APPENDIX C

IN SITU PERMEABILITY (SLUG TEST) RESULTS

APPENDIX C

AQUIFER TESTING PROGRAM

1.0 INTRODUCTION

There are several acceptable methods for determining aquifer hydraulic properties. Determination of the hydraulic properties of an aquifer is commonly referred to as evaluating the "mechanics" of the aquifer. Developing an understanding of the aquifer mechanics is an important component of the site characterization. These data provide a means of quantifying aquifer properties, and therefore may be used subsequently for evaluation of the environmental fate and transport mechanisms for potential contaminants of concern. The three most common aquifer testing methods are:

- slug testing
- step-drawdown testing
- pumping tests

These methods are considered "in-situ" methods as each method involves determining the hydraulic characteristics of the aquifer by applying a "stress" to the aquifer and recording the response to that stress through time. Because the methods involve testing a relatively representative portion of the aquifer, they are generally considered more accurate than "ex-situ" (laboratory) soil permeability testing.

The hydraulic properties of interest include:

- Hydraulic conductivity - this property is a constant of proportionality that describes fluid flow through a porous media. Hydraulic conductivity ("K" by convention) is a function of the permeability of the media and of the physical properties of the fluid. In a groundwater setting, the physical properties of the water are considered relatively constant, and therefore hydraulic conductivity can be considered a function of the porous media. For this reason, the terms permeability and hydraulic conductivity are commonly used interchangably for groundwater settings. It is important to note that hydraulic conductivity varies over 13 orders of magnitude for earth materials. For this reason, order-of-magnitude approximations are generally considered appropriate for evaluation of aquifer mechanics.

  The Darcy flow velocity of groundwater is directly proportional to the hydraulic conductivity of the aquifer and of the hydraulic gradient. Quantification of the hydraulic conductivity is therefore significant in terms of evaluating solute transport mechanisms associated with advection.

- Transmissivity - this term ("T" by convention) is simply the product of the hydraulic conductivity and the aquifer thickness ("b" by convention). Transmissivity typically varies

significantly due to spatial variations in both the thickness and conductivity of the aquifer.

In this study, the curve-matching Cooper et al. method was used to calculate a transmissivity value. To obtain a hydraulic conductivity value, the following equation is used:

$$K = T/b$$

Where:

T = transmissivity
K = hydraulic conductivity
b = aquifer thickness.

- Storativity - this term represents the volume of water that an aquifer can release from storage per unit of aquifer storage area to a unit change in head ("S" by convention). Typically used for confined aquifer settings.

The three aquifer testing methods, slug testing, step-drawdown testing, and pumping tests have different applications and limitations. In general, step-drawdown tests and pumping tests are most feasible for relatively high transmissivity zones, such as sand and gravel aquifers. In these types of aquifers, the pumping test is the most accurate means of evaluating aquifer mechanics. With transmissive zones, groundwater can be removed at a rate that will stress the aquifer, and therefore water level changes will be noted in observation wells. Pumping tests are less effective for lower transmissivity zones because of difficulties in removing sufficient groundwater to stress the aquifer and measure a response in observation wells without dewatering the pumping well. These tests are typically infeasible or impractical for low yield aquifers. For low to moderately transmissive zones, a more viable aquifer test method is slug testing, described below.

2.0 SLUG TESTING

The slug withdrawal test requires the removal of a known volume from a well. A slug withdrawal test is commonly referred to as a "rising head" test. Water levels are monitored during recovery, and the rate at which a well recovers is a function of the hydraulic properties of the water-bearing stratum and of the well itself.

Because of the relatively small stress applied to the water-bearing zone, slug tests are best suited for low to moderately conductive aquifers. Slug tests are representative of the aquifer material in the area relatively close to the well. However, the tests provide a cost-effective means of determining "point" transmissivities over a large area such as the NAS Alameda facility.

3.0 SLUG TESTING METHODS

Rising head slug tests were conducted in 70 monitoring wells at the NAS Alameda facility to evaluate in-situ permeabilities of the first and second water-bearing zones. There are 40 "A" and 14 "E" wells in the unconfined first water-bearing zone and 10 "B" and six "C" wells in the confined second water-bearing zone. These wells partially penetrate each of the zones.

This slug test data were analyzed using the methods of Bouwer and Rice for unconfined aquifers and Cooper et al. for confined aquifers. The commercially available software program "AQTESOLV" was used for data reduction.

The rising head field data, result output, and graphs are included in this Appendix and hydraulic conductivity values are summarized in Table G-1. Field procedures to obtain slug test data from the monitoring wells on the NAS Alameda facility are discussed in Appendix C of this report.

4.0 UNCONFINED SLUG TEST METHODOLOGY

The Bouwer and Rice equation was used for the unconfined aquifer slug tests. Monitoring wells whose screen intervals straddle the water table require a well borehole radius adjustment to compensate for water storage in the filter pack (Bouwer, 1989; Kruseman & deRidder, 1990; Schafer, 1992). The Bouwer and Rice article and Bouwer's update article are attached for reference. The equation used to adjust for the borehole radius is:

$$r_{w\,adj} = [(1-n)r_c^2 + nr_w^2]^{1/2}$$

where:

n	=	porosity
r_c	=	radius of well casing
r_w	=	radius of well (including filter pack)
$r_{w\,adj}$	=	adjusted radius of well (including filter pack)

A porosity of 0.3 was used in this study and is within the range for sands and silts (Freeze & Cherry, 1979).

For evaluation of slug tests in unconfined aquifers, the following conditions and assumptions are applied (Bouwer & Rice, 1976; Kruseman & deRidder, 1990):

- The aquifer is unconfined and has an apparent infinite areal extent;
- The aquifer if homogeneous, isotropic, and of uniform thickness over the area influenced by the slug test;
- Prior to the test, the water table is (nearly) horizontal over the area that will be influenced by the test;
- The head in the well is lowered instantaneously at $t_o = 0$; the drawdown in the water table around the well is negligible; there is no flow above the water table;
- The inertia of the water column in the well and the linear and non-linear well losses are negligible;
- The well either partially or fully penetrates the saturated thickness of the aquifer;
- The well diameter is finite; hence storage in the well cannot be neglected;
- The flow to the well is in a steady state.

Data are plotted on a time versus drawdown graph. The x- and y- axis intersections from a late time, flat slope line are used to calculate the hydraulic conductivity (K) value in wells which the screen or open intervals are fully submerged (Figure G-1). However, in wells which the screen or open interval straddle the water-table, a double flat slope line effect is typically observed (Figure G-2). The first steep slope (early time) line shows the filter pack or developed zone drainage. The second flat slope (late time) line is representative of flow from the undisturbed saturated screened aquifer zone (Bouwer, 1989; Schafer, 1992). The second slope line is used to calculate the K value.

The knowns and constants listed in the result output, as shown on Figure G-3, correspond to the Bouwer and Rice equation. Field data were measured in feet and minutes. Results, listed under the type curve data, are in SI units of centimeters per second. The y_o on the result output refers to the drawdown value where the slope line intersects the y axis.

5.0 CONFINED SLUG TEST METHODOLOGY

Slug tests for monitoring wells screened within the confined zones were analyzed using the curve-matching methods of Cooper et al. The Cooper et al. article is attached for reference.

For evaluation of slug tests within the confined zone, the following conditions and assumptions are applied (Cooper et al., 1967; Kruseman and deRidder, 1990):

- The aquifer is confined and has an apparently infinite areal extent;
- The aquifer is homogeneous, isotropic, and of uniform thickness over the area influenced by the slug test;
- Prior to the test, the piezometric surface is (nearly) horizontal over the area that will be influenced by the test;
- The head in the well is changed instantaneously at time to = 0;
- The rate of flow to the well is in an unsteady state;
- The rate at which the water flows from the aquifer into the well is equal to the rate at which the volume of water stored in the well changes as the head in the well rises;
- The inertia of the water column in the well and the non-linear well losses are negligible;
- The well diameter is finite; hence storage in the well cannot be neglected;
- The well penetrates the entire aquifer.

Complications resulting from partial penetration are not considered significant due to the slug testing method exerting relatively small stresses on the confined aquifer and the hydrogeologic setting that predicts predominantly horizontal groundwater flow for the confined aquifer.

A change in head versus time data was plotted on a semi-log graph (Figure G-4). The result output lists the knowns and constants as shown on Figure G-5. The transmissivity (T) value obtained from the curve-matching was used to calculate the hydraulic conductivity (K) value (see equation in Introduction). Field data were measured in feet and minutes. However, results are presented in SI units of centimeters per second. The S value on the result output refers to storativity.

6.0 DISCUSSION

Hydraulic conductivities determined from the aquifer testing program ranged from 5.5E-02 cm/s to 2.5E-05 cm/s. The range of hydraulic conductivity values is consistent with the conceptual hydrogeologic model for the site that indicates heterogenous soils within the first and second water-bearing zones. The K values determined from the aquifer testing program were consistent with published conductivity values for similar soils (Freeze & Cherry, 1979). However, several limitations of all slug testing methods are noted. These limitations include:

- Slug tests only provide aquifer characteristics over a relatively small area of investigation.

Uncertainty between data points (wells) may be significant in heterogeneous hydrogeologic setting.

- Aquifer storage coefficients for unconfined aquifers cannot be determined using slug tests. Storativity values determined for confined aquifers are only approximate values and should not be used for estimating long-term steady state conditions (Cooper et al, 1967).

- Slug tests are incapable of providing data required to evaluate the pumping characteristics of the well, and therefore cannot determine specific capacity or well efficiency. Well efficiency may be compromised by construction details, well development, and borehole skin effects.

A Slug Test for Determining Hydraulic Conductivity of Unconfined Aquifers With Completely or Partially Penetrating Wells

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A procedure is presented for calculating the hydraulic conductivity of an aquifer near a well from the rate of rise of the water level in the well after a certain volume of water is suddenly removed. The calculation is based on the Thiem equation of steady state flow to a well. The effective radius R_e over which the head difference between the equilibrium water table in the aquifer and the water level in the well is dissipated was evaluated with a resistance network analog for a wide range of system geometries. An empirical equation relating R_e to the geometry of the well and aquifer was derived. The technique is applicable to completely or partially penetrating wells in unconfined aquifers. It can also be used for confined aquifers that receive water from the upper confining layer. The method's results are compatible with those obtained by other techniques for overlapping geometries.

With the slug test the hydraulic conductivity or transmissibility of an aquifer is determined from the rate of rise of the water level in a well after a certain volume or 'slug' of water is suddenly removed from the well. The slug test is simpler and quicker than the Theis pumping test because observation wells and pumping the well are not needed. With the slug test the portion of the aquifer 'sampled' for hydraulic conductivity is smaller than that for the pumping test even though with the latter, most of the head loss also occurs within a relatively small distance of the pumped well and the resulting transmissibility primarily reflects the aquifer conditions near the pumped well.

Essentially instantaneous lowering of the water level in a well can be achieved by quickly removing water with a bailer or by partially or completely submerging an object in the water, letting the water level reach equilibrium, and then quickly removing the object. If the aquifer is very permeable, the water level in the well may rise very rapidly. Such rapid rises can be measured with sensitive pressure transducers and fast-response strip chart recorders or x-y plotters. Also it may be possible to isolate portions of the perforated or screened section of the well with special packers for the slug test. This not only reduces the inflow and hence the rate of rise of the water level in the well, but it also makes it possible to determine the vertical distribution of the hydraulic conductivity. Special packer techniques may have to be developed to obtain a good seal, especially for rough casings or perforations. Effective sealing may be achieved with relatively long sections of inflatable stoppers or tubing. The use of long sections of these materials would also reduce leakage flow from the rest of the well to the isolated section between packers. This flow can occur through gravel envelopes or other permeable zones surrounding the casing. Sections of inflatable tubing may have to be long enough to block off the entire part of the well not used for the slug test. High inflation pressures should be used to minimize volume changes in the tubing due to changing water pressures in the isolated section when the head is lowered.

So far, solutions for the slug test have been developed only for completely penetrating wells in confined aquifers. *Cooper et al.* [1967] derived an equation for the rise or fall of the water level in a well after sudden lowering or raising, respectively. Their equation was based on nonsteady flow to a pumped, completely penetrating well, and the solution was expressed as a series of 'type curves' against which observed rates of water level rises were matched. Values for the transmissibility and storage coefficient were then evaluated from the curve parameter and horizontal-scale position of the type curve showing the best fit with the experimental data. *Skibitzke* [1958] developed an equation for calculating transmissibility from the recovery of the water level in a well that was repeatedly bailed. The technique is limited to wells in confined aquifers with sufficiently shallow water levels to permit short time intervals between bailing cycles [*Lohman*, 1972].

To use the slug test for partially penetrating or partially perforated wells in confined or unconfined aquifers, some solutions developed for the auger hole and piezometer techniques to measure soil hydraulic conductivity [*Bouwer and Jackson*, 1974] may be employed. However, the geometry of most groundwater wells is outside the range in geometry covered by the existing equations or tables for the auger hole or piezometer methods. For this reason, theory and equations are presented in this paper for slug tests on partially or completely penetrating wells in unconfined aquifers for a wide range of geometry conditions. The wells may be partially or completely perforated, screened, or otherwise open along their periphery. While the solutions are developed for unconfined aquifers, they may also be used for slug tests on wells in confined aquifers if water enters the aquifer from the upper confining layer through compression or leakage.

THEORY

Geometry and symbols of a well in an unconfined aquifer are shown in Figure 1. For the slug test the water level in the well is suddenly lowered, and the rate of rise of the water level is measured. The flow into the well at a particular value of y can be calculated by modifying the Thiem equation to

$$Q = 2\pi KL \frac{y}{\ln (R_e/r_w)} \qquad (1)$$

where Q is the flow into the well (length^3/time), K is the hydraulic conductivity of the aquifer (length/time), L is the height of the portion of well through which water enters (height of screen or perforated zone or of uncased portion of well), y is the vertical distance between water level in well and equilibrium water table in aquifer, R_e is the effective radius over which y is dissipated, and r_w is the horizontal distance

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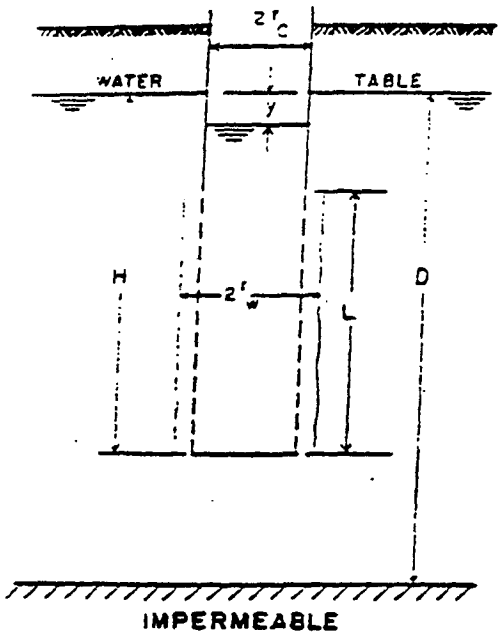

Fig. 1. Geometry and symbols of a partially penetrating, partially perforated well in unconfined aquifer with gravel pack or developed zone around perforated section.

from well center to original aquifer (well radius or radius of casing plus thickness of gravel envelope or developed zone).

The terms L, y, R_e, and r_w are all expressed in units of length. The effective radius R_e is the equivalent radial distance over which the head loss y is dissipated in the flow system. The value of R_e depends on the geometry of the flow system, and it was determined for different values of H, L, D, and r_w (Figure 1) with a resistance network analog, as will be discussed in the next section. Equation (1) is based on the assumptions that (1) drawdown of the water table around the well is negligible, (2) flow above the water table (in the capillary fringe) can be ignored, (3) head losses as water enters the well (well losses) are negligible, and (4) the aquifer is homogeneous and isotropic. These are the usual assumptions in the development of equations for pumped hole techniques [*Bouwer and Jackson*, 1974, and references therein].

The value of r_w in (1) represents the radial distance between the undisturbed aquifer and the well center. Thus r_w should include gravel envelopes or 'developed' zones if they are much more permeable than the aquifer itself (Figure 1).

The rate of rise, dy/dt, of the water level in the well after suddenly removing a slug of water can be related to the inflow Q by the equation

$$dy/dt = -Q/\pi r_c^2 \tag{2}$$

where πr_c^2 is the cross-sectional area of the well where the water level is rising. The minus sign in (2) is introduced because y decreases as t increases.

The term r_c is the inside radius of the casing if the water level is above the perforated or otherwise open portion of the well. If the water level is rising in the perforated section of the well, allowance should be made for the porosity outside the well casing if the hydraulic conductivity of the gravel envelope or developed zone is much higher than that of the aquifer. In that case the (open) porosity in the permeable zone must be included in the cross-sectional area of the well. For example, if the radius of the perforated casing is 20 cm and the casing is surrounded by a 10-cm permeable gravel envelope with a porosity of 30%, r_c should be taken as $[20^2 - 0.30(30^2 - 20^2)]^{1/2} = 23.5$ cm to obtain the cross-sectional area of the well that relates Q to dy/dt. The value of r_w for this well section is 30 cm.

Combining (1) and (2) yields

$$\frac{1}{y}\,dy = -\frac{2KL}{r_c^2 \ln (R_e/r_w)}\,dt \tag{3}$$

which can be integrated to

$$\ln y = -\frac{2KLt}{r_c^2 \ln (R_e/r_w)} + \text{constant} \tag{4}$$

Applying this equation between limits y_0 at $t = 0$ and y_t at t and solving for K yield

$$K = \frac{r_c^2 \ln (R_e/r_w)}{2L}\,\frac{1}{t}\,\ln \frac{y_0}{y_t} \tag{5}$$

This equation enables K to be calculated from the rise of the water level in the well after suddenly removing a slug of water from the well. Since K, r_c, r_w, R_e, and L in (5) are constants, $(1/t) \ln y_0/y_t$ must also be constant. Thus field data should yield a straight line when they are plotted as $\ln y_t$ versus t. The term $(1/t) \ln y_0/y_t$ in (5) is then obtained from the best-fitting straight line in a plot of $\ln y$ versus t (see the example). The value of $\ln R_e/r_w$ is dependent on H, D, L, and r_w and can be evaluated from the analog results presented in the next section. The transmissibility T of the aquifer is calculated by multiplying (5) by the thickness D of the aquifer or

$$T = \frac{Dr_c^2 \ln (R_e/r_w)}{2L}\,\frac{1}{t}\,\ln \frac{y_0}{y_t} \tag{6}$$

This equation is based on the assumption that the aquifer is uniform with depth.

Equations (5) and (6) are dimensionally correct. Thus K and T are expressed in the same units as the length and time parameters in the equations.

EVALUATION OF R_e

Values of R_e, expressed as $\ln R_e/r_w$, were determined with an electrical resistance network analog for different values of r_w, L, H, and D (Figure 1), using the same assumptions as those for (1). An axisymmetric sector of 1 rad was simulated by a network of electrical resistors. The vertical distance between the nodes was constant, but the radial distance between nodes increased with increasing distance from the center line (Figure 2). This yielded a network with the highest node density near the well, where the head loss was greatest, and a decreasing node density toward the outer reaches of the system. For a more detailed discussion of graded networks for representing axisymmetric flow systems, see *Liebmann* [1950] and *Bouwer* [1960].

The radial extent of the medium represented on the analog was more than 60,000 times the largest r_w value used in the analyses. Thus the radial extent of the analog system was essentially infinite, as evidenced by the fact that a reduction in radial extent by several nodes did not have a measurable effect on the observed value of R_e.

The value of R_e for an infinitely deep aquifer ($D = \infty$) was determined by simulating an impermeable and then an infinitely permeable layer at a certain value of D. If this value of D is taken to be sufficiently large, the flow in the system when the layer at D is taken as being impermeable is only slightly

piezometer method at the lower values of L/r_w. With the piezometer method a cavity is augered out in the soil below a piezometer tube. The water level in the tube is abruptly lowered, and K of the soil around the cavity is calculated from the rate of rise of the water level in the tube (*Bouwer and Jackson*, 1974). The equation for K is

$$K = \frac{\pi r_w^2}{A_V} \frac{1}{t} \ln \frac{y_0}{y_t} \tag{12}$$

where A_V is a geometry factor with dimension of length. Values of A_V were evaluated with an electrolytic tank analog by *Youngs* (1968), whose results were expressed in tabular form as A_V/r_w for different values of L/r_w (ranging between 0 and 8), $(H - L)/r_w$, and $(D - H)/r_w$.

Taking a hypothetical case where $L/r_w = 8$, $H/r_w = 12$, and $D/r_w = 16$, K calculated with (5) is 18% below K calculated with (12). This is more than the 10% error normally expected with (8) and (9) for the L/H value of 0.67 in this case. The larger discrepancy may be due to the difference in methodology, or to the fact that the L/r_w value is close to the lower limit of the range covered on the resistance network analog.

An approximate equation for calculating K with the piezometer method was presented by *Hvorslev* (1951). The equation, which is based on the assumptions of an ellipsoidal cavity or well screen and infinite vertical extent (upward and downward) of the flow system, contains a term $[1 + (L/2r_w)^2]^{1/2}$. For most well-slug-test geometries, $L/2r_w$ will be sufficiently large to permit replacement of this term by $L/2r_w$. In that case, however, Hvorslev's equation for Q yields $R_e = L$, which is not true. In reality, R_e is considerably less than L. For example, if $L = 40$ m, $r_w = 0.4$ m, $H = 80$ m, and $D = \infty$, (8) shows that $R_e = 11.9$ m, which is much less than the value of 40 m indicated by Hvorslev's equation. However, since the calculation of K is based on $\ln (R_e/r_w)$ as shown by (5), the error in K is less than the error in R_e (i.e., 36 and 236%, respectively, in this case).

If, for the above example, the top of the well screen or cavity had been taken at the same level as the water table ($H = 40$ m), R_e would have been 8.6 m and Hvorslev's equation would have yielded a K value that is 50% higher than K given by (5). The larger error is probably due to Hvorslev's assumption of infinite vertical (upward) extent of the flow system, which is not met when the cavity is immediately below the water table. Using Hvorslev's equation for cavities immediately below a confining layer would increase the error to 73%, but this, of course, is due to the fact that a water table is not a solid boundary. Hvorslev's equation for the confining layer case can be shown to yield $R_e = 2L$.

Auger hole method. The analog analyses for (8) and (9) and Figure 3 were performed for $L < H$, because short circuiting between the water table and the well prevented simulation of the case where $L = H$. If the analog results are extrapolated to $L = H$, however, the geometry of the system in Figure 1 becomes similar to that of the auger hole technique, for which a number of equations and graphs have been developed to calculate K from the rise of the water level in the well (*Bouwer and Jackson*, 1974). *Boast and Kirkham* (1971), for example, developed the equation

$$K = C_{BK} \frac{\Delta y}{\Delta t} \tag{13}$$

where C_{BK} was determined mathematically and expressed in tabular form for various values of L/r_w, $(D - H)/r_w$, and y_0/H. Since the rate of rise of the water level in the hole after

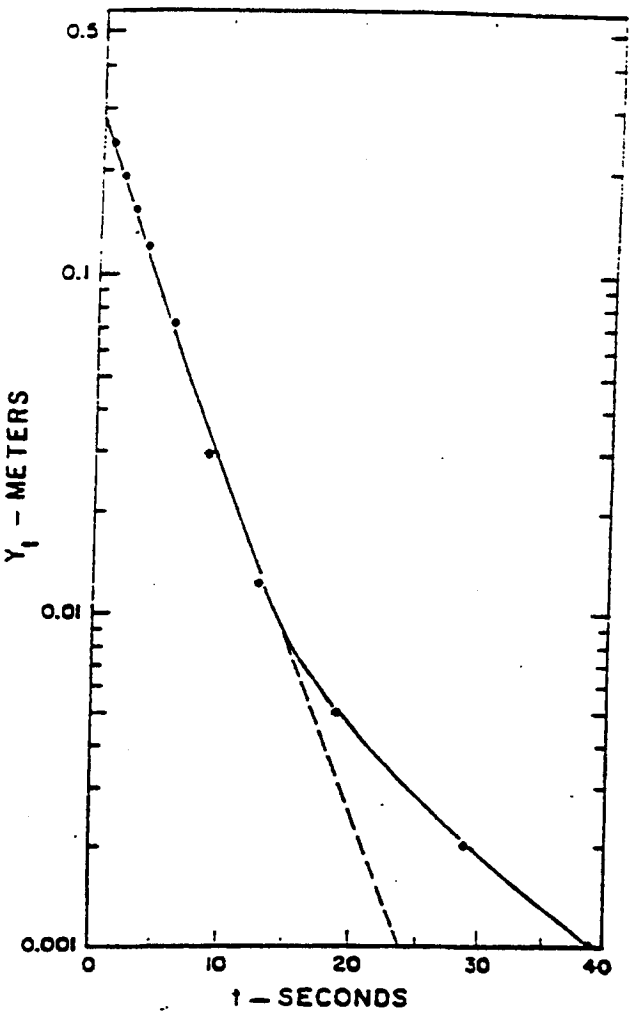

Fig. 4. Plot of y versus t for slug test on east well.

the removal of a slug of water decreases with decreasing y, $\Delta y/\Delta t$ is not a constant and the value of K obtained with this procedure depends on the magnitude of Δy used in the field measurements. The general rule is that Δy should be relatively small.

Taking a hypothetical case where $y_0 = 2.5$ m, $y_t = 2.4$ m, $\Delta t = 10$ s, $L = H = 5$ m, $D = 6$ m, and $r_w = 0.1$ m, (5) yields a K value that is 36% lower than K calculated with (13). However, if y_t is taken as 0.5 m, which should give $\Delta t = 394$ s according to the theory that $(1/t) \ln y_0/y_t$ is constant, the K value yielded by (5) is 26% higher than K obtained with (13). If y_t is taken as 0.9 m, (5) and (13) give identical results.

Slug test on wells in confined aquifers. The confined aquifer for which the slug test by *Cooper et al.* (1967) was developed is an aquifer with an internal water source, for example, recharge through aquitards or compression of confining layers or other material. This situation is similar to that of the unconfined aquifer presented in this paper because the water table is considered horizontal, like the upper boundary of a confined aquifer, and the water table is a plane source. Thus K or T calculated with (5) or (6) should be of the same order as K calculated with the procedure of *Cooper et al.* (1967), which involves plotting the rise of the water level in the well and finding the best fit on a family of type curves. *Cooper et al.* (1967) presented an example of the calculation of T for a well

with $r_c = r_w = 0.076$ m and $L = 98$ m. The resulting value of T was 45.8 m²/day. Values of D and H for this well were not given. However, since the well was 122 m deep and completely penetrating (at least theoretically), D and H must have been between 98 and 122 m. Assuming that both D and H were 100 m, (6) yields $T = 62.8$ m²/day, which is compatible with T obtained by Cooper et al.

CONCLUSIONS

The hydraulic conductivity of an aquifer near a well can be calculated from the rise of the water level in the well after a slug of water is suddenly removed. The calculation is based on the Thiem equation, using an effective radius R_e for the distance over which the head difference between the equilibrium water table in the aquifer and the water level in the well is dissipated. Values of R_e were evaluated by electrical resistance network analog. An empirical equation was then developed to relate R_e to the geometry of the system. This equation is accurate to within 10–25%, depending on how much of the well below the water table is perforated or otherwise open. The technique is applicable to partially or completely penetrating wells in unconfined aquifers. It can also be used to estimate the hydraulic conductivity of confined aquifers that receive water from the upper confining layer through recharge or compression.

The vertical distance between the rising water level in the well and the equilibrium water table in the aquifer must yield a straight line when it is plotted on a logarithmic scale against time. This can be used to check the validity of field measurements and to obtain the best-fitting line for calculating the hydraulic conductivity. Permeable aquifers produce rapidly rising water levels that can be measured with fast-response pressure transducers and strip chart recorders or x-y plotters. The portion of the aquifer sampled for hydraulic conductivity with the slug test is approximately a cylinder with radius R_e and a height somewhat larger than the perforated or otherwise open section of the well.

Hydraulic conductivity values obtained with the proposed slug test are compatible with those yielded by the auger hole and piezometer techniques where the geometries of the systems overlap, and by a slug test for completely penetrating wells in confined aquifers.

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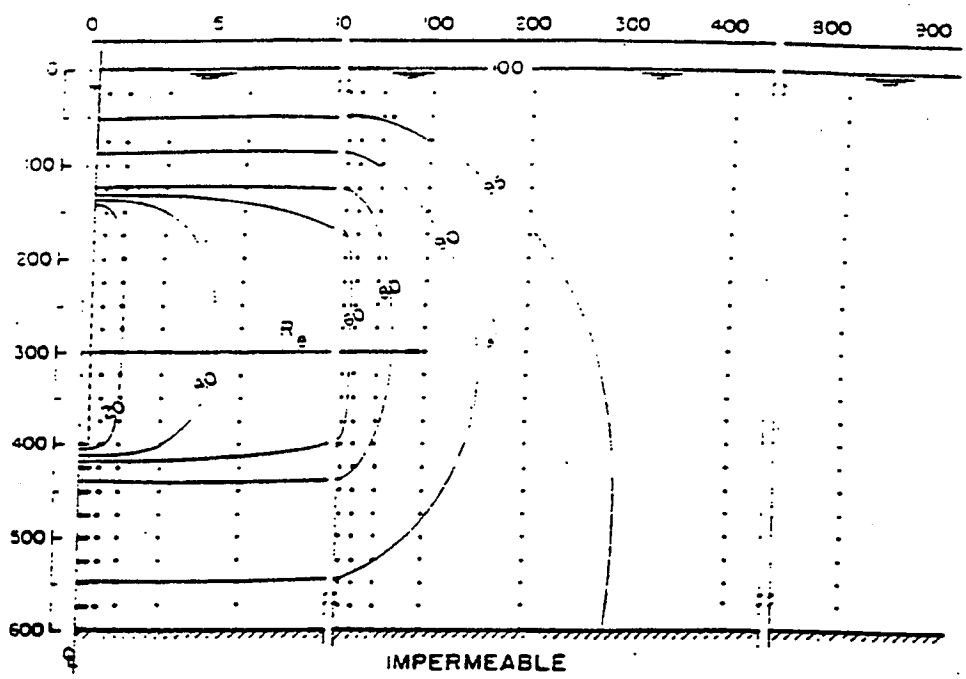

Fig. 2. Node arrangement (dots) for resistance network analog and potential distribution (indicated as percentages on equipotentials) for system with $L/r_w = 625$, $H/r_w = 1000$, and $D/r_w = 1500$. The numbers on the left and at the top of the figure are arbitrary length units (note breaks in horizontal scale).

less than the flow when the layer is taken as being infinitely permeable. The average of the two flows can then be taken as a good estimate of the flow that would occur if the aquifer were represented on the analog as being uniform to infinite depth [*Bouwer*, 1967]. This average flow was used to calculate R_e for $D = \infty$.

