



行政院所屬各機關因公出國人員出國報告書

(出國類別： 研習)

空氣污染物排放許可交易制度

Trading of Emission Reduction Credits

服務機關：行政院環境保護署

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出國地點：美國

出國期間：92年7月7日至92年7月20日

報告日期：92年9月8日

行政院研考會/省(市)研考會 編號欄
A0/CO9>0>016

系統識別號:C09202016

公務出國報告提要

頁數: 22 含附件: 否

報告名稱:

空氣污染排放許可交易制度(經濟部聯合技術訓練)

主辦機關:

行政院環境保護署

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出國類別: 實習

出國地區: 美國

出國期間: 民國 92 年 07 月 07 日 - 民國 92 年 07 月 20 日

報告日期: 民國 92 年 09 月 08 日

分類號/目: A0/綜合(行政類) /

關鍵詞: ERC, OFFSETS, 排放交易

內容摘要:

本研習計畫全部行程為期十四天，十個工作天均在加州政府主管空氣品質之空氣資源局(Air Resource Board)學習，雖然短暫，卻十分充實。按本人提出之需求，ARB安排來自空氣品質管理規劃與技術支援部門、固定污染源管制部門、移動污染源部門及研發部門之幹部，介紹空氣品質管理相關之經濟誘因措施，並面對面討論，交換意見，獲益良多。以加州為代表之排放交易制度，係以空氣品質改善為前提之制度，不主張“排放的權利”，州法律還特別規定“offsets do not constitute property”。為兼顧空氣品質與工業成長，加州各空氣品質管理局(Air Quality Management District, AQMD)均落實no net increase(沒有淨增量，亦即排放抵換)策略於空氣品質未符標準地區，因而製造了額外減量(Emission Reduction Credits, ERC)之誘因。在ERC之交易抵換上，ARB僅負責訂定計算及使用規則，各AQMD僅就買賣雙方交易之污染物種類、數量與價格予以登記，定期公布相關資訊，不定期進行查核等，因此彈性較大，行政成本亦不致過高。對於移動污染源，加州政府除實施嚴格之排放標準及補助購買低污染車外，並給予額外減量者Credits，可以賣給新設或擴廠者作為抵換量(offsets)，不僅有助於污染減量，且可解決部分抵換量不足之問題，參與對象均屬自願者。移動源ERC因來源不同，計算方法及壽命亦迥異，適逢我國規劃將移動源納入總量管制及排放抵換交易制度，其做法頗值參考，因而本人特別就移動源ERC之算法，作較為詳細之介紹。加州之排放抵換交易計畫實施超過20年，雖經多次調整，迄今仍鞏固且有效。自1975年以來，該州人口已增加61%，生產毛額亦由1980年的3000億美元增至1998年的1兆美元，但臭氧、一氧化碳及鉛等污染物卻是大幅減少。排放抵換交易制度已被證明可以兼顧工業成長，並誘導先進污染控制技術之開發，為有效之空氣品質管理工具。此次研習提昇了本人專業知識，並增進負責業務之素養，對於環保署建制中之

總量管制及排放抵換交易制度，應可有所貢獻。

本文電子檔已上傳至出國報告資訊網

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空氣污染物排放許可交易制度

行政院環保署沈淑貞

中華民國 92 年 9 月 8 日

摘 要

本研習計畫全部行程為期十四天，十個工作天均在加州政府主管空氣品質之空氣資源局(Air Resource Board)學習，雖然短暫，卻十分充實。按本人提出之需求，ARB 安排來自空氣品質管理規劃與技術支援部門、固定污染源管制部門、移動污染源部門及研發部門之幹部，介紹空氣品質管理相關之經濟誘因措施，並面對面討論，交換意見，獲益良多。以加州為代表之排放交易制度，係以空氣品質改善為前提之制度，不主張“排放的權利”，州法律還特別規定“offsets do not constitute property”。為兼顧空氣品質與工業成長，加州各空氣品質管理局(Air Quality Management District, AQMD)均落實 no net increase(沒有淨增量，亦即排放抵換)策略於空氣品質未符標準地區，因而製造了額外減量(Emission Reduction Credits, ERC)之誘因。在 ERC 之交易抵換上，ARB 僅負責訂定計算及使用規則，各 AQMD 僅就買賣雙方交易之污染物種類、數量與價格予以登記，定期公布相關資訊，不定期進行查核等，因此彈性較大，行政成本亦不致過高。

對於移動污染源，加州政府除實施嚴格之排放標準及補助購買低污染車外，並給予額外減量者 Credits，可以賣給新設或擴廠者作為抵換量(offsets)，不僅有助於污染減量，且可解決部分抵換量不足之問題，參與對象均屬自願者。移動源 ERC 因來源不同，計算方法及壽命亦迥異，適逢我國規劃將移動源納入總量管制及排放抵換交易制度，其做法頗值參考，因而本人特別就移動源 ERC 之算法，作較為詳細之介紹。

加州之排放抵換交易計畫實施超過 20 年，雖經多次調整，迄今仍鞏固且有效。自 1975 年以來，該州人口已增加 61%，生產毛額亦由 1980 年的 3000 億美元增至 1998 年的 1 兆美元，但臭氧、一氧化碳及鉛等污染物卻是大幅減少。排放抵換交易制度已被證明可以兼顧工業成長，並誘導先進污染控制技術之開發，為有效之空氣品質管理工具。

此次研習提昇了本人專業知識，並增進負責業務之素養，對於環保署建制中之總量管制及排放抵換交易制度，應可有所貢獻。

壹、目的

本次出國研習係奉行政院環保署選派參加中美基金九十二年度聯合技術協助訓練計畫，前往美國研習「空氣污染物排放許可交易制度」，為期十四天。美國空氣清潔法 1977 年修正案，鼓勵積極發展經濟誘因計畫，以達到改善空氣品質目的。聯邦環保署隨即訂定經濟誘因計畫指導原則，供各州據以擬定經濟誘因計畫。到目前為止，已經有七十多個相關計畫，在美全國各地實施，有針對固定源、移動源或面源者，亦有涵蓋全部污染源者，在使用經濟誘因工具管理空氣品質方面，可說尚無國家或地區能出其右。環保署目前正積極規劃搭配總量管制實施之排放交易制度，因此本次研習乃以「排放交易制度」為主題。選擇在加州，係因為該州空氣品質管理策略及措施，均領先於其他各州，且我國法制及標準又多參採該州做法。時間雖然短暫，但集中在主管加州空氣品質管理業務之空氣資源局 (Air Resource Board，以下簡稱 ARB) 研習，仍能獲得預期成果。

貳、過程

本次研習承蒙曾任職加州 ARB 之旅美環境工程專家梁觀楚博士 (Dr. Steve Leung) 熱忱協助，使 ARB 破例接受了本人為期二週之研習申請 (過去該機關接受之訪客最多停留兩天)。經過行前不斷與 ARB 相關幹部以 e-mail 聯繫討論後，確定了研習期間的行程。對於梁觀楚博士及 ARB 空氣品質管理、固定污染源管制、移動污染源管制等各部門近二十位幹部義務付出時間及精神，接待、傳授寶貴之經驗並贈予豐富之資料，本人深心感念，特誌謝忱。本次研習活動充實、緊湊、且實用，本人受益良多，相信對於往後業務之推動會有很大的幫助。

赴美研習行程表

研習日期、時間 (Visiting Time)	研習地點 (Location)	實際研習機構及訪談對象 (Institutions & Persons to be visited)	研習目的及討論主題 (Topics for Discussion)
92.7.7-9 9:00am-4:00pm	1001 I Street, Sacramento, California 95812, USA	加州空氣資源局 California Air Resource Board(CARB) Diana Caldas; Sylvia Oey; Martin Johnson; Ed Yoter; Lucina Negrete; Beverly Waerner ; Bob Rogen ; Joe Calavita(from Planning & TechnicalSupportDivision, 327-5783); South Coast AQMD staff(video conference)	規劃及技術支援 Planning & Technical Support 污染源排放清單 Emission Inventory 空氣品質模式模擬 Air Quality Modeling 移動污染源管制經濟誘因計畫 Mobile Source Control Incentive Program 新設固定污染源審核及經濟誘因 New Source Review & Economic Incentives 與南海岸空氣品質管理局視訊討論市場機制計畫 Video Conference on Market-based Programs
92.7.10-11 10:00am-12:00pm	同上	加州空氣資源局 CARB 訪談對象同上	與相關人員討論經濟誘因計畫 Discuss with CARB's staff on economic incentive programs
92.7.12-13	週休二日		
92.7.14 9:30am-4:00pm	同上	加州空氣資源局 CARB Rich Vincent; Cory Bock(economist from R&D); Fereidun Feizollahi; Judy Yee; Steve Brisby	創新之清潔空氣技術研究發展 The Innovative Clean Air Technologies Program 消費性產品污染管制經濟誘因 Consumer Products Incentives 燃料管制經濟誘因 Fuels incentives
92.7.15-16	同上	加州空氣資源局 CARB	與相關人員討論排放交易方式 Discuss with CARB's staff on

16 9:30am-1 2:00pm		訪談對象同上	emission trading
92.7.17 9:30am-1 2:00pm	3300 Industrial Blvd. Suite 1000 West Sacramento, CA 95691	燃料電池夥伴聯盟 Fuel Cell Partnership Steve Leung	瞭解燃料電池技術發展狀況 visit FCP for understanding the progress of fuel cell technology
92.7.18 9:30am-2 :00pm		加州大學戴維斯分校圖書 館 U.C.Davis' library Steve Leung	蒐集排放交易相關資料 search for emission trading related informations
92.7.19- 20	返程		

參、心得

一、前言

美國實施之諸多經濟誘因計畫，設計考慮的共通點乃是，在維持傳統空氣品質管理計畫之減量責任(accountability)的同時，增加企業之彈性及成本有效性，大致可歸納為四種類型：

1. 排放交易計畫(Emission trading program)：先決條件是創造可移轉的超額排放減量。排放減量成本對於某些污染源，相對較低，對某些污染源，則可能太高，在這種情形下，這兩類污染源藉由交易達到管制要求，雙方都有益處。
2. 財務機制計畫(Financial mechanism program)：包括污染者按實際排放量付費，污染源為了少繳費用，會設法減少排放；以補貼方式推廣污染減量行為或產品，亦屬財務機制計畫。
3. 清潔空氣投資基金(Clean air investment funds)：這是當排放減量成本過高時，紓解污染源投資壓力之方式。做法乃污染源不需自己減量，付費給基金會，基金經理人由其他污染源取得排放減量替代。
4. 公眾訊息計畫(Public information program)：包括教育性的計畫，例如低污染產品證明、產品標籤、臭氧行動日之宣佈及其他訊息，可供民眾作為選擇產品及要不要進行某些行為之參考。

由於財務機制計畫等三項，不在本次研習範圍，暫不予探討。

以下將依研習部門順序，說明與排放交易有關之研習心得。

二、名詞解釋：

1. 排放減量信用額度(Emission Reduction Credit，以下簡稱 **ERC**)或超額排放減量：指排放減量超過法規或污染防制計畫要求，經主管機關核准可以供抵換者。有時候與 **Offsets**(抵換量)同義。
2. 排放減量信用額度交易(Emission Reduction Credit Trading)：指 ERC 之賣及買，意為使用一污染源之超額排放減量以滿足（或抵換）另一污染源被要求之控制。此時 ERC 被視為可交易之商品。
3. ERC 儲存(Banking)：指一個量化、調整、核證、紀錄之系統，藉由該系統，ERC 可以被儲存，以抵銷未來之增量，或與其內部（自廠）其他排放源合併計算排放量，以符合法規之減量要求。

