr	lb/qtr	Ton/year
PM10	111	316	518	370	0.66
SO2	102	290	475	339	0.60
NOx	2329	6619	10847	7752	13.77
VOC	189	537	880	629	1.12
CO	750	2133	3495	2498	4.44
(1) - Derived from well-specific information and the ERT Well Pump/Engine Model					
(2) - Diesel Emission factors taken from USEPA Report NR-009A, Exhaust Emission Factors for Nonroad Engine Modeling -- Compression Ignition, June 15, 1998 Revision					

Attachment F

Grower/APCD Agreement

Diesel Engine Retirement Agreement

This agreement is made between O'Neill Farming Enterprises (Grower), and the San Joaquin Valley Unified Air Pollution Control District (District). The effective date (Date) of this agreement shall be the date of acceptance by District, and it expires 30 full calendar years after Date.

Recitals

A. Grower agrees to permanent replacement of existing high pollutant emissions irrigation pumping engine(s) identified as a Caterpillar Model 3412, S/N038S15467 powering a well located in block 4, Section 4, Parcel 15S, Range 17E, APN book 060, page 042, and Caterpillar model 3408, S/N 67U6614, located on block 4, section 9, Parcel 18S, Range 17E, APN book 060, page 042, with electric motor(s).

B. Grower shall generate emission reduction credits (ERC's) by eliminating emissions from Existing Engine(s) which are presently exempted from statutory or regulatory emissions controls.

C. District agrees that Grower, within the context of this agreement, is voluntarily making a good faith effort to reduce air pollution resulting from Grower's permanent retirement of existing diesel pumping engine(s), and that there is no regulatory impediment, existing or pending, which would cloud the legitimacy and permanency of the ERC's generated by this agreement.

Agreement:

1.0 Grower attests and certifies that he is the controlling entity responsible for the operation of Existing engine(s) included in this agreement.

1.1 Grower shall provide District with such records and documents as are available or which may reasonably be required to reasonably project representative operating service and fuel requirements.

1.2 Grower agrees that the Existing Engine(s) shall not be operated again.

1.3 Grower agrees the land parcel identified as blocks 1,3 and 4 of Section 4, Parcel 15S, Range 17E, APN book 060, page 042, block 4 of section 8 and blocks 2,3 and 4 of section 9, Parcel 18S, Range 17E, APN book 060, page 042, shall not be provided with irrigation water from any other internal combustion engine powered source.

1.4 Grower agrees that replacement of high emissions engine(s) with electric motor(s) is permanent and agrees to disclose the existence of this agreement to any other party which may in future become responsible for operation of a powered irrigation pumping system for the land parcel described, and to bind any future Grower and/or Operator to the terms contained herein.

2.0 District agrees that Grower has agreed to undertake substantial air pollution reduction from an uncontrolled pollutant emissions source(s), on a voluntary basis.

2.1 District agrees to issue ERC's for the emission reductions defined in the final approved calculation, which method is defined elsewhere, in accordance with existing District Policy affecting such ERC's, which shall be considered permanent.

Diesel Engine Retirement Agreement

3.0 The parties to this agreement warrant, as demonstrated by signing this agreement, that each is duly authorized and empowered to do so, that, to the best of all parties' knowledge, there are no actions, suits, proceedings or other impediments pending or threatened which affect the faithful performance of each party's obligations under this agreement.

4.0 The parties agree that this Agreement constitutes a legal, valid and binding obligation on the parties, enforceable in accordance with it's terms and applicable law, and that it's contents, including that of other documents incorporated by reference, are true and correct, to the signator's best knowledge and belief.

5.0 This agreement, including it's identified attachments, forms the whole of the agreement and may not be modified except in writing with the concurrence of the affected party's.

6.0 If any part of this agreement shall in future be adjudged unlawful the balance shall be unaffected.

7.0 Attachments and documents incorporated by reference:
Emissions Reduction Credit Application and support documents

8.0 Notices, when and as required, shall be deemed to be given when faxed and/or confirmed by registered mail to the following:

<p><u>Edwin R. O'Neill, pres</u> <small>Grower</small> <u>O'Neill Farming Enterprises, Inc.</u> <u>1</u></p>	<p>_____ For District</p>
<p><u>Edwin R. O'Neill, pres</u> <u>O'Neill Farming Enterprises, Inc.</u></p>	<p>_____ Name</p>
<p><u>1265 W. Shaw Ave.</u> <u>Fresno, Ca., 93711</u></p>	