The analog analyses were performed by simulating a system with certain values of r_w, H, and D. The electrical current entering the 'well' was then measured for different values of L, ranging from near H to near 0. This was repeated for other values of r_w, H, and D. The condition where $L = H$ could not be simulated on the analog because it would mean a short between the water table as the source and the well as the sink. The electrical current flow in the analog was converted to volume per day, and $\ln R_e/r_w$ was evaluated with (1) for each combination of r_w, H, L, and D used in the analog.

For a given geometry described by r_w, H, and D, the current flow Q_l into the simulated well varied essentially linearly with L and could be described by the equation

$$Q_l = mL + n \tag{7}$$

Because of the linearity between Q_l and L the results of the analyses could be extrapolated to the condition $L = H$. The values of m in (7) appeared to vary inversely with $\ln H/r_w$. The values of n varied approximately linearly with $\ln [(D - H)/r_w]$, the slope A and intercept B in these relations being a function of L/r_w. This enabled the derivation of the following empirical equation relating $\ln R_e/r_w$ to the geometry of the system:

$$\ln \frac{R_e}{r_w} = \left[\frac{1.1}{\ln (H/r_w)} + \frac{A + B \ln [(D - H)/r_w]}{L/r_w}\right]^{-1} \tag{8}$$

In this equation, A and B are dimensionless coefficients that are functions of L/r_w, as shown in Figure 3. If $D \gg H$, an increase in D has no measurable effect on $\ln R_e/r_w$. The analog results indicated that the effective upper limit of $\ln [(D - H)/r_w]$ is 6. Thus if D is considered infinity or $(D - H)/r_w$ is so large that $\ln [(D - H)/r_w]$ is greater than 6, a value of 6 should still be used for the term $\ln [(D - H)/r_w]$ in (8).

If $D = H$, the term $\ln [(D - H)/r_w]$ in (8) cannot be used. The analog results indicated that for this condition, which is the case of a fully penetrating well, (8) should be modified to

$$\ln R_e/r_w = \left(\frac{1.1}{\ln (H/r_w)} + \frac{C}{L/r_w}\right)^{-1} \tag{9}$$

where C is a dimensionless parameter that is a function of L/r_w as shown in Figure 3.

Equations (8) and (9) yield values of $\ln R_e/r_w$ that are within 10% of the actual value as evaluated by analog if $L > 0.4H$ and within 25% if $L \ll H$ (for example, $L = 0.1H$).

The analog analyses were performed for wells that were closed at the bottom. Occasionally, however, wells with open bottoms were also simulated. The flow through the bottom appeared to be negligible for all values of r_w and L used in the analyses. If L is not much greater than r_w (for example, $L/r_w \ll 4$), the system geometry approaches that of a piezometer cavity [*Bouwer and Jackson*, 1974], in which case the bottom flow can be significant. Equations (8) and (9) can also be used to evaluate $\ln R_e/r_w$ if a portion of the perforated or otherwise open part of the well is isolated with packers for the slug test.

Equipotentials for the flow system around a partially penetrating, partially perforated well in an unconfined aquifer after lowering the water level in the well are shown in Figure 2. The numbers along the symmetry axis and the water table represent arbitrary length units. The numbers on the equipotentials indicate the potential as a percentage of the total head difference between the water table (100%) and the open portion of the well (0%) shown as a dashed line.

The value of R_e for the case in Figure 2 is 96.7 length units. As shown in the figure, this corresponds approximately to the

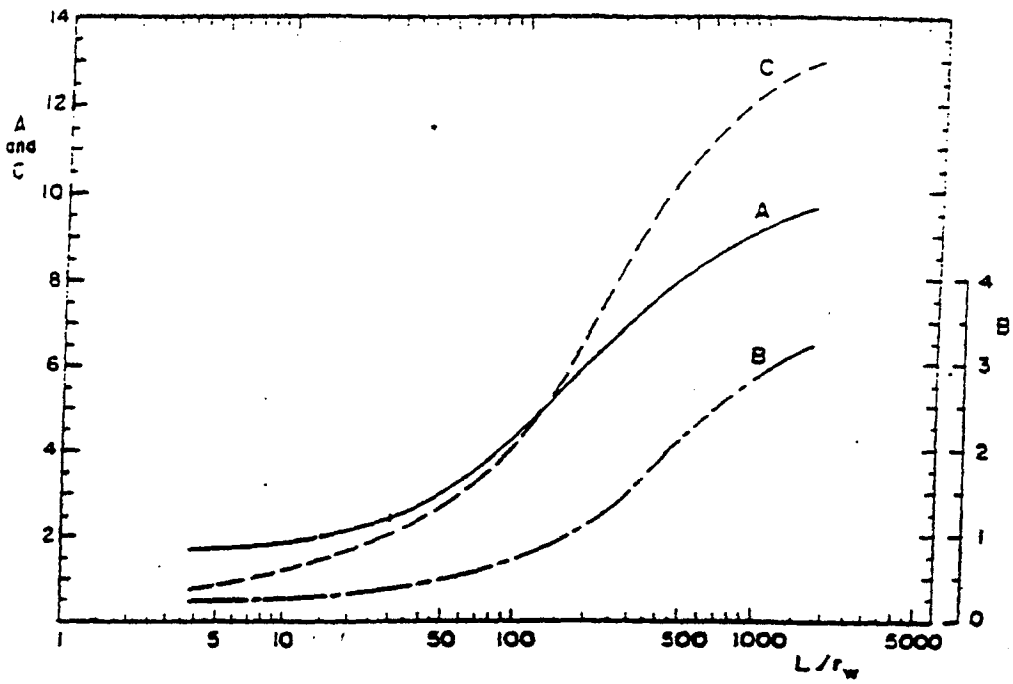

Fig. 3. Curves relating coefficients A, B, and C to L/r_w.

85% equipotential when R_e is laterally extended from the center of the open portion of the well. Thus most of the head loss in the flow system occurs in a cylinder with radius R_e, which is indicative of the horizontal extent of the portion of the aquifer sampled for K or T. The vertical extent is somewhat greater than L, as indicated by, for example, the 80% equipotential in Figure 2.

To estimate the rate of rise of the water level in a well after it is suddenly lowered, (5) can be written as

$$t = \frac{r_c^2}{2KL} \ln \frac{R_e}{r_w} \ln \frac{y_0}{y_t} \tag{10}$$

By taking $y_t = 0.9y_0$, (10) reduces to

$$t_{90\%} = 0.0527 \frac{r_c^2}{KL} \ln \frac{R_e}{r_w} \tag{11}$$

where $t_{90\%}$ is the time that it takes for the water level to rise 90% of the distance to the equilibrium level. By assuming a permeable aquifer with $K = 30$ m/day, a well with $r_c = 0.2$ m and $L = 10$ m, and $\ln (R_e/r_w) = 3$, (11) yields $t_{90\%} = 1.82$ s. Thus if y_0 is taken as 30 cm, it takes 1.8 s for the water level to rise 27 cm, another 1.8 s for the next 2.7 cm (90% of the remaining 3 cm), and another 1.8 s for the next 0.27 cm, or a total of 5.4 s for a rise of 29.97 cm. Measurement of this fast rise requires a sensitive and accurate transducer and a fast-response recorder. The rate of rise can be reduced by allowing groundwater to enter through only a portion of the open section of the well, as can be accomplished with packers.

For a moderately permeable aquifer with, for example, $K = 1$ m/day, a well with $r_c = 0.1$ m and $L = 20$ m, and $\ln (R_e/r_w) = 5$, (11) yields $t = 11.4$ s. In this case, it would take the water level 22.8 s to rise from 30 cm to 0.3 cm below static level.

EXAMPLE

A slug test was performed on a cased well in the alluvial deposits of the Salt River bed west of Phoenix, Arizona. The well, known as the east well, is located about 20 m east of six rapid infiltration basins for groundwater recharge with sewage effluent [*Bouwer*, 1970]. The static water table was at a depth of 3m. $D = 80$ m, $H = 5.5$ m, $L = 4.56$ m, $r_c = 0.076$ m, and r_w was taken as 0.12 m to allow for development of the aquifer around the perforated portion of the casing. A Statham PM131TC pressure transducer was suspended about 1 m below the static water level in the well (when trade names and company names are included, they are for the convenience of the reader and do not imply preferential endorsement of a particular product or company over others by the U.S. Department of Agriculture). A solid cylinder with a volume equivalent to a 0.32-m change in water level in the well was also placed below the water level. When the water level had returned to equilibrium, the cylinder was quickly removed. The transducer output, recorded on a Sargent millivolt recorder, yielded the y-t relationship shown in Figure 4 with y plotted on a logarithmic scale. The straight-line portion is the valid part of the readings. The actual y_0 value of 0.29 m indicated by the straight line is close to the theoretical value of 0.32 m calculated from the displacement of the submerged cylinder.

Extending the straight line in Figure 4 shows that for the arbitrarily selected t value of 20 s, $y = 0.0025$ m. Thus $(1/t) \ln y_0/y_t = 0.238$ s^{-1}. The value of $L/r_w = 38$, for which Figure 3 yields $A = 2.6$ and $B = 0.42$. Substituting these values into (8) and using the maximum value of 6 for $\ln [(D - H)/r_w]$ (since $\ln [(D - H)/r_w]$ for the well exceeds 6) yield $\ln (R_e/r_w) = 2.37$. Equation (5) then gives $K = 0.00036$ m/s $= 31$ m/day. This value agrees with K values of 10 and 53 m/day obtained previously with the tube method on two nearby observation wells [*Bouwer*, 1970]. These K values were essentially point measurements on the aquifer immediately around the well bottoms, which were at depths of 9.1 and 6.1 m, respectively.

COMPARISONS

Piezometer method. The geometry to which (8) and (9) and the coefficients in Figure 3 apply overlaps the geometry of the

The Bouwer and Rice Slug Test — An Update[a]

by Herman Bouwer[b]

ABSTRACT

The Bouwer and Rice slug test was developed to measure aquifer hydraulic conductivity around boreholes (production, monitoring, or test wells). The wells can be partially penetrating and partially screened, perforated, or otherwise open. The slug test can be based on quickly withdrawing a volume of water from the well and measuring the subsequent rate of rise of the water level in the well, or by adding a slug of water and measuring the subsequent rate of fall of the water level in the well. While originally developed for unconfined aquifers, the method can also be used for confined or stratified aquifers if the top of the screen or perforated section is some distance below the upper confining layer. Anomalies ("double straight line effect") sometimes observed in the measured rate of rise of the water level in the well are attributed to drainage of a gravel pack or developed zone around the well following lowering of the water level. The effect of this drainage can be eliminated by ignoring the early data points and using the second straight line portion in the data plot for calculation of hydraulic conductivity. The method is applicable to any diameter and depth of the borehole, provided that the dimensions of the system are covered by the ranges for which the geometry factor R_e has been worked out. The smaller the diameter of the hole, however, the more vulnerable the results will be to aquifer heterogeneities and to inaccuracies in estimating effective well diameters. Computer programs for rapid processing of the field data have been developed.

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INTRODUCTION

The slug test developed by Bouwer and Rice (1976) permits the measurement of saturated hydraulic conductivity (K) of aquifer materials with a single well. The method consists of quickly lowering or raising the water level in a well or borehole from equilibrium and measuring its subsequent rate of rise or fall, respectively. The method was designed to measure K of the aquifer around the screen or otherwise open portion of the well for fully or partially penetrating wells in unconfined aquifers. Because of its simplicity, the Bouwer and Rice slug test has become a frequently used tool in ground-water investigations. This paper addresses some of the experiences obtained with the method, including the validity of falling level tests, use of the method in confined aquifers, effect of draining gravel packs on the rise of the water level, effect of hole diameter, and computer processing of field data.

METHODOLOGY

Geometry and symbols of a slug-tested well are shown in Figure 1. The rate of flow of ground water into the well when the water level in the well is a distance y lower than the static ground-water table around the well is calculated with the Thiem equation as

$$Q = 2\pi K L_e \frac{y}{\ln(R_e/r_w)} \qquad (1)$$

where Q = volume rate of flow into well; K = hydraulic conductivity of aquifer around well; L_e = length of screened, perforated, or otherwise open section of well; y = vertical difference between water level inside well and static water table outside

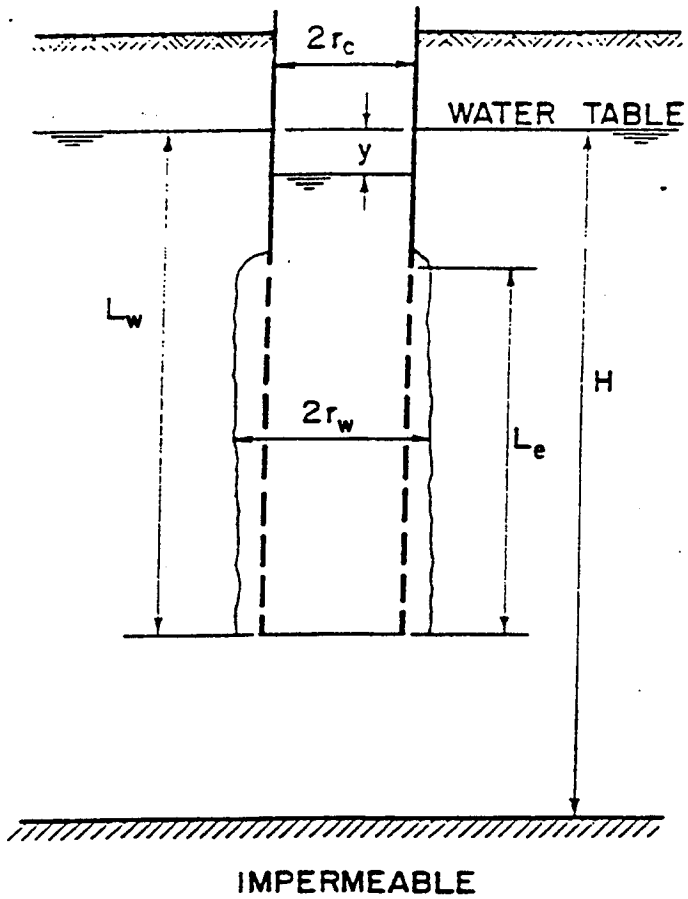

Fig. 1. Geometry and symbols for slug test on partially penetrating, partially screened well in unconfined aquifer with gravel pack and/or developed zone around screen.

well; R_e = effective radial distance over which y is dissipated; and r_w = radial distance of undisturbed portion of aquifer from centerline.

Values of R_e were determined with an electrical resistance network analog for different values of r_w, L_e, L_w, and H (see Figure 1 for meaning of geometry symbols). The value of r_w is the radius of the screened or open section of the well plus the thickness of a sand or gravel pack and/or of the developed zone around the well. Thus, r_w is the radial distance from the center of the well to normal K of the aquifer. Because the thickness of the developed zone is almost never known, the tendency is to ignore it and take only gravel or sand packs into account.

The rate of rise dy/dt of the water level in the well after the water level has been quickly lowered some distance is

$$\frac{dy}{dt} = -\frac{Q}{\pi r_c^2} \qquad (2)$$

where r_c is the radius of the casing or other section of the well where the rise of the water level is measured. If the water level rises in the screened or open section of the well with a gravel pack around it, the thickness and porosity of the gravel envelope should be taken into account when calculating the equivalent value of r_c for the rising water level. This calculation is based on the total free-water surface area in the well and sand or gravel pack, calculated as $\pi r_c^2 + \pi(r_w^2 - r_c^2)n$, where n is the porosity, and $r_w - r_c$ is the thickness of the envelope. The equivalent radius of a circle giving this total area is then calculated as $[(1-n)r_c^2 + nr_w^2]^{1/2}$. For example, if the radius of the screen or perforated casing is 20 cm and there is 8 cm gravel pack with a porosity of 30 percent, r_c should be taken as 25.9 cm, while r_w is 28 cm.

Solving equation (2) for Q, equating the resulting expression to equation (1), integrating, and solving for K yields

$$K = \frac{r_c^2 \ln(R_e/r_w)}{2L_e} \frac{1}{t} \ln \frac{y_0}{y_t} \qquad (3)$$

where y_0 = y at time zero; and y_t = y at time t.

The results of the analog analyses to evaluate R_e for various system geometries were expressed in terms of the dimensionless ratio $\ln(R_e/r_w)$. The data could be fitted into two equations, one for the case where $L_w < H$, and one where $L_w = H$. The resulting equations were, respectively,

$$\ln \frac{R_e}{r_w} = \left[\frac{1.1}{\ln(L_w/r_w)} + \frac{A + B\ln[(H-L_w)/r_w]}{L_e/r_w}\right]^{-1} \qquad (4)$$

and

$$\ln \frac{R_e}{r_w} = \left[\frac{1.1}{\ln(L_w/r_w)} + \frac{C}{L_e/r_w}\right]^{-1} \qquad (5)$$

where A, B, and C are dimensionless numbers plotted in Figure 2 as a function of L_e/r_w.

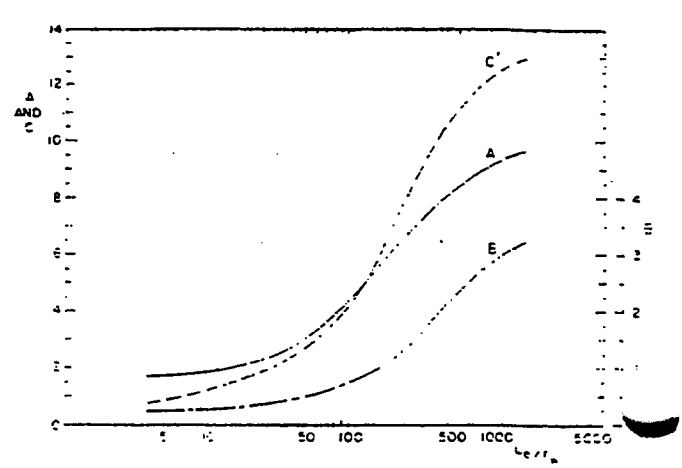

Fig. 2. Dimensionless parameters A, B, and C as a function of L_e/r_w for calculation of $\ln(R_e/r_w)$.

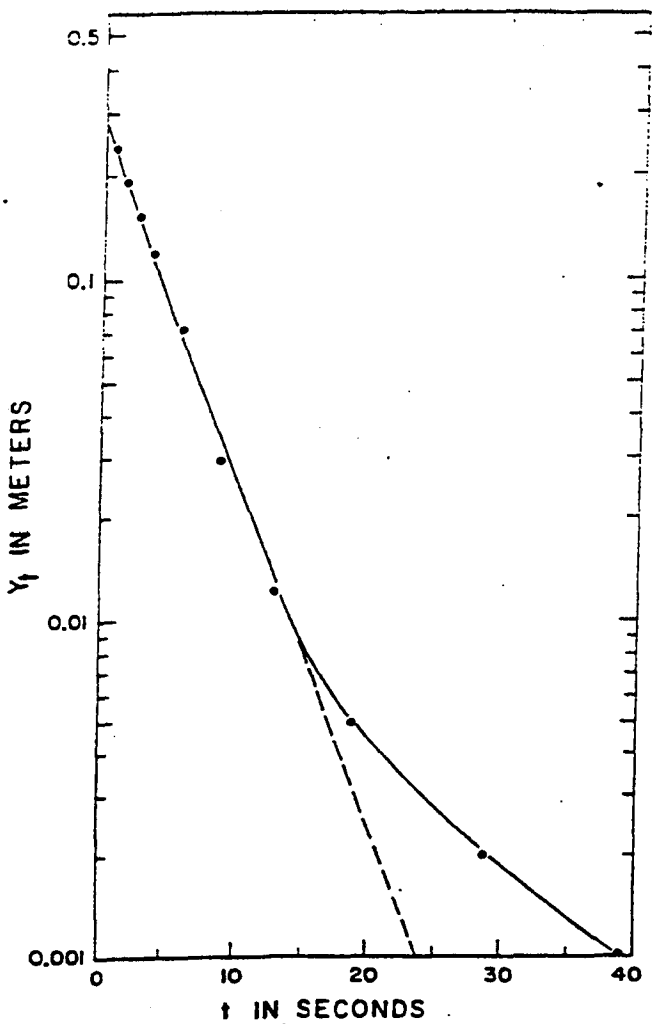

Fig. 3. Graph of log y_t versus t for slug test on well in Salt River Bed, 27th Avenue, Phoenix, Arizona.

Because y and t are the only variables in equation (3), a plot of ln y_t versus t must show a straight line. Thus, instead of calculating K on the basis of two measurements of y and t (y_0 at t = 0 and y_t at t), a number of y and t measurements can be taken and $[\ln(y_0/y_t)]/t$ determined as the slope of the best-fitting line through the y versus t points on semilogarithmic paper (Figure 3). The straight line through the data points can also be used to select two values of y, namely, y_0 and y_t, along with the time interval t between them for substitution into equation (3). Because drawdown of the ground-water table around the well becomes increasingly significant as the test progresses, the points as in Figure 3 begin to deviate from the straight line for large t and small y. Thus, only the straight line portion of the data points should be used to evaluate $[\ln(y_0/y_t)]/t$ for calculation of K with equation (3).

The slug test can be used on production wells, test wells, observation wells, and monitoring wells. Objectives for the measurements include characterization of aquifer hydraulic conductivity for modeling, ground-water recharge studies, and ground-water pollution studies. The method is particularly useful in ground-water contamination studies because the slug test can be carried out on the same wells used for ground-water quality monitoring. Also, combining the resulting values of hydraulic conductivity with the porosity of the aquifer and slopes of the ground-water table or piezometric surface permits the prediction of pore-water velocities and, hence, the rate of movement of pollution plumes and transport of contaminants. The slug test can also be useful in determining vertical distribution of hydraulic conductivities in an aquifer system and other spatial variability of hydraulic conductivity in studies of macrodispersion and movement of contaminants.

Over the years, a number of questions and comments about the slug test have been received. These questions and comments are addressed in the following sections.

DOUBLE STRAIGHT LINE EFFECT

Users of the slug test have observed that when plotting log y_t versus t as in Figure 3, they sometimes get a double straight line as shown schematically in Figure 4. The first part (AB) is straight and steep, whereas the next part (BC) is straight and less steep. Then, at point C, the points begin their expected deviation from the straight line as

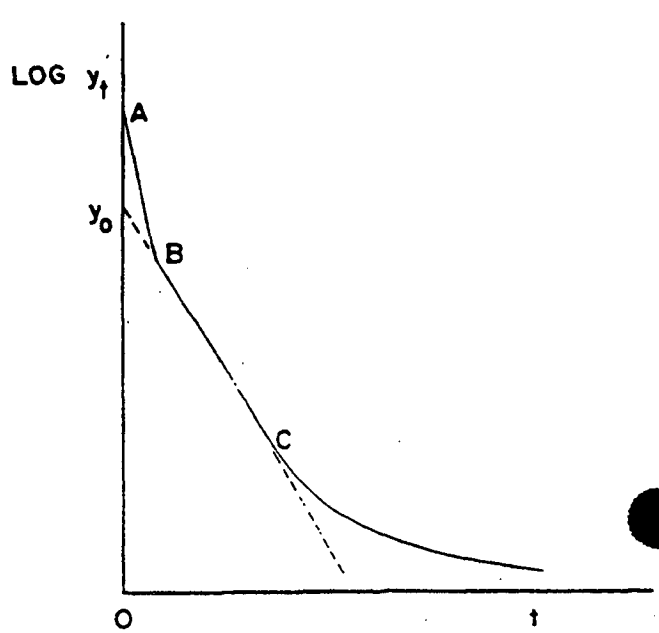

Fig. 4. Schematic of double straight line effect.

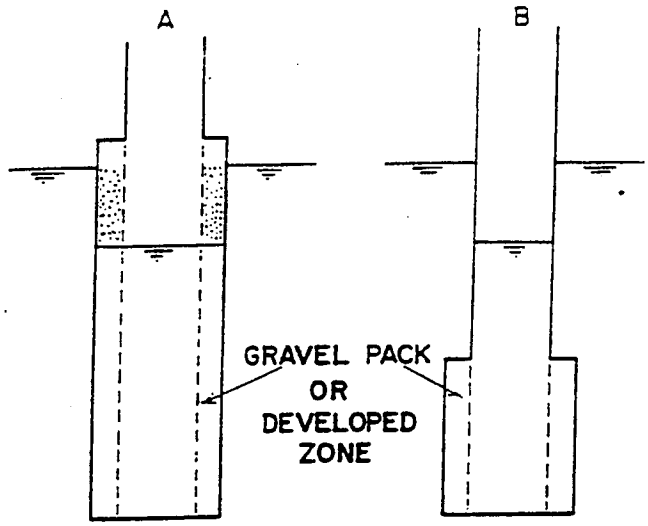

Fig. 5. Slug test for borehole with ground-water level below (A), and above (B) top of screen or perforated section.

the drawdown around the hole becomes significant relative to y_t. The first straight line portion in Figure 4 is probably due to a highly permeable zone around the well (gravel pack or developed zone), which quickly sends water into the well immediately after the water level in the well has been lowered (Figure 5A). Then, when the water level in the permeable zone around the well has drained to the water level in the well itself, the flow into the well slows down and the points begin to form a second, less steep, straight line (BC in Figure 4). This second straight line is more indicative of the flow from the undisturbed aquifer into the well. Hence, segment BC should be used in calculating K of the aquifer with equation (3). In the original 1976 article, gravel envelopes or developed zones were assumed to drain at the same rate as the water level in the borehole when it is lowered for the slug test, i.e., essentially instantaneously. However, some gravel packs or developed zones apparently are not permeable enough to give such instantaneous drainage.

If the ground-water table is above the screened or open section of the borehole, and the water level in the hole is not lowered so far that it drops below the top of the open section (Figure 5B), the gravel envelope or developed zone around the open section cannot drain. The inflow into the hole then is immediately controlled by the aquifer, and the double straight line effect should not occur. If it still occurs, it could indicate leakage around the casing or grouting above the gravel pack.

Where the double straight line is due to a gravel pack around the well, the effective well radius r_w should be taken as the radial distance from the center of the well to the outer surface the gravel pack. Where the double straight line is due to a naturally developed zone around the well, r_w is harder to evaluate and an "intelligent" estimate must be made. It may also be possible to estimate r_w from the value of y at point B in Figure 4. Considering the volume of water in the well between y_A and y_B in Figure 4 to be due to the drainage of the gravel pack or developed zone, and knowing or estimating the drainable porosity of the gravel pack or developed zone, the radial extent of this zone can be calculated for evaluation of r_w. Capillary fringe effects do not have to be considered, since the capillary fringe was also present in the pack or in the developed zone before the water level was lowered. Because the rising water level in the hole during the slug test will also fill up the drained pore space of the gravel pack or developed zone, the value of r_c in the equation for calculation of K should be adjusted to take this effect into account, as discussed earlier in this article.

Conceivably, a well could have a gravel pack surrounded by a less permeable developed zone before the original aquifer material is reached. This could lead to a triple straight line effect, with an intermediate straight line portion at point B, or a curved transition zone at B if the hydraulic conductivity of the developed zone gradually decreases until K of the original aquifer material is reached. By the same token, portion AB in Figure 4 could also be curved if the hydraulic conductivity of the gravel pack or developed zone immediately around the well decreases with radial distance from the well.

FALLING WATER LEVEL TEST

The slug test was developed for a rising water level in the borehole, as obtained by quick removal of a certain volume or slug of water. This can be achieved by bailing, (quick) pumping, or by immersing a section of pipe filled with sand or other ballast and closed with caps on both ends, or other submersible object, in the borehole, letting the water level in the borehole return to equilibrium, and quickly removing the submerged object. The question is often raised: can the method also be used when a volume of water is quickly added to the hole and the subsequent rate of fall of the water level in the hole is measured for calculation of K? The answer is yes, provided that the equilibrium water level is above the screened or open section of the borehole (Figures 1 and 5B). In this

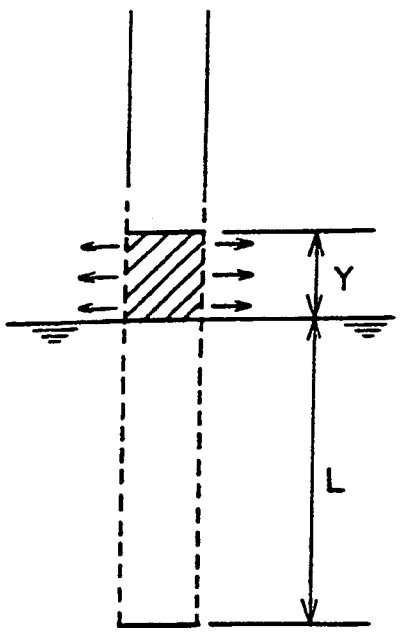

Fig. 6. Schematic of addition of water (hatched section) to borehole with equilibrium water level below top of screen or perforated section, with outflow of water into vadose zone (horizontal arrows).

case, the outflow from the well due to the falling water level occurs only through the screened or open section of the well, and the flow system in the aquifer is a true reverse of the flow system for the rising water level after a slug of water has been removed (ignoring, of course, eventual rises and drawdowns of the ground-water table immediately around the borehole if the aquifer is unconfined). Thus, equations (3), (4), and (5) are also applicable to the addition of a slug of water and measuring the subsequent rate of fall of the water level in the borehole for calculation of K of the aquifer around the hole.

If the equilibrium water level in the borehole is below the top of the screen or open section (Figure 6), and water is added (hatched section in Figure 6), the subsequent flow of water into the aquifer due to the falling water level not only takes place through the screen or perforations below the original water table, but also through the vadose zone above the original water table (arrows in Figure 6). This increases the rate of fall of the water level in the borehole beyond that caused by inflow into the aquifer and leads to an overestimation of K. The greater the ratio of y/L (Figure 6) in this case, the more the slug test will overestimate K if the measurement is based on adding water to the hole and measuring the subsequent rate of fall of the water level.

APPLICATION OF SLUG TEST TO CONFINED AQUIFERS

Theoretically, the slug test (Bouwer and Ric 1976) applies to aquifers where the upper bound ary is a plane source (rising water-level test) or sink (falling water-level test), as in an unconfined aquifer. However, because most of the head difference y between the static water table and the water level in the well is dissipated in the vicinity of the well around the screen or perforated section, the method should also be applicable to situations where the upper boundary of the aquifer is an impermeable or semipermeable plane, i.e., an impermeable or semipermeable upper confining layer. Thus the slug test should also give reasonable values for K in confined, semiconfined, or stratified aquifers. Theoretically, the larger the distance between the top of the screened or open section of the well and the upper confining layer (like $L_w - L_e$ in Figure 1), the more accurate the resulting values of K will be. In actuality, however, source boundaries of ground water flowing into the well in response to lowering the water level are hard to define because of elastic deformation of aquifer material and confining and interbedded fine-textured layers, and because of leakage through semiconfining layers.