4.停工(shutdown)：指一個產生污染排放之動作永遠停止。

二、空氣品質管理

空氣品質管理，包含四個部分，空氣品質監測、排放清單、模式模擬及管理策略等，排放交易屬空氣品質管理策略之一部分。

1. 空氣品質監測：加州境內有 40 個監測網站，目的為量測即時之空氣品質，量測數據用於界定污染之屬性、嚴重性及不利於健康之地區，並評估空氣品質改善之進展。
2. 排放清冊：包含來自於交通工具、工業、消費性產品、農業及自然來源之數百種污染源，排放清單是管制方向與策略的基礎。
3. 空氣品質模式模擬：模式需輸入排放、氣候、地形及污染物間化學反應資料。模擬結果用於確認欲符合空氣品質標準之排放減量需求。
4. 空氣品質管理策略：管理策略必須考慮經濟及技術可行性，明定實施日期及預期之排放減量成效，並且是可依法執行的(enforceable)。

管理策略之施行須定期進行進度及技術之評估。

三、固定污染源 E R C

(一)新污染源審查(New Source Review, NSR)帶出之 E R C 抵換交易需求

NSR 適用於未符合空氣品質標準地區，由於大部分空品區都至少有一種污染物未符標準，NSR 成為固定污染源許可審核的一個關鍵因子。NSR 目的是要兼顧空氣品質與工業成長，為達此目的，乃有以下兩個主要的規定：

1. 最佳可行控制技術(Best Available Control Technology, BACT)

AQMD 要求所有可能排放未符標準污染物或其前驅物質達一定規模之新設或變更之排放單元，均須使用 BACT，由 AQMD 負責審核。ARB 則負責管理一個 BACT 數據資料交換所(clearinghouse)，容納自 1985 年開始，加州 BACT 及聯邦最低可達成排放率(lowest achievable emission rate, LAER)相關且可搜尋之資料庫。

2. 沒有淨增量(no net increase)

California Health & Safety Code 要求各地方 AQMD 將 no net

increase 納入 NSR permitting program，俾未符合標準之污染物或其前驅物不再增加。新設或變更之污染源，有排放未符標準污染物超過一定規模之潛勢者，必須提供 ERC 或 offsets (抵換量)，抵銷使用 BACT 後剩餘之排放量。新污染源需要之抵換量，大部分來自工業之減量，不敷使用時，可由移動源或農業之操作，減少排放量 (例如減少田間燃燒或使用較乾淨的農業用機具)，產生可以抵換之 ERC。無論 ERC 來自何種污染源，都必須符合特定基準，才能用為抵換量。主要之基準為：真實的(real)、可量化的(quantifiable)、多減的(surplus)、可依法執行的(enforceable)及永久的(permanent)。所謂 permanent，是指抵換量壽命與使用期相當之意。

一定規模 (加州)

未符標準程度	不能有新增量之門檻(排放規模)	使用 BACT 之門檻	州政府法律
中等 moderate	25 ton/year	25 lb/day	H&SC 40918
嚴重 serious	15 ton/year	10 lb/day	H&SC 40919
很嚴重 severe	10 ton/year	10 lb/day	H&SC 40920
極端嚴重 extreme	0 ton/year	10 lb/day	H&SC 40920.5

備註: South Coast and San Joaquin air districts 須使用 BACT 之門檻已低於 10 lb/day

一定規模 (聯邦)

聯邦不能有新增量(須 offset)之排放規模下限		
聯邦臭氧未符標準地區分類	Facility Size Threshold(tons per year) for Ozone Precursors(NOx and VOCs)	
	Major Source	Major Modification
Marginal/Transitional	100	40
Moderate	100	40
Serious	50	25
Severe(e.g.Sacramento Region)	25	25
Extreme(e.g.South Coast)	10	0

(二) 固定源 ERCs 之產生及登記

1.ERCs 之產生

- 減量超過法規或計畫之要求，包括使用比法規要求更先進之控制技術、提前實施控制及控制豁免之污染源
- 改變操作時數（縮小規模）
- 全部或部分設施停工
停工或縮小規模，須由工廠於規定期限內提出申請，始可獲得 ERC（有操作許可證者，須先交出許可證）。未在規定期限內提出申請者，Credits 歸 priority reserve banks，例如社區銀行。

$$\text{ERC} = \text{historical actual emission} - \text{proposed emission}$$

2. 登記(Registration)

地方主管機關於接獲申請並確認減量數額之後，應核發予原始之 ERC Certificate。ERC Certificate 應包含下列內容：

- 證號
- 產生 surplus emission reductions 之場址
- 發證日期
- 承辦官員簽名
- 所有人（權利人）或代表人姓名
- 操作或使用條件

5. ERC 之移轉（交易）

買方應在賣方簽字移轉之日起 30 日內，檢具移轉證明文件（如移轉契約）送地方主管機關→主管機關審件之後核發新證給買方，如果移轉之後還有剩餘之 ERC，應同時核發剩餘量新證給賣方→主管機關應登錄移轉資料，包括原始 ERC 證號、新的 ERC 證號、新的所有人姓名及地址等。

（三）須抵換之污染物種類與抵換比率

由於加州大部分地區，臭氧及 PM10 不符聯邦及州空氣品質標準，需要抵換之污染物即為臭氧前驅物(NOx 及 VOCs)及 PM10。

典型的抵換，是在同種污染物之間。然而，有許多地方空品局法規，容許不同污染物之間，有限制的抵換（如果可以在技術上修正並且不干擾空氣品質改善進度）。例如適當之 VOC 數量，在某些個案，可

以抵換 NOx 增量，因為兩者均為臭氧前驅物；適當之 SOx 可以在某些個案，抵換 PM10 增量，因為 SOx 是 PM10 之前驅物，通常這些特例都須 case-by-case 運用模式驗證符合限制之條件。這裡強調適當數量，意指空氣品質模式可能決定使用大於 1:1 抵換比率，才是適當的（用來抵換之數量較增加之數量大）。

為確保空氣品質，有些抵換要求一定的比率，特別是在提供抵換量的污染源與使用抵換量的污染源之間，有明顯的距離時（此稱為距離比率）；此外，如前面所述，不同污染物之間的抵換，也會有抵換比率（此稱為污染物間之比率）。空氣品質模式模擬可以被用來建立適當的比率。

聯邦的抵換規定，還附帶規定抵換比率，如下表：

Federal Offset Ratios for Major Sources in Ozone Nonattainment Area	
聯邦臭氧未符標準地區分類	Offset Ratio
Marginal/Transitional	1.1 : 1
Moderate	1.15 : 1
Serious	1.2 : 1
Severe(e.g.Sacramento Region)	1.3 : 1 1.2 : 1*
Extreme(e.g.South Coast)	1.5 : 1 1.3 : 1** 1.2 : 1*

備註：* 空氣品質管理計畫要求依聯邦規定使用 BACT 時適用

** 適用於同一設施內之抵換

（四）ERC 折扣

有些地方法規，授權 AQMD 折扣 ERC，給公共設施及其他 AQMD 推動之計畫。AQMD 因此可以給某些污染源彈性，符合聯邦及州政府抵換之要求，例如，AQMD 可以折扣 10% credits，儲存以供必要的公共設施（包括醫院、學校、下水道污水處理場及監獄）污染增量之抵換。

最近，聯邦環保署有項政策，即使用 ERC 時，要重新評估有無

surplus 當時適用之法規要求。州政府認為這樣做，恐會危害儲存系統(Banking System)的信用，因為污染源對於 credits 未來能否使用或足量使用都無保證。目前 ARB、企業及聯邦環保署正研議中。

四、移動污染源 ERC(Mobile source ERC, 以下簡稱 MERC)

雖然 MERC 為次要的 ERC，且待進一步討論，但自 1990 年代前期開始，ARB 即已發布 MERC 產生及使用之指導原則，並定期更新。MERC 可以因小客車、大客車或其他移動源超額減量而產生，包括購買低污染排放之公車、以較乾淨之引擎替代柴油引擎車或垃圾卡車及經由加速汰舊計畫，移除老舊、高排放車輛。移動源 ERC 與固定源 ERC 最主要之差異，在於 credits 之壽命。固定源 ERC 傳統上生命期是無期限的，移動源 ERC 生命期則有期限，且因減量型態不同而有差異。因為 MERC 的生命期有限，他們被用於抵換永久性質之固定污染源（例如電廠）之排放增量，是勉強的。此外，環境正義倡議者認為 MERC 抵換固定源增量，不能減輕住在固定源附近之民眾的污染影響。縱然如此，移動源減量可以是創造 ERC 的有效策略，例如，與位在 San Diego 之 Otay Mesa 電廠之支持者一起工作，發展出一個利用移動源減量抵換這個新電廠增量的計畫。

(一) MERC 之產生

1. 加速淘汰老舊車輛

加速是關鍵，因此欲使用此途徑取得 MERC 者，必須：

- 證明車輛在實施 MERC 之空品區之監理單位登記至少一年
- 由車主取得放棄該車之證明
- 確定車輛是堪用的（車輛可以其馬力駛至拆解廠且無嚴重碰撞或損害至無法繼續使用）
- 確定車輛至少有：照明功能、剎車功能、排氣功能、保險桿、門、擋泥板

為確保車輛永遠不會再行駛，必須：

- 收購舊車時，破壞其 VIN(Vehicle Identification Number)及牌照。AQMD 須與監理單位研商，決定電子化廢棄車輛之程序。
- 收購舊車時，永久破壞車輛汽缸

- 收購舊車日起三個月內，壓碎車輛剩餘部分(移走可再利用部分，例如門、擋泥板、保險桿等，是被允許的)

MERC 之計算：

計算程序併入一套導自 ARB 之排放清冊模式的假設及數據，從這些模式來的排放率(emission rates)及年里程率(annual mileage rates)，是以許多個別車輛的數據為基礎，因此可以代表平均的車輛。計算 credits，使用平均排放率及平均年里程率較適當。

- 一輛加速淘汰車輛之排放減量計算公式：

$$\text{Per Vehicle Emission Reduction(grams/year)} = [(EX_{\text{ret}} + \text{EVAP}_{\text{ret}}) - (EX_{\text{rep}} + \text{EVAP}_{\text{rep}})] \times \text{Mile}_{\text{ret}}$$

EX_{ret} = average exhaust emission rate for retired vehicle, grams/mile

EVAP_{ret} = average evaporative emission rate for retired vehicle, grams/mile

EX_{rep} = average exhaust emission rate for replacement vehicle, grams/mile

EVAP_{rep} = average evaporative emission rate for replacement vehicle, adjusted for lower retired vehicle mileage, grams/mile(multiply by $\text{MILE}_{\text{rep}} \div \text{MILE}_{\text{ret}}$, 因為舊車行駛里程較低，所以需要調整)

Mile_{ret} = average annual mileage of retired vehicle, miles/year

- 排放率： 淘汰及替代車輛之適當排放率係運用 ARB 之移動源排放清單模式 EMFAC7F/BURDEN7F 計算而得(適用於客車及輕型卡車)，公布格式如下表：

Emission Rates Used to Calculate the Emission Reduction Benefits from Accelerated Retirement Programs				
Model-Year Group	Emission Rates, grams/mile			
	ROG		NOx	CO
	Exhaust	Evap.		
Pre-1982	-	-	-	-
1982-84	-	-	-	-

1985-91	-	-	-	-
1992-02	-	-	-	-
New 2003	-	-	-	-
Fleet Average for 2003	-	-	-	-

· 里程率

淘汰及替代車輛平均之年里程率呈現方式如下表(里程率亦由 EMFAC7F/BURDEN7F 計算而得)：

Average Annual Mileage of Model-Year Groups	
Model-Year Group	Annual Mileage
Pre-1982	-
1982-84	-
1985-91	-
1992-02	-
New 2003	-
Fleet Average in 2003	-

