



September 3, 1997

Mr. Scott Seery, CHMM
Alameda County Environmental Health Department
Environmental Protection Division
Suite 250
1131 Harbor Bay Parkway
Alameda, California 94502

Dear Mr. Seery:

RE: Ingersoll-Rand Equipment Sales, San Leandro

On behalf of Ingersoll-Rand Equipment Sales (IRES), Capsule Environmental Engineering and Braun Intertec, our project partner, are submitting the enclosed closure recommendation for the soil vapor extraction system at the IRES facility at 1944 Marina Boulevard, San Leandro.

The remaining part of the closure activities, outlined in my June 4 and August 8, 1997 letters, is being prepared. A technical letter, developing the data and information to support the IRES as a "low risk" ground water case, will be submitted in late September. With the completion of soil venting the first "low risk groundwater case" definition criterion is met, namely, the source has been remediated.

We will await Alameda County's response to the closure recommendation. If you have any questions or comments regarding the operational summary, our closure recommendation, or this letter, please contact me at (800) 328-0066.

Sincerely,

CAPSULE ENVIRONMENTAL ENGINEERING, INC.

A handwritten signature in black ink, appearing to read "John McDermott", with a long horizontal flourish extending to the right.

John McDermott
Hydrogeologist

JJM:cen
enclosure

cc: R. Heindl/IRES, Bethlehem, PA
T. Tinsley/IRES, San Leandro, CA
M. Bakaldin/San Leandro Fire Dept., San Leandro, CA
J. Stuth/Braun Intertec
C. McElligott/Braun Intertec
J. Henner/Azure Environmental

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Description: IRES, San Leandro, CA
SVE system

Project No: CMXX-95-0157

Date: 8-8-97 By: C. McElligott

Contaminant Mass Removal Calculations

Cross-sectional area of SVE piping at monitoring port:

$$A = \frac{\pi d^2}{4} = \frac{\pi (2 \text{ in})^2}{4} = \pi \text{ in}^2$$

$$\pi \text{ in}^2 \times \frac{1 \text{ ft}^2}{144 \text{ in}^2} = \underline{\underline{0.0218 \text{ ft}^2}}$$

On 10-3-95:

$$\text{blower velocity} = V = 5400 \frac{\text{ft}}{\text{min}}$$

$$\text{blower cfm} = V \times A = 5400 \frac{\text{ft}}{\text{min}} \times 0.0218 \text{ ft}^2 \approx \underline{\underline{118 \frac{\text{ft}^3}{\text{min}}}}$$

$$\text{blower } \frac{\text{m}^3}{\text{sec}} = 118 \frac{\text{ft}^3}{\text{min}} \times \frac{1 \text{ min}}{60 \text{ sec}} \times \frac{0.02832 \text{ m}^3}{\text{ft}^3} \approx \underline{\underline{0.056 \frac{\text{m}^3}{\text{sec}}}}$$

extraction rate for THC as Gasoline:

$$\frac{880,000 \text{ ug}}{\text{m}^3} \times 0.056 \frac{\text{m}^3}{\text{sec}} = 49,280 \frac{\text{ug}}{\text{sec}}$$

$$49,280 \frac{\text{ug}}{\text{sec}} \times 1 \times 10^{-9} \frac{\text{kg}}{\text{ug}} \times 86,400 \frac{\text{sec}}{\text{day}} \times 0.37 \frac{\text{gal gasoline}}{\text{kg}} \approx \underline{\underline{1.58 \text{ gal gasoline day}}}$$

BRAUNSM INTERTEC

Description: IRES, San Leandro, CA
SVE System
 Project No: CMXX - 95 - 0157
 Date: 8-8-97 By: C. McElligott

On 10-16-96 :

$$V = 4529 \frac{\text{ft}}{\text{min}}$$

$$\text{blower cfm} = V \times A = 4529 \frac{\text{ft}}{\text{min}} \times 0.0218 \text{ ft}^2 = 98.7 \frac{\text{ft}^3}{\text{min}}$$

$$\text{blower} \frac{\text{m}^3}{\text{sec}} = 98.7 \frac{\text{ft}^3}{\text{min}} \times \frac{1 \text{ min}}{60 \text{ sec}} \times \frac{0.02832 \text{ m}^3}{\text{ft}^3} = 0.046 \frac{\text{m}^3}{\text{sec}}$$

extraction rate for THC as Gasoline :

$$15,000 \frac{\text{ug}}{\text{m}^3} \times 0.046 \frac{\text{m}^3}{\text{sec}} = 690 \frac{\text{ug}}{\text{sec}}$$

$$690 \frac{\text{ug}}{\text{sec}} \times 1 \times 10^{-9} \frac{\text{kg}}{\text{ug}} \times 86,400 \frac{\text{sec}}{\text{day}} \times 0.37 \frac{\text{gal gasoline}}{\text{kg}}$$

$$\approx \underline{\underline{0.022 \text{ gal gasoline day}}}$$

Description: IRES, San Leandro, CA
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On 6-12-97 :

$$V = 5400 \frac{\text{ft}}{\text{min}}$$

$$\text{blower cfm} = V \times A = 5400 \frac{\text{ft}}{\text{min}} \times 0.0218 \text{ ft}^2 = 118 \frac{\text{ft}^3}{\text{min}}$$

$$\text{blower } \frac{\text{m}^3}{\text{sec}} = 118 \frac{\text{ft}^3}{\text{min}} \times \frac{1 \text{ min}}{60 \text{ sec}} \times \frac{0.02832 \text{ m}^3}{\text{ft}^3} = 0.056 \frac{\text{m}^3}{\text{sec}}$$

extraction rate for THC as Gasoline :

$$4200 \frac{\text{ug}}{\text{m}^3} \times 0.056 \frac{\text{m}^3}{\text{sec}} = 235.2 \frac{\text{ug}}{\text{sec}}$$

$$235.2 \frac{\text{ug}}{\text{sec}} \times 1 \times 10^{-9} \frac{\text{kg}}{\text{ug}} \times 86,400 \frac{\text{sec}}{\text{day}} \times 0.37 \frac{\text{gal gasoline}}{\text{kg}} \\ \approx \underline{\underline{0.0075 \text{ gal gasoline day}}}$$

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Description: IRES San Leandro, CA
SVE System

Project No: CMXX-95-0157

Date: 8-8-97 By: C. McElligott

Calculation of Total Contaminant Mass Extracted from Subsurface
by Redesigned SVE System, 10-3-95 through 8-8-97

Assumptions: Mass removal rate on sampling date is representative of the time period to mid-point between sampling dates.

		Number of Days in Operation	Mass Removal Rate	Mass Removed
10-3-95	Sample Date	94 days X	1.58 gal/day	= 148.52
4-9-96	Mid-Point			
10-16-96	Sample Date	117 X	0.022	= 2.57
2-12-97	Mid-Point	63 X	0.022	= 1.39
6-12-97	Sample Date	86 X	0.0075	= 0.64
8-8-97	Calculated Through This Date	41 X	0.0075	= 0.31
			<u>Total</u>	<u>153.43</u> gallons of gasoline