EFFECT OF WELL DIAMETER

Theoretically, the Bouwer and Rice slug test applies to any diameter of the borehole. Practically, the hole dimensions should be selected so that the geometry parameters are covered by Figure 2. The larger r_w and L_e (Figure 1), the larger the portion of the aquifer on which K is determined. For layered aquifers, smaller values of L_e may sometimes be preferable because they give more resolution and more information about the vertical distribution of K when the slug test is carried out at different depths. Very small hole diameters (for example 2 in. or 5 cm) should still give accurate values for K, but the values apply to only a small region around the well and, hence, are more sensitive to spatial variability. Also, inaccuracies in the estimates of the thickness of gravel envelopes and developed zones have a greater effect on the calculated values of K where r_c is small than where r_c is large.

PROCESSING OF y VERSUS t MEASUREMENTS

To calculate $1/t \ln(y_0/y_t)$ for the appropriate straight line portion of curves as in Figure 3 or 4, two values of y on the straight line and their

corresponding values of t are read from the graph. The natural logarithm of the ratio y_0/y_t is then taken and divided by the difference between the two values of t. For example, Figure 3 shows that at y is 0.28 m and 0.001 m, t is 0 and 24 seconds, respectively. This yields

$1/t \ln(y_0/y_t) = 1/24 \ln(0.28/0.001) = 0.23$ m/sec.

If $1/t \ln(y_0/y_t)$ is calculated from the slope of the curve, the number of log cycles on the vertical scale between the two points is divided by the time increment and multiplied by 2.3 to convert to natural logarithm. For example, Figure 3 shows that the straight line from $y_0 = 0.28$ m to $y_t = 0.001$ m covers 2.4 log cycles. The time increment between the two points is again 24 seconds, yielding $1/t \ln(y_0/y_t) = 2.3 \times 2.4/24 = 0.23$ m/sec, which is the same as calculated earlier. Because of different coordinate scales in plots of log y versus t, the value of $1/t \ln(y_0/y_t)$ cannot be taken as the actual slope of the straight line portion!

ESTIMATING RATE OF RISE OR FALL OF WATER LEVEL IN WELL

If the water level in a slug-tested well rises or falls at a relatively slow rate, simple water-level measuring devices and a stop watch may be all that is needed to do the test. Fast-moving water levels, however, require the use of a pressure transducer and a fast-acting x-y plotter. To get some idea about the rate of water-level movement that can be expected in a slug-tested well and what equipment to use, equation (3) can be solved for t and $\ln(y_0/y_t)$ can be taken as ln 10 to calculate the time $t_{90\%}$ required for the water level in the well to rise or fall 90% of the initial lowering or raising, respectively, of the water level in the well. This yields the equation

$$t_{90\%} = 1.15 \frac{r_c^2}{KL_e} \ln \frac{R_e}{r_w} \qquad (6)$$

where K must be taken as the estimated or expected value of K of the aquifer. Equation (6) yields values of t that are 22 times greater than the t values calculated by the $t_{90\%}$ equation in the original article (Bouwer and Rice, 1976), where $\ln(y_0/y_t)$ was erroneously taken as ln 0.9, thus yielding the time required for only 10% of the water-level rise or fall to occur.

COMPUTER PROGRAMS

Where the Bouwer and Rice slug test is routinely used, time for calculating K with equation (3) is saved by developing a computer program in which values of L_e/r_w are stored for direct calculation of $\ln(R_e/r_w)$ and K from the field data. Such programs have been developed by several users (see, for example, Pandit and Miner, 1986; and Kemblowski and Klein, 1988). Also, a number of users have designed forms for easy and systematic recording of field data.

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Herman Bouwer received B.S. and M.S. degrees in 1949 and 1952 in Drainage, Reclamation, and Irrigation from the National Agricultural University at Wageningen, The Netherlands, and a Ph.D. degree in 1955 in Soil and Water Management from Cornell University, New York. He was associated with the Agricultural Engineering Department of Auburn University, Alabama, from 1955 to 1959, before joining the U.S. Water Conservation Laboratory in Phoenix, Arizona, where he became Director in 1972. In 1970, he also was appointed Adjunct Professor at Arizona State University in Tempe where he taught Ground-Water Hydrology in the Geology and Civil Engineering Departments. He is also an Adjunct Professor at the University of Arizona in Tucson.

Response of a Finite-Diameter Well to an Instantaneous Charge of Water[1]

HILTON H. COOPER, JR., JOHN D. BREDEHOEFT, AND ISTAVROS S. PAPADOPULOS

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Abstract. A solution is presented for the change in water level in a well of finite diameter after a known volume of water is suddenly injected or withdrawn. A set of type curves computed from this solution permits a determination of the transmissibility of the aquifer. (Key words: Aquifer tests; groundwater; hydraulics; permeability)

INTRODUCTION

Ferris and Knowles [1954] introduced a method for determining the transmissibility of an aquifer from observations of the water level in a well after a known volume of water is suddenly injected into the well. (See also *Ferris et al.* [1962]). They reasoned that for practical purposes the well may be approximated by an instantaneous line source in the infinite region, for which the residual head differences due to the injection are described by

$$h = (V/4\pi Tt)e^{-r^2S/4Tt} \qquad (1)$$

where

h = change in head at distance r and time t due to the injection;
r = distance from the line source or center of well;
t = time since instantaneous injection;
V = volume of water injected;
T = transmissibility of aquifer;
S = coefficient of storage of aquifer.

They reasoned further that the head H in the injected well would be described closely by (1) when r is set equal to the *effective radius* r_e [*Jacob*, 1947, p. 1049] of the screen or open hole. Then, since r_e is small, the exponential approaches unity quickly, so that the equation approaches $H = V/4\pi Tt$, which can be written

$$T = V(1/t)/4\pi H \qquad (2)$$

To the extent that the equation is valid for a well of finite diameter, a determination of the transmissibility can be obtained from the slope of a plot of head H versus the reciprocal of time $(1/t)$.

Since the volume of water injected into the well is $\pi r_e^2 H_0$, where r_e is the radius of the casing in the interval over which the water level fluctuates and H_0 is the initial head increase in the well, equation 1 can be written

$$h/H_0 = (r_e^2/4Tt)e^{-r^2S/4Tt} \qquad (3)$$

and equation 2 can be written

$$H/H_0 = r_e^2/4Tt \qquad (4)$$

Recently *Bredehoeft et al.* [1966] demonstrated by means of an electrical analog model of a well-aquifer system that equation 3 gives a satisfactory approximation of the head in an injected well only after the time t is large enough for the ratio H/H_0 to be very small (see Figure 1). The observed discrepancy appears to arise from the assumption that the injected well can be approximated by a line source.

We present here an exact solution for the head in and around a well of finite diameter after the well is instantaneously charged with a known volume of water.

ANALYSIS

Consider a nonflowing well cased to the top of a homogeneous isotropic artesian aquifer of uniform thickness, and screened (or open) throughout the thickness of the aquifer (Figure 2). Suppose that the well is instantaneously charged with a volume V of water. (We will consider

[1] Publication authorized by the Director, U. S. Geological Survey.

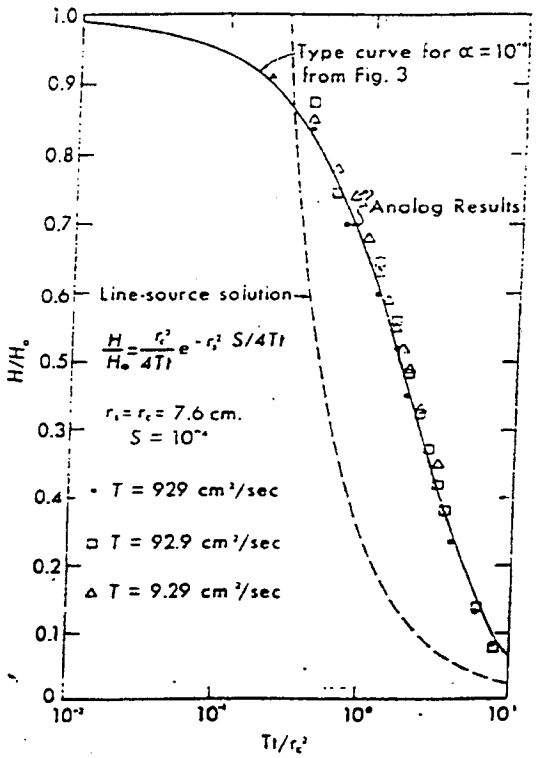

Fig. 1. Comparison of analog results with curve representing line-source solution.

an injection as a positive charge and a withdrawal as a negative one.) The water level in the well instantaneously moves to the height $H_o = V/\pi r_c^2$ above or below its initial level and immediately begins to return to its initial level according to some function of time $H(t)$. Meanwhile the head in the surrounding aquifer varies according to $h(r, t)$. Our objective is to find a solution for $h(r, t)$ and $H(t)$. The inertia of the column of water in the well will be neglected. (See, in this connection, *Bredehoeft et al.* [1966]). Since the solution to be obtained can be superposed on any initial condition, we can simplify the problem without loss of generality by assuming that the head is initially uniform and constant.

The problem is described mathematically by

$$\partial^2 h/\partial r^2 + 1/r(\partial h/\partial r) = S/T(\partial h/\partial t) \qquad (r > r_s) \qquad (5)$$

$$h(r_s + 0, t) = H(t) \qquad (t > 0) \qquad (5a)$$

$$h(\infty, t) = 0 \qquad (t > 0) \qquad (5b)$$

$$2\pi r_s T[\partial h(r_s + 0, t)]/\partial r = \pi r_c^2(\partial H(t)/\partial t) \qquad (t > 0) \qquad (5c)$$

$$h(r, 0) = 0 \qquad (r > r_s) \qquad (5d)$$

$$H(0) = H_0 = V/\pi r_c^2 \qquad (5e)$$

Equation 5 is the differential equation governing nonsteady radial flow of confined groundwater. (See, for example, *Jacob*, 1950, p. 333.) Boundary condition 5*a* states that after the first instant the head in the aquifer at the face of the well is equal to that in the well. Boundary condition 5*b* states that as r approaches infinity the change in head approaches zero. Equation 5*c* expresses the fact that the rate of flow of water into (or out of) the aquifer is equal to the rate of decrease (or increase) in volume of water within the well. The conditions 5*d* and 5*e* state that initially the change in head is zero everywhere outside the well and equal to H_o inside the well.

By applying the Laplace transform with respect to time the problem is reduced to

$$\partial^2\bar{h}/\partial r^2 + 1/r\,(\partial\bar{h}/\partial r) = (S/T)\,(p\bar{h}) \qquad (6)$$

$$\bar{h}(\infty, p) = 0 \qquad (6a)$$

$$[\partial\bar{h}(r_s + 0, p)]/\partial r = (r_c^2/2r_sT)[p\bar{h}(r_s + 0, p) - H_o] \qquad (6b)$$

for which the solution is

$$\bar{h}(r, p) = \frac{r_s S H_o K_o(rq)}{Tq[r_s q K_o(r_s q) + 2\alpha K_o(r_s q)]} \qquad (7)$$

where $q = (pS/T)^{\frac{1}{2}}$, and $\alpha = r_c^2 S/r_s^2$. The solution $h(r, t)$ is the inverse transform, which is available from the analogous problem in heat flow [*Carslaw and Jaeger*, 1959, p. 342]

$$h = \frac{2H_o}{\pi}\int_0^\infty e^{-\beta u^2/\alpha}\{J_0(ur/r_s) \cdot [uY_0(u) - 2\alpha Y_1(u)] - Y_0(ur/r_s) \cdot [uJ_0(u) - 2\alpha J_1(u)]\}\frac{du}{\Delta(u)} \qquad (8)$$

where $\beta = Tt/r_s^2$ and

$$\Delta(u) = [uJ_0(u) - 2\alpha J_1(u)]^2 + [uY_0(u) - 2\alpha Y_1(u)]^2$$

Fig. 2. Idealized

The head $H(t)$ inside
stituting $r = r_s$ in eq

$$H = (8H_o\alpha/\pi$$

Values of H/H_o con
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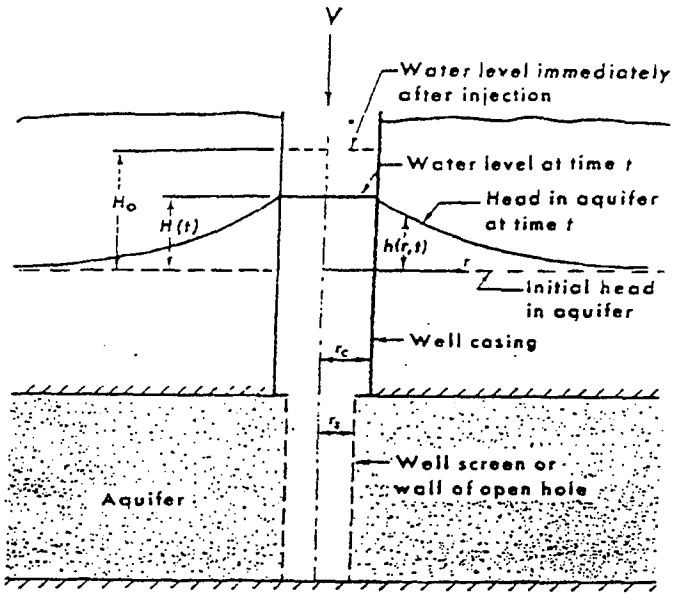

Fig. 2. Idealized representation of a well into which a volume V of water is suddenly injected.

The head $H(t)$ inside the well, obtained by substituting $r = r_s$ in equation 8, is

$$H = (8H_0\alpha/\pi^2) \int_0^\infty e^{-\beta u^2/\alpha}\, du/(u\,\Delta(u)) \qquad (9)$$

Values of H/H_0 computed by numerically integrating equation 9 are given in Table 1. Values computed from the line-source solutions, equations 3 and 4, are given in Table 2. In Figure 3 the values from Table 1 are represented as a family of five curves of H/H_0 versus the dimensionless time parameter $\beta = Tt/r_s^2$, one curve for each of five values of the parameter $\alpha = r_s^2S/r_c^2$. Also represented, by a dashed curve, are the values computed from equation 4.

It is apparent from Tables 1 and 2 and from Figure 3 that the line-source solutions 3 and 4 proposed by *Ferris and Knowles* [1954] give a close approximation of the finite-source solution 9 only for large values of the time parameter Tt/r_s^2. The approximation seems to be acceptable for Tt/r_s^2 greater than 100 (or, equivalently, for H/H_0 less than about 0.0025). (In the test at Speedway City, Indiana, used by Ferris and Knowles to exemplify their method, H/H_0 ranged from 0.01 to 0.001, and the value of transmissibility determined from these data agreed fairly well with one obtained by another method.)

A family of type curves plotted on semilogarithmic paper, as in Figure 3, permits a determination of the transmissibility. The method is similar to the Theis graphical method [*Wenzel*, 1942]. A test on a well near Dawsonville, Georgia, will be used to demonstrate the method. This well is cased to 24 m with 15.2-cm (6-inch) casing and drilled as a 15.2-cm open hole to a depth of 122 m. Figure 4 is a reproduction of a chart showing the hydrograph of the well after the sudden withdrawal of a long weighted float from the well. The weight of the float was 10.16 kilograms, and hence by the principle of Archimedes it had displaced a volume of 0.01016 m³ of water when floating in the well. Its withdrawal was therefore equivalent to a negative charge of $V = 0.01016$ m³. From the relation $H_0 = V/\pi r_c^2$ the initial head change is found to be $H_0 = 0.560$ m.

The hydrograph in Figure 4 was recorded electrically from a pressure transducer, which was suspended below the water surface in the well. Table 3 lists data from this chart. To determine the aquifer constants the data are

TABLE 1. Values of H/H_0 for a Well of Finite Diameter (computed from equation 9)

Tt/r_c^2	H/H_0				
	$\alpha = 10^{-1}$	$\alpha = 10^{-2}$	$\alpha = 10^{-3}$	$\alpha = 10^{-4}$	$\alpha = 10^{-5}$
1.00×10^{-3}	0.9771	0.9920	0.9969	0.9985	0.9992
2.15×10^{-3}	0.9658	0.9876	0.9949	0.9974	0.9985
4.64×10^{-3}	0.9490	0.9807	0.9914	0.9954	0.9970
1.00×10^{-2}	0.9238	0.9693	0.9853	0.9915	0.9942
2.15×10^{-2}	0.8860	0.9505	0.9744	0.9841	0.9888
4.64×10^{-2}	0.8293	0.9187	0.9545	0.9701	0.9781
1.00×10^{-1}	0.7460	0.8655	0.9183	0.9434	0.9572
2.15×10^{-1}	0.6289	0.7782	0.8538	0.8935	0.9167
4.64×10^{-1}	0.4782	0.6436	0.7436	0.8031	0.8410
1.00×10^{0}	0.3117	0.4598	0.5729	0.6520	0.7080
2.15×10^{0}	0.1665	0.2597	0.3543	0.4364	0.5038
4.64×10^{0}	0.07415	0.1086	0.1554	0.2082	0.2620
7.00×10^{0}	0.04625	0.06204	0.08519	0.1161	0.1521
1.00×10^{1}	0.03065	0.03780	0.04821	0.06355	0.08378
1.40×10^{1}	0.02092	0.02414	0.02844	0.03492	0.04426
2.15×10^{1}	0.01297	0.01414	0.01545	0.01723	0.01999
3.00×10^{1}	0.009070	0.009615	0.01016	0.01083	0.01169
4.64×10^{1}	0.005711	0.005919	0.006111	0.006319	0.006554
7.00×10^{1}	0.003722	0.003809	0.003884	0.003962	0.004046
1.00×10^{2}	0.002577	0.002618	0.002653	0.002688	0.002725
2.15×10^{2}	0.001179	0.001187	0.001194	0.001201	0.001208

plotted on semilogarithmic paper of the same scale as that of the type curves in Figure 3, and this plot is superposed on the type curves. With the arithmetic axes coincident, the data plot is translated horizontally to a position where the data best fit the type curves, as

TABLE 2. Values of H/H_0 for Line-source Approximation of a Well

Tt/r_c^2	H/H_0 from equation 3					H/H_0 from eq. 4
	$\alpha = 10^{-1}$	$\alpha = 10^{-2}$	$\alpha = 10^{-3}$	$\alpha = 10^{-4}$	$\alpha = 10^{-5}$	
1.00×10^{-3}	0.000000	20.52	194.7	243.8	249.4	250.0
2.15×10^{-3}	0.001035	36.35	103.5	115.0	116.2	116.3
4.64×10^{-3}	0.2463	31.44	51.05	53.59	53.85	53.88
1.00×10^{-2}	2.052	19.47	24.38	24.94	24.99	25.00
2.15×10^{-2}	3.635	10.35	11.50	11.62	11.63	11.63
4.64×10^{-2}	3.144	5.105	5.359	5.385	5.388	5.388
1.00×10^{-1}	1.947	2.438	2.494	2.499	2.500	2.500
2.15×10^{-1}	1.035	1.150	1.162	1.163		1.163
4.64×10^{-1}	0.5105	0.5359	0.5385	0.5388		0.5388
1.00×10^{0}	0.2438	0.2494	0.2499	0.2500		0.2500
2.15×10^{0}	0.1150	0.1162	0.1163			0.1163
4.64×10^{0}	0.05359	0.05385	0.05388			0.05388
7.00×10^{0}	0.03558	0.03570	0.03571			0.03571
1.00×10^{1}	0.02494	0.02499	0.02500			0.02500
1.40×10^{1}	0.01783	0.01786				0.01786
2.15×10^{1}	0.01162	0.01163				0.01163
3.00×10^{1}	0.008326	0.008333				0.008333
4.64×10^{1}	0.005385	0.005388				0.005388
7.00×10^{1}	0.003570	0.003571				0.003571
1.00×10^{2}	0.002499	0.002500				0.002500
2.15×10^{2}	0.001163					0.001163

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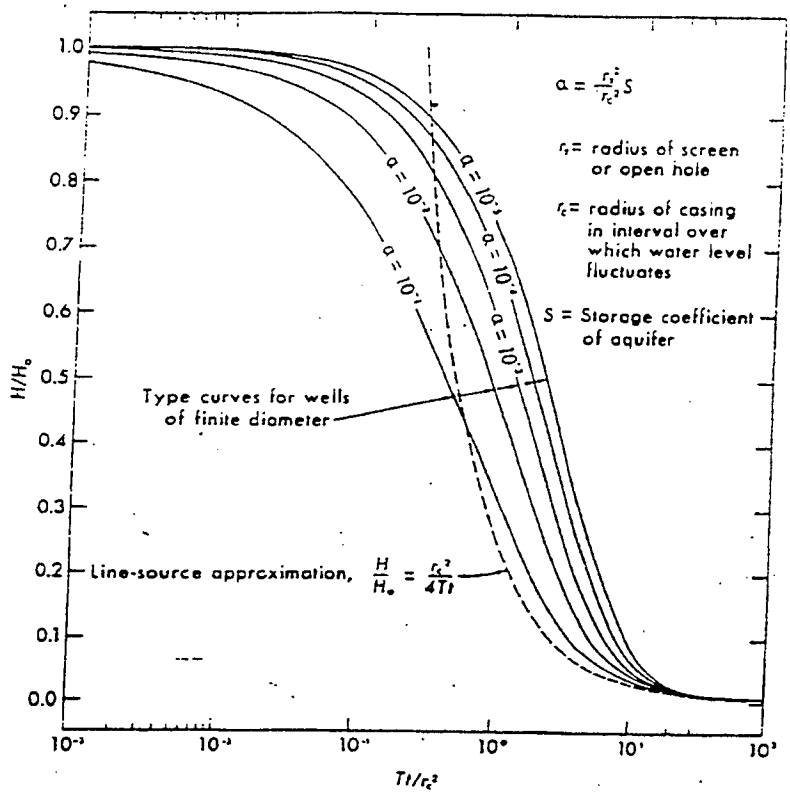

Fig. 3. Type curves for instantaneous charge in well of finite diameter.

shown in Figure 5. In this position the time $t = 11$ sec on the data coordinates is found to overlie the value $Tt/r_c^2 = 1.0$ on the type-curve coordinates. Hence the transmissibility is computed to be

$$T = \frac{1.0 r_c^2}{t} = \frac{(1.0)(7.6)^2}{(11)} = 5.3 \text{ cm}^2/\text{sec}$$

In principle the coefficient of storage can be determined by interpolating from its values for the curves that lie on either side of the data plot in the matched position. Thus, in the example just described, the coefficient of storage would be $S = 10^{-3}$, since for this well $r_s = r_c$, so that $\alpha = S$, and the points fall on the curve for $\alpha = 10^{-3}$. However, because the matching of data plot to the type curves depends upon the shapes of the type curves, which differ only slightly when α differs by an order of magnitude, a determination of S by this method has questionable reliability.

The determination of T is not so sensitive to the choice of the curves to be matched. Whereas the determined value of S will change by an

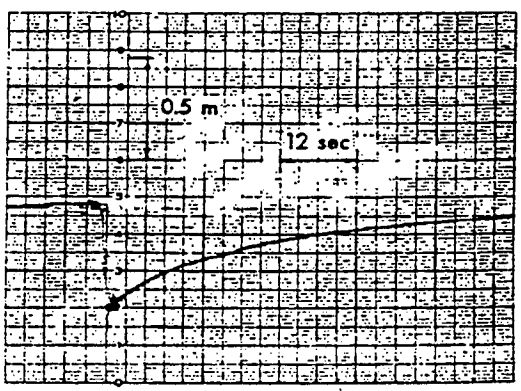

Fig. 4. Hydrograph of well at Dawsonville, Georgia, showing response of water level to the sudden withdrawal of a weighted float.

TABLE 3. Rise of Water Level in Dawsonville Well after Instantaneous Withdrawal of Weighted Float

t (sec)	$1/t$	Head (m)	H (m)	H/H_0
−1		0.896		
0		0.336	0.560	1.000
3	0.333	0.439	0.457	0.816
6	0.167	0.504	0.392	0.700
9	0.111	0.551	0.345	0.616
12	0.0833	0.588	0.308	0.550
15	0.0667	0.616	0.280	0.500
18	0.0556	0.644	0.252	0.450
21	0.0476	0.672	0.224	0.400
24	0.0417	0.691	0.205	0.366
27	0.0370	0.709	0.187	0.334
30	0.0333	0.728	0.168	0.300
33	0.0303	0.747	0.149	0.266
36	0.0278	0.756	0.140	0.250
39	0.0256	0.765	0.131	0.234
42	0.0238	0.784	0.112	0.200
45	0.0222	0.788	0.108	0.193
48	0.0208	0.803	0.093	0.166
51	0.0196	0.807	0.089	0.159
54	0.0185	0.814	0.082	0.146
57	0.0175	0.821	0.075	0.134
60	0.0167	0.825	0.071	0.127
63	0.0159	0.831	0.065	0.116

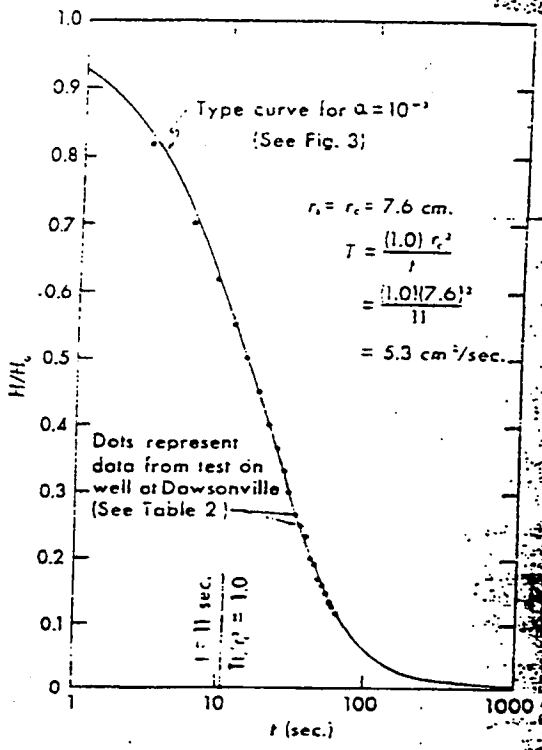

Fig. 5. Plot of data from test at Dawsonville, Georgia, superposed on type curve.

order of magnitude when the data plot is moved from one type curve to another, that of T will change much less. From a knowledge of the geologic conditions and other considerations one can ordinarily estimate S within an order of magnitude and thereby eliminate some of the doubt as to what value of α is to be used for matching the data plot.

Figure 6 shows the data from the test on the Dawsonville well plotted according to the Ferris-Knowles method. The points do not fall along a straight line as postulated in this method but, instead, fall along the trace of the type curve for $\alpha = 10^{-3}$, which has been transferred from Figure 5. Also shown is a straight line through the origin whose slope, when used according to the Ferris-Knowles method, will yield the transmissibility of 5.3 cm²/sec obtained by matching the data to the type curves.

CONCLUSION

The judgment of an experienced hydrologist is needed to decide the significance, if any, of a determination of T by the method of instantaneous charge. As *Ferris et al.* [1962] properly warned

> the duration of a 'slug' test is very short, hence the estimated transmissibility determined from the test will be representative only of the water-bearing material close to the well. Serious errors will be introduced unless the . . . well is fully developed and completely penetrates the aquifer.

Few wells completely penetrate an aquifer, but it is nevertheless possible under some circumstances for a hydrologist to derive useful information from a test on a partially penetrating well. Since the vertical permeabilities of most stratified aquifers are only small fractions of the horizontal permeabilities, the induced flow within the small radius of the cone that develops during the short period of observation is likely to be essentially 2-dimensional. Therefore, the determined value of T would represent approximately the transmissibility of that part

Fig. 6

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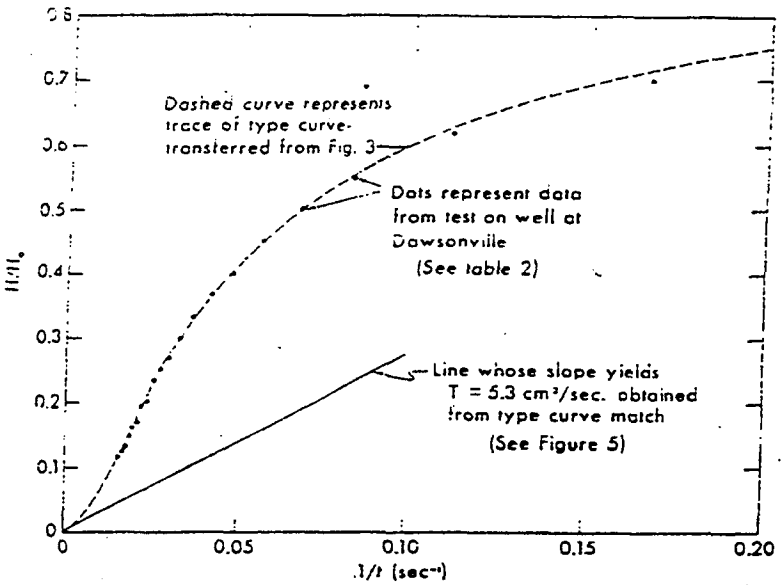

Fig. 6. Data from test on well of Dawsonville, Georgia, plotted according to the Ferris-Knowles method.

of the aquifer in which the well is screened or open, provided that the aquifer is reasonably homogeneous and isotropic in planes parallel to the bedding and provided that the effective radius r_e can be estimated closely.