· 依上數計算方式，淘汰舊車獲得之 MERC，如下表：

Emission Reductions per Vehicle Retired(Pounds per Year)			
	ROG	NO _x	CO
Pre-1982	-	-	-
1982-84	-	-	-
1985-91	-	-	-

· Credit 壽命

根據監理單位的數據，ARB 幹部估計 15 年或更老舊的車輛，平均剩餘壽命為 6 年。為確實實現排放減量目的，乃假設參與加速汰舊計畫的車輛，剩餘壽命最多為 3 年。

· 執行

所有加速汰舊計畫都必須有足夠的紀錄保存及監控，以確保真有產生 credits 的活動。保存之紀錄包括登記一年以上、車主放棄其車、引擎已在購車時破壞掉等證明，AQMD 還需定期檢查車輛淘汰場址，以保證所有的拆毀要求均確實做到。

2 · 購買低排放公車(巴士)

此處，NO_x 是唯一可以取得 credit 的污染物。

· credits 計算公式：

$$\text{credits} = \left[\text{emission rate(g/mile) of ceiling standard vehicle} \times 500,000 \text{miles/lifespan} \right] - \left[\text{emission rate(g/mile) of credit standard vehicle} \times 500,000 \text{miles/lifespan} \right]$$

上述公式計算結果，是每輛 bus 之 lifespan(統一認定為 12 年，50 萬 miles)全部減量，因此每年之減量應除以 12。

ceiling standard 及 credit standard 單位為 g/bhp-hr(因為 bus 排放認證以引擎動力計測試為基礎)，須使用轉換係數(Conversion Factor,CF)轉換為 g/mile 值。此轉換係數係由引擎制動油耗、油密度及車輛油耗(miles/gallon or miles/standard cubic foot)計算而得。下表為不同油料之排放轉換係數：

Emission Conversion Factors	
Fuel	CF(bhp-hr/mile)
Diesel	4.3
Methanol	4.3
Natural Gas	4.1

為了 credit 產生之目的，引擎製造商必須取得 ARB 之低污染引擎認證，且必須負修復責任(如果因製造的問題致排放超過 credit standard certification level)，直到該引擎使用至 29 萬 miles 為止。

製造商還必須提供底盤與引擎動力測試結果之適當的相關係數。

3. 購買零排放車輛(Zero-Emission Vehicle, ZEV)

州政府的低排放車輛規則(low emission vehicle regulations)要求，自 1994 至 2003 車型年，製造商應符合逐步加嚴之車隊平均排放非甲烷有機氣體(non-methane organic gas, NMOG)標準，此外，自 1998 車型年開始，主要的車輛製造商還須生產至少一定比例的 ZEVs(從 1998 年之 2% 漸增至 2003 年之 10%)。這些規定允許製造商在 1998 之前生產 ZEVs，或超過規定的比例，以賺取 credits，這些 credits 可以儲存自用或轉賣給其他製造商。雖然 ZEV 規定不適用於中型車輛，製造商亦可生產中型 ZEVs，賺取 credits。

· credits 之計算：

購買 ZEV 之減量立基於一輛新的排放車輛平均排放率與一輛 ZEV 之不同。ARB 幹部假設一輛 “average” 新車之排放等於平均之車型年排放率。為了計算的目的，此 average new car 被稱為 “baseline vehicle”，baseline vehicle 之排放率反映參與計畫當年可以買到之車輛混合排放率。下表說明用來計算車型年 1996 至 2003 年之 baseline vehicle 排放率的 vehicle mix：

Vehicle Mix Used to Calculate Average Emission Rates ^A					
Model Year	NMHC ^B	TLEV	LEV	ULEV	ZEV
	0.25	0.125	0.075	0.040	0.000
1996	80%	20%			
1997	73%		25%	2%	
1998	48%		48%	2%	2%
1999	23%		73%	2%	2%
2000			96%	2%	2%
2001			90%	5%	5%
2002			85%	10%	5%
2003			75%	15%	10%

註 A：TLEV=transitional-low-emission vehicle,LEV=low-emission vehicle, ULEV=ultra-low-emission vehicle, ZEV=zero-emission vehicle, 在下面之數字為適用之 g/mi NMOG 標準

註 B：NMHC 為 NMOG 之當量

以 10 年 100,000-mile 有用之壽命，運用 EMFAC7F/BURDEN7F 移動源排放清單模式計算 baseline vehicle 排放率(g/mile)結果如下表：

Emission from a Baseline Vehicle for Each Calendar Year (average over 100,000 miles)				
Model Year	Ex+RL NMOG ^A (g/mi)	Evap NMOG ^B (g/day)	NO _x (g/mi)	CO (g/mi)
1996	0.41	2.0	0.60	2.9
1997	0.28	1.7	0.52	2.7
1998	0.22	0.91	0.44	2.5
1999	0.17	0.91	0.36	2.3
2000	0.11	0.91	0.30	2.1
2001	0.11	0.91	0.29	2.1
2002	0.11	0.91	0.29	2.1
2003	0.10	0.91	0.28	1.9

註 A：Exhaust plus running loss emissions

註 B：Evaporative emission

廢氣(Exhaust),蒸發(Evaporative)及行駛揮發(Running Loss)之排放減量：

(emission rate of baseline vehicle not purchased because a ZEV was purchased instead)×(number of ZEVs purchased)

ZEV Credit= Exhaust, Evaporative and Running Loss Emission Reductions+Gasoline Marketing Emission Reductions

ARB 估計每輛電動車每年可以減少汽油輸送過程之 ROG 排放約 2 pounds

Credit Life

購買一輛 ZEV 之 emission credits 有 10 年壽命，這是呼應 ZEV 之預期壽命。

(二) MERC 之申請與核發

1. 申請者須提出數據及定量方法，說明所提排放減量為真實之減量
2. 建議 MERC 壽命
3. 如果申請文件完全符合規定且有真實之排放減量，主管機關即核發 MERC 證，內容包含：
 - 所有人姓名
 - 證號
 - 核發日期
 - 污染物種類及減量數額（以每年多少 bounds 表示）
 - MERC 證有效期限
 - MERC 壽命及可能失效之情況
 - 承辦官員簽名

(三) MERC 之償付

1. 10/13 歸所有人
2. 2/13 為空氣品質利益
3. 1/13 歸有特殊條件之帳號

五、成本及可用之抵換量 (Cost and Availability of Offsets)

offsets 可以由一個人創造並在公開的市場賣給另一個人，如同其他商品一樣，其供需會影響其價格。在加州，不同的區域對於 offsets 的供需

不同，因此價格亦有差異。每年 ARB 會彙整各 AQMD 收集之 offsets 交易資料。例如 2000 年資料，最低為一氧化碳，平均每噸\$8000，最高為氮氧化物，每噸\$19000。值得注意的是，買 offsets 的人並非買“排放的權利”，州法律特別規定“offsets do not constitute property”，因此 AQMD 可能會刻意減少 offsets 之價值，或為了空氣品質的緣故，延期償付。

新電廠對於 offsets 的需求量大，倘可用之 offsets 不夠，可能成為新設施設置的障礙。此時，由既存電廠將較舊的設備改裝，以較乾淨的技術替代，是產生 offsets 的機會。

Offsets 經常是非常昂貴且可能不易取得，然而，分佈在不同地點的許多電廠都已成功的取得需要的 offsets，抵換的要求並沒有阻礙電廠的建造。目前，有些 AQMD 有充足的 offsets 儲存，可供電廠設置，但在南海岸空品區就不同了，SCAQMD（南海岸空氣品質管理局）預測未來 PM10 offsets 將會短缺，除非有更多的 offsets 產生。聖地牙哥縣空氣污染控制局因為儲存之 offsets 短缺，已藉由減少移動源排放量產生 offsets，容納大型電廠之設置。

戴維斯州長於 2001 年 2 月 8 日簽署了一系列的執行命令，其中之 D-24-01 包含允許既存電廠以抵換的方式增加操作量，及裝置新的尖峰單元以因應夏季用電的需求。在此命令下，AQMD 必須修正許可證，允許既存電廠增加操作時數，但電廠必須為增加之排放量向 AQMD 繳納費用（稱為 mitigation fee）。

六、ERC 交易價格資料

加州規定各 AQMD 應收集交易相關資訊，包括每筆交易之每噸交易金額、交易之污染物種類、數量及年份，並每年發佈這些資訊（惟不洩漏交易者身份），以提供業界及有興趣之團體評估其購買抵換量(offsets) 需要付出之代價。AQMD 還須陳報資料給 ARB，由 ARB 彙整為年度報告，交易年報可以讓人了解加州的排放交易市場型態及件數。以 2002 年為例，陳報之交易案共有 321 件，扣掉 17 件與價格無關案件，其餘 304 件中，42 件為 NO_x，164 件為 HC，53 件為 PM10，27 件為 CO，18 件為 SO_x。就 NO_x 而言，平均交易價格為每噸 35,261 美元，最高每噸 140,000 美元，最低每噸 990 元，中間價位每噸 30,000 美元；HC 平均、中間、最高、最低價位

分別為 9,633、8,630、70,000、485 美元；PM10 則分別為 49,327、20,000、136,986、3,289 美元。

過去十年（1993-2002 年），交易件數從 1993 年之 30 件，增加至 2001 年之 495 件，但 2002 年又降至 321 件。

七、加州排放抵換交易計畫進行成效

加州之排放抵換計畫實施已超過 20 年，雖經多次調整，迄今仍鞏固及有效。自 1975 年以來，加州人口已增加 61%，生產毛額亦由 1980 年的 3000 億美元增至 1998 年的 1 兆美元，但臭氧、一氧化碳及鉛等污染物卻是大幅減少。排放抵換要求已被證明可以兼顧工業成長，排放抵換要求亦提供一個使用先進污染控制技術的誘因，例如，大型電廠因該誘因，將 NO_x 排放降低至 2~2.5ppm。ARB 承認可用來抵換之排放量有時候不易取得，在某些地方會造成困擾，因此該機關正朝有創意的策略努力，例如從移動源產生抵換量。

肆、建議

- 一、 排放交易抵換，仍不脫離供需理論，美國政府以法令規定在空氣品質不符標準地區，新增污染必須取得足夠之抵換量抵換，即創造了需求，誘使既存污染源努力減量，可以供應(販賣)抵換量，兼顧了空氣品質與供工業成長。我國空氣污染防制法雖亦有抵換要求，但將其置於複雜的總量管制制度，使一個單純的制度受到牽制。建議參考美國的做法，在不符空氣品質標準的三級防制區實施 no net increase 制度，以加速改善空氣品質。
- 二、 欲實施排放抵換交易制度，必須先建置 ERC 儲存系統，建議環保署儘速確定可以產生 ERC 之來源，並訂定污染量計算方式與提領、使用規則，建立 ERC 儲存系統。
- 三、 加州政府在排放抵換交易上，係採取開放制度，ARB 僅負責訂定 ERC 計算及使用規則，各 AQMD 僅就買賣雙方交易之污染物種類、數量與價格予以登記，定期公布相關資訊，不定期查核。因此彈性較大，行政成本亦不致過高，值得我國效尤。
- 四、 國內自九十二年實施之三級防制區管制，規定在一、二、三級防制區內設置排放量達一定規模之污染源，須以空氣品質模式模擬證明不

超過污染物容許增加之濃度限值。這是與美國的 PSD(避免空氣品質明顯劣化)相當之制度，但美國 PSD 制度僅適用於空氣品質未超過標準地區。我國在不符空氣品質標準之三級防制區亦實施 PSD 制度，不僅邏輯上不合理，也增加廠商沉重之跑模式費用負擔，建議在一、二級防制區(空氣品質未超過標準地區)實施 PSD 制度，在三級防制區實施 no net increase 制度。