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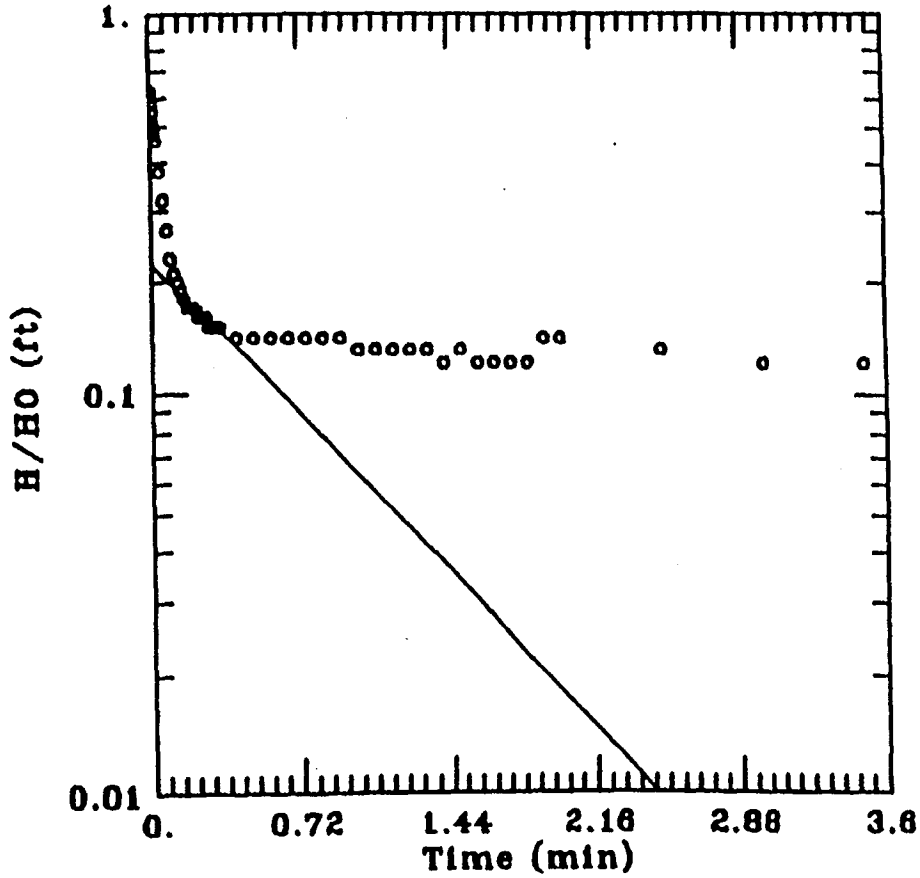

DATA SET:
M11012.DAT
10/30/01

AQUIFER TYPE:
Unconfined
SOLUTION METHOD:
Bouwer-Rice
TEST DATE:
September 10, 1991

ESTIMATED PARAMETERS:
K = 0.004007 ft/min
y0 = 0.0000 ft

TEST DATA:
H0 = 0.02 ft
rc = 0.005 ft
rw = 0.10 ft
L = 1.1 ft
b = 1.1 ft
H = 1.1 ft

RISING HEAD RESULT, M-11-01

J.M.MONTGOMERY, CONSULTING ENG	Client: NAVY - WESTDIV
Project No.: 2738.0257	Location: Site 11, Building 14

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TEST DESCRIPTION

Data set........... M1101Z.SET
Data set title..... RISING HEAD RESULT, M-11-01
Company............ J.M.MONTGOMERY, CONSULTING ENG
Project............ 2738.0257
Client............. NAVY - WESTDIV
Location........... Site 11, Building 14
Test date.......... September 18, 1991

Knowns and Constants:
No. of data points.................. 56
Radius of well casing............... 0.083
Radius of well...................... 0.19
Aquifer saturated thickness......... 1.1
Well screen length.................. 1.1
Static height of water in well...... 1.1
Log(Re/Rw).......................... 1.262
A, B, C............................. 0.000, 0.000, 0.961

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ANALYTICAL METHOD

Bouwer-Rice (Unconfined Aquifer Slug Test)

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RESULTS FROM VISUAL CURVE MATCHING

VISUAL MATCH PARAMETER ESTIMATES

	Estimate
K =	5.9497E-004 ft/min = 3.0 * 10^{-4} cm/sec
y0 =	6.9315E+234

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TYPE CURVE DATA

K = 4.98721E-003
y0 = 2.20874E-001

Time	Drawdown	Time	Drawdown	Time	Drawdown
0.000E+000	2.209E-001	3.600E+000	2.351E-003		

<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<>>

A Q T E S O L V   R E S U L T S
Version 1.10

1/08/92 19:28:44

==

TEST DESCRIPTION

```
ata set........... m1102z.set
ata set title..... RISING HEAD RESULT, M-11-02
ompany............ J.M.MONTGOMERY, CONSULTING ENG
roject............ 2738.0257
lient............. NAVY - WESTDIV
ocation........... Site 11, Building 14
est date.......... September 18, 1991

nowns and Constants:
  No. of data points.................. 61
  Radius of well casing............... 0.083
  Radius of well...................... 0.19
  Aquifer saturated thickness......... 2.6
  Well screen length.................. 2.6
  Static height of water in well...... 2.6
  Log(Re/Rw).......................... 1.9
  , B, C.............................. 0.000,  0.000,  1.450
```

==

ANALYTICAL METHOD

uwer-Rice (Unconfined Aquifer Slug Test)

==

RESULTS FROM VISUAL CURVE MATCHING

SUAL MATCH PARAMETER ESTIMATES

```
        Estimate
 K  =   4.5031E-004   ft/min = 2.3 * 10^-4 cm/sec
 y0 =  -8.9151E-287
```

<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<>>

PE CURVE DATA

```
   K  = 5.30861E-004
   y0 = 2.07558E-001
```

Time	Drawdown	Time	Drawdown	Time	Drawdown
000E+000	2.076E-001	4.000E+000	8.927E-002		

M-11-02
RISING HEAD FIELD DATA
NAS ALAMEDA, CTO-121
1991

SE1000B
Environmental Logger
09/18 13:39

Unit# 00515 Test# 3

INPUT 1: Level (F) TOC

Reference 0.00
Scale factor 10.09
Offset 0.00

Step# 0 09/18 09:29

Elapsed Time (min)	Value (ft)
0.0000	1.46
0.0033	0.75
0.0066	1.17
0.0099	0.99
0.0133	0.93
0.0166	0.89
0.0200	0.86
0.0233	0.82
0.0266	0.79
0.0300	0.76
0.0333	0.73
0.0500	0.60
0.0666	0.51
0.0833	0.44
0.1000	0.39
0.1166	0.35
0.1333	0.32
0.1500	0.30
0.1666	0.28
0.1833	0.27
0.2000	0.26
0.2166	0.26
0.2333	0.25
0.2500	0.24
0.2666	0.24
0.2833	0.23
0.3000	0.23
0.3166	0.22
0.3333	0.22
0.4167	0.21
0.5000	0.20

Elapsed Time	Value
0.5833	0.19
0.6667	0.18
0.7500	0.17
0.8333	0.17
0.9167	0.17
1.0000	0.17
1.0833	0.16
1.1667	0.16
1.2500	0.16
1.3333	0.16
1.4166	0.15
1.5000	0.15
1.5833	0.15
1.6667	0.15
1.7500	0.14
1.8333	0.14
1.9167	0.14
2.0000	0.14
2.5000	0.13
3.0000	0.13
3.5000	0.12
4.0000	0.11
4.5000	0.11
5.0000	0.11
5.5000	0.10
6.0000	0.10
6.5000	0.10
7.0000	0.10
7.5000	0.09
8.0000	0.09
8.5000	0.08
9.0000	0.08
9.5000	0.08
10.0000	0.08

M-11-03
RISING HEAD FIELD DATA
NAS ALAMEDA, CTO-121
1991

SE1000B
Environmental Logger
09/18 13:41

Unit# 00515 Test# 4

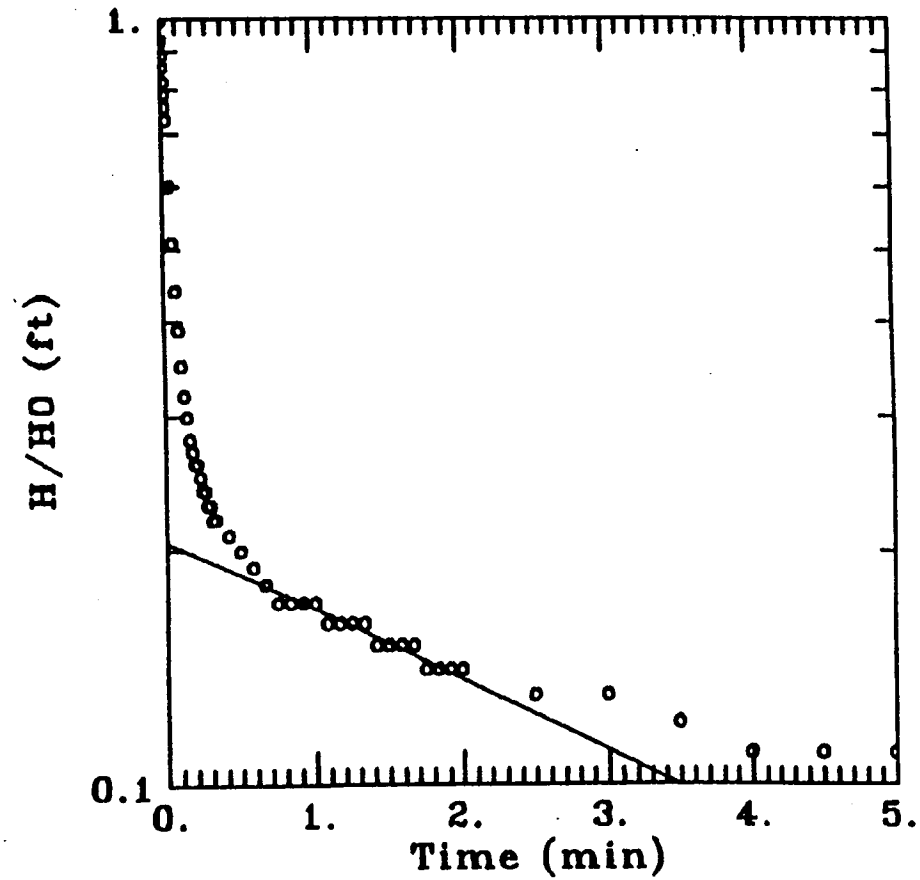
INPUT 1: Level (F) TOC

Reference	0.00
Scale factor	10.09
Offset	0.00

Step# 0 09/18 10:31

Elapsed Time (min)	Value (ft)
0.0000	0.00
0.0033	0.01
0.0066	2.95
0.0099	1.56
0.0133	1.29
0.0166	1.09
0.0200	1.12
0.0233	1.09
0.0266	1.07
0.0300	1.04
0.0333	1.01
0.0500	0.89
0.0666	0.79
0.0833	0.69
0.1000	0.60
0.1166	0.53
0.1333	0.46
0.1500	0.41
0.1666	0.36
0.1833	0.32
0.2000	0.28
0.2166	0.25
0.2333	0.23
0.2500	0.21
0.2666	0.19
0.2833	0.18
0.3000	0.17
0.3166	0.16
0.3333	0.15
0.4167	0.11
0.5000	0.09
0.5833	0.08
0.6667	0.07
0.7500	0.06
0.8333	0.03

Elapsed Time	Value
0.9167	0.04
1.0000	0.04
1.0833	0.04
1.1667	0.04
1.2500	0.04
1.3333	0.04
1.4166	0.03
1.5000	0.03
1.5833	0.03
1.6667	0.03
1.7500	0.03
1.8333	0.03
1.9167	0.03
2.0000	0.03



DATA SET:
m1102z.dat
01/10/02

AQUIFER TYPE:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

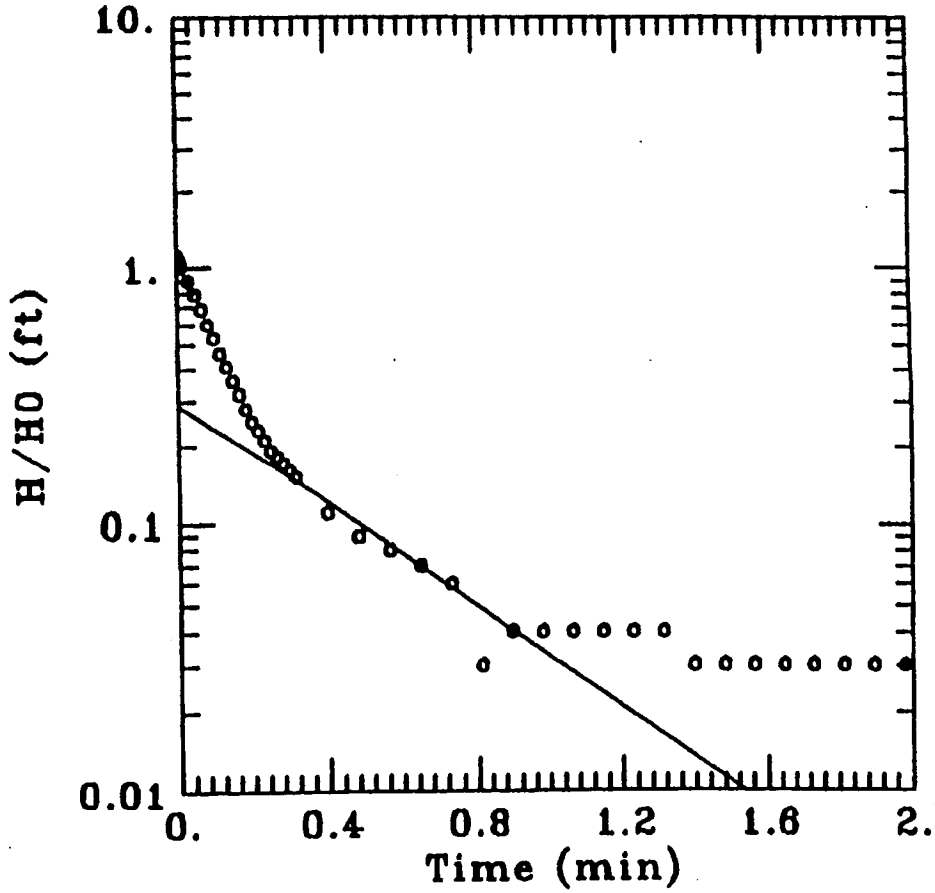
TEST DATE:
September 10, 1991

ESTIMATED PARAMETERS:
K = 0.0000165 ft/min
y0 = 0.0040 ft

TEST DATA:
H0 = 0.00 ft
rc = 0.005 ft
rw = 0.10 ft
L = 2.0 ft
b = 2.0 ft
H = 2.0 ft

RISING HEAD RESULT, M-11-02

J.M.MONTGOMERY, CONSULTING ENG	Client: NAVY - WESTDIV
Project No.: 2738.0257	Location: Site 11, Building 14



DATA SET:
[illegible]
[illegible]

AQUIFER TYPE:
Unconfined
SOLUTION METHOD:
Bouwer-Rice
TEST DATE:
September 10, 1991

ESTIMATED PARAMETERS:
K = [illegible] ft/min
y0 = [illegible] ft

TEST DATA:
H0 = 1.13 ft
r0 = [illegible] ft
rw = 0.10 ft
L = 2.0 ft
b = 2.0 ft
B = 2.0 ft

RISING HEAD RESULT, M-11-03

J.M.MONTGOMERY, CONSULTING ENG	Client: NAVY - WESTDIV
Project No.: 2738.0257	Location: Site 11, Building 14

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A Q T E S O L V   R E S U L T S
Version 1.10

01/08/92 19:33:

===

TEST DESCRIPTION

Data set........... m1103z.set
Data set title..... RISING HEAD RESULT, M-11-03
Company............ J.M.MONTGOMERY, CONSULTING ENG
Project............ 2738.0257
Client............. NAVY - WESTDIV
Location........... Site 11, Building 14
Test date.......... September 18, 1991

Knowns and Constants:
No. of data points.................. 42
Radius of well casing............... 0.083
Radius of well...................... 0.19
Aquifer saturated thickness......... 2.8
Well screen length.................. 2.8
Static height of water in well...... 2.8
Log(Re/Rw).......................... 1.961
A, B, C............................. 0.000, 0.000, 1.489

===

ANALYTICAL METHOD

Bouwer-Rice (Unconfined Aquifer Slug Test)

===

RESULTS FROM VISUAL CURVE MATCHING

VISUAL MATCH PARAMETER ESTIMATES

Estimate
K = 4.3843E-003 ft/min = 2.2 * 10^-3 cm/sec
y0 = -8.9151E-287

<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<>>>

TYPE CURVE DATA

K = 5.26024E-003
y0 = 2.74544E-001

Time	Drawdown	Time	Drawdown	Time	Drawdown
0.000E+000	2.745E-001	2.000E+000	3.506E-003		

``<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<>>>

A Q T E S O L V   R E S U L T S
Version 1.10

01/08/92 19:44:(

TEST DESCRIPTION

Data set........... m1104z.set
Data set title..... RISING HEAD RESULT, M-11-04
Company............ J.M.MONTGOMERY, CONSULTING ENG
Project............ 2738.0257
Client............. NAVY - WESTDIV
Location........... Site 11, Building 14
Test date.......... September 18, 1991

Knowns and Constants:
No. of data points................... 58
Radius of well casing................ 0.083
Radius of well....................... 0.19
Aquifer saturated thickness.......... 4.9
Well screen length................... 4.9
Static height of water in well....... 4.9
Log(Re/Rw)........................... 2.441
A, B, C.............................. 0.000, 0.000, 1.838

ANALYTICAL METHOD

Bouwer-Rice (Unconfined Aquifer Slug Test)

RESULTS FROM VISUAL CURVE MATCHING

VISUAL MATCH PARAMETER ESTIMATES

Estimate
K = 5.4923E-004 ft/min = 2.8×10^{-4} cm/sec
y0 = 4.3937E-098

<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<>>>

TYPE CURVE DATA

K = 6.71319E-004
y0 = 7.59904E-001

Time	Drawdown	Time	Drawdown	Time	Drawdown
).000E+000	7.599E-001	7.000E+000	4.912E-002		

M-11-04
RISING HEAD FIELD DATA
NAS ALAMEDA, CTO-121
1991

SE1000B
Environmental Logger
09/18 13:42

Unit# 00515 Test# 5

INPUT 1: Level (F) TOC

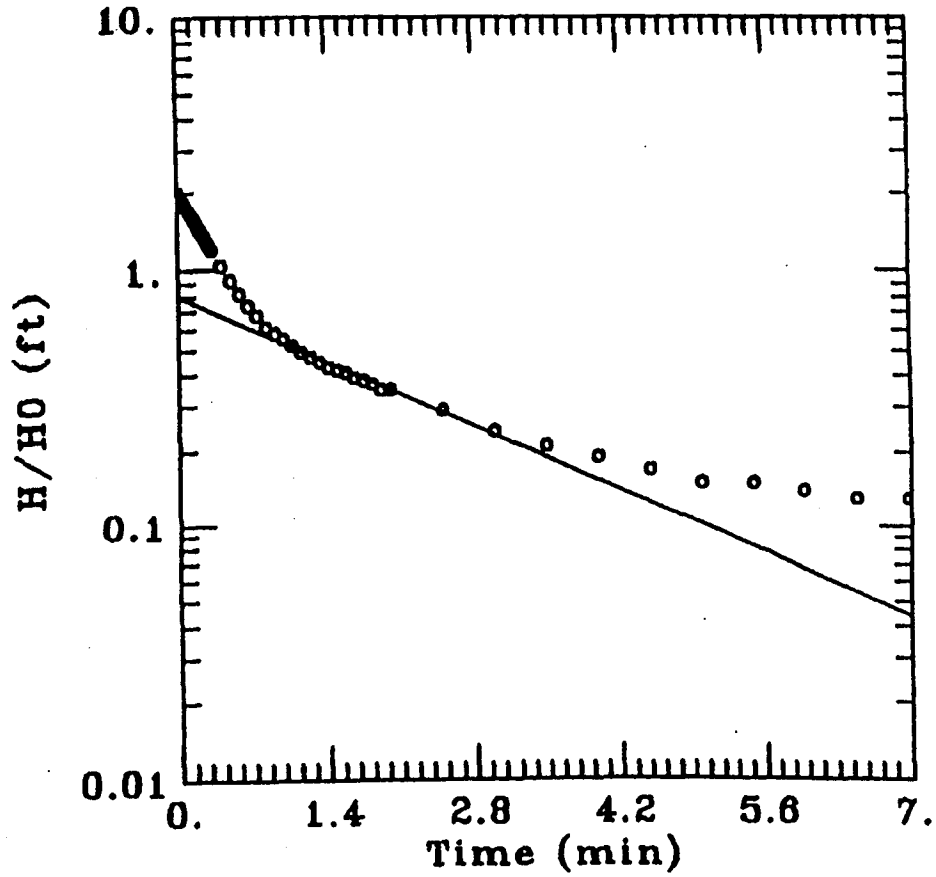
Reference 0.00
Scale factor 10.09
Offset 0.00

Step# 0 09/18 10:43

Elapsed Time (min)	Value (ft)
0.0000	0.00
0.0033	0.06
0.0066	4.84
0.0099	2.80
0.0133	2.00
0.0166	2.03
0.0200	2.01
0.0233	1.99
0.0266	1.98
0.0300	1.96
0.0333	1.95
0.0500	1.89
0.0666	1.84
0.0833	1.79
0.1000	1.73
0.1166	1.69
0.1333	1.65
0.1500	1.60
0.1666	1.56
0.1833	1.52
0.2000	1.48
0.2166	1.44
0.2333	1.40
0.2500	1.36
0.2666	1.33
0.2833	1.29
0.3000	1.26
0.3166	1.22
0.3333	1.19
0.4167	1.04
0.5000	0.92
0.5833	0.82

M-11-04

Elapsed Time	Value
0.6667	0.74
0.7500	0.68
0.8333	0.61
0.9167	0.58
1.0000	0.55
1.0833	0.52
1.1667	0.49
1.2500	0.47
1.3333	0.45
1.4166	0.43
1.5000	0.42
1.5833	0.41
1.6667	0.39
1.7500	0.38
1.8333	0.37
1.9167	0.35
2.0000	0.35
2.5000	0.29
3.0000	0.24
3.5000	0.21
4.0000	0.19
4.5000	0.17
5.0000	0.15
5.5000	0.15
6.0000	0.14
6.5000	0.13
7.0000	0.13
7.5000	0.12
8.0000	0.12
8.5000	0.11
9.0000	0.10
9.5000	0.09
10.0000	0.09



DATA SET:
[illegible]
[illegible]

AQUIFER TYPE:
Unconfined
SOLUTION METHOD:
Bouwer-Rice
TEST DATE:
September 10, 1991

ESTIMATED PARAMETERS:
K = [illegible] ft/min
y0 = [illegible] ft

TEST DATA:
H0 = [illegible] ft
rc = [illegible] ft
rw = [illegible] ft
L = [illegible] ft
b = [illegible] ft
H = [illegible] ft

RISING HEAD RESULT, M-11-04

J.M.MONTGOMERY, CONSULTING ENG	Client: NAVY - WESTDIV
Project No.: 2738.0257	Location: Site 11, Building 14

APPENDIX D
GEOTECHNICAL ANALYTICAL RESULTS

APPENDIX D CONTENTS

TABLES

Site 7C – Building 547, Service Station Geotechnical Sample Laboratory Test Results

Site 9 – Building 410, Paint Stripping Geotechnical Sample Laboratory Test Results

Site 10B – Building 530, Missile Rework Operations Geotechnical Sample Laboratory Test Results

Site 13 – Former Oil Refinery Geotechnical Sample Laboratory Test Results

Site 19 – Yard D-13, Hazardous Waste Storage Geotechnical Sample Laboratory Test Results

Appendices A through E extracted from:
Phase 2A Geotechnical Test Results, Remedial Investigation/Feasibility Study, Naval Air Station Alameda, Alameda, California. Prepared by Canonie Environmental Services Corp., November 1990.

SITE 7C - BUILDING 547, SERVICE STATION
GEOTECHNICAL SAMPLE LABORATORY TEST RESULTS

Sample No.	Depth (ft)	Soil Classification Laboratory	Soil Classification Field	Moisture Content (%)	Dry Density (pcf)	Specific Gravity	Hydraulic Conductivity (cm/s)
MW547-1	3.5	SM	SP/SM	NA	NA	NA	NA
MW547-2	4	SP/SM	SM	19.4	109.9	NA	NA
MW547-2	10.5	SM	SC	20.1	109.5	NA	3.00E-07
MW547-3	0.5	SP/SM	SP	3.3	109.9	NA	NA
MW547-4	4	SM	SM	21.8	102.1	NA	NA
MW547-5	6	SM	SM	15.2	110.1	NA	NA
B547-6	8	SM	SC	21.6	104.4	NA	NA
B547-7	4	SP/SM	SP	7.8	94.2	NA	NA
B547-8	2.5	SP/SM	SP	NA	NA	NA	NA
B547-9	2	SM	SM	12.9	100.6	NA	1.00E-03

Notes:
NA - Not Analyzed
Parameters not detectect are reported as less than method detection limit.

Laboratory Methods (Units):
- Soil Classification - Unified Soil Classification System (USCS) - ASTM D2488
- Moisture Content - ASTM D2216 (percent)
- Dry Density - ASTM D2937 (pounds per cubic foot)
- Specific Gravity - ASTM D854
- Hydraulic Conductivity - EPA 9100 (centimeters per second)

Soil Classification Legend:

GW Well graded gravels, gravel-sand mixtures, little or no fines

GP Poorly graded gravels, gravel-sand mixtures, little or no fines

GM Silty gravels, gravel-sand-silt mixtures

GC Clayey gravels, gravel-sand-clay mixtures

SW Well graded sands, gravelly sands, little or no fines

SP Poorly-graded sands, gravelly sands, little or no fines

SM Silty sands, sand-silt mixtures

SC Clayey sands, sand-clay mixtures

ML Inorganic silts and very fine sands, rock flour silty or clayey fine sands or clayey silts with slight plasticity

CL Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays

OL Organic silts and organic silty clays or low plasticity

CH Inorganic clays of high plasticity, fat clays

SITE 9 - BUILDING 410, PAINT STRIPPING
GEOTECHNICAL SAMPLE LABORATORY TEST RESULTS

Sample No.	Depth (ft)	Soil Classification Laboratory	Soil Classification Field	Moisture Content (%)	Dry Density (pcf)	Specific Gravity	Hydraulic Conductivity (cm/s)
MW410-1	2.5	SP	SM	NA	NA	2.70	NA
MW410-1	7	SP	SM	12.9	109.7	NA	NA
MW410-1	9.5	SP/SM	SM	NA	NA	NA	NA
MW410-2	10.5	SP/SM	SM	NA	NA	NA	NA
MW410-2	11	SP	SM	20.0	106.8	NA	NA
MW410-3	4.5	SP	SM	NA	NA	NA	NA
MW410-4	0.5	GP	SM	5.6	127.1	NA	NA
MW410-4	13.5	SM	SC	NA	NA	NA	NA
B410-5	4	SP	SM	5.1	102.6	NA	NA
B410-6	2.5	SP	SM	NA	NA	NA	NA
B410-7	10	SC	CL	41.1	79.5	NA	5.00E-08

Notes:
NA - Not Analyzed
Parameters not detectect are reported as less than method detection limit.

Laboratory Methods (Units):
Soil Classification - Unified Soil Classification System (USCS) - ASTM D2488
Moisture Content - ASTM D2216 (percent)
Dry Density - ASTM D2937 (pounds per cubic foot)
Specific Gravity - ASTM D854
Hydraulic Conductivity - EPA 9100 (centimeters per second)

Soil Classification Legend:

GW Well graded gravels, gravel-sand mixtures, little or no fines

GP Poorly graded gravels, gravel-sand mixtures, little or no fines

GM Silty gravels, gravel-sand-silt mixtures

GC Clayey gravels, gravel-sand-clay mixtures

SW Well graded sands, gravelly sands, little or no fines

SP Poorly-graded sands, gravelly sands, little or no fines

SM Silty sands, sand-silt mixtures

SC Clayey sands, sand-clay mixtures

ML Inorganic silts and very fine sands, rock flour silty or clayey fine sands or clayey silts with slight plasticity

CL Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays

OL Organic silts and organic silty clays or low plasticity

CH Inorganic clays of high plasticity, fat clays

SITE 10B - BUILDING 530, MISSILE REWORK OPERATIONS
GEOTECHNICAL SAMPLE LABORATORY TEST RESULTS

Sample No.	Depth (ft)	Soil Classification Laboratory	Soil Classification Field	Moisture Content (%)	Dry Density (pcf)	Specific Gravity	Hydraulic Conductivity (cm/s)
MW530-2	7	SP	SM	12.9	109.7	NA	NA

Notes:
NA - Not Analyzed
Parameters not detectect are reported as less than method detection limit.

Laboratory Methods (Units):
- Soil Classification - Unified Soil Classification System (USCS) - ASTM D2488
- Moisture Content - ASTM D2216 (percent)
- Dry Density - ASTM D2937 (pounds per cubic foot)
- Specific Gravity - ASTM D854
- Hydraulic Conductivity - EPA 9100 (centimeters per second)

Soil Classification Legend:

GW	Well graded gravels, gravel-sand mixtures, little or no fines
GP	Poorly graded gravels, gravel-sand mixtures, little or no fines
GM	Silty gravels, gravel-sand-silt mixtures
GC	Clayey gravels, gravel-sand-clay mixtures
SW	Well graded sands, gravelly sands, little or no fines
SP	Poorly-graded sands, gravelly sands, little or no fines
SM	Silty sands, sand-silt mixtures
SC	Clayey sands, sand-clay mixtures
ML	Inorganic silts and very fine sands, rock flow silty or clayey fine sands or clayey silts with slight plasticity
CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
OL	Organic silts and organic silty clays or low plasticity
CH	Inorganic clays of high plasticity, fat clays

SITE 13 - FORMER OIL REFINERY
GEOTECHNICAL SAMPLE LABORATORY TEST RESULTS
(Sheet 1 of 2)

Sample No.	Depth (ft)	Soil Classification Laboratory	Soil Classification Field	Moisture Content (%)	Dry Density (pcf)	Specific Gravity	Hydraulic Conductivity (cm/s)
MWOR-1	5	NA	SM	9.7	115.9	NA	NA
MWOR-1	5.5	NA	SM	13.3	112.4	NA	NA
MWOR-1	8.5	NA	SC	17.1	112.6	NA	NA
MWOR-1	10.5	SM	SC	17.5	110.1	NA	2.00E-07
MWOR-3	0.5	NA	SM	4.3	99.7	NA	NA
MWOR-4	1	GP	GM	NA	NA	NA	NA
BOR-6	1	NA	SM	3.5	94.8	NA	NA
BOR-7	1	NA	SM	2.3	99.7	NA	NA
BOR-7	10.5	SM	CL	NA	NA	NA	NA
BOR-8	0.5	NA	SM	NA	NA	NA	NA
BOR-8	5	NA	SM	18.9	96.1	NA	NA
BOR-10	2	SP	SM	7.2	98.9	NA	3.00E-03
BOR-10	5	NA	SM	14.6	104.0	NA	NA
BOR-10	12	NA	CL/SC	21.5	100.3	NA	NA
BOR-11	10.5	CH	CL/SM	NA	NA	NA	NA
BOR-12	1	SP	SM	NA	NA	2.71	NA
BOR-12	9.5	SP	SM/CL	31.5	86.9	NA	NA
BOR-12	10.5	NA	CL	17.1	107.9	NA	NA
BOR-13	8	NA	CL	NA	NA	2.62	NA
BOR-13	9.5	CH	CL	NA	NA	2.51	NA
BOR-15	5.5	SP	SM	NA	NA	2.65	NA
BOR-16	10.5	SM	SC	NA	NA	NA	NA
BOR-16	12.5	NA	SC	14.1	115.5	NA	NA
BOR-18	9	NA	SC	21.7	103.8	NA	NA
BOR-18	10.5	SM	SC	18.0	109.1	2.63	2.00E-08
BOR-19	5	SM	SC	NA	NA	2.63	NA
BOR-20	1	SP	GP/SM	NA	NA	NA	NA
BOR-20	15	SM	SM	NA	NA	NA	NA
BOR-21	13	SM	SM	NA	NA	2.64	NA
BOR-22	8.5	NA	SM	17.1	105.5	NA	NA
BOR-22	12	SM	SM	NA	NA	NA	NA
BOR-23	1.5	SP	SM	4.4	101.5	2.73	1.00E-03
BOR-23	10	SP/SM	SM	NA	NA	NA	NA
BOR-23	14	NA	SM	18.0	110.9	NA	NA

SITE 13 - FORMER OIL REFINERY
GEOTECHNICAL SAMPLE LABORATORY TEST RESULTS
(Sheet 2 of 2)

Sample No.	Depth (ft)	Soil Classification Laboratory	Soil Classification Field	Moisture Content (%)	Dry Density (pcf)	Specific Gravity	Hydraulic Conductivity (cm/s)
BOR-24	13	SM	SM	NA	NA	NA	NA
BOR-26	11.5	NA	SM/SC	18.7	107.3	NA	NA

Notes:
NA - Not Analyzed
Parameters not detectect are reported as less than method detection limit.