- 五、 排放清單是排放交易及空氣品質管理策略與策略成敗評估之基礎，其重要性可以想見。美國聯邦環保署建立了一套明確之污染源歸類代碼系統(SCC)及污染排放係數，由 ARB 對其掌握之排放清單的自信程度，研判其污染源代碼系統已奏效。反觀我國，多年來耗費龐大經費建置排放清單，卻常出現不同機關/顧問公司或同機關/顧問公司不同人提出之排放推估資料落差極大的情形。建議統一採用美國 SCC 代碼系統進行污染源歸類，並暫時沿用其排放係數(俟有本土之排放係數，再予取代)。此外，應加強參與污染源排放資料庫及清單資料庫建置之人員專業訓練。
- 六、 許多消費性產品，例如塗料、溶劑、髮膠、噴霧劑等，含高比例揮發性有機物(VOC)，且使用量大，係 VOC 的重要來源，美國對於這些消費性產品之成分已有完整之規範。我國空氣品質亦以臭氧問題最為嚴重，對於這些個別量小，但使用面廣大的消費性產品，應立即採取管理措施，以有效減少臭氧前驅物- VOC。建議先進行市售含 VOC 之消費性產品調查檢驗，依 VOC 種類及含量訂定管制優先順序及時程表。

伍、附件

附件一：空氣品質標準

附件二：

- 1.加州固定污染源設置許可申請程序：Figure 1.
- 2.加州固定污染源操作許可請程序：Figure 2
- 3.設置許可核發之評估：Authority to Construct Evaluation
- 4.設置許可樣本：Authority to Construct

5.操作許可樣本：Permit to Operate

附件三：

1. 儲存及抵換系統與收集發布交易價格之規定：

- H & S；40709 District Banking and Offset System
- H & S；40709.5 Review of Emission Credit System
- Government Code Section 6254.7

**2. AQMD 陳報交易資料之格式及填寫說明：Annual Emission Reduction
Credit Transaction Report Instruction**

附件一

Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards ¹		Federal Standards ²			
		Concentration ³	Method ⁴	Primary ^{3,5}	Secondary ^{3,6}	Method ⁷	
Ozone (O ₃)	1 Hour	0.09 ppm (180 µg/m ³)	Ultraviolet Photometry	0.12 ppm (235 µg/m ³) ⁸	Same as Primary Standard	Ultraviolet Photometry	
	8 Hour	—		0.08 ppm (157 µg/m ³) ⁸			
Respirable Particulate Matter (PM ₁₀)	24 Hour	50 µg/m ³	Gravimetric or Beta Attenuation*	150 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis	
	Annual Arithmetic Mean	20 µg/m ³ *		50 µg/m ³			
Fine Particulate Matter (PM _{2.5})	24 Hour	No Separate State Standard		65 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis	
	Annual Arithmetic Mean	12 µg/m ³ *	Gravimetric or Beta Attenuation	15 µg/m ³			
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 mg/m ³)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m ³)	None	Non-Dispersive Infrared Photometry (NDIR)	
	1 Hour	20 ppm (23 mg/m ³)		35 ppm (40 mg/m ³)			
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m ³)		—			
Nitrogen Dioxide (NO ₂)	Annual Arithmetic Mean	—	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m ³)	Same as Primary Standard	Gas Phase Chemiluminescence	
	1 Hour	0.25 ppm (470 µg/m ³)		—			
Sulfur Dioxide (SO ₂)	Annual Arithmetic Mean	—	Ultraviolet Fluorescence	0.030 ppm (80 µg/m ³)	—	Spectrophotometry (Parafosaniline Method)	
	24 Hour	0.04 ppm (105 µg/m ³)		0.14 ppm (365 µg/m ³)			
	3 Hour	—		—			0.5 ppm (1300 µg/m ³)
	1 Hour	0.25 ppm (655 µg/m ³)		—			—
Lead ⁹	30 Day Average	1.5 µg/m ³	Atomic Absorption	—	Same as Primary Standard	High Volume Sampler and Atomic Absorption	
	Calendar Quarter	—		1.5 µg/m ³			
Visibility Reducing Particles	8 Hour	Extinction coefficient of 0.23 per kilometer — visibility of ten miles or more (0.07 — 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		No Federal Standards			
Sulfates	24 Hour	25 µg/m ³	Ion Chromatography*				
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m ³)	Ultraviolet Fluorescence				
Vinyl Chloride ⁹	24 Hour	0.01 ppm (26 µg/m ³)	Gas Chromatography				

* On June 20, 2002, the Air Resources Board approved staff's recommendation to revise the PM₁₀ annual average standard to 20 µg/m³ and to establish an annual average standard for PM_{2.5} of 12 µg/m³. These standards will take effect on July 5, 2003. Information regarding these revisions can be found at <http://www.arb.ca.gov/research/aaqs/std-rs/std-rs.htm>.

See also footnotes on next page ...

California Air Resources Board (6/12/03)

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter—PM10, PM2.5, and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eight hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when 99 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact U.S. EPA for further clarification and current federal policies.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. Any equivalent procedure which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.
5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7. Reference method as described by the EPA. An “equivalent method” of measurement may be used but must have a “consistent relationship to the reference method” and must be approved by the EPA.
8. New federal 8-hour ozone and fine particulate matter standards were promulgated by U.S. EPA on July 18, 1997. Contact U.S. EPA for further clarification and current federal policies.
9. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

California Air Resources Board (6/12/03)

**Nonattainment Areas for the
State and Federal Ozone, Carbon Monoxide, and Particulate Matter Standards**

Ozone (One-Hour Standard)

Area	Federal Classification	Federal Attainment Date	State Classification
South Coast	Extreme	2010	Extreme
Southeast Desert	Severe-17	2007	Moderate/Extreme ¹
Sacramento Region (Sacramento, western Placer, western El Dorado, Colusa, southern Sutter, and eastern Solano Counties)	Severe-15	2005	Serious
San Francisco Bay Area	Nonattainment (not classified)	2006	Serious
San Joaquin Valley	Severe-15 (pending voluntary bump-up to Extreme)	2005 (2010 after bump up)	Severe
Santa Clara County	Severe-15	2005	Severe
Kern District (Eastern Kern County)	Serious ²	1999	Moderate
San Diego County	Serious ²	1999	Serious
Santa Barbara County	Serious ²	1999	Moderate
Butte County	Transitional nonattainment ²	Not applicable	Moderate
Imperial County	Transitional nonattainment	Not applicable	Moderate
Northern Sutter and Yuba Counties	Transitional nonattainment ²	Not applicable	Moderate
Colusa County	Unclassifiable/attainment	Not applicable	Transitional
Glenn County	Unclassifiable/attainment	Not applicable	Transitional
Monterey District	Attainment	Not applicable	Moderate
Mountain Counties (including eastern El Dorado and Placer Counties)	Unclassifiable/attainment	Not applicable	Nonattainment ²
Northern Sonoma District	Unclassifiable/attainment	Not applicable	Nonattainment (no classification specified)
San Luis Obispo County	Unclassifiable/attainment	Not applicable	Moderate
Shasta County	Unclassifiable/attainment	Not applicable	Moderate
Tehama County	Unclassifiable/attainment	Not applicable	Moderate

The Antelope Valley portion of the Desert is currently classified as extreme for the State standard because the area had been part of the South Coast District prior to the creation of the Antelope Valley Air District. A request to reclassify the area as moderate is pending. The San Bernardino portion of the Southeast Desert is classified moderate for the State standard. The Coachella portion of the Southeast Desert is classified extreme for the State standard.

Butte County, northern Sutter/Yuba Counties, and Santa Barbara County have redesignation requests and maintenance plans pending with U.S. EPA because they attain the federal ozone standard. San Diego County and Eastern Kern County also attain the federal ozone standard. Redesignation requests and maintenance plans will be submitted to U.S. EPA shortly.

No planning requirements due to overwhelming transport. Plumas and Sierra Counties are unclassified due to lack of monitoring data.

Carbon Monoxide

Area	Federal Classification	Federal Attainment Date	State Classification
South Coast	Serious	2000	Serious
City of Calexico in Imperial County	Unclassified/attainment	Not applicable	Nonattainment (no classification specified)

PM10

State PM10 Standard

The entire state is nonattainment for the state PM10 standard with the exception of Lake County, which is attainment, and Amador, Mariposa, and Tuolumne Counties, which are all unclassified due to lack of monitoring data.

Federal PM10 Standard

Area	Classification	Attainment Date ¹
South Coast	Serious	2006 (pending U.S. EPA approval of extension request)
Owens Valley	Serious	2006 (with extension)
Coachella Valley	Serious	2001
San Joaquin Valley	Serious	2001
Coso Junction ³	Moderate	1994
Imperial Valley	Moderate	1994
Indian Wells ³	Moderate	1994
Mammoth Lakes	Moderate	1994
Mono Basin	Moderate	1999 ²
Sacramento County ⁴	Moderate	2000
San Bernardino County	Moderate	2000
Trona ³	Moderate	1994

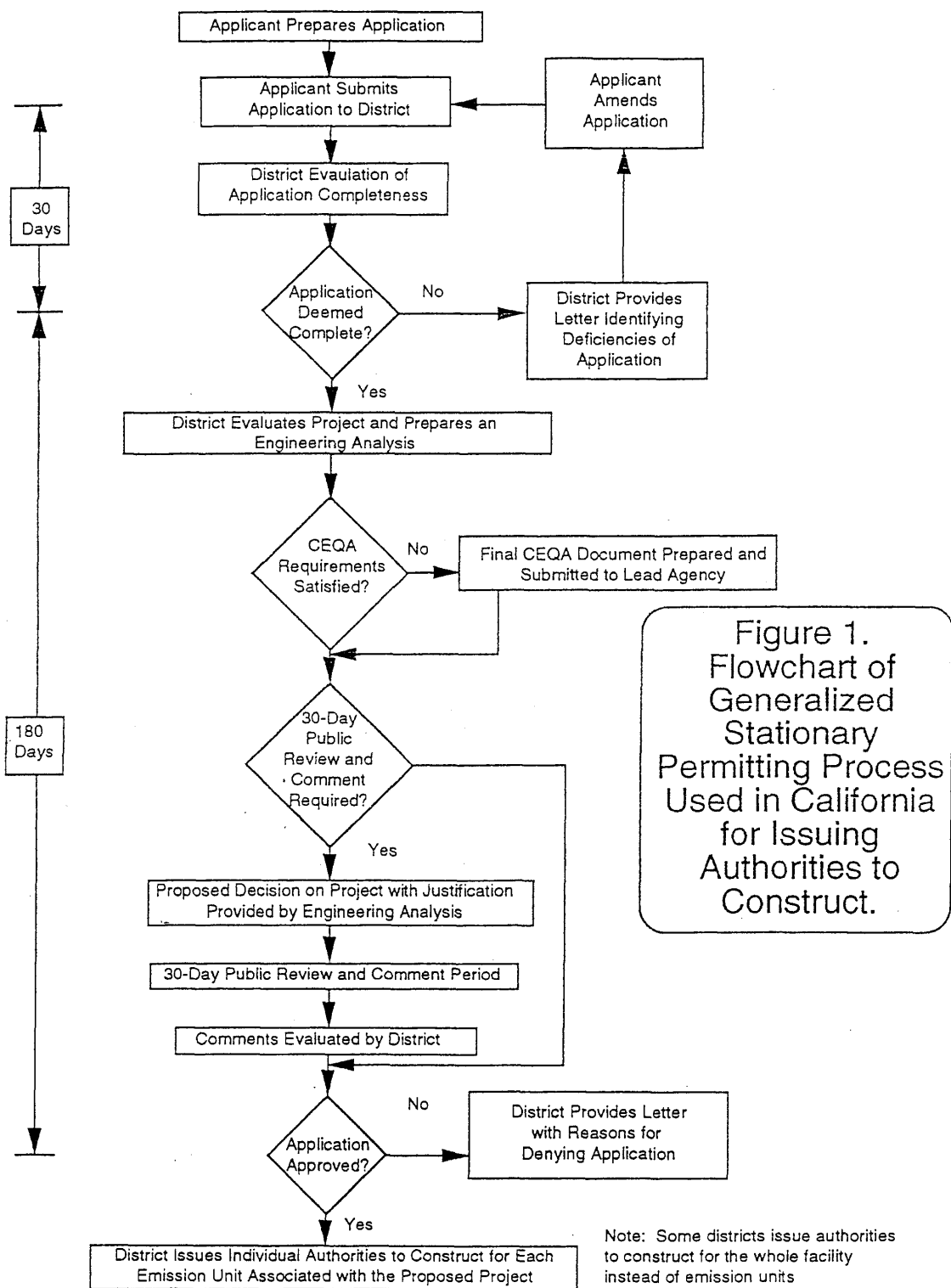
¹ Areas originally designated nonattainment in 1990 were classified as moderate with an attainment date of 1994. Some areas were reclassified as serious with attainment dates of 2001 because they were not able to demonstrate attainment by 1994. Serious areas unable to demonstrate attainment by the statutory deadline were able to request a one time, five year extension of their attainment date to 2006. Areas designated after 1990 (Mono, Sacramento, and San Bernardino) were classified as moderate with attainment dates six years after designation.