Laboratory Methods (Units):
Soil Classification - Unified Soil Classification System (USCS) - ASTM D2488
Moisture Content - ASTM D2216 (percent)
Dry Density - ASTM D2937 (pounds per cubic foot)
Specific Gravity - ASTM D854
Hydraulic Conductivity - EPA 9100 (centimeters per second)

Soil Classification Legend:

GW Well graded gravels, gravel-sand mixtures, little or no fines

GP Poorly graded gravels, gravel-sand mixtures, little or no fines

GM Silty gravels, gravel-sand-silt mixtures

GC Clayey gravels, gravel-sand-clay mixtures

SW Well graded sands, gravelly sands, little or no fines

SP Poorly-graded sands, gravelly sands, little or no fines

SM Silty sands, sand-silt mixtures

SC Clayey sands, sand-clay mixtures

ML Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity

CL Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays

OL Organic silts and organic silty clays or low plasticity

CH Inorganic clays of high plasticity, fat clays

SITE 19 - YARD D-13, HAZARDOUS WASTE STORAGE
GEOTECHNICAL SAMPLE LABORATORY TEST RESULTS

Sample No.	Depth (ft)	Soil Classification Laboratory	Soil Classification Field	Moisture Content (%)	Dry Density (pcf)	Specific Gravity	Hydraulic Conductivity (cm/s)
MWD13-1	2	SP/SM	SM	5.5	94.9	2.67	4.00E-04
MWD13-1	2.5	NA	SM	7.8	98.2	NA	NA
MWD13-1	9	NA	SM/SC	17.9	108.9	NA	NA
MWD13-2	7.5	NA	SM	18.1	107.3	NA	NA
MWD13-2	10	NA	SM	35.6	74.1	NA	NA
BD13-6	7	SP/SM	SM	16.1	109.1	2.66	3.00E-04
BD13-7	9.5	SM	SM/SC	17.7	110.2	NA	NA
BD13-7	10	SC	SM/SC	16.8	109.6	2.59	1.00E-07
BD13-9	7.5	SP	SM/SP	12.3	107.6	NA	NA
BD13-9	9.5	SP/SM	SP/SC	NA	NA	2.61	NA
BD13-10	9.5	SM	CL	NA	NA	NA	NA
BD13-11	3	SP/SM	SM	NA	NA	NA	NA
BD13-11	7.5	GW	SM	NA	NA	NA	NA
BD13-11	10	CL/SC	SM	NA	NA	NA	NA
BD13-11	14.5	SM	SC	14.6	115.8	NA	NA
BD13-12	6.5	SM	SC	20.8	98.3	NA	NA
BD13-12	7.5	SM/SC	SC	NA	NA	NA	NA
BD13-13	9	SM	SM	NA	NA	NA	NA
BD13-15	3.5	SP	SM	NA	NA	2.66	NA
BD13-15	14	SP/SM	SM	17.0	109.1	NA	NA
BD13-16	3.5	SP	SM	10.1	101.6	NA	NA

Notes:
NA - Not Analyzed
Parameters not detectect are reported as less than method detection limit.

Laboratory Methods (Units):
- Soil Classification - Unified Soil Classification System (USCS) - ASTM D2488
- Moisture Content - ASTM D2216 (percent)
- Dry Density - ASTM D2937 (pounds per cubic foot)
- Specific Gravity - ASTM D854
- Hydraulic Conductivity - EPA 9100 (centimeters per second)

Soil Classification Legend:

GW Well graded gravels, gravel-sand mixtures, little or no fines

GP Poorly graded gravels, gravel-sand mixtures, little or no fines

GM Silty gravels, gravel-sand-silt mixtures

GC Clayey gravels, gravel-sand-clay mixtures

SW Well graded sands, gravelly sands, little or no fines

SP Poorly-graded sands, gravelly sands, little or no fines

SM Silty sands, sand-silt mixtures

SC Clayey sands, sand-clay mixtures

ML Inorganic silts and very fine sands, rock flour silty or clayey fine sands or clayey silts with slight plasticity

CL Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays

OL Organic silts and organic silty clays or low plasticity

CH Inorganic clays of high plasticity, fat clays

November 1990 86-018-1810

PHASE 2A GEOTECHNICAL TEST RESULTS
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
NAVAL AIR STATION ALAMEDA
ALAMEDA, CALIFORNIA

ENCLOSURE 14

Prepared for Western Division Naval Facilities Engineering Command

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CanonieEnvironmental

LIST OF FIGURES

FIGURE NUMBER	DRAWING NUMBER	TITLE
1	86-018-E87	Phase 2A Monitoring Well and Soil Boring Locations

LIST OF APPENDICES

APPENDIX	TITLE
A	Moisture Content/Dry Density Results
B	Sieve Analyses Results
C	Permeability Results
D	Atterburg Limits Results
E	Specific Gravity Results
F	Consolidation Results
G	Modified Proctor Compaction Results

N00236.002017
ALAMEDA POINT
SSIC NO. 5090.3

APPENDIX D – GEOTECHNICAL ANALYTICAL RESULTS

FIGURE 1 – PHASE 2A MONITORING WELL AND SOIL BORING LOCATIONS

AS PER RPM, THIS FIGURE CANNOT BE RECOVERED.

FINAL REMEDIAL INVESTIGATION REPORT
SITES 9, 13, 19, 22, AND 23
OPERABLE UNIT 2A (OU-2A)

QUESTIONS MAY BE DIRECTED TO:

DIANE C. SILVA
RECORDS MANAGEMENT SPECIALIST
NAVAL FACILITIES ENGINEERING COMMAND SOUTHWEST
1220 PACIFIC HIGHWAY
SAN DIEGO, CA 92132

TELEPHONE: (619) 532-3676

APPENDIX A

MOISTURE CONTENT/DRY DENSITY RESULTS

COOPER TEST[illegible] LABORATORY

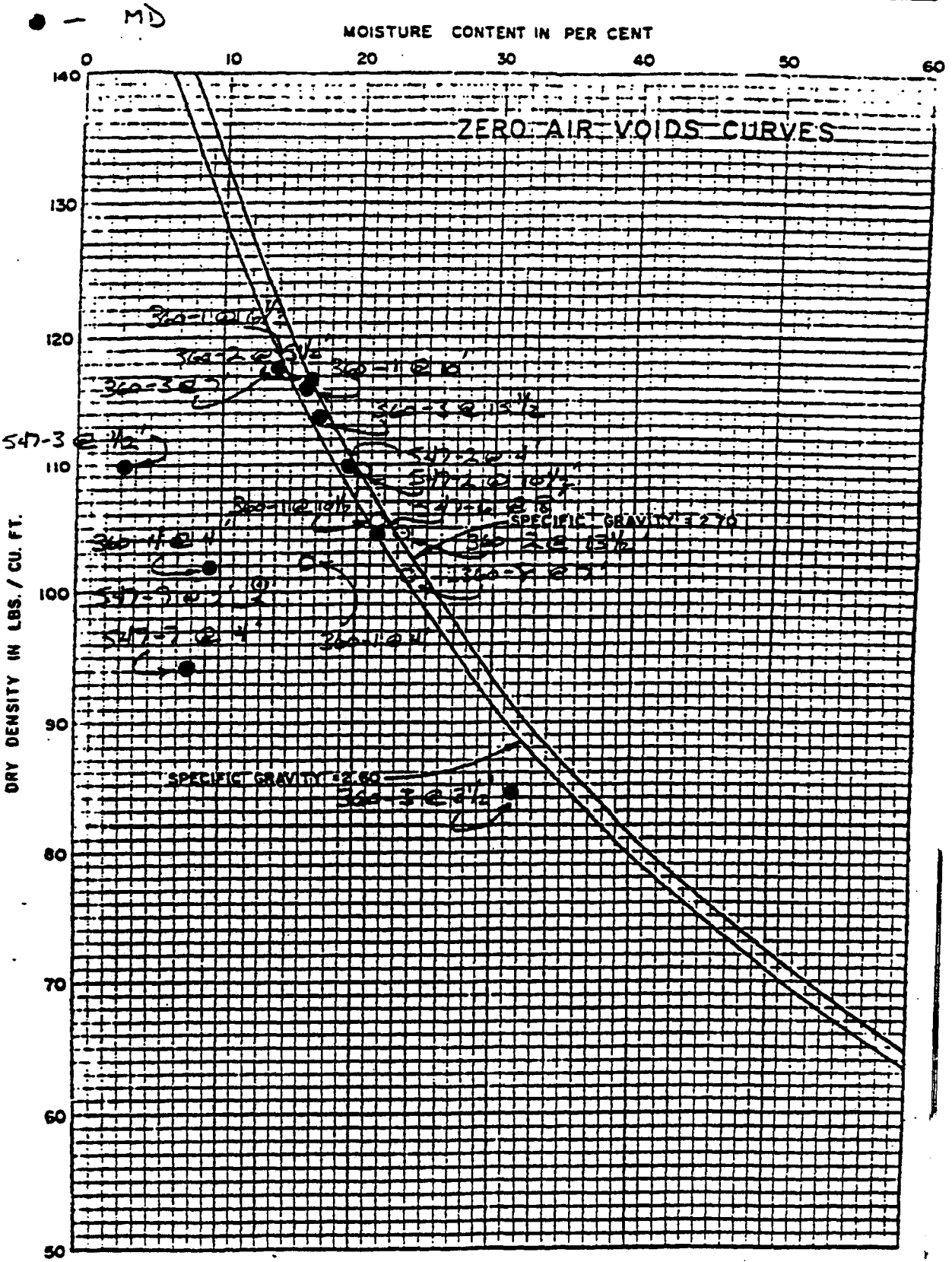
JOB NO. [illegible] / MIAMI [illegible] NAS

SUBJECT: MOISTURE-DENSITY DATA

SHEET ____ OF ____

O — PERMEABILITY

● — MD



REVISIONS:

BY ____ DATE ____ TO EO ____

BY ____ DATE ____ TO EO ____

BY ____ DATE ____

CHECKED BY ____

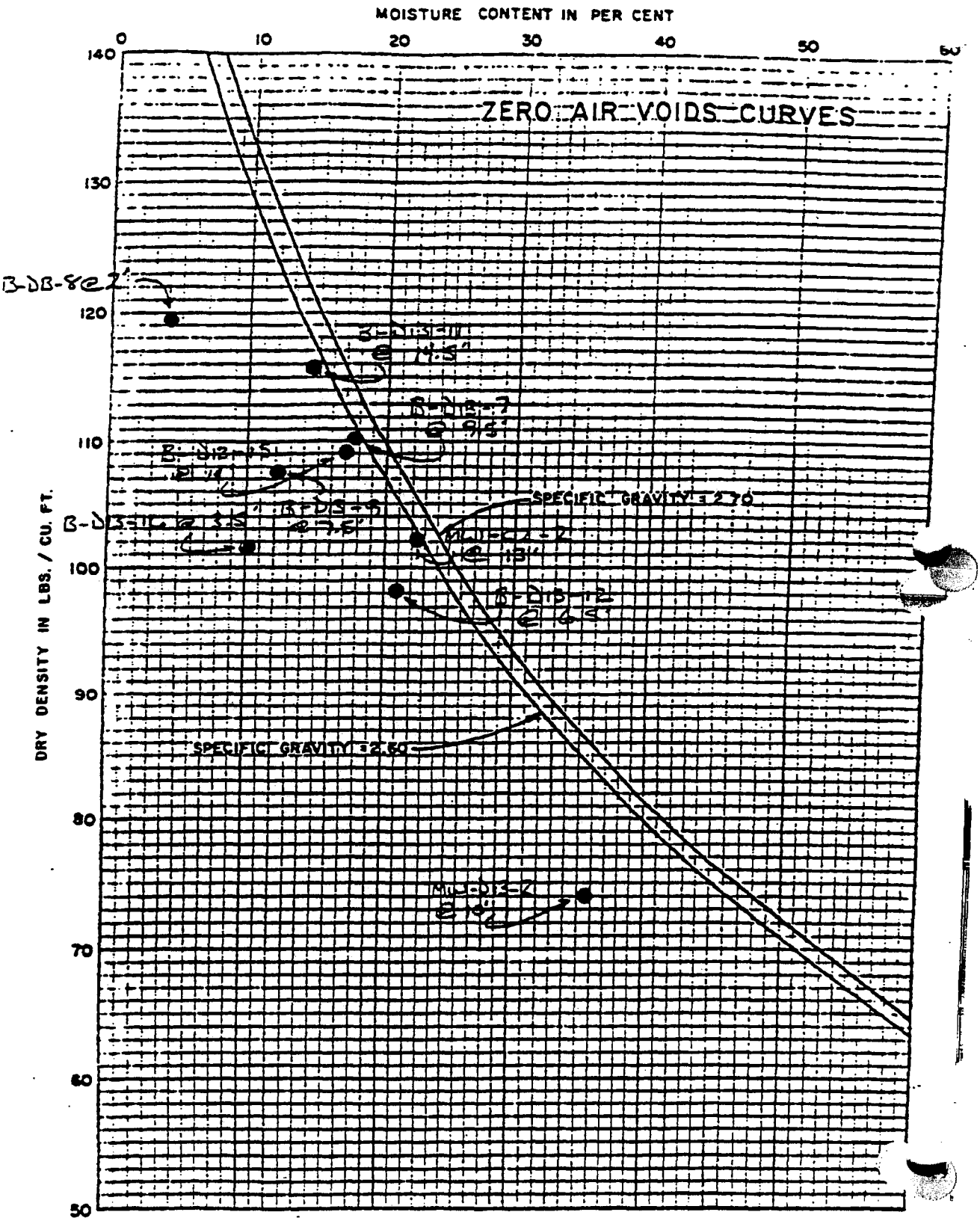
COPY TO EO ____

COOPER TESTING LABORATORY

SUBJECT: MOISTURE-DENSITY DATA _____

_____ SHEET ____ OF _____

REVISIONS:
BY _____ DATE _____ TO EO _____
BY _____ DATE _____ TO EO _____



BY DX DATE 10/10/80

CHECKED BY _____

COPY TO EO _____

COOPER TESTING LABORATORY

● — MD

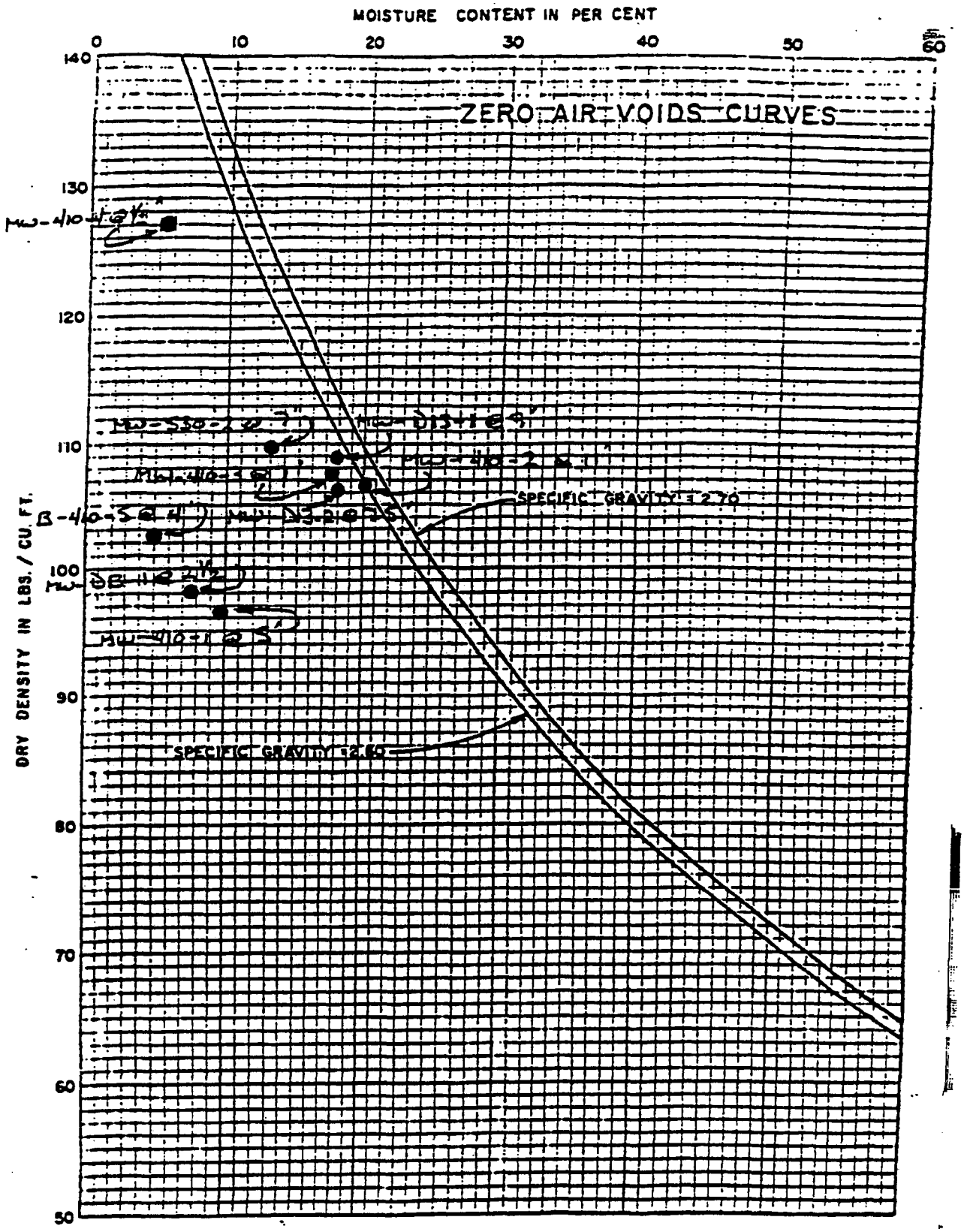
SUBJECT: MOISTURE-DENSITY DATA _____

_____ SHEET ____ OF _____

REVISIONS:

BY _____ DATE _____ TO EO _____

BY _____ DATE _____ TO EO _____



BY DX DATE 10/5/80

CHECKED BY _____

COPY TO EO _____

COOPER TESTING LABORATORY

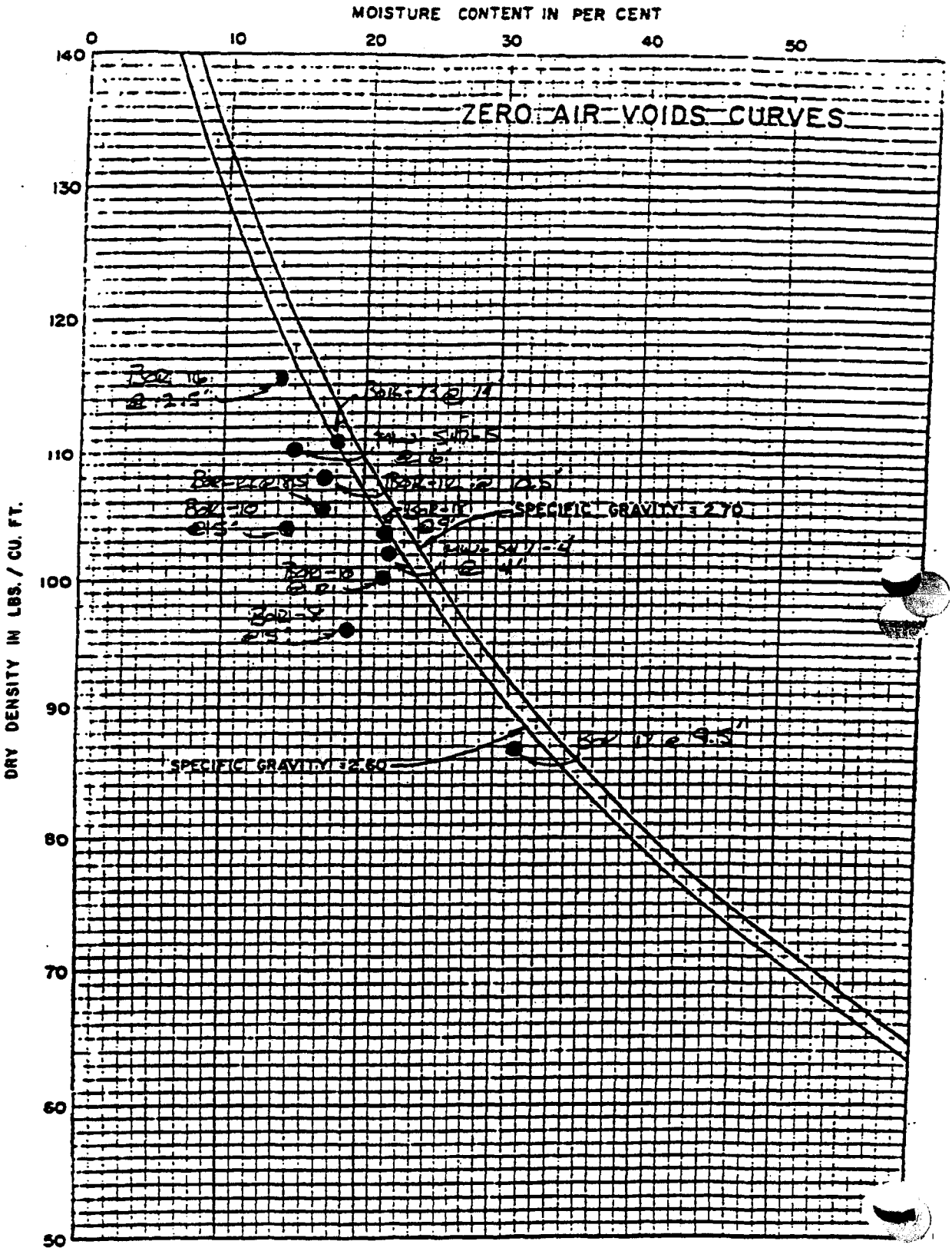
SUBJECT: MOISTURE-DENSITY DATA _____

_____ SHEET ____ OF _____

REVISIONS:

BY _____ DATE _____ TO EO _____

BY _____ DATE _____ TO EO _____



BY DC DATE 10/17/82

CHECKED BY _____

COPY TO EO _____

COOPER TESTING LABORATORY

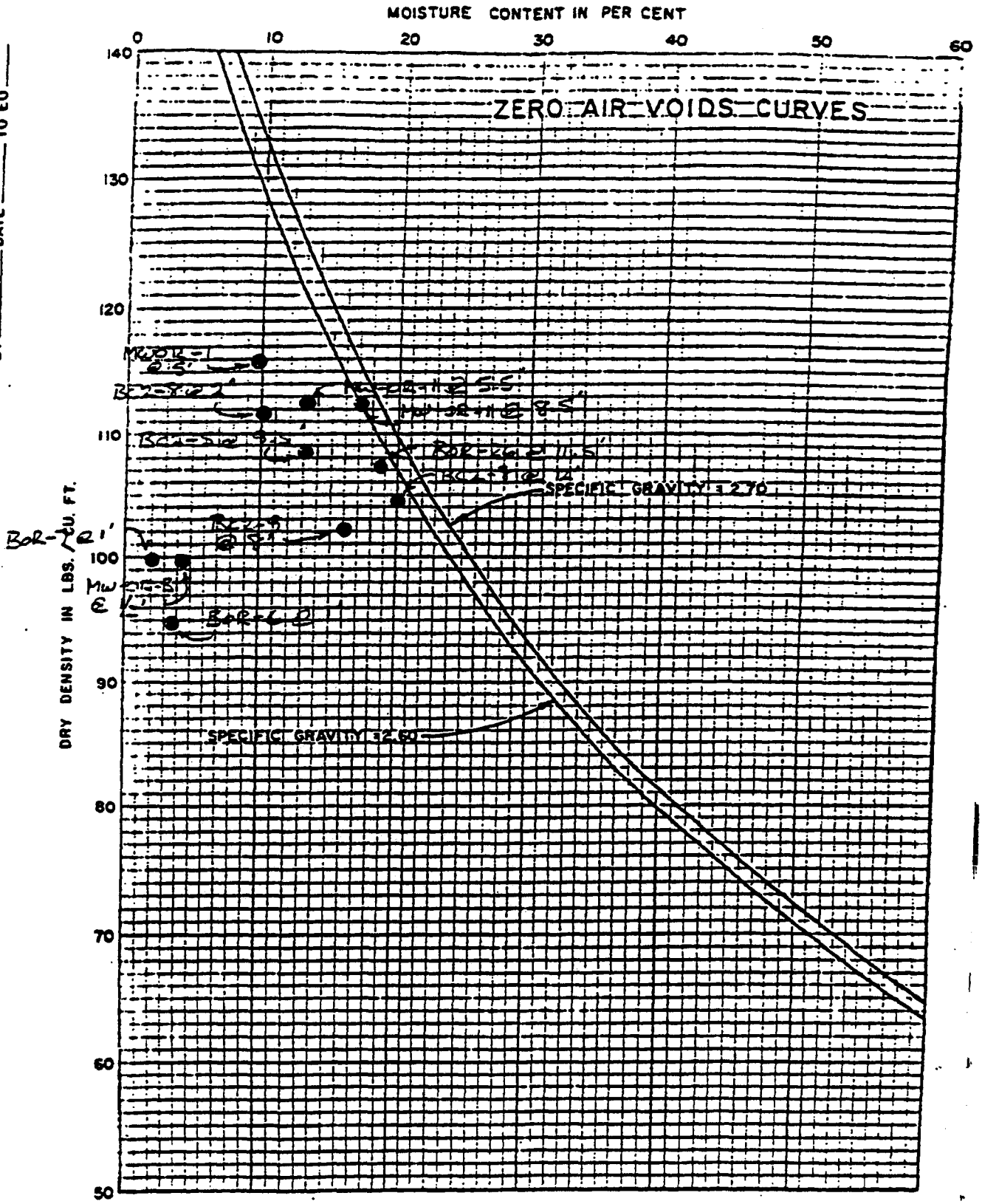
SUBJECT: MOISTURE-DENSITY DATA _____

_____ SHEET ____ OF _____

REVISIONS:

BY _____ DATE _____ TO EO _____

BY _____ DATE _____ TO EO _____



BY _____ DATE 10/29/90

CHECKED BY _____

COPY TO EO _____

COOPER TESTING LABORATORY

MOISTURE - DENSITY DATA SHEET

JOB NO. [illegible] SHEET C

CLIENT Cardinale

LOCATION Alameda Alas

DATE SAMPLED _____ DATE TESTED 9/5/90 BY: DC CHECKED BY _____

BORING NUMBER	MW 360-1	MW 360-2	MW 360-3	MW 360-3	MW 360-3	MW 360-4	MW 547-2	MW 547-3	B 547-6	B 547-7
DEPTH (FEET)	10	5½	7	13½	3½	4	4	½	8	4
FIELD CLASSIFICATION										
LABORATORY CLASSIFICATION	BROWN SILTY FINE SAND (SM) SATURATED	SKA GREEN SILTY FINE SAND (SM)	BROWN FINE SAND W/SOME SILT (SP)	BROWN FINE SAND W/SILT (SP/SM)	D. BROWN SILTY SAND TO BAYMUD CHANGE	BROWN FINE SAND (SP)	D. BROWN FINE SAND W/SILT (SP/SM)	BROWN SILTY SAND W/SAND-STONE	BROWN SILTY FINE SAND (SM)	GREEN BROWN FINE SAND (SP)
NUMBER OF RINGS	1	5	5	5	6	6	6	5	5	5
WT. IN GM. — RINGS & SOIL	135.3	697.9	676.3	675.8	677.2	669.7	767.5	601.5	666.7	550.8
WT. IN GM. — RINGS	34.7	175.2	162.1	163.7	181.2	171.7	162.6	178.5	179.2	160.7
WT. IN GM. — OF SOIL	100.6	522.7	514.2	512.1	496.0	498.0	604.9	423.0	487.5	390.1
RING FACTOR	1.342/1	1.302/5	1.302/5	1.302/5	1.342/6	1.342/6	1.302/6	1.342/5	1.302/5	1.302/5
WET DENSITY pcf	1350	136.1	133.9	133.4	110.9	111.4	131.3	113.5	126.9	101.6
DRYING DISH NUMBER	68	55	133	14	65	14	109	29	133	14
WT. IN GM. — MOIST SOIL & DISH	142.1	149.2	145.3	149.3	107.6	150.1	117.7	143.4	142.4	157.9
WT. IN GM. — DRY SOIL & DISH	125.1	130.8	129.9	130.5	86.6	139.1	101.9	139.5	120.8	148.0
WT. IN GM. — MOISTURE	17.0	18.4	15.4	18.8	21.0	11.0	15.8	3.9	21.6	9.9
WT. IN GM. — DISH	19.8	19.9	20.6	21.1	19.7	21.1	20.4	20.6	20.6	21.1
WT. IN GM. — DRY SOIL	105.3	110.9	109.3	109.4	66.9	118.0	81.5	118.9	100.2	126.9
MOISTURE CONTENT %	16.1	16.6	14.1	17.2	31.4	9.3	19.4	3.3	21.6	7.8
DRY DENSITY pcf	116.2	116.7	117.4	113.8	[illegible]	101.9	109.9	109.9	104.4	94.2

COOPER TESTING LABORATORY

MOISTURE - DENSITY DATA SHEET

CLIENT [illegible]