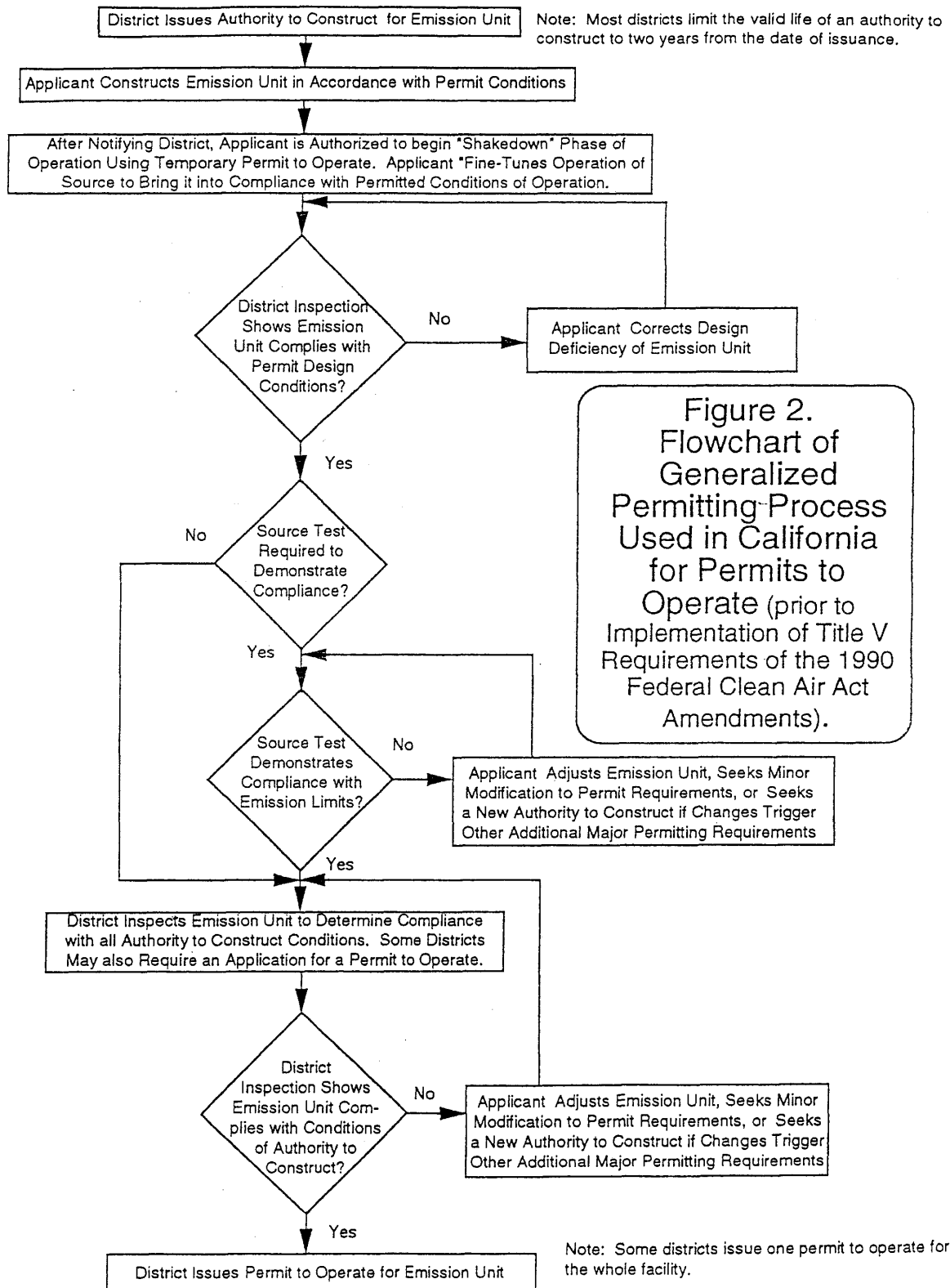
² While the statutory attainment data for the Mono Basin is 1999, the plan provides for attainment by 2020 because the control strategy involves raising the level of Mono Lake.

³ The Searles Valley nonattainment area has been split into the Indian Wells (Eastern Kern County), Trona (San Bernardino County) and Coso Junction (Inyo County) nonattainment areas. A redesignation request and maintenance plan for Trona has been submitted to U.S. EPA. A redesignation request and maintenance plan for Indian Wells will be submitted to U.S. EPA shortly.

⁴ Sacramento attains the federal PM10 standard. U.S. EPA is preparing a finding of attainment.

附件二





**AIR QUALITY
MANAGEMENT DISTRICT****AUTHORITY TO CONSTRUCT EVALUATION**

APPLICATION NO.:	99999
DATE:	July 1, 2003
EVALUATION BY:	Allan Daly

A. FACILITY NAME: XXXXX XXXXX

B. LOCATION OF EQUIPMENT: 9999 XXXXX DRIVE, SACRAMENTO, CA 95833

C. PROPOSAL:

Installation and operation of a 610 HP Caterpillar diesel-fueled IC engine for emergency electrical power generation.

D. INTRODUCTION:

The applicant is proposing to install an IC engine, to operate an electrical generator during emergency power conditions. The IC engine will be operated a maximum of 100 hours per year for maintenance purposes and a maximum of 200 hours per year for maintenance and emergency combined.

E. FLOW DIAGRAM: Not applicable.

F. EQUIPMENT DESCRIPTION:

Manufacturer:	Caterpillar
Model Number:	3456 ATAAC
Serial No.:	3PG00490
Description:	4-Cycle, After Cooled
Engine BHP:	692 @ 1,800 RPM
Fuel Type:	Diesel
Use:	Emergency Electrical Generator

G. CONTROL EQUIPMENT EVALUATION:

The IC engine is designed to meet current SMAQMD emission standards

H. PROCESS RATE:

The maximum allowed operating hours for maintenance purposes will be 100 hours/year. Total operation, maintenance and emergency, will be limited to 200 hours per year.

I. OPERATING SCHEDULE: Operation for maintenance purposes and emergency power as needed up to the permitted limit.

J. EMISSIONS CALCULATIONS:

1. HISTORIC POTENTIAL TO EMIT:

This is a new emissions unit therefore Historic Potential to Emit = 0.

2. PROPOSED POTENTIAL TO EMIT: Emission factor for PM10 is based on T-BACT. Emission factors for NOx and ROC are based on BACT limits. CO and SOx are based on AP-42 (10/96). SOx emissions are based on 0.05% sulfur by weight in the fuel.

Pollutant	Emission Factor (A) g/hp-hr	Proposed Emissions	
		lb/quarter (B)	lb/year (B)
ROC	1.0	305	305
NOx	6.9	2,105	2,105
SOx	1645	50	50
PM10	1	31	31
CO	8.5	2,593	2,593

A - Emission factor for PM10 is based on T-BACT. Emission factors for NOx and ROC are based on BACT limits. CO and SOx are based on AP-42 (10/96). SOx emissions are based on 0.05% sulfur by weight in the fuel.
B - Emissions based on 692 hp, 200 hours/quarter and 200 hours/year of operation.

3. CALCULATION OF BACT TRIGGER:

NEI (BACT) = Net Emissions Increase
= Proposed Potential to Emit - Historic Potential to Emit

MPE = Maximum Potential Emissions on a 24-Hour Day Operation

Pollutant	NEI (BACT) lb/qtr	Is NEI (BACT) >0?	MPE lb/day	BACT Trigger lb/day	Is BACT Required?
ROC	305	Yes	36.6	> 10	Yes
NOx	2,105	Yes	252.6	>10	Yes
SOx	50	Yes	6.0	>10	Yes
PM10	31	Yes	3.7	>10	Yes
CO	2,593	Yes	311.2	>550	Yes

4. CALCULATION OF OFFSET TRIGGER FOR ROC AND NOx:

Pursuant to Rule 202, Section 110, this emissions unit is exempt from the requirement to provide emission offsets. Therefore, offset trigger calculations will not be performed.

5. CALCULATION OF OFFSET TRIGGER FOR SOx, PM10 AND CO:

Pursuant to Rule 202, Section 110, this emissions unit is exempt from the requirement to provide emission offsets. Therefore, offset trigger calculations will not be performed.

6. CALCULATION OF EMISSION OFFSETS FOR ROC AND NOx: Offsets are not applicable to IC engines for emergency use.

7. CALCULATION OF EMISSION OFFSETS FOR SOx, PM10 AND CO: Offsets are not applicable to IC engines for emergency use.

K. COMPLIANCE WITH RULES AND REGULATIONS:

1. AB 3205 COMPLIANCE: There are no schools within 1000 feet of the IC engine. Therefore, this rule is not applicable.

2. NSR COMPLIANCE:

Rule 202 - New Source Review

Section 301 - BACT BACT applicability was determined pursuant to this section of Rule 202. Where applicable, BACT was established by reviewing the Best Available Control Technology determination outlined in the SMAQMD Engineering Manual:

- ROC: ROC emissions exceed 10 lb/day. BACT is therefore required. The proposed ROC emissions rate meets the District's 1.0 g/hp-hr BACT standard
- NOx: NOx emissions exceed 10 lb/day. BACT is therefore required. The proposed NOx emissions rate meets the District's 6.9 g/hp-hr BACT standard
- SOx: SOx emissions exceed 10 lb/day. BACT is therefore required. The engine will be required to be fired only with fuel containing less than 0.05% sulfur by weight
- PM10: PM10 emissions exceed 10 lb/day. BACT is therefore required. The proposed emissions rate meets the District's 0.1 g/hp-hr BACT standard
- CO: CO emissions exceed 550 lb/day. BACT is therefore required. The proposed emissions rate meets the District's 8.5 g/hp-hr BACT standard

Section 302 - Offsets Emergency electrical generating, flood control, and fire fighting equipment is exempt from the requirement to provide emission offsets by Section 110 provided the following conditions are met:

1. Operation for maintenance purposes is limited to 100 hours per year, and such maintenance shall be scheduled in cooperation with the District so as to limit air quality impact, and
2. Operation of the equipment shall be limited to a total of 200 hours per year, and
3. Operation of the equipment shall not be for supplying power to a serving utility for distribution on the grid, and
4. Operation for other than maintenance purposes shall be limited to actual interruptions of electrical power by the serving utility or emergency water pumping for flood control or fire fighting, or
5. Operation for other than maintenance purposes shall be limited to maintaining the safety and preserving the integrity of nuclear power generating systems.

Conditions will be placed on the Authority to Construct indicating these limitations.

3. PSD COMPLIANCE: Not applicable

4. PROHIBITORY RULES COMPLIANCE

Rule 401 - Ringelmann Chart

Visible emissions are expected to comply with the 20% opacity requirement of this rule.

Rule 406 - Specific Contaminants

The emission units are expected to comply with the emissions limit of 0.2% by volume sulfur compound as SO₂ and 0.1 gr/dscf of other combustion gases calculated to 12% CO₂.

Rule 412 - Stationary IC Engines Located at Major Stationary Sources of NOx

This rule is not applicable because this facility is not a major NOx source.

Rule 420 - Sulfur Content of Fuels

The State of California regulated sulfur content of diesel no. 2 motor fuel (<0.05%) should meet the 0.5% sulfur content requirement of this rule.

5. NSPS COMPLIANCE: Not applicable.

6. NESHAP COMPLIANCE: Not applicable

L. RECOMMENDATION:

Issue Permit to Construct for the IC engine subject to conditions to assure compliance with all applicable rules and regulations.

Operating Conditions are outlined in the Permit to Construct.

PREPARED BY: Allan Daly

DATE: July 1, 2003

REVIEWED BY: Not Applicable - Computer Generated Report

AIR QUALITY
MANAGEMENT DISTRICT

AUTHORITY TO CONSTRUCT

VC NO.: 99999

ISSUED BY: ALLAN DALY

DATE ISSUED: JULY 1, 2003

DATE EXPIRED: JULY 1, 2003

ISSUED TO: XXXXX XXXXX

LOCATION: 9999 XXXXXX DRIVE, SACRAMENTO, CA 95833

PERMIT NO.:	DESCRIPTION:
99999	IC ENGINE, CATERPILLAR, MODEL NO. 3456 ATAAC, SERIAL NO.3PG00490, 692 BHP @ 1,800 RPM, DIESEL FUELED, DRIVING AN EMERGENCY ELECTRICAL GENERATOR.

AUTHORITY TO CONSTRUCT CONDITIONS

GENERAL

1. THE EQUIPMENT SHALL BE PROPERLY MAINTAINED.
2. THE AIR POLLUTION CONTROL OFFICER AND/OR AUTHORIZED REPRESENTATIVES, UPON THE PRESENTATION OF CREDENTIALS, SHALL BE PERMITTED:
 - A. TO ENTER UPON THE PREMISES WHERE THE SOURCE IS LOCATED OR IN WHICH ANY RECORDS ARE REQUIRED TO BE KEPT UNDER THE TERMS AND CONDITIONS OF THIS AUTHORITY TO CONSTRUCT, AND
 - B. AT REASONABLE TIMES TO HAVE ACCESS TO AND COPY ANY RECORDS REQUIRED TO BE KEPT UNDER THE TERMS AND CONDITIONS OF THIS AUTHORITY TO CONSTRUCT, AND
 - C. TO INSPECT ANY EQUIPMENT, OPERATION, OR METHOD REQUIRED IN THIS AUTHORITY TO CONSTRUCT, AND
 - D. TO SAMPLE EMISSIONS FROM THE SOURCE OR REQUIRE SAMPLES TO BE TAKEN.
3. THIS PERMIT DOES NOT AUTHORIZE THE EMISSION OF AIR CONTAMINANTS IN EXCESS OF THOSE ALLOWED BY DIVISION 26, PART 4, CHAPTER 3, OF THE CALIFORNIA HEALTH AND SAFETY CODE OR THE RULES AND REGULATIONS OF THE AIR QUALITY MANAGEMENT DISTRICT.
4. A LEGIBLE COPY OF THIS AUTHORITY TO CONSTRUCT SHALL BE MAINTAINED ON THE PREMISES WITH THE EQUIPMENT.

EMISSION LIMITATIONS

1. THE IC ENGINE SHALL NOT DISCHARGE INTO THE ATMOSPHERE ANY VISIBLE AIR CONTAMINANTS OTHER THAN UNCOMBINED WATER VAPOR, FOR A PERIOD OR PERIODS AGGREGATING MORE THAN THREE MINUTES IN ANY ONE HOUR, WHICH ARE AS DARK OR DARKER THAN RINGELMANN NO. 1 OR EQUIVALENT TO OR GREATER THAN 20% OPACITY.

AIR QUALITY
MANAGEMENT DISTRICT
AUTHORITY TO CONSTRUCT
(CONTINUED)

A/C NO.: 99999

6. THE EMISSIONS FROM THE IC ENGINE SHALL NOT EXCEED THE FOLLOWING LIMITS:

POLLUTANT	EMISSION FACTOR (A) G/HP-HR	MAXIMUM ALLOWABLE EMISSIONS	
		POUNDS/QUARTER (B)	POUNDS/YEAR (B)
ROC	1.0	305	305
NOx	6.9	2,105	2,105
SOx	.1645	50	50
PM10	.1	31	31
CO	8.5	2,593	2,593

A - EMISSION FACTOR FOR PM10 IS BASED ON T-BACT. EMISSION FACTORS FOR NOx AND ROC ARE BASED ON BACT LIMITS. CO AND SOx ARE BASED ON AP-42 (10/96). SOx EMISSIONS ARE BASED ON 0.05% SULFUR BY WEIGHT IN THE FUEL.

B - EMISSIONS BASED ON 692 HP, 200 HOURS/QUARTER AND 200 HOURS/YEAR OF OPERATION.

EQUIPMENT OPERATION

7. THE IC ENGINE SHALL OPERATE ONLY FOR THE FOLLOWING PURPOSES AND SHALL NOT OPERATE MORE THAN THE FOLLOWING HOURS:

TYPE OF OPERATIONAL HOURS	MAXIMUM ALLOWABLE OPERATION		
	HOURS/DAY	HOURS/QUARTER	HOURS/YEAR
MAINTENANCE PURPOSES (A)	1 (B)	100	100
MAINTENANCE PURPOSES PLUS ACTUAL INTERRUPTION OF POWER BY THE SERVING UTILITY (C)	N/A	200	200

A - MAINTENANCE PURPOSES IS DEFINED AS: THE OPERATION OF AN IC ENGINE IN ORDER TO PRESERVE THE INTEGRITY OF THE IC ENGINE, ITS ASSOCIATED GENERATOR OR THE FACILITY'S ELECTRICAL DISTRIBUTION SYSTEM.

B - LIMITED TO A MAXIMUM OF ONE (1) HOUR PER DAY IF THE AIR QUALITY INDEX (AQI) IS GREATER THAN 75 IN ORDER TO MINIMIZE ADVERSE AIR QUALITY IMPACT. THIS REQUIREMENT SHALL NOT APPLY TO SCHEDULED MAINTENANCE OF THE ELECTRICAL DISTRIBUTION SYSTEM. THE EXPECTED AQI LEVEL CAN BE OBTAINED A DAY IN ADVANCE BY CALLING THE DISTRICT BETWEEN 3:15 PM AND 5:00 PM.

C - ACTUAL INTERRUPTION OF POWER IS DEFINED AS: WHEN ELECTRICAL SERVICE FROM THE SERVING UTILITY IS INTERRUPTED BY AN UNFORESEEABLE EVENT.

8. THE IC ENGINE SHALL BE EQUIPPED WITH A NON-RESETTING HOUR METER TO ENSURE COMPLIANCE WITH CONDITIONS NO. 6 AND NO. 7.
9. UPON REQUEST OF THE AIR POLLUTION CONTROL OFFICER, ONCE EACH YEAR, DURING DAYLIGHT HOURS, THE IC ENGINE SHALL BE RUN AT MAXIMUM ANTICIPATED LOAD, FROM A COLD START CONDITION, FOR OBSERVATION OF COMPLIANCE WITH OPACITY LIMITATIONS.

AIR QUALITY
MANAGEMENT DISTRICT
AUTHORITY TO CONSTRUCT
(CONTINUED)

VC NO.: 99999

RECORD KEEPING

10. THE FOLLOWING RECORD SHALL BE CONTINUOUSLY MAINTAINED ONSITE FOR THE MOST RECENT THREE YEAR PERIOD AND SHALL BE MADE AVAILABLE TO THE AIR POLLUTION CONTROL OFFICER UPON REQUEST. QUARTERLY AND YEARLY RECORDS SHALL BE MADE AVAILABLE WITHIN 30 DAYS FOLLOWING THE END OF THE QUARTER AND YEAR, RESPECTIVELY.

FREQUENCY	INFORMATION TO BE RECORDED
WHEN OPERATED	A. DATE B. PURPOSE - EITHER MAINTENANCE OR EMERGENCY POWER C. NUMBER OF HOURS OF OPERATION
WHEN OPERATED FOR MORE THAN ONE HOUR	WHEN OPERATING FOR MAINTENANCE PURPOSES IN EXCESS OF ONE (1) HOUR PER DAY, THE DAILY RECORD SHALL ALSO INCLUDE: A. THE FORECASTED AQI, AND B. IF THE FORECASTED AQI GREATER THAN 75, A DESCRIPTION OF THE ELECTRICAL DISTRIBUTION SYSTEM MAINTENANCE PERFORMED. ELECTRICAL DISTRIBUTION SYSTEM DOES NOT INCLUDE THE IC ENGINE OR ITS ASSOCIATED GENERATOR.
QUARTERLY	TOTAL NUMBER OF HOURS OF OPERATION (HOURS/QUARTER).
YEARLY	TOTAL NUMBER OF HOURS OF OPERATION (HOURS/YEAR).

START-UP

11. UPON INSTALLATION OF THE EQUIPMENT AUTHORIZED IN THIS AUTHORITY TO CONSTRUCT, THE OWNER/OPERATOR SHALL CONTACT THE SACRAMENTO AIR QUALITY MANAGEMENT DISTRICT AT (916) 874-4800 TO ARRANGE FOR A START-UP INSPECTION.
12. THIS AUTHORITY TO CONSTRUCT SHALL SERVE AS A TEMPORARY PERMIT TO OPERATE PROVIDED THAT:
- A. THE SMAQMD HAS BEEN NOTIFIED FOR A START-UP INSPECTION.
 - B. THE EQUIPMENT INSTALLED MATCHES THE EQUIPMENT AUTHORIZED IN THE AUTHORITY TO CONSTRUCT.
 - C. THE EQUIPMENT IS OPERATED IN COMPLIANCE WITH ALL CONDITIONS LISTED WITHIN THE AUTHORITY TO CONSTRUCT.

AIR QUALITY
MANAGEMENT DISTRICT
AUTHORITY TO CONSTRUCT
(CONTINUED)

YOUR APPLICATION FOR THIS AIR QUALITY AUTHORITY TO CONSTRUCT WAS EVALUATED FOR COMPLIANCE WITH SACRAMENTO AIR QUALITY MANAGEMENT DISTRICT(AQMD), STATE AND FEDERAL AIR QUALITY RULES. THE FOLLOWING LISTED RULES ARE THOSE THAT ARE MOST APPLICABLE TO THE OPERATION OF YOUR EQUIPMENT. OTHER RULES MAY ALSO BE APPLICABLE.