LOCATION [illegible] 96-017-1906

DATE SAMPLED _____ DATE TESTED 10/3/90 BY: DC CHECKED BY _____

BORING NUMBER	MW 530-2	MW 410-1	MW 410-2	MW 410-3	MW 410-4	B 410-5	MW 97-2	MW D13-1	MW D13-1	MW D13-2
DEPTH (FEET)	7'	5	11	7	1/2	4	6.5	25	9	7.5
FIELD CLASSIFICATION										
LABORATORY CLASSIFICATION	Brown Fine Sand (SP)	Brown Fine Sand (SP)	Grayish Brown Fine Sand (SP)	Brown Fine Sand (SP)	Brown fine sandy gravel (GP)	Brown fine sand	Peat-like organic clay	Tan fine poorly graded	Tan fine clay not gray & red brn	Gray-tan fine sand poorly graded
NUMBER OF RINGS	6	6	2	2	3	5	5	5	5.5	5
WT. IN GM. RINGS & SOIL	749.8	668.1	250.1	246.8	390.9	579.8	472.8	585.6	704.2	667.3
WT. IN GM. RINGS	178.8	179.9	53.2	53.1	81.6	178.2	179.6	178.8	161.8	180.5
WT. IN GM. OF SOIL	571.0	488.2	196.9	193.7	309.3	401.6	293.2	406.7	542.4	486.8
RING FACTOR	1.302/6	1.302/6	1.302/2	1.302/2	1.302/3	1.342/5	1.342/5	1.302/5	1.302/5.5	1.302/5
WET DENSITY pcf	123.9	105.9	128.2	126.1	134.2	107.8	78.7	105.9	128.1	126.8
DRYING DISH NUMBER	23	132	15	129	122	32	1	8	102	143
WT. IN GM. MOIST SOIL & DISH	144.8	152.4	177.6	146.9	180.3	132	103	167.5	161.4	207.0
WT. IN GM. DRY SOIL & DISH	130.5	140.6	151.4	128.2	171.8	126.6	48.1	156.8	140.0	178.4
WT. IN GM. MOISTURE	14.3	11.8	26.2	18.7	8.5	5.4	54.9	10.7	21.4	28.6
WT. IN GM. DISH	20.0	19.8	20.7	20.7	20.8	20.3	20.1	20.2	20.5	20.8
WT. IN GM. DRY SOIL	110.5	120.8	130.7	107.5	151.0	106.3	28.0	136.6	119.5	157.6
MOISTURE CONTENT %	12.9	9.8	20.0	17.4	5.6	5.1	196.1	7.8	17.9	18.1
DRY DENSITY pcf	109.7	96.5	106.8	107.4	127.1	102.6	26.6	98.2	108.9	107.3

COOPER TESTING LABORATORY

MOISTURE - DENSITY DATA SHEET

CLIENT CANONIE

LOCATION B6-018-1606

DATE SAMPLED 7- -90 DATE TESTED 10-11-90 BY: _____ CHECKED BY _____

BORING NUMBER		MWD13-2	BD 13-7	BD 13-8	BD 13-9	BD13-11	BD13-15	BD 13-12	BD13-16	MWC2-2
DEPTH		10.0'	9.5	2.0	7.5	14.5	14.0	6.5	3.5	13.0
FIELD CLASSIFICATION										
LABORATORY CLASSIFICATION		Gray-brn sl fi sand / Black clay	Brown Silty Fine Sand (SM)	Brown Fine Sand (SP)	Brown Fine To Medium Sand (SP)	Brown Silty Fine Sand (SM)	Brown Fine Sand w/Silt (SP/SM)	Brown Silty Sand (SM)	Brown Fine Sand (SP)	Greenish Brown Fine Sand w/Silt (SP/SM)
NUMBER OF ~~RINGS~~ INCHES		5.5	5	6	5	5.81	5.81	4.88	5.75	5.13
WT. IN GM. RINGS & SOIL		604.7	676.3	658.0	643.4	771.5	751.2		673.0	
WT. IN GM. RINGS		180.3	177.9	180.2	179.7	182.2	181.6		179.0	
WT. IN GM. OF SOIL		424.4	498.4	477.8	463.7	592.3	569.6	445.1	494.0	492.6
RING FACTOR		1.302/5.5	1.302/5	1.302/5	1.302/5	1.302/5.81	1.302/5.81	1.302/4.88	1.302/5.75	1.302/5.13
WET DENSITY pcf		100.5	129.8	124.4	120.7	132.7	127.6	118.8	111.9	125.0
DRYING DISH NUMBER		23	A-4	153	4	72	83	119	50	A-4
WT. IN GM. MOIST SOIL & DISH		157.5	139.6	138.9	163.0	166.1	150.1	125.2	170.9	125.4
WT. IN GM. DRY SOIL & DISH		124.4	121.8	134.2	147.5	147.4	131.3	107.2	157.1	106.4
WT. IN GM. MOISTURE		36.1	17.8	4.7	15.5	18.7	18.8	18.0	13.8	19.0
WT. IN GM. DISH		20.0	21.4	19.7	21.1	19.3	20.6	20.6	20.5	21.4
WT. IN GM. DRY SOIL		101.4	100.4	114.5	126.4	128.1	110.7	86.6	136.6	85.0
MOISTURE CONTENT %		35.6	17.7	4.1	12.3	14.6	17.0	20.8	10.1	22.4
DRY DENSITY pcf		74.1	110.2	119[illegible]	[illegible].6	115.8	109.1	98.3	101.6	102.2

COOPER TESTING LABORATORY

MOISTURE - DENSITY DATA SHEET

JOB NO. _____

CLIENT CAMONIE

LOCATION 86-018-1806

DATE SAMPLED 7- -90 DATE TESTED 10-11-90 BY: _____ CHECKED BY _____

BORING NUMBER	BC2-5	BC2-6	BC2-8	BC2-9	MWOR-1	MWOR-1	MWOR-1	MWOR-3	BOR6	BOR7
DEPTH	9.5	2.0	12.0	8.0	5.0	5.5	8.5	0.5	1.0	1.0
FIELD CLASSIFICATION									sample tube	
LABORATORY CLASSIFICATION	GREENISH BROWN FINE SAND (SP)	Lt tan si fi sand poorly graded	BRAVGREEN SILT AND SAND DEPOSITS	Lt tan si fi sand poorly graded	Grey silty sand	Brown silty sand	Orange sandy clay	Greenish brown Fine sand	Greenish silty sand and dark brown silty clay	Greenish brown silty sand
NUMBER OF RINGS	2	6	2	5.5	5	5	5	5	3	5
WT. IN GM. RINGS & SOIL	245.9	746.8		661.9	650.7	667.6	685.3	578.8	330.7	569.8
WT. IN GM. RINGS	57.3	178.0		161.5	162.7	178.7	179.0	179.4	104.6	178.0
WT. IN GM. OF SOIL	188.6	568.8	192.6	500.4	488.0	488.9	506.3	399.4	226.1	391.8
RING FACTOR	1.302/2	1.302/6	1.302/2	1.302/5.5	1.302/5	1.302/5	1.302/5	1.302/5	1.302/3	1.302/5
WET DENSITY pcf	122.8	123.4	125.4	118.5	127.1	127.3	131.8	104.0	98.1	102.0
DRYING DISH NUMBER	B-1	C	D	H	114	119	142	11	3	153
WT. IN GM. MOIST SOIL & DISH	232.5	242.4	245.0	244.4	139.7	128.6	99.5	117.6	128.8	101.2
WT. IN GM. DRY SOIL & DISH	210.7	224.7	213.0	218.1	129.2	116.9	88.0	113.6	125.1	99.4
WT. IN GM. MOISTURE	21.8	17.7	32.0	26.3	10.5	12.7	11.5	4.0	3.7	1.8
WT. IN GM. DISH	43.7	53.5	52.9	53.4	20.6	20.6	20.7	19.9	20.7	19.7
WT. IN GM. DRY SOIL	167.0	171.2	160.1	164.7	108.6	95.3	67.3	93.7	104.4	79.7
MOISTURE CONTENT %	13.1	10.3	20.0	16.0	9.7	13.3	17.1	4.3	3.5	2.3
DRY DENSITY pcf	108.6	111.9	104.5	102.1	115.9	112.4	112.6	99.7	94.8	99.7

COOPER TESTING LABORATORY

MOISTURE - DENSITY DATA SHEET

JOB NO. [illegible] SHEET 6 OF 9

CLIENT CANONIE

LOCATION 86-018-1806

DATE SAMPLED 7- -90 DATE TESTED 10-11-90 BY: _____ CHECKED BY _____

BORING NUMBER	BOR 8	BOR10	BOR 10	BOR 12	BOR 12	BOR 16	BOR 18	BOR 22	BOR 23	BOR 26
DEPTH	5.0	5.0	12.0	9.5	10.5	12.5	9.0	8.5	14.0	11.5
FIELD CLASSIFICATION										
LABORATORY CLASSIFICATION	Light brown silty fine sand	Greenish brown silty fine sand	Dark grey silty clay	Grey silty clay	Greenish brown silty clay	Light brown silty fine sand	Brown silty fine sand	Greenish brown silty fine sand clay	Greenish brown silty fine sand	Greenish brown silty fine sand
NUMBER OF RINGS	2	5	4.5	5	3	5	5	5	5	5
WT. IN GM. RINGS & SOIL	245.2	635.6	600.7	602.6	389.4	685.6	662.6	653.1	679.5	668.2
WT. IN GM. RINGS	69.7	178.0	179.4	163.5	98.4	179.3	177.7	178.8	177.3	179.2
WT. IN GM. OF SOIL	175.5	457.6	421.3	439.1	291.0	506.3	484.9	474.3	502.2	489.0
RING FACTOR	1.302/2	1.302/5	1.302/4.5	1.302/5	1.302/3	1.302/5	1.302/5	1.302/5	1.302/5	1.302/5
WET DENSITY pcf	114.3	119.2	121.9	114.3	126.3	131.8	126.3	123.5	130.8	127.3
DRYING DISH NUMBER	123	105	138	A10	69	68	133	8	124	38
WT. IN GM. MOIST SOIL & DISH	136.7	121.3	116.7	133.9	159.4	132.4	130.6	146.8	149.7	130.8
WT. IN GM. DRY SOIL & DISH	118.2	108.5	99.7	107.0	139.1	118.5	111.0	128.3	130.0	113.6
WT. IN GM. MOISTURE	18.5	12.8	17.0	26.9	20.3	13.9	19.6	18.5	19.7	17.2
WT. IN GM. DISH	20.7	20.6	20.6	21.5	20.2	19.8	20.6	20.2	20.5	21.4
WT. IN GM. DRY SOIL	97.5	87.9	79.1	85.5	118.9	98.7	90.4	108.1	109.5	92.2
MOISTURE CONTENT %	18.9	14.6	21.5	31.5	17.1	14.1	21.7	17.1	18.0	18.7
DRY DENSITY pcf	96.1	104.0	100.3	86.9	[illegible]9	115.5	103.8	105.5	110.9	107.3

COOPER TESTING LABORATORY

MOISTURE - DENSITY DATA SHEET

CLIENT [illegible] SS-018-1906

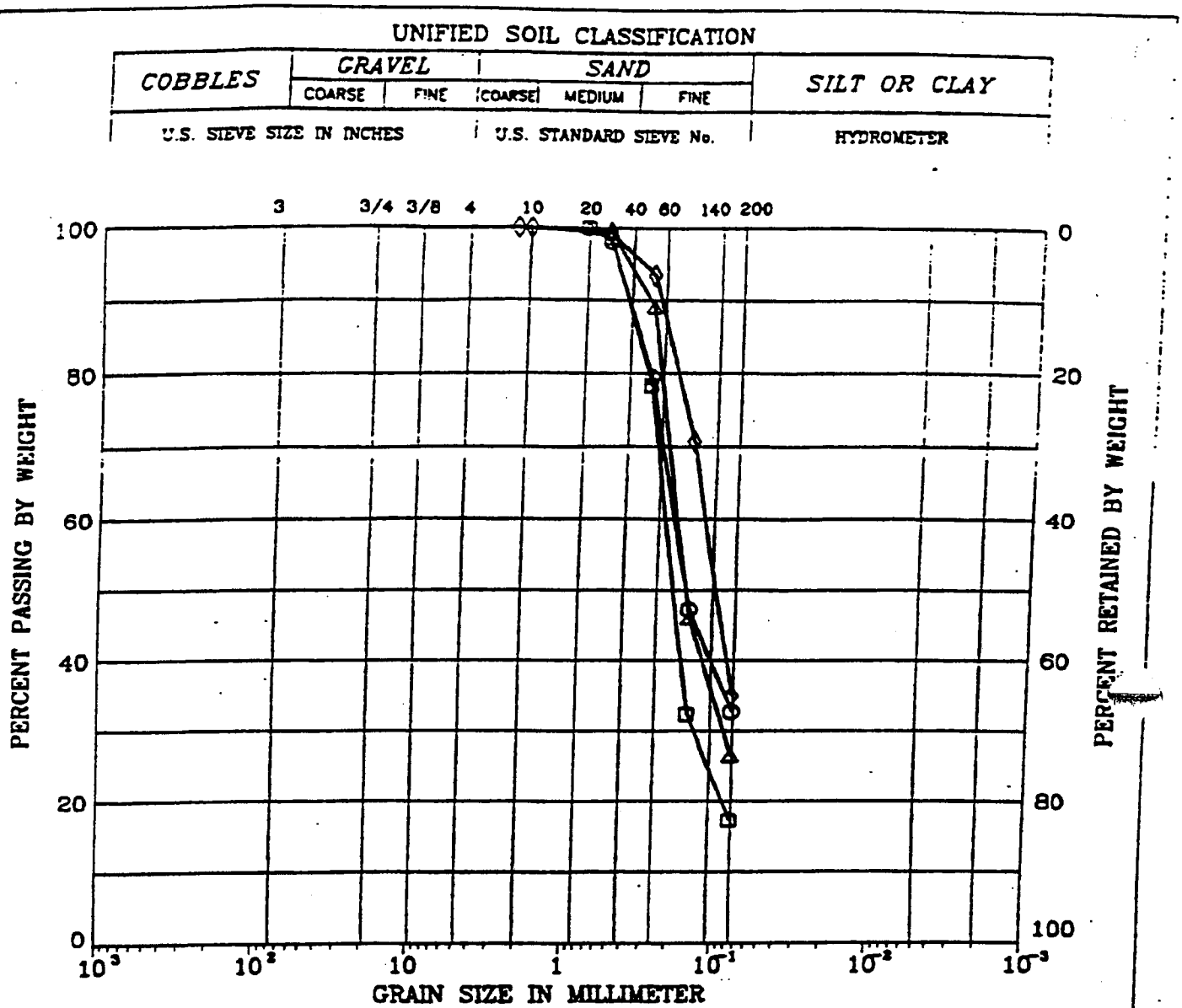
LOCATION ALAMEDA NAS

DATE SAMPLED 6/90 DATE TESTED 10/90 BY: DC CHECKED BY

BORING NUMBER	MW-SS17-4	MW-SS17-5									
DEPTH	4	6									
FIELD CLASSIFICATION											
LABORATORY CLASSIFICATION	D. BROWN SILTY FINE SAND (SM)	D. BROWN SILTY FINE SAND (SM)									
NUMBER OF ~~RINGS~~ INCHES	5	3									
WT. IN GM. RINGS & SOIL	657.9										
WT. IN GM. RINGS	180.3										
WT. IN GM. OF SOIL	477.6	292.2									
RING FACTOR	1.302/5	1.302/3									
WET DENSITY pcf	124.4	126.8									
DRYING DISH NUMBER	S	A-4									
WT. IN GM. MOIST SOIL & DISH	143.9	166.3									
WT. IN GM. DRY SOIL & DISH	121.7	145.5									
WT. IN GM. MOISTURE	22.2	18.8									
WT. IN GM. DISH	19.8	21.4									
WT. IN GM. DRY SOIL	101.9	124.1									
MOISTURE CONTENT %	21.8	15.2									
DRY DENSITY pcf	102.1	110.1									

APPENDIX B

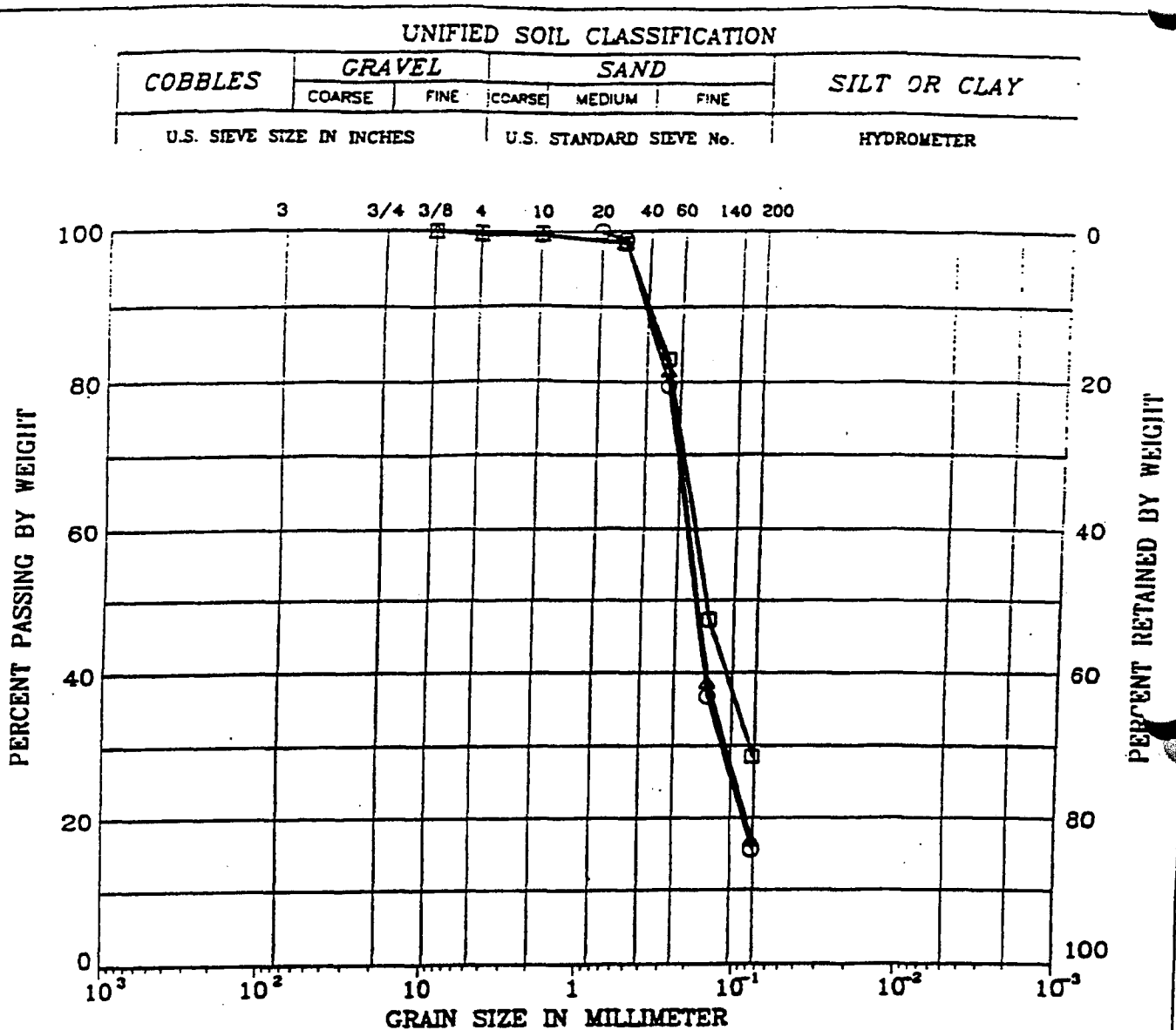
SIEVE ANALYSES RESULTS



SYMBOL	BORING	DEPTH (ft)	LL (%)	PI (%)	DESCRIPTION
○	B360-8	7			Mottled gray & brown clayey sand (SC)
□	B360-9	4			Gray silty fine sand (SM)
△	B360-9	13			Brown silty fine sand (SM)
◇	MW547-1	3.5			Green-gray silty fine sand (SM)

Remark :

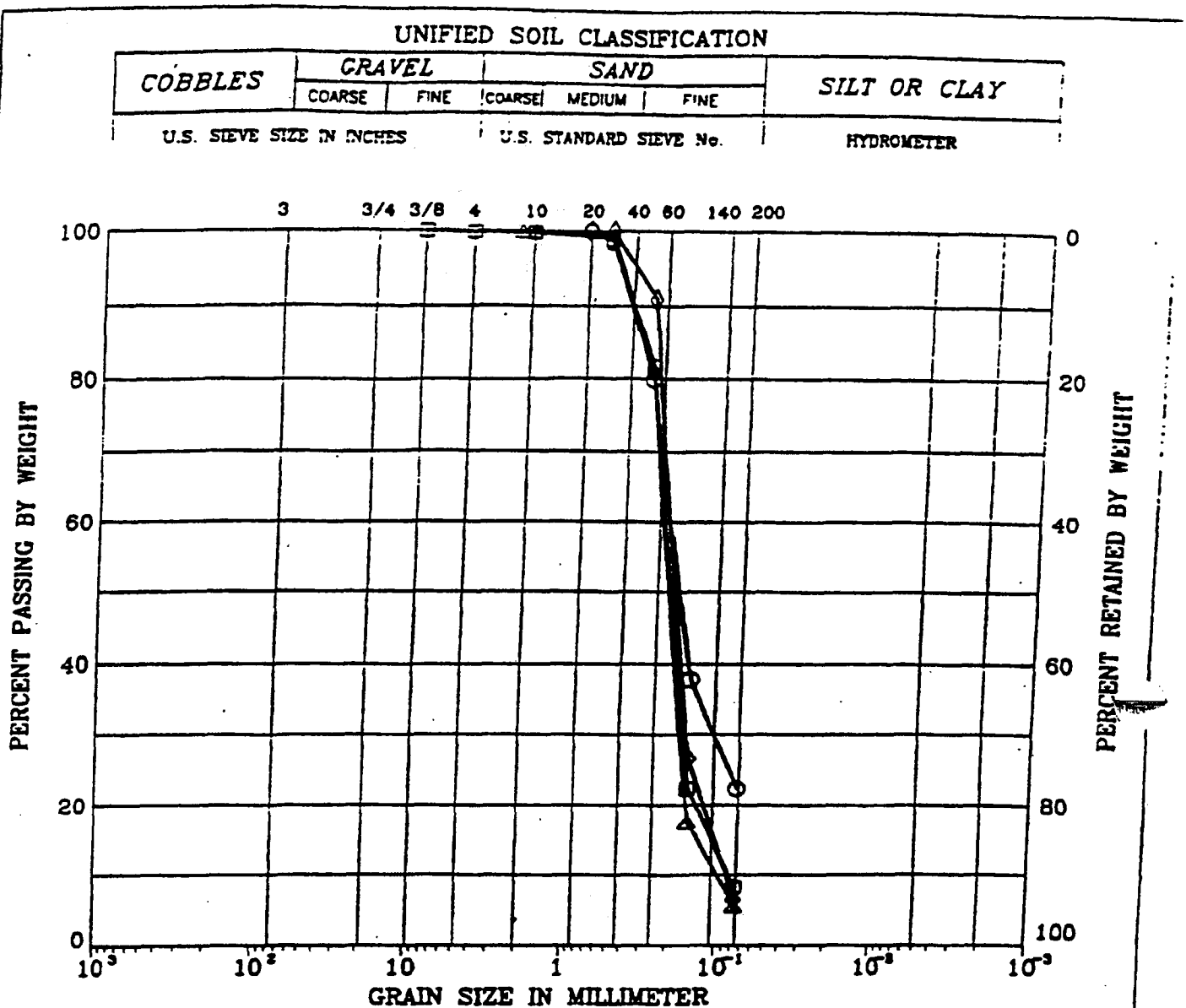
Project No.034-13c	Canonie 86-018-1808
Cooper Testing Labs Mountain View CA	GRAIN SIZE DISTRIBUTION Figure No.4



SYMBOL	BORING	DEPTH (ft)	LL (%)	PI (%)	DESCRIPTION
○	MW547-4	3.5			Brown silty fine sand (SM)
□	MW547-4	4			Dark brown silty fine sand (SM)
△	MW547-5	6			Dark brown silty fine sand (SM)

Remark :

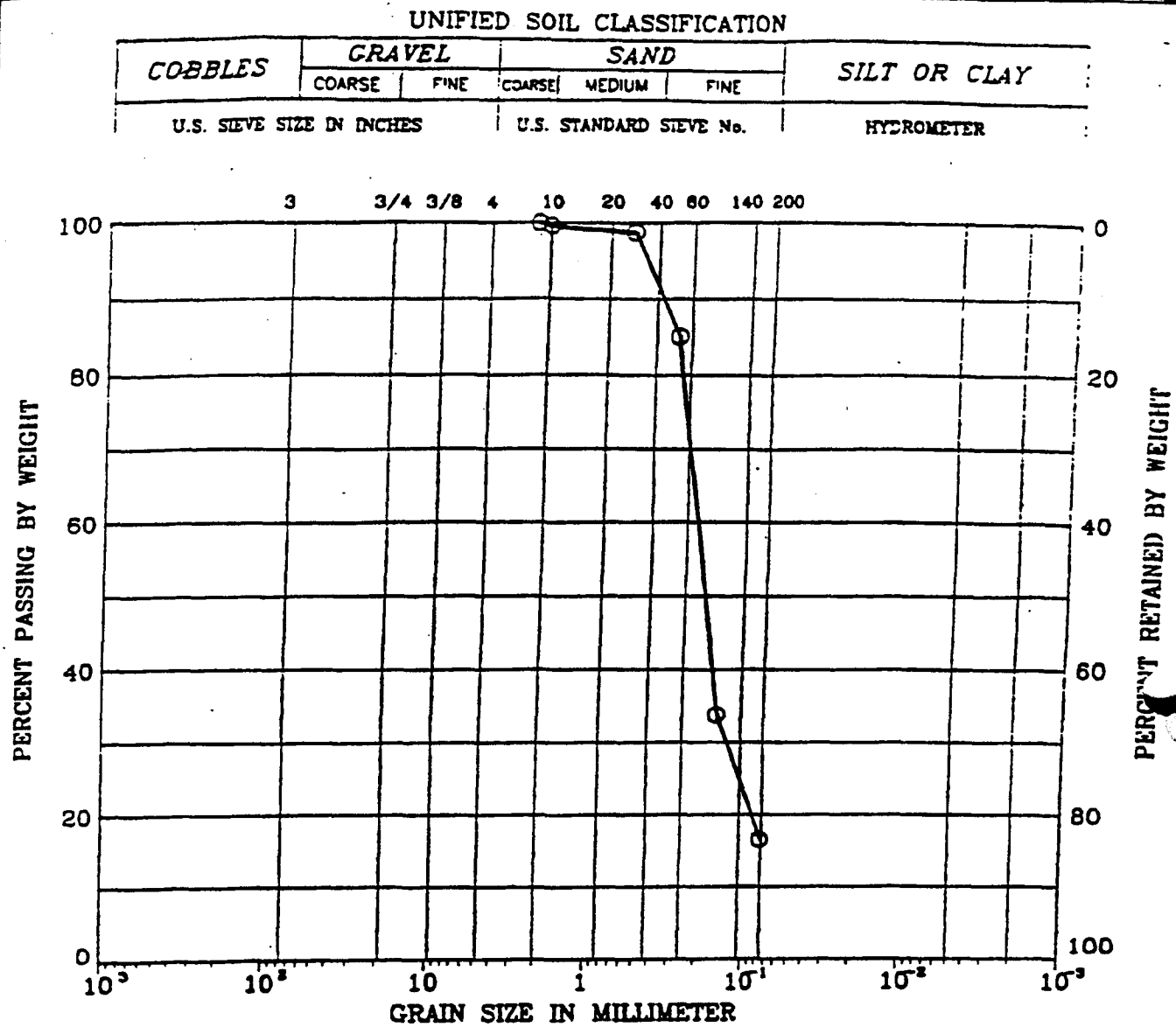
Project No.034-14	Canonie 86-018-1806
Cooper Testing Labs Mountain View CA	GRAIN SIZE DISTRIBUTION Figure No.16



SYMBOL	BORING	DEPTH (ft)	LL (%)	PI (%)	DESCRIPTION
○	MW547-2	3.5			Dark gray-brown silty fine sand (SM)
□	MW547-3	1			Brown fine sand w/silt (SP/SM)
△	B547-7	3.5			Green-brown fine sand w/silt (SP/SM)
◇	B547-8	2.5			Green-brown fine sand w/silt & shells (SP/SM)

Remark :

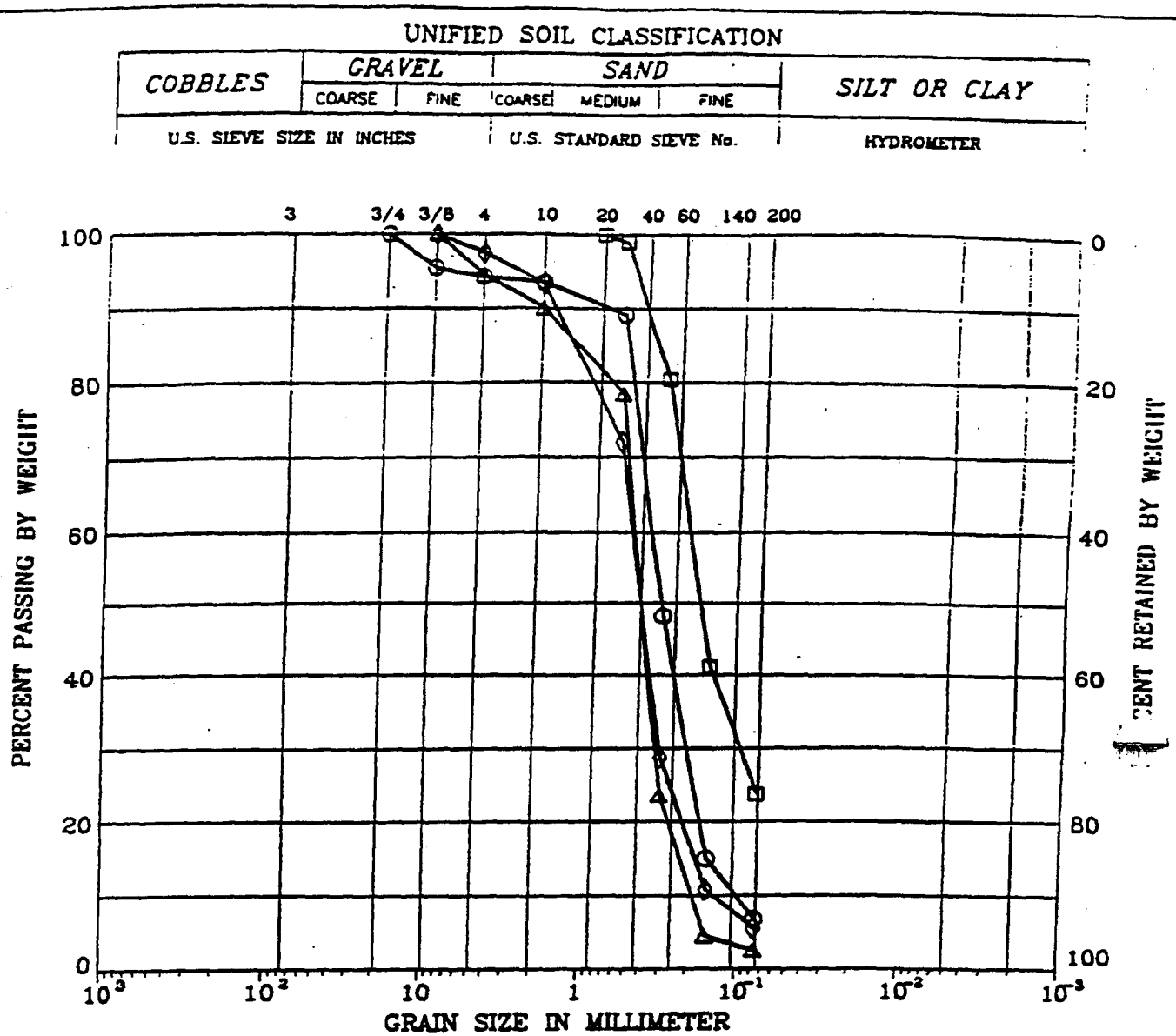
Project No034-13d	Canonie 86-018-1806
Cooper Testing Labs Mountain View CA	GRAIN SIZE DISTRIBUTION Figure No.5



SYMBOL	BORING	DEPTH (ft)	LL (%)	PI (%)	DESCRIPTION
O	B547-9	2			Brown silty fine sand (SM)

Remark :

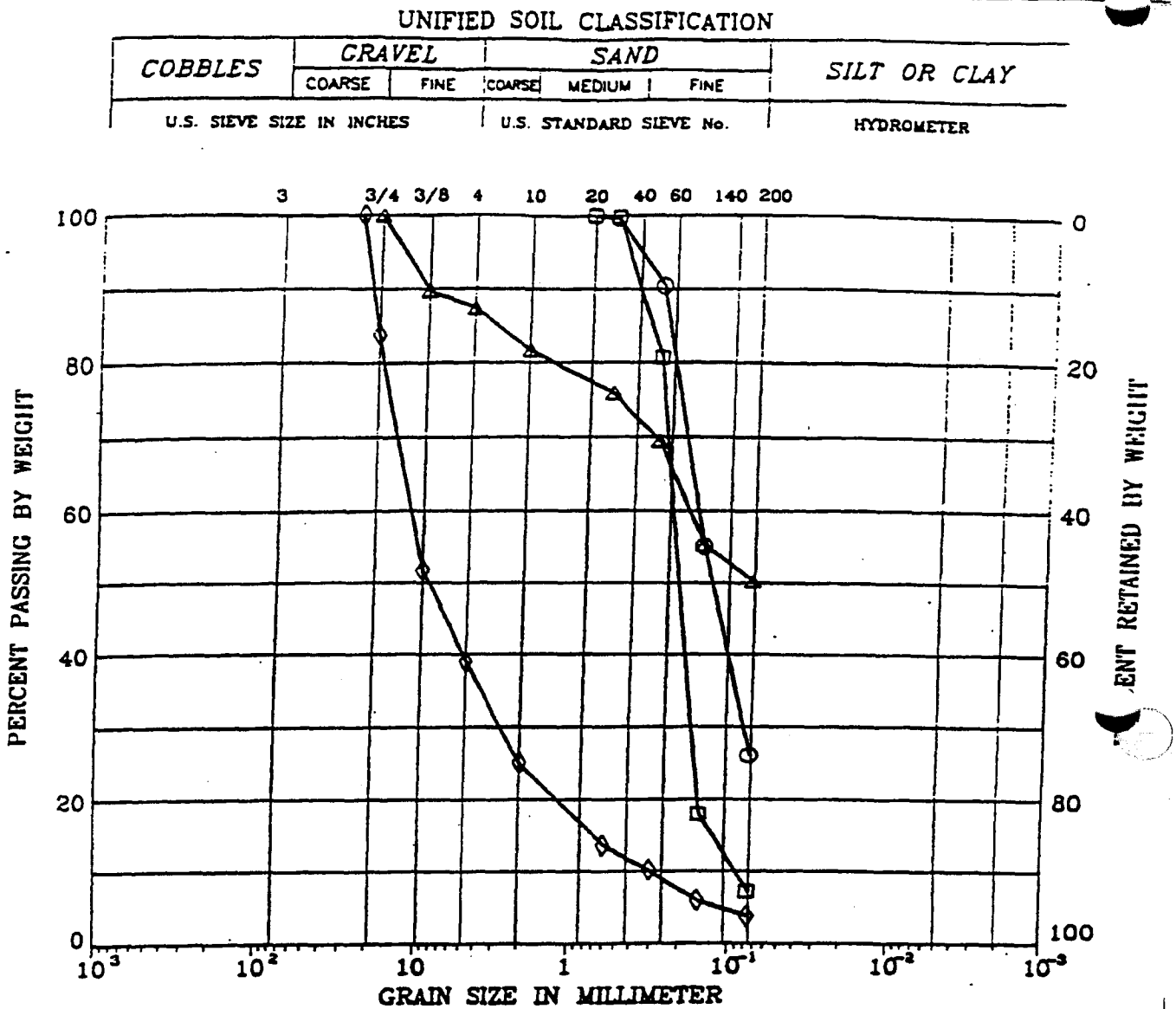
Project No.034-13e	Canonie 86-018-1806
Cooper Testing Labs Mountain View CA	GRAIN SIZE DISTRIBUTION Figure No.6



SYMBOL	BORING	DEPTH (ft)	LL (%)	PI (%)	DESCRIPTION
○	BD13-6	7			Brown fine sand w/silt & some gravel (SP/SM)
□	BD13-7	10			Light brown clayey fine sand (SC)
△	BD13-9	7			Brown fine to medium sand w/fine gravel
◇	BD13-9	9.5			Brown fine sand w/silt (SP/SM)

Remark :

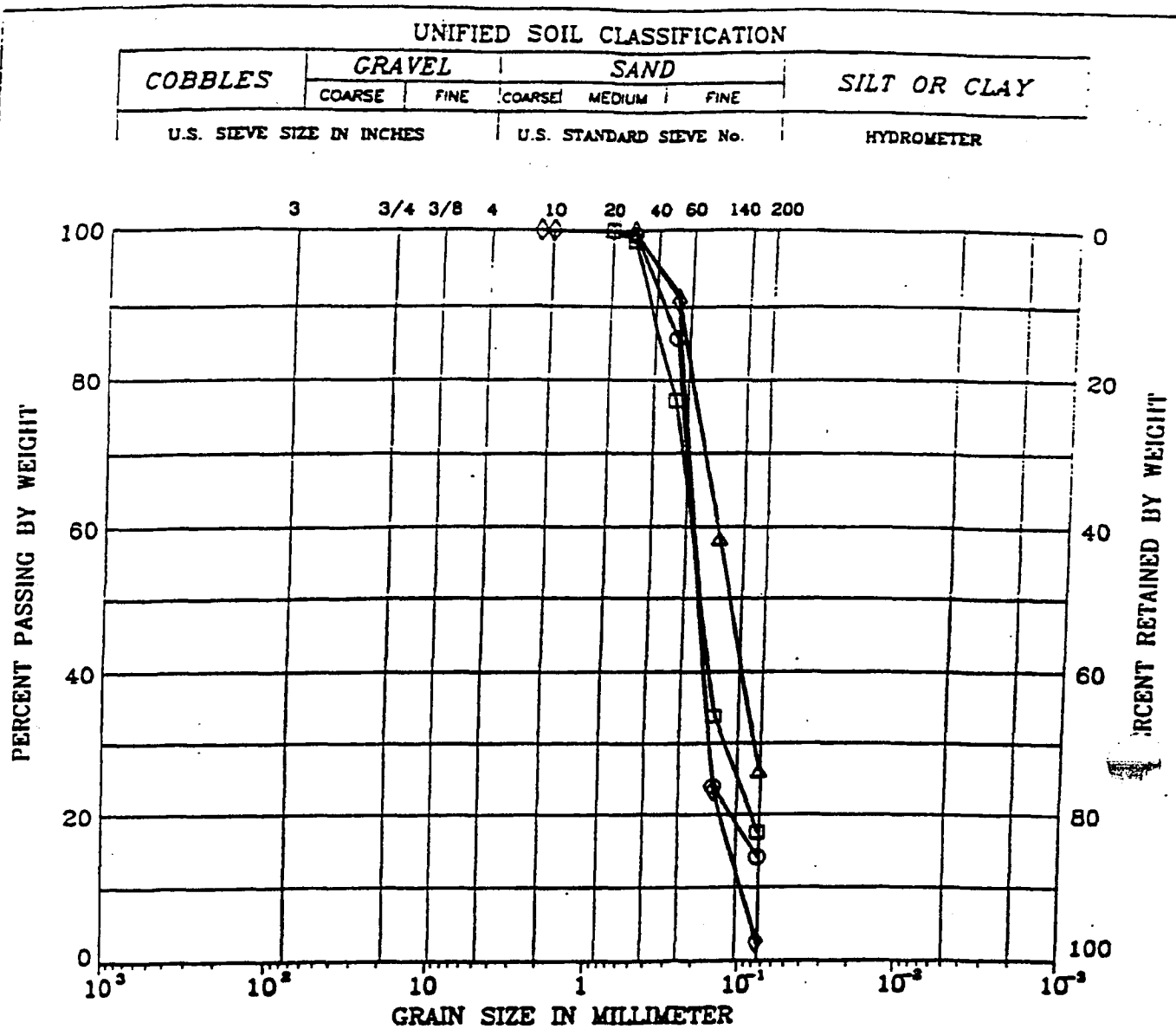
Project No.034-14	Canonie 86-018-1806
Cooper Testing Labs Mountain View CA	GRAIN SIZE DISTRIBUTION Figure No.1



SYMBOL	BORING	DEPTH (ft)	LL (%)	PI (%)	DESCRIPTION
○	BD13-10	9.5			Brown silty fine sand (SM)
□	BD13-11	3			Light brown fine sand w/silt (SP/SM)
△	BD13-11	10	43	20	Gray sandy clay/clayey sand w/gravel (CL/SC)
◇	BD13-11	7.5			Brown sandy gravel (GW)

Remark :

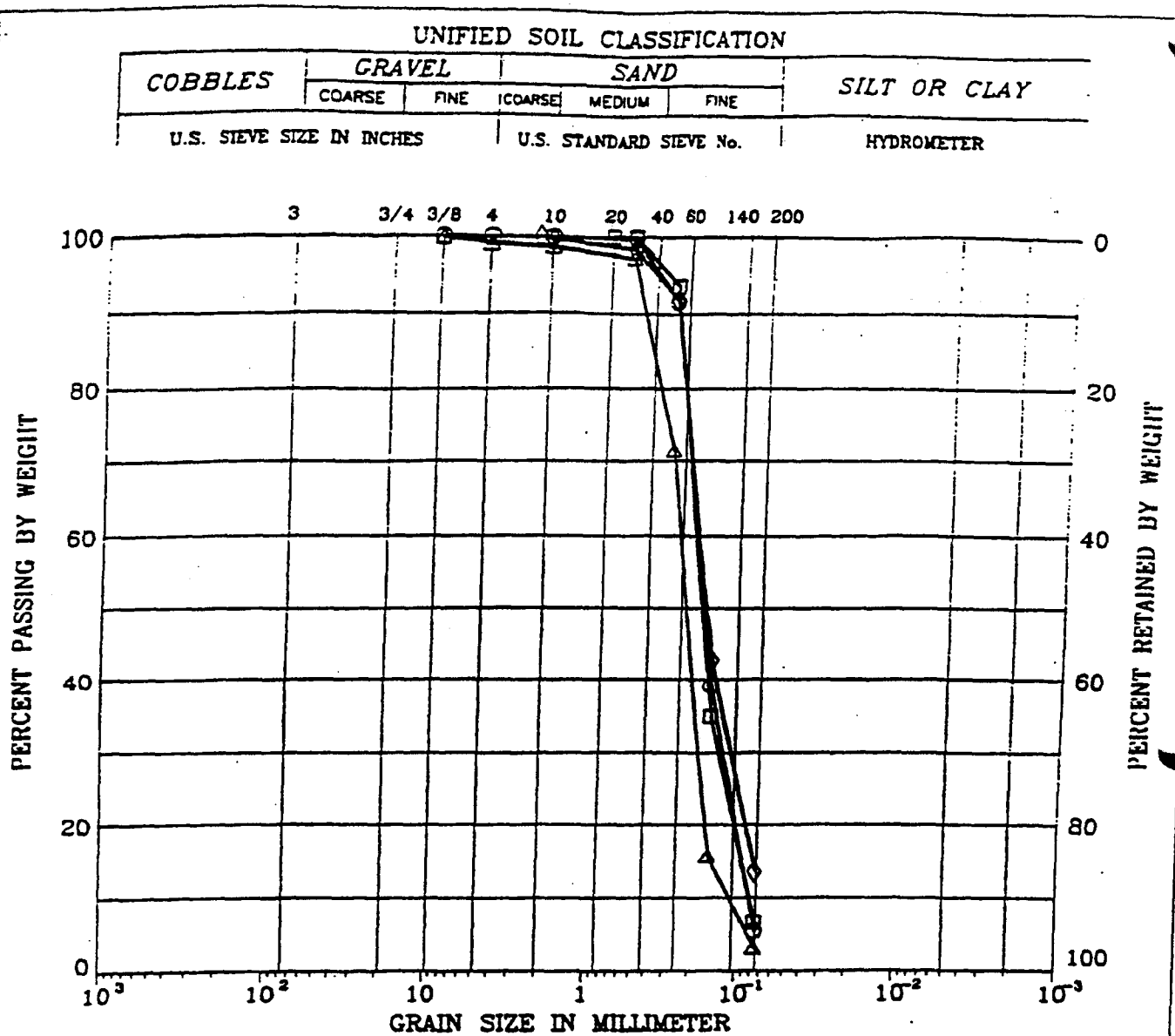
Project No.034-14	Canonie 86-018-1806
Cooper Testing Labs Mountain View CA	GRAIN SIZE DISTRIBUTION Figure No. 2



SYMBOL	BORING	DEPTH (ft)	LL (%)	PI (%)	DESCRIPTION
○	BD13-12	7.5			Dark gray silty to clayey sand (change)
□	BD13-13	9			Brown silty fine sand (SM)
△	Bor 7	10.5			Brown silty fine sand (SM)
◇	Bor 8	0.5			Brown fine sand (SP)

Remark :

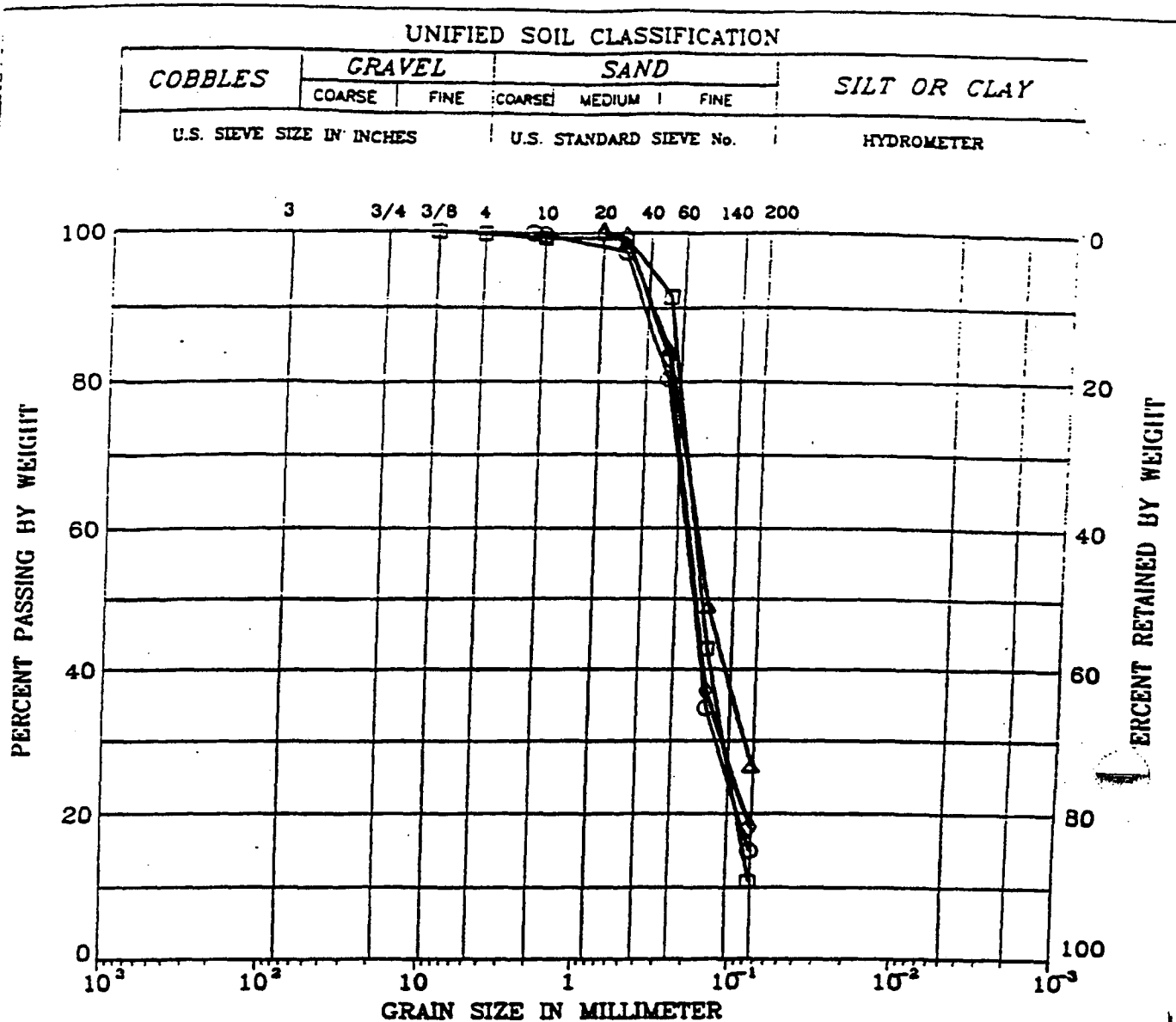
Project No.034-14	canonie 86-018-1806
Cooper Testing Labs Mountain View CA	GRAIN SIZE DISTRIBUTION Figure No.3



SYMBOL	BORING	DEPTH (ft)	LL (%)	PI (%)	DESCRIPTION
○	MW410-1	9.5			Grayish brown fine sand w/silt (SP/SM)
□	MW410-2	10.5			Gray fine sand w/silt (SP/SM)
△	MW410-3	4.5			Grayish brown fine sand w/shells (SP)
◇	MW410-4	13.5			Black silty fine sand (SM)

Remark :

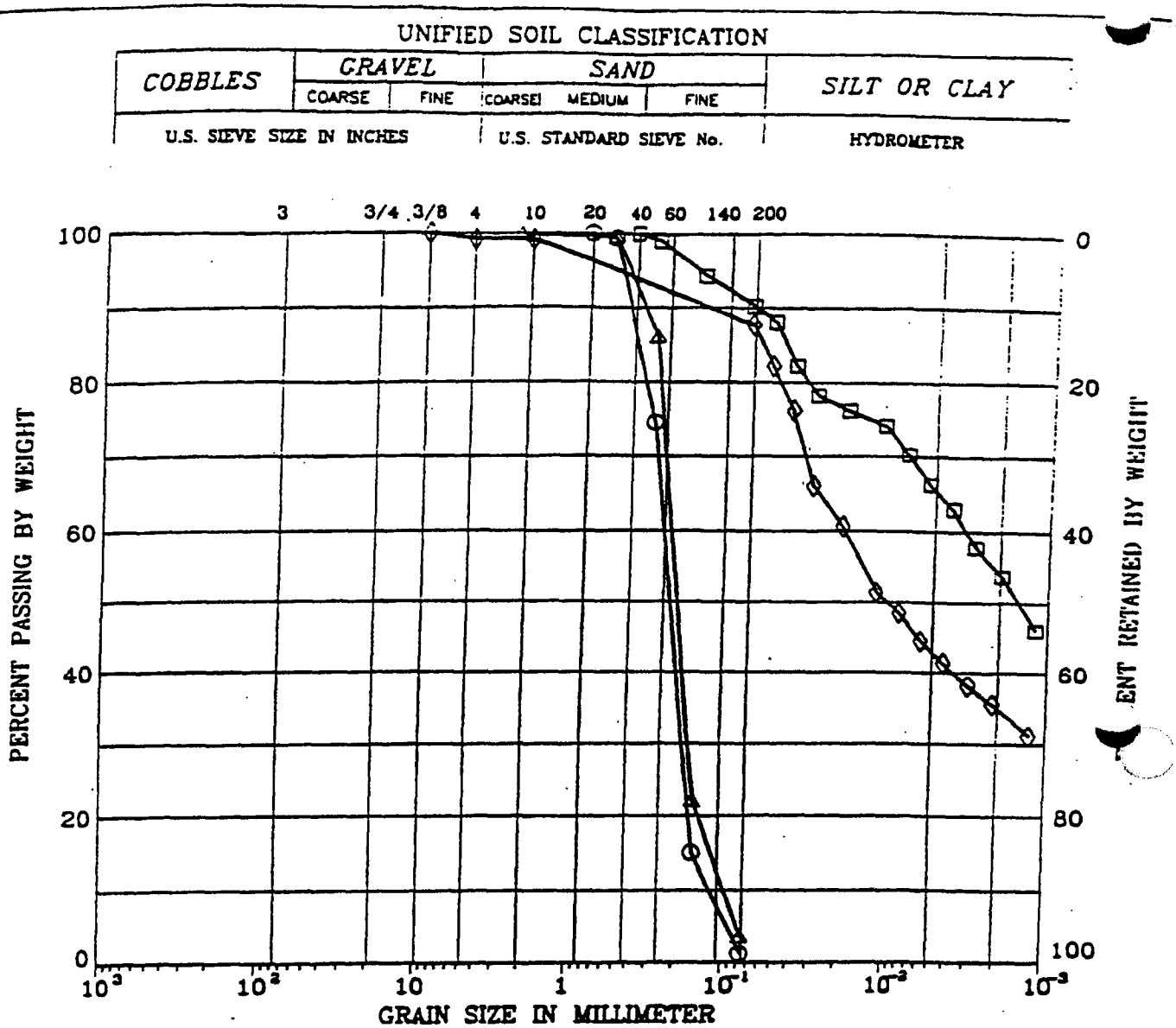
Project No.034-14	Canonie 86-018-1806
Cooper Testing Labs Mountain View CA	GRAIN SIZE DISTRIBUTION Figure No.15



SYMBOL	BORING	DEPTH (ft)	LL (%)	PI (%)	DESCRIPTION
○	MWC2-2	13.5			Garish brown silty fine sand w/lens of baymud
□	MWD13-1	2			Light brown fine sand w/silt (SP/SM)
△	MWOR-1	10			Brown silty fine sand (SM)
◇	MWOR-1	10.5			Brown silty fine sand (SM)

Remark :

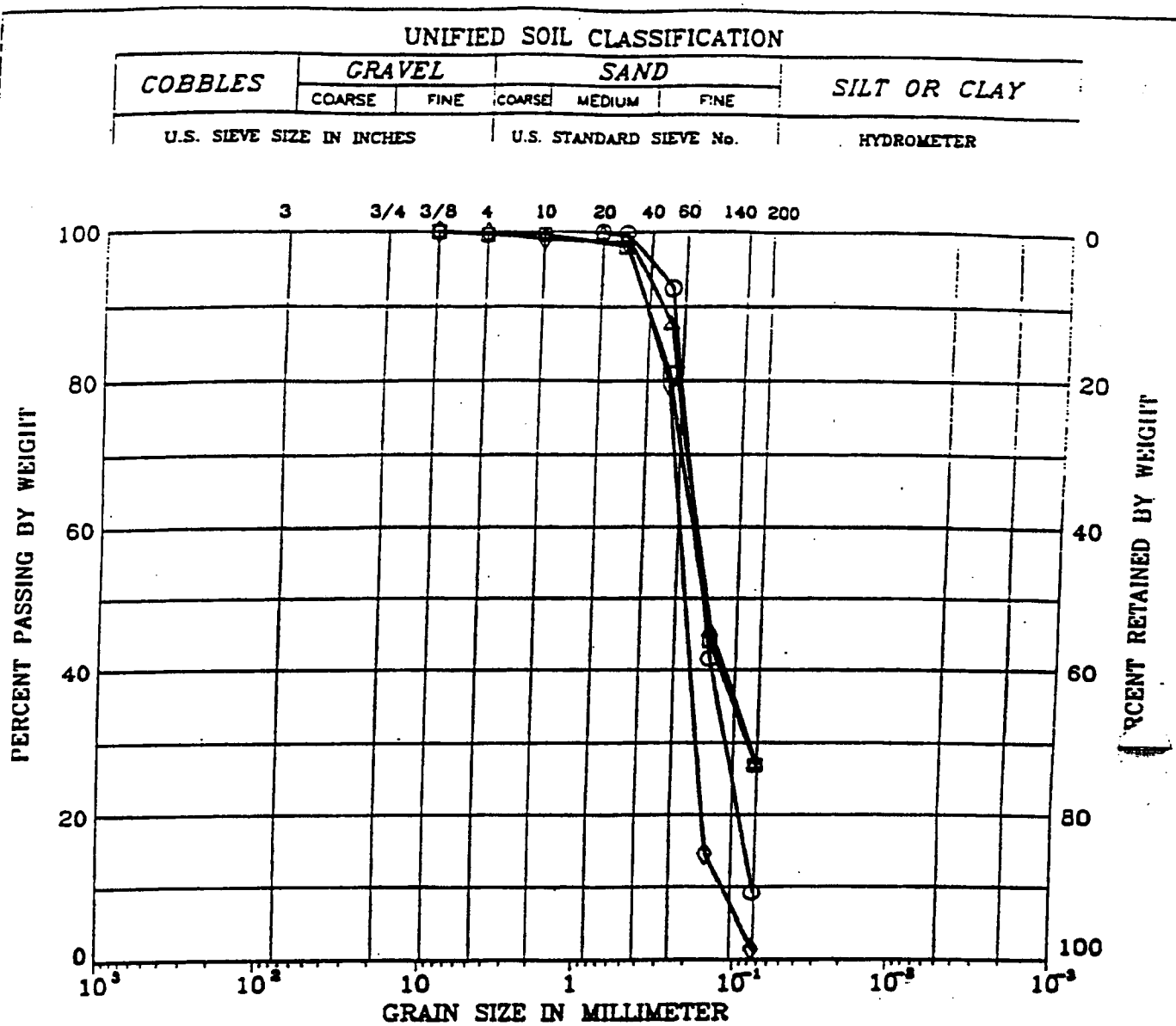
Project No.034-141	Canonie 86-018-1806
Cooper Testing Labs Mountain View CA	GRAIN SIZE DISTRIBUTION Figure No.13



SYMBOL	BORING	DEPTH (ft)	LL (%)	PI (%)	DESCRIPTION
○	Bor 10	2			Brown fine sand (SP)
□	Bor 11	10.5	81	55	Mottled brown & gray silty clay (CH) baymud
△	Bor 12	10			Light gray fine sand w/shells (SP)
◇	Bor 13	9.5	56	34	Gray silty clay (CH) baymud

Remark :

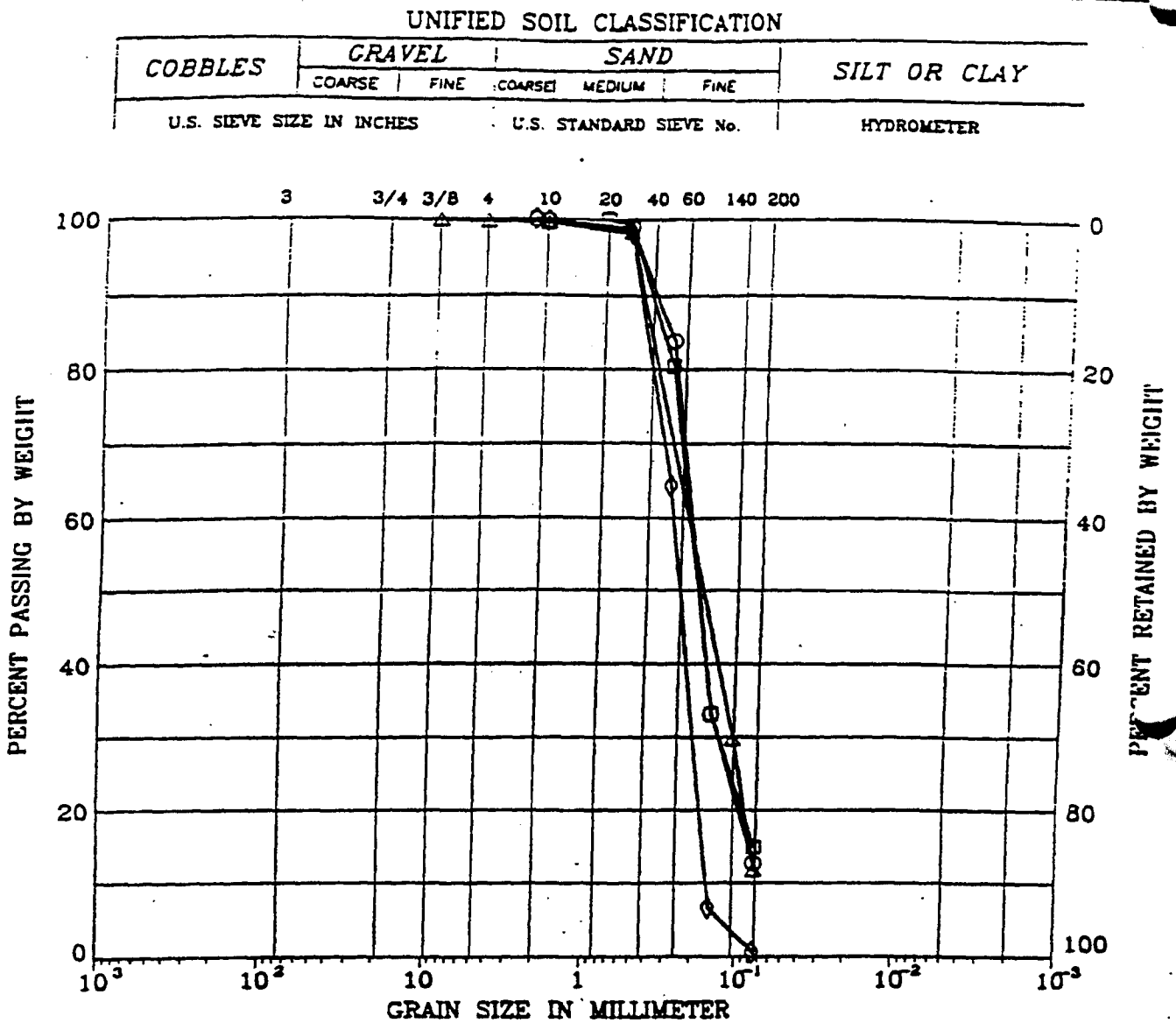
Project No.034-14	Canonie 86-018-1806
Cooper Testing Labs Mountain View CA	GRAIN SIZE DISTRIBUTION Figure No.4