AQMD RULE NUMBER	RULE TITLE
201	GENERAL PERMIT REQUIREMENTS
202	NEW SOURCE REVIEW
401	RINGELMANN CHART
406	SPECIFIC CONTAMINANTS
420	SULFUR CONTENT OF FUELS

IN ADDITION, THE CONDITIONS ON THIS AUTHORITY TO CONSTRUCT MAY REFLECT SOME, BUT NOT ALL, REQUIREMENTS OF THESE RULES. THERE MAY BE OTHER CONDITIONS THAT ARE APPLICABLE TO THE OPERATION OF YOUR EQUIPMENT. FUTURE CHANGES IN PROHIBITORY RULES MAY ESTABLISH MORE STRINGENT REQUIREMENTS WHICH MAY SUPERSEDE THE CONDITIONS LISTED HERE.

FOR FURTHER INFORMATION PLEASE CONSULT YOUR AQMD RULEBOOK OR CONTACT THE AQMD FOR ASSISTANCE.



PERMIT TO OPERATE

XXXXX XXXXX
9999 XXXXX DRIVE
SACRAMENTO, CA 95833

EQUIPMENT LOCATION: 9999 XXXXXX DRIVE, SACRAMENTO, CA 95833

PERMIT NO.	EQUIPMENT DESCRIPTION
99999	IC ENGINE STANDBY, MAKE: CATERPILLAR, MODEL: 3456 ATAAC, SERIAL NO.: 3PG00490, 692 BHP @ 1,800 RPM, DIESEL FUELED, POWERING AN EMERGENCY ELECTRICAL GENERATOR

SUBJECT TO THE FOLLOWING CONDITIONS:

GENERAL

THE EQUIPMENT SHALL BE PROPERLY MAINTAINED.

THE AIR POLLUTION CONTROL OFFICER AND/OR AUTHORIZED REPRESENTATIVES, UPON THE PRESENTATION OF CREDENTIALS, SHALL BE PERMITTED:

- A. TO ENTER UPON THE PREMISES WHERE THE SOURCE IS LOCATED OR IN WHICH ANY RECORDS ARE REQUIRED TO BE KEPT UNDER THE TERMS AND CONDITIONS OF THIS PERMIT TO OPERATE, AND
- B. AT REASONABLE TIMES TO HAVE ACCESS TO AND COPY ANY RECORDS REQUIRED TO BE KEPT UNDER THE TERMS AND CONDITIONS OF THIS PERMIT TO OPERATE, AND
- C. TO INSPECT ANY EQUIPMENT, OPERATION, OR METHOD REQUIRED IN THIS PERMIT TO OPERATE, AND
- D. TO SAMPLE EMISSIONS FROM THE SOURCE OR REQUIRE SAMPLES TO BE TAKEN.

THIS PERMIT DOES NOT AUTHORIZE THE EMISSION OF AIR CONTAMINANTS IN EXCESS OF THOSE ALLOWED BY DIVISION 26, PART 4, CHAPTER 3, OF THE CALIFORNIA HEALTH AND SAFETY CODE OR THE RULES AND REGULATIONS OF THE AIR QUALITY MANAGEMENT DISTRICT.

A LEGIBLE COPY OF THIS PERMIT SHALL BE MAINTAINED ON THE PREMISES WITH THE EQUIPMENT.

MISSIONS LIMITATIONS

THE IC ENGINE SHALL NOT DISCHARGE INTO THE ATMOSPHERE ANY VISIBLE AIR CONTAMINANTS OTHER THAN UNCOMBINED WATER VAPOR, FOR A PERIOD OR PERIODS AGGREGATING MORE THAN THREE MINUTES IN ANY ONE HOUR, WHICH IS AS DARK OR DARKER THAN RINGLEMANN 1 OR EQUIVALENT TO OR GREATER THAN 20% OPACITY.

NORM COVELL

AIR POLLUTION CONTROL OFFICER

DATE ISSUED: 03-26-2003

DATE EXPIRES: 02-22-2004 (UNLESS RENEWED)

BY: _____

PAGE 1 OF 3 PAGES

PERMIT NO.: 99999

REVOCABLE AND NON-TRANSFERABLE

**SACRAMENTO METROPOLITAN
AIR QUALITY MANAGEMENT DISTRICT**

6. THE EMISSIONS FROM THE IC ENGINE SHALL NOT EXCEED THE FOLLOWING LIMITS:

POLLUTANT	EMISSION FACTOR (A) G/HP-HR	MAXIMUM ALLOWABLE EMISSIONS	
		LBS/QUARTER (B)	LBS/YEAR (B)
ROC	1.0	305	305
NOx	6.9	2,105	2,105
SOx	0.16	50	50
PM10	0.1	31	31
CO	8.5	2,593	2,593

(A) EMISSION FACTORS FOR ROC, NOx, AND CO ARE THE DISTRICT'S BACT DETERMINATION FOR THIS SOURCE CATEGORY. EMISSION FACTOR FOR SOx IS BASED ON 0.05% SULFUR BY WEIGHT IN THE FUEL. EMISSION FACTOR FOR PM10 IS FROM THE CALIFORNIA AIR RESOURCES BOARD'S *GUIDANCE FOR THE PERMITTING OF NEW STATIONARY DIESEL-FUELED ENGINES*, OCTOBER 2000.

(B) EMISSIONS ARE BASED ON 692 BHP, 200 HOURS/QUARTER AND 200 HOURS/YEAR OF OPERATION.

EQUIPMENT OPERATION

7. THE IC ENGINE SHALL OPERATE ONLY FOR THE FOLLOWING PURPOSES AND SHALL NOT OPERATE MORE THAN THE FOLLOWING HOURS:

TYPE OF OPERATIONAL HOURS	MAXIMUM ALLOWABLE OPERATION		
	HOURS/DAY	HOURS/QUARTER	HOURS/YEAR
MAINTENANCE PURPOSES (A)	1 (B)	100	100
MAINTENANCE PURPOSES PLUS ACTUAL INTERRUPTION OF POWER BY THE SERVING UTILITY (C)	NA	200	200

(A) MAINTENANCE PURPOSES IS DEFINED AS: THE OPERATION OF AN IC ENGINE IN ORDER TO PRESERVE THE INTEGRITY OF THE IC ENGINE AND IT'S ASSOCIATED GENERATOR OR THE FACILITY'S ELECTRICAL DISTRIBUTION SYSTEM.

(B) LIMITED TO A MAXIMUM OF ONE (1) HOUR PER DAY ONLY IF THE AIR QUALITY INDEX (AQI) FOR SACRAMENTO COUNTY IS FORECASTED TO BE GREATER THAN 75 IN ORDER TO MINIMIZE ADVERSE AIR QUALITY IMPACT. THIS REQUIREMENT SHALL NOT APPLY TO SCHEDULED MAINTENANCE OF THE FACILITY'S ELECTRICAL DISTRIBUTION SYSTEM. THE FORECASTED AQI FOR SACRAMENTO COUNTY MAY BE OBTAINED A DAY IN ADVANCE BY CALLING THE DISTRICT BETWEEN 3:15 PM AND 5:00 PM AND IS ALSO AVAILABLE AT WWW.SPARETHEAIR.COM.

(C) ACTUAL INTERRUPTION OF POWER IS DEFINED AS: WHEN ELECTRICAL SERVICE FROM THE SERVING UTILITY IS INTERRUPTED BY AN UNFORESEEABLE EVENT.

8. THE IC ENGINE SHALL BE EQUIPPED WITH A NON-RESETTING HOUR METER TO ENSURE COMPLIANCE WITH CONDITIONS NO. 6 AND NO. 7.

9. UPON REQUEST OF THE AIR POLLUTION CONTROL OFFICER, ONCE EACH YEAR, DURING DAYLIGHT HOURS, THE IC ENGINE SHALL BE RUN AT MAXIMUM ANTICIPATED LOAD, FROM A COLD START CONDITION, FOR OBSERVATION OF COMPLIANCE WITH OPACITY LIMITATIONS.

10. THE IC ENGINE SHALL ONLY BE FUELED BY DIESEL NO. 2 WITH A SULFUR CONTENT NOT EXCEEDING 0.05% BY WEIGHT.

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

RECORD KEEPING

11. THE FOLLOWING RECORDS SHALL BE CONTINUOUSLY MAINTAINED WITH THE EQUIPMENT FOR THE MOST RECENT THREE YEAR PERIOD AND SHALL BE MADE AVAILABLE TO THE AIR POLLUTION CONTROL OFFICER UPON REQUEST. QUARTERLY AND YEARLY RECORDS SHALL BE MADE AVAILABLE WITHIN 30 DAYS FOLLOWING THE END OF THE QUARTER AND YEAR RESPECTIVELY.

FREQUENCY	INFORMATION TO BE RECORDED
WHEN OPERATED	A. DATE B. PURPOSE – EITHER MAINTENANCE OR EMERGENCY POWER C. NUMBER OF HOURS OF OPERATION
WHEN OPERATED FOR MORE THAN ONE HOUR	WHEN OPERATING FOR MAINTENANCE PURPOSES IN EXCESS OF ONE (1) HOUR PER DAY, THE DAILY RECORD SHALL ALSO INCLUDE: A. THE FORECASTED AQI FOR SACRAMENTO COUNTY B. A DESCRIPTION OF THE ELECTRICAL DISTRIBUTION MAINTENANCE BEING PERFORMED. THE FACILITIES ELECTRICAL DISTRIBUTION SYSTEM DOES NOT INCLUDE THE IC ENGINE OR ITS ASSOCIATED GENERATOR
QUARTERLY	TOTAL NUMBER OF HOURS OF OPERATION (HOURS/QUARTER)
YEARLY	TOTAL NUMBER OF HOURS OF OPERATION (HOURS/YEAR)

YOUR APPLICATION FOR THIS AIR QUALITY PERMIT TO OPERATE WAS EVALUATED FOR COMPLIANCE WITH SACRAMENTO AIR QUALITY MANAGEMENT DISTRICT (AQMD), STATE AND FEDERAL AIR QUALITY RULES. THE FOLLOWING LISTED RULES ARE THOSE THAT ARE MOST APPLICABLE TO THE OPERATION OF YOUR EQUIPMENT. OTHER RULES MAY ALSO BE APPLICABLE.

<u>AQMD RULE NO.</u>	<u>RULE TITLE</u>
201	GENERAL PERMIT REQUIREMENTS
202	NEW SOURCE REVIEW
401	RINGELMANN CHART
402	NUISANCE
406	SPECIFIC CONTAMINANTS
420	SULFUR CONTENT OF FUELS

IN ADDITION, THE CONDITIONS ON THIS PERMIT TO OPERATE MAY REFLECT SOME, BUT NOT ALL, REQUIREMENTS OF THESE RULES. THERE MAY BE OTHER CONDITIONS THAT ARE APPLICABLE TO THE OPERATION OF YOUR EQUIPMENT. FUTURE CHANGES IN PROHIBITORY RULES MAY ESTABLISH MORE STRINGENT REQUIREMENTS WHICH MAY SUPERSEDE THE CONDITIONS LISTED HERE.

FOR FURTHER INFORMATION PLEASE CONSULT YOUR AQMD RULEBOOK OR CONTACT THE AQMD FOR ASSISTANCE.

附件三

H&S; 40709 District Banking and Offset System

(a) Every district board shall establish by regulation a system by which all reductions in the emission of air contaminants that are to be used to offset certain future increases in the emission of air contaminants shall be banked prior to use to offset future increases in emissions. The system shall provide that only those reductions in the emission of air contaminants that are not otherwise required by any federal, state, or district law, rule, order, permit, or regulation shall be registered, certified, or otherwise approved by the district air pollution control officer before they may be banked and used to offset future increases in the emission of air contaminants. The system shall be subject to disapproval by the state board pursuant to Chapter 1 (commencing with Section 41500) of Part 4 within 60 days after adoption by the district.

(b) The system is not intended to recognize any preexisting right to emit air contaminants, but to provide a mechanism for districts to recognize the existence of reductions of air contaminants that can be used as offsets, and to provide greater certainty that the offsets shall be available for emitting industries.

(c) Notwithstanding subdivision (a), emissions reductions proposed to offset simultaneous emissions increases within the same stationary source need not be banked prior to use as offsets, if those reductions satisfy all criteria established by regulation pursuant to subdivision (a).

(d) This section does not apply to any district that is not required to prepare and submit a plan for attainment of state ambient air quality standards pursuant to Section 40911 if both of the following apply to the district:

(1) The district is not in a federal nonattainment area for any national ambient air quality standard unless the sole reason for the nonattainment is due to air pollutant transport.

(2) An owner or operator of a source or proposed source has not petitioned the district to establish a banking system.

(Amended by Stats. 2000, Ch. 729, Sec. 5.)

H&S; 40709.5 Review of Emission Credit Systems

40709.5. Any district which has established a system pursuant to Section 40709 by which reductions in emissions may be banked or otherwise credited to offset future increases in the emissions of air contaminants, or which utilize a calculation method which enables internal emission reductions to be credited against increases in emissions, and as of January 1, 1988, is within a federally designated nonattainment area for one or more air pollutants, shall develop and implement a program which, at a minimum, provides for all of the following:

- (a) Identification and tracking of sources possessing emission credit balances accruing from the elimination or replacement of older, higher emitting equipment.
- (b) Periodic analysis of the increases or decreases in emissions which occur when credits are used to bring new or modified emission sources into operation.
- (c) Procedures for verifying the emission reductions credited to the bank or accruing to internal accounts, and for adjusting of credited emissions based on current district requirements.
- (d) Periodic evaluation of the extent to which the system has contributed or detracted from the goal of allowing economic growth and modification of existing facilities, and has contributed to or detracted from the district's progress toward attainment of ambient air quality standards.
- (e) Annual publication of the costs, in dollars per ton, of emission offsets purchased for new or modified emission sources, excluding information on the identity of any party involved in the offset transactions. This publication shall specify, for each offset purchase transaction, the year the offset transaction occurred, the amount of offsets purchased, by pollutant, and the total cost, by pollutant, of the offsets purchased. Each application to use emissions reductions banked in a system established pursuant to Section 40709 shall provide sufficient information, as determined by the district, to perform the cost analysis. The information shall be a public record.

(Amended by Stats. 1992, Ch. 612, Sec. 3. Effective January 1, 1993.)

Government Code Section 6254.7

- (a) All information, analyses, plans, or specifications that disclose the nature, extent, quantity, or degree of air contaminants or other pollution which any article, machine, equipment, or other contrivance will produce, which any air pollution control district or air quality management district, or any other state or local agency or district, requires any applicant to provide before the applicant builds, erects, alters, replaces, operates, sells, rents, or uses the article, machine, equipment, or other contrivance, are public records.
- (b) All air or other pollution monitoring data, including data compiled from stationary sources, are public records.
- (c) All records of notices and orders directed to the owner of any building of violations of housing or building codes, ordinances, statutes, or regulations which constitute violations of standards provided in Section 1941.1 of the Civil Code, and records of subsequent action with respect to those notices and orders, are public records.
- (d) Except as otherwise provided in subdivision (e) and Chapter 3 (commencing with Section 99150) of Part 65 of the Education Code, trade secrets are not public records under this section. "Trade secrets," as used in this section, may include, but are not limited to, any formula, plan, pattern, process, tool, mechanism, compound, procedure, production data, or compilation of information which is not patented, which is known only to certain individuals within a commercial concern who are using it to fabricate, produce, or compound an article of trade or a service having commercial value and which gives its user an opportunity to obtain a business advantage over competitors who do not know or use it.
- (e) Notwithstanding any other provision of law, all air pollution emission data, including those emission data which constitute trade secrets as defined in subdivision (d), are public records. Data used to calculate emission data are not emission data for the purposes of this subdivision and data which constitute trade secrets and which are used to calculate emission data are not public records.
- (f) Data used to calculate the costs of obtaining emissions offsets are not public records. At the time that an air pollution control district or air quality management district issues a permit to construct to an applicant who is required to obtain offsets pursuant to district rules and regulations, data obtained from the applicant consisting of the year the offset transaction occurred, the amount of offsets purchased, by pollutant, and the total cost, by pollutant, of the offsets purchased is a public record. If an application is denied, the data shall not be a public record.

Annual Emission Reduction Credit Transaction Report Instructions

General:

One transaction record per pollutant should be filled out for each transaction which takes place in the district between two or more parties.

Transactions should be reported in the year in which the final transaction occurs and money, or barter agreements are exchanged.

The annual report should be submitted to the Air Resources Board no later than January 15 of each year. The Air Resources Board will compile all data from the districts and publish a statewide report on the cost of offsets by the following April.

For cases of offset transactions which occur across district boundaries, transactions should be reported in the district in which the offsets are credited. This is the district which will most likely have access to the transaction cost information necessary for reporting.

District ID# 		Quantity of Pollutant (tons/year)
<u>Pollutant</u> <input type="radio"/> NOx <input type="radio"/> SOx 2 <input type="radio"/> CO <input type="radio"/> HC <input type="radio"/> PM10 <input type="radio"/> Other	<u>Credit Source</u> <input type="radio"/> Stationary 3 <input type="radio"/> Mobile <input type="radio"/> Agricultural <input type="radio"/> Other <input type="checkbox"/> Annual or <input type="checkbox"/> Quarter 4 <input type="radio"/> Q1 <input type="radio"/> Q2 <input type="radio"/> Q3 <input type="radio"/> Q4	Price Paid (\$/ton) 6 <input type="radio"/> Barter Transaction 7 <input type="radio"/> Subsidiary Transaction Length of Life/Lease 8

District ID# <input type="text"/>		Quantity of Pollutant (tons/year) <input type="text"/>
<u>Pollutant</u> <input type="radio"/> NOx <input type="radio"/> SOx <input type="radio"/> CO <input type="radio"/> HC <input type="radio"/> PM10 <input type="radio"/> Other	<u>Credit Source</u> <input type="radio"/> Stationary <input type="radio"/> Mobile <input type="radio"/> Agricultural <input type="radio"/> Other	Price Paid (\$/ton) <input type="text"/>
	<input type="checkbox"/> Annual or <input type="checkbox"/> Quarter <input type="radio"/> Q1 <input type="radio"/> Q2 <input type="radio"/> Q3 <input type="radio"/> Q4	<input type="radio"/> Barter Transaction <input type="radio"/> Subsidiary Transaction Length of Life/Lease <input type="text"/>

District ID# <input type="text"/>		Quantity of Pollutant (tons/year) <input type="text"/>
<u>Pollutant</u> <input type="radio"/> NOx <input type="radio"/> SOx <input type="radio"/> CO <input type="radio"/> HC <input type="radio"/> PM10 <input type="radio"/> Other	<u>Credit Source</u> <input type="radio"/> Stationary <input type="radio"/> Mobile <input type="radio"/> Agricultural <input type="radio"/> Other	Price Paid (\$/ton) <input type="text"/>
	<input type="checkbox"/> Annual or <input type="checkbox"/> Quarter <input type="radio"/> Q1 <input type="radio"/> Q2 <input type="radio"/> Q3 <input type="radio"/> Q4	<input type="radio"/> Barter Transaction <input type="radio"/> Subsidiary Transaction Length of Life/Lease <input type="text"/>

District ID# <input type="text"/>		Quantity of Pollutant (tons/year) <input type="text"/>
<u>Pollutant</u> <input type="radio"/> NOx <input type="radio"/> SOx <input type="radio"/> CO <input type="radio"/> HC <input type="radio"/> PM10 <input type="radio"/> Other	<u>Credit Source</u> <input type="radio"/> Stationary <input type="radio"/> Mobile <input type="radio"/> Agricultural <input type="radio"/> Other	Price Paid (\$/ton) <input type="text"/>
	<input type="checkbox"/> Annual or <input type="checkbox"/> Quarter <input type="radio"/> Q1 <input type="radio"/> Q2 <input type="radio"/> Q3 <input type="radio"/> Q4	<input type="radio"/> Barter Transaction <input type="radio"/> Subsidiary Transaction Length of Life/Lease <input type="text"/>

1. **District ID #** The district ID # should be in the format:

AAYYXXX

Where AA is a two letter district code (a list of district codes is attached), YY is a two digit year identifier (e.g. 95 for 1995), and XXX is a three-digit transaction number from 001 to 999.

This ID number will only be used to track the origin of data and for data validation. The assignment of a transaction number will ensure quality control of data transfer between the district and the Air Resources Board. Individual transactions will not be identified in Air Resources Board summary reports.

2. **Pollutant** Please check one pollutant per transaction. If trade involved more than one pollutant, use separate transaction records for each pollutant traded. HC is equivalent to other acronyms used for hydrocarbons such as POC, ROC, ROG and VOC.
3. **Credit Source** Please indicate the source of emission reduction credits (ERC). This information will aid in the analysis of ERC prices paid. Stationary source credits typically do not have a finite useful life, whereas mobile and agricultural source ERCs have specific limiting conditions which limit useful life. It is important that a distinction be made between these kinds of offsets when analyzing the cost of offsets.
4. **Annual/Quarter:** Please indicate if credits are valid on an annual basis or quarterly. Additionally, if credits are valid quarterly, indicate which quarter they can be used for. This applies to seasonal credits or credits that are only valid in a specific quarter.
5. **Quantity of Pollutant** Regardless of district recording practices or the transaction agreement, please give the quantity of pollutant in tons/year.

Example 1: For Single Quarter Transactions

$$1 \frac{\text{lb}}{\text{day}} = 1 \frac{\text{lb}}{\text{day}} \times 365 \frac{\text{days}}{\text{year}} \times \frac{1 \text{ ton}}{2000 \text{ lbs}} = 0.1825 \frac{\text{tons}}{\text{year}}$$

Example 2: For Annual Transactions

$$1 \frac{\text{lb}}{\text{quarter}} = 1 \frac{\text{lb}}{\text{quarter}} \times 4 \frac{\text{quarters}}{\text{year}} \times \frac{1 \text{ ton}}{2000 \text{ lbs}} = 0.0020 \frac{\text{tons}}{\text{year}}$$

DISTRICT TWO-LETTER CODES

AM	Amador County APCD
AV	Antelope Valley APCD
BA	Bay Area AQMD
BT	Butte County APCD
CA	Calaveras County APCD
CO	Colusa County APCD
ED	El Dorado County APCD
FR	Feather River AQMD
GL	Glenn County APCD
GB	Great Basin Unified APCD
IM	Imperial County APCD
KE	Kern County APCD
LA	Lake County AQMD
LS	Lassen County APCD
MA	Mariposa County APCD
ME	Mendocino County AQMD
MO	Modoc County APCD
MD	Mojave Desert AQMD
MB	Monterey Bay Unified APCD
NC	North Coast Unified AQMD
NO	Northern Sierra AQMD
NS	Northern Sonoma County APCD
PL	Placer County APCD
SM	Sacramento Metropolitan AQMD

SD	San Diego County APCD
SJ	San Joaquin Valley Unified APCD
SL	San Luis Obispo County APCD
SB	Santa Barbara County APCD
SH	Shasta County AQMD
SI	Siskiyou County APCD
SC	South Coast AQMD
TE	Tehama County APCD
TU	Tuolumne County APCD
VE	Ventura County APCD
YS	Yolo-Solano AQMD