SYMBOL	BORING	DEPTH (ft)	LL (%)	PI (%)	DESCRIPTION
○	Bor 15	5.5			Greenish brown fine sand w/silt (SP)
□	Bor 16	10.5			Brown silty fine sand (SM)
△	Bor 18	10.5			Brown silty fine sand (SM)
◇	Bor 20	1			Tan fine sand w/shells

Remark :

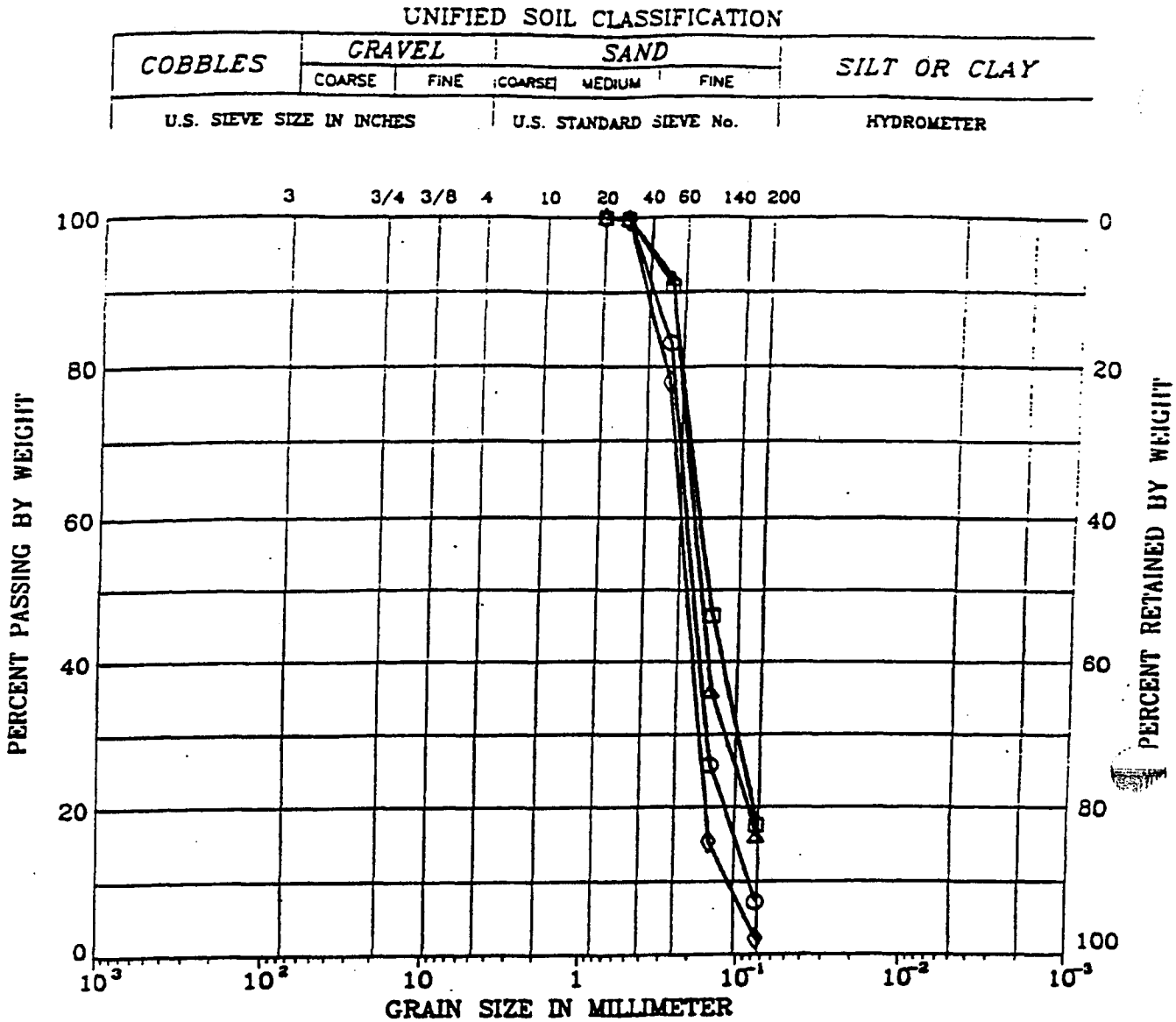
Project No.034-14	Canonie 86-018-1806
Cooper Testing Labs Mountain View, CA	GRAIN SIZE DISTRIBUTION Figure No.5



SYMBOL	BORING	DEPTH (ft)	LL (%)	PI (%)	DESCRIPTION
○	Bor 20	15			Grayish brown silty fine sand (SM)
□	Bor 21	13			Brown silty fine sand (SM)
△	Bor 22	12			Deposits of gray & gray-brown silty fine sand (SM)
◇	Bor 23	1.5			Brown fine sand (SP)

Remark :

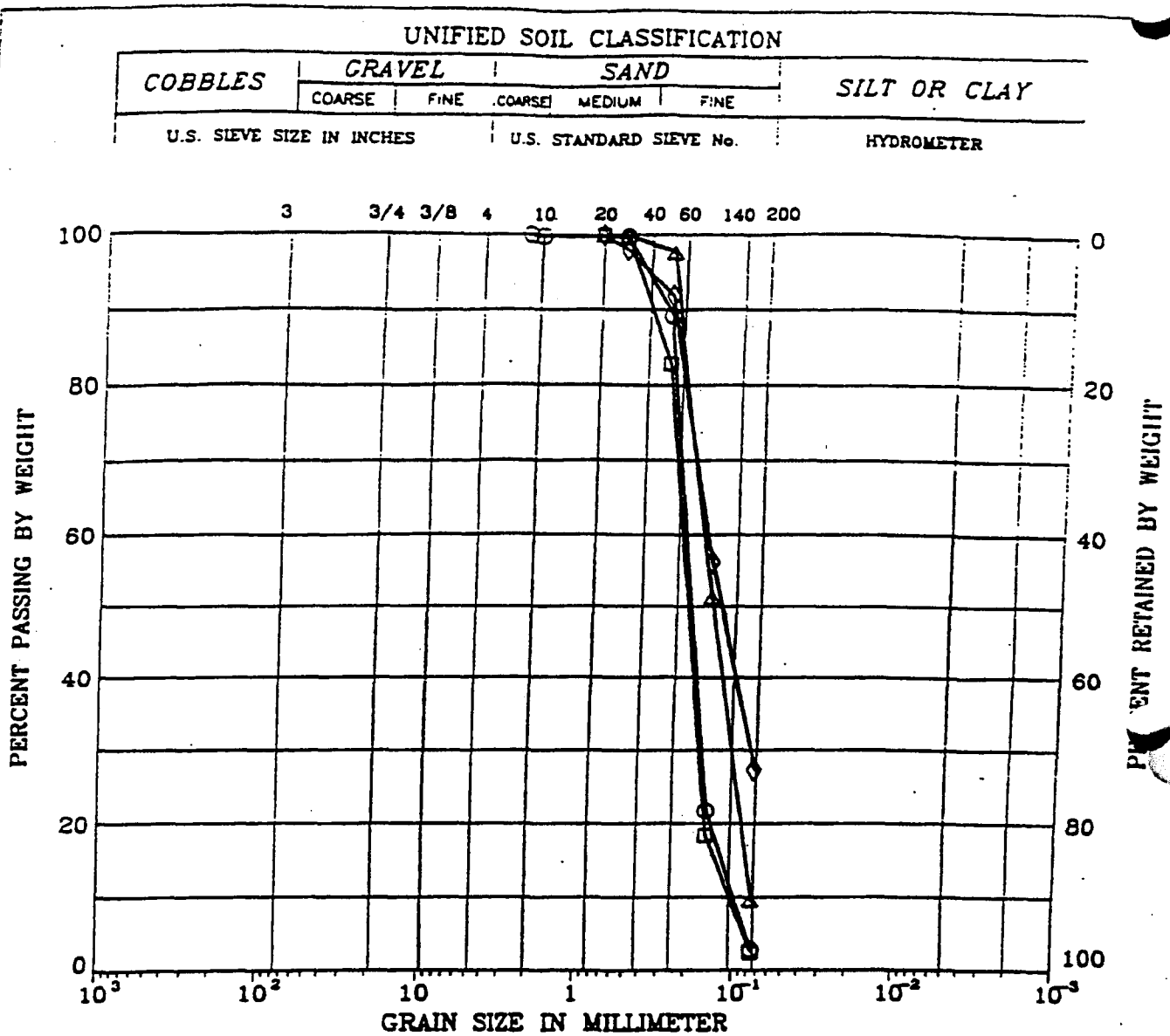
Project No.034-14e	Canonie 86-018-1806
Cooper Testing Labs Mountain View CA	GRAIN SIZE DISTRIBUTION Figure No.6



SYMBOL	BORING	DEPTH (ft)	LL (%)	PI (%)	DESCRIPTION
○	Bor 23	10			Greenish brown fine sand w/silt (SP/SM)
□	Bor 24	13			Brown silty fine sand (SM)
△	B360-7	10			Brown silty fine sand (SM)
◇	B410-5	3.5			Tan fine sand (SP)

Remark :

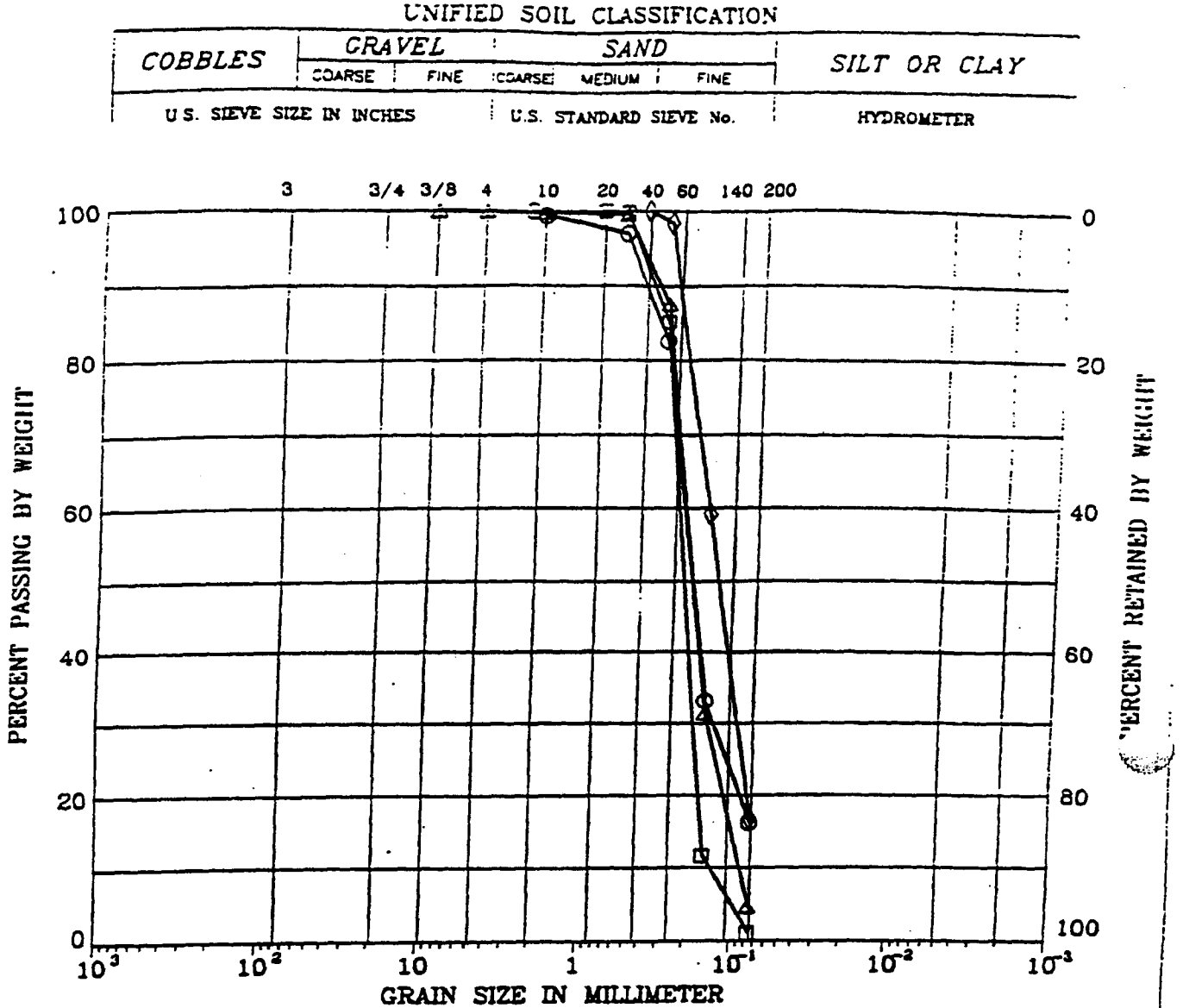
Project No.034-14	Canonie 86-018-1806
Cooper Testing Labs Mountain View CA	GRAIN SIZE DISTRIBUTION Figure No.7



SYMBOL	BORING	DEPTH (ft)	LL (%)	PI (%)	DESCRIPTION
○	B410-6	2.5			Grayish brown fine sand (SP)
□	BC2-4	1			Brown fine sand (SP)
△	BC2-4	7			Greenish brown fine sand w/silt (SP/SM)
◇	BC2-4	12			Intermingled deposits of sand & clay

Remark :

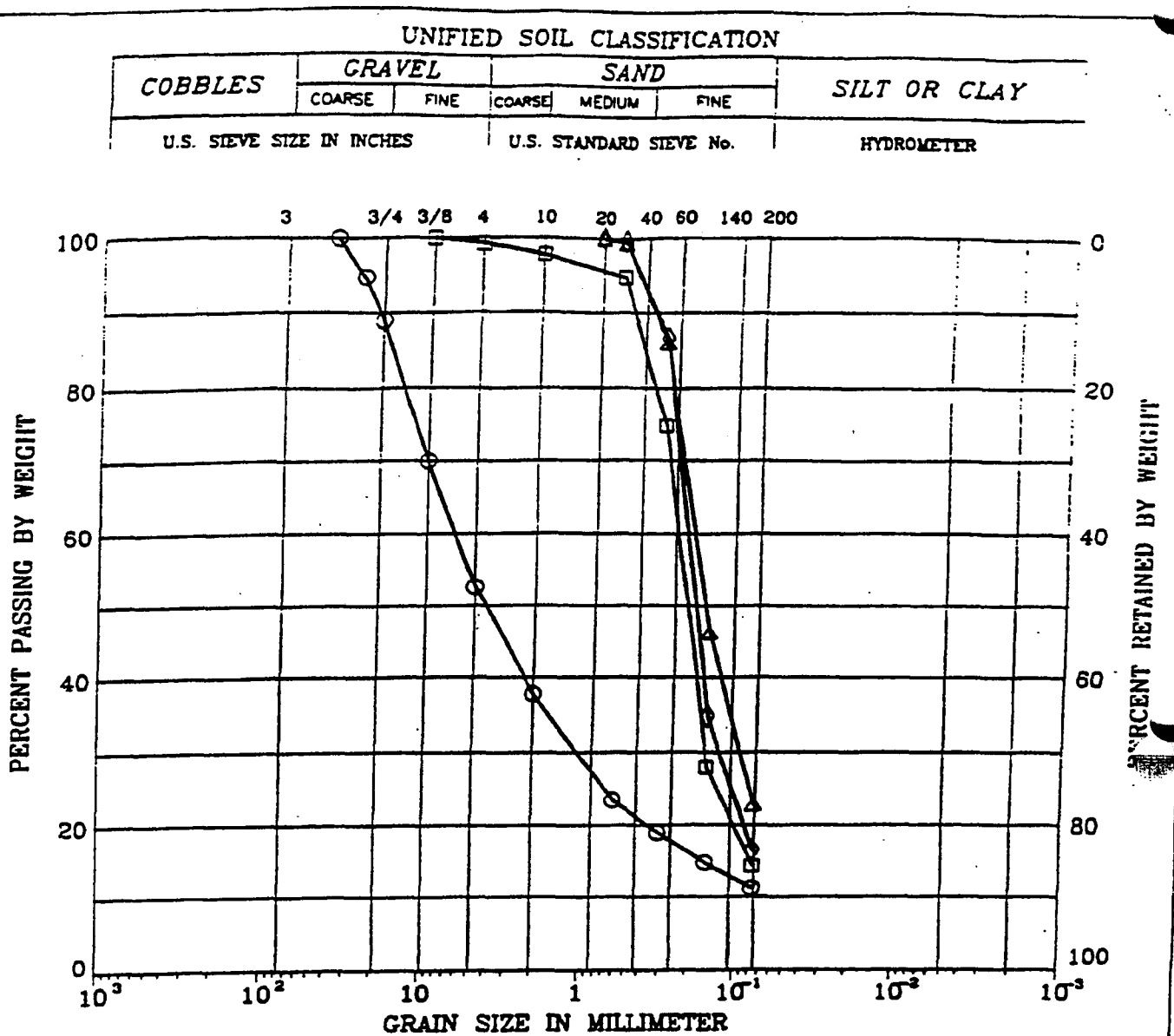
Project No.034-14	Canonie 86-018-1806
Cooper Testing Labs Mountain View CA	GRAIN SIZE DISTRIBUTION Figure No.8



SYMBOL	BORING	DEPTH (ft)	LL (%)	PI (%)	DESCRIPTION
○	BC2-9	12.5			Gray silty fine sand (SM)
□	MWC2-1	3.5			Brown fine sand (SP)
△	MWC2-1	6.5			Grayish brown fine sand (SP)
◇	MWC2-2	13			Greenish brown silty fine sand (SM)

Remark :

Project No.034-14	Canonie 86-018-1806
Cooper Testing Labs Mountain View CA	GRAIN SIZE DISTRIBUTION Figure No.12



SYMBOL	BORING	DEPTH (ft)	LL (%)	PI (%)	DESCRIPTION
○	MWOR-4	1			Red crushed rock (GP)
□	MW97-3	1			Brown silty fine sand (SM)
△	MW97-3	12.5			Brown silty fine sand (SM)
◊	MW360-2	11			Brown silty fine sand (SM)

Remark :

Project No.034-14	Canonie 86-018-1806
Cooper Testing Labs Mountain View CA	GRAIN SIZE DISTRIBUTION Figure No.14

APPENDIX C

PERMEABILITY RESULTS

COOPER TESTING LABORATORY

LABORATORY PERMEABILITY TEST DATA SHEET

SUMMARY

Initial Moisture Content 20.1 %
Initial Dry Density 109.5 pcf.
Perm. at 20°C 3×10^{-7} cm/sec

Job 03-13 (CANONIE 86-018-R06) Boring No. S47-2 Sample No. ____ Depth 10 1/2'

Date Sampled ____ By ____ : Test Started 9/7/90 By DC : Computed by ____

Description of Soil BROWN SILTY SAND (SM) SATURATED Checked by ____

☑ UNDISTURBED, d = ~~2.375"~~ 1.93", ℓ = 1" ☑ or ℓ = 2" ☐

☐ REMOLDED, d = 4.00", ℓ = 4.59" (1/30 cubic foot mold)

____ blows of a ____ lb. hammer dropped ____ inches on each of ____ layers

Apparatus No. 1 Surcharge Pressure 300 lbs./sq. ft.

Dial Readings in .001 inch: Sample Dial Before Cons.	Dial Dial After Cons.	Date	Time	Elapsed Time, t, in hours	Burette Reading in cc	Volume of Water Used, V, in cc: Original	Corr. .95 x orig.	Head of Water, h in inches	Perm. in cm/sec at test temp.	Test temp. in °C	Viscosity Correc. Factor	Permeability, K, in cm/sec at 20°C
522	114	9/7	1328	SATURATING								
-100		9/10	1032	0	35.6	0		17		—		
422	111		1750	7.3	38.2	2.60	2.47		3.1×10^{-7}	24	.91	2.8×10^{-7}
		9/11	930	20.03	43.6	8.0	7.60		3.5×10^{-7}	21	.98	3.4×10^{-7}
			1708	30.60	46.2	10.6	10.07		3.0×10^{-7}	25	.89	2.7×10^{-7}
		9/12	1010	47.63	52.0	16.4	15.58		3.0×10^{-7}	23	.93	2.8×10^{-7}

CONSTANT-HEAD TEST

$$K = \frac{V\ell}{thA}$$

K = coeff. of perm. in cm/sec
V = volume of water in cc.
ℓ = length of sample in inches
t = elapsed time in hours
h = head of water in inches
A = area of sample in sq. inches

For a sample with ℓ = 1", d = 2.375"

$$K = 9.72 \times 10^{-6} \frac{V}{th}$$

For a sample with ℓ = 4.59", d = 4"

$$K = 1.57 \times 10^{-5} \frac{V}{th}$$

MOISTURE-DENSITY DATA

Before Test		After Test
129.7	Wt. of 1 rings + soil	129.5
28.7	Wt. of ____ rings	28.7
101.0	Wt. of soil	99.8
1.302	Ring Factor	1.302
131.5	WET DENSITY, PCF	129.9
	Wt. of soil + dish No. 64	120.4
	Dry wt. of soil + dish	104.8
	Net loss of moisture	15.6
	Wt. of dish	21.3
	Wt. of dry soil	83.5
20.1	MOISTURE CONTENT, %	18.7
109.5	DRY DENSITY, PCF	

d = 1.93"

$K = 1.57 \times 10^{-5} \frac{V}{th}$

VISCOSITY CORRECTION FACTORS

Test Temp. in °C	Viscosity Correc. Factor
16	1.11
17	1.08
18	1.05
19	1.03
20	1.00
21	.98
22	.95
23	.93
24	.91

CONVERSION FACTORS

(Multiply by these factors to convert from cm/sec to the indicated units)

ft/sec = 3.28×10^{-6}
ft/day = 2.84×10^{-3}
ft/yr = 1.04×10^{-1}
gal/ft²-day = 2.12×10^{-4}

Lab 13 (4-60)

SUMMARY

Initial Moisture Content 12.9
Initial Dry Density 100.6 pcf
Perm. at 20°C 1×10^{-3} cm/sec

LABORATORY PERMEABILITY TEST DATA SHEET

Job 034-13 (CANONIE 86-018-1906) Boring No. 3547-9 Sample No. _____ Depth 2'

Date Sampled _____ By _____ : Test Started 9/11/90 By DC : Computed by _____

Description of Soil BROWN SILTY FINE SAND (SM) Checked by _____

☑ UNDISTURBED, d = ~~2.375"~~ 1.90", ℓ = 1" ☑ or ℓ = 2" ☐

☐ REMOLDED, d = 4.00", ℓ = 4.59" (1/30 cubic foot mold)

_____ blows of a _____ lb. hammer dropped _____ inches on each of _____ layers

Apparatus No. 2 Surcharge Pressure 300 lbs./sq. ft.

Dial Readings in .001 inch: Sample Dial Before Corr.	Dial Dial After Corr.	Date	Time	Elapsed Time, t, in hours	Burette Reading in cc	Volume of Water Used, V, in cc: Original	Corr. .95 x orig.	Head of Water, h in inches	Perm. in cm/sec at test temp.	Test temp. in °C	Viscosity Correc. Factor	Permeability, K, in cm/sec at 20°C
695	058	9/11	1437	SATURATING								
100			1311	0	1.8	0		1		—		
595	056		1321	.17	15.8	14.0	13.3		1.2×10^{-3}	24	.91	1.1×10^{-3}
			1416	1.08	82.8	81.0	76.95		1.1×10^{-3}	25	.89	1.0×10^{-3}
			1512	0	2.6	0				—		
			1537	.42	56.4	53.8	51.11		1.8×10^{-3}	26	.87	1.6×10^{-3}
			1537	0	1.2	0				—		
			1545	.13	13.4	12.2	11.59		1.4×10^{-3}	25	.89	1.2×10^{-3}
			1558	.35	31.8	30.6	29.07		1.3×10^{-3}	25	.89	1.1×10^{-3}

CONSTANT-HEAD TEST

$$K = \frac{V\ell}{thA}$$

K = coeff. of perm. in cm/sec
V = volume of water in cc.
ℓ = length of sample in inches
t = elapsed time in hours
h = head of water in inches
A = area of sample in sq. inches

For a sample with ℓ = 1", d = 2.375"

$$K = 9.72 \times 10^{-6} \frac{V}{th}$$

For a sample with ℓ = 4.59", d = 4"

$$K = 1.57 \times 10^{-6} \frac{V}{th}$$

MOISTURE-DENSITY DATA

Before Test		After Test
18.2	Wt. of 1 rings + soil	124.2
34.6	Wt. of _____ rings	34.6
84.6	Wt. of soil	89.6
1.342	Ring Factor	1.342
113.5	WET DENSITY, PCF	120.2
	Wt. of soil + dish No. 129	109.3
	Dry wt. of soil + dish	94.8
	Net loss of moisture	14.5
	Wt. of dish	20.7
	Wt. of dry soil	74.1
12.9	MOISTURE CONTENT, %	19.6
100.6	DRY DENSITY, PCF	

d = 1.90"

$$K = 1.52 \times 10^{-5} \frac{V}{th}$$

VISCOSITY CORRECTION FACTORS

Test Temp. in °C	Viscosity Correc. Factor
16	1.11
17	1.08
18	1.05
19	1.03
20	1.00
21	.98
22	.95
23	.93
24	.91

CONVERSION FACTORS

(Multiply by these factors to convert from cm/sec to the indicated units)

ft/sec = 3.28×10^{-6}
ft/day = 2.84×10^{-3}
ft/yr = 1.04×10^{-1}
gal/ft²-day = 2.12×10^{-4}

Lab 13 (4-60)

COOPER TESTING LABORATORY

LABORATORY PERMEABILITY TEST DATA SHEET

SUMMARY:

Initial Moisture Content 5.5 %
Initial Dry Density 94.9 pcf.
Perm. at 20°C 4×10^{-4} cm/sec

Job 034-14 (CANDUE 96-018-1506) Boring No. MW-D13-1 Sample No. _____ Depth 2'

Date Sampled _____ By _____ : Test Started 9/26/90 By DC : Computed by _____

Description of Soil LIGHT BROWN FINE SAND (SP) Checked by _____

☑ UNDISTURBED, d = ~~2.375"~~ 1.93", ℓ = 1" ☑ or ℓ = 2" ☐

☐ REMOLDED, d = 4.00", ℓ = 4.59" (1/30 cubic foot mold)

_____ blows of a _____ lb. hammer dropped _____ inches on each of _____ layers

Apparatus No. 3 Surcharge Pressure 30 lbs./sq. ft.

Dial Readings in .001 inch: Sample Dial Before Test	Dial Dial After Test	Date	Time	Elapsed Time, t, in hours	Burette Reading in cc	Volume of Water Used, V, in cc: Original	Corr. .95 x orig.	Head of Water, h in inches	Perm. in cm/sec at test temp.	Test Temp. in °C	Viscosity Correc. Factor	Permeability, K, in cm/sec at 20°C
813	057	9/26	1111	SATURATING								
-060			1146	0	2.8	0		1				
753	054		1305	1.32	38.0	35.2	33.44		4.0×10^{-4}	24	91	3.6×10^{-4}
			1403	2.28	61.5	58.7	55.77		3.8×10^{-4}	25	.89	3.4×10^{-4}
			1523	3.62	93.6	90.8	86.26		3.7×10^{-4}	26	.87	3.2×10^{-4}
			1550	0	2.0	0				—		
			1612	.37	15.8	13.80	13.11		5.6×10^{-4}	26	.87	4.8×10^{-4}
			1646	.93	37.2	35.20	33.44		5.6×10^{-4}	26	.87	4.9×10^{-4}
			1754	2.07	76.0	74.00	70.30		5.3×10^{-4}	26	.87	4.6×10^{-4}

CONSTANT-HEAD TEST

$$K = \frac{V\ell}{thA}$$

K = coeff. of perm. in cm/sec
V = volume of water in cc.
ℓ = length of sample in inches
t = elapsed time in hours
h = head of water in inches
A = area of sample in sq. inches

For a sample with ℓ = 1", d = 2.375"
$$K = 9.72 \times 10^{-6} \frac{V}{th}$$

For a sample with ℓ = 4.59", d = 4"
$$K = 1.57 \times 10^{-5} \frac{V}{th}$$

MOISTURE - DENSITY DATA

Before Test		After Test
100.7	Wt. of 1 rings + soil	112.1
23.8	Wt. of _____ rings	23.8
76.9	Wt. of soil	88.3
1.302	Ring Factor	1.302
100.1	WET DENSITY, PCF	115.0
	Wt. of soil + dish No. 124	108.6
	Dry wt. of soil + dish	93.2
	Net loss of moisture	15.4
	Wt. of dish	20.5
	Wt. of dry soil	72.7
5.5	MOISTURE CONTENT, %	21.2
94.9	DRY DENSITY, PCF	

d = 1.93"
$K = 1.57 \times 10^{-5} \frac{V}{th}$

VISCOSITY CORRECTION FACTORS

Test Temp. in °C	Viscosity Correc. Factor
16	1.11
17	1.08
18	1.05
19	1.03
20	1.00
21	.98
22	.95
23	.93
24	.91

CONVERSION FACTORS

(Multiply by these factors to convert from cm/sec to the indicated units)

ft/sec = 3.28×10^{-6}
ft/day = 2.84×10^{-3}
ft/yr = 1.04×10^{-1}
gal/ft²-day = 2.12×10^{-4}

Lab 13 (4-60)

COOPER TESTING LABORATORY

LABORATORY PERMEABILITY TEST DATA SHEET

SUMMARY

Initial Moisture Content 16.1 %
Initial Dry Density 109.1 pcf.
Perm. at 20°C 3×10^{-4} cm/sec

Job 534-14 (CANOLINE 86-08-1806) Boring No. B-1013-6 Sample No. _____ Depth 7'

Date Sampled _____ By _____ : Test Started 9/8/86 By DC : Computed by ---

Description of Soil BROWN FINE SILTY SAND (SM) INTERB (SP) Checked by.

☑ UNDISTURBED, d = ~~2.375"~~ 1.90", ℓ = 1" ☑ or ℓ = 2" ☐

☐ REMOLDED, d = 4.00", ℓ = 4.59" (1/30 cubic foot mold)

_____ blows of a _____ lb. hammer dropped _____ inches on each of _____ layers

Apparatus No. 2 Surcharge Pressure 300 lbs./sq. ft.

Dial Readings in .001 inch: Smith Bail Before Test	Dial Bail After Test	Date	Time	Elapsed Time, t, in hours	Burette Reading in cc	Volume of Water Used, V, in cc: Original	Corr. .99 x orig.	Head of Water, h in inches	Perm. in cm/sec at test temp.	Test Temp. in °C	Viscosity Correc. Factor	Permeability, K, in cm/sec at 20°C
784	078	9/8	1451		SATURATING							
100		10/1	1209	0	3.4	0		1				
684	075		1307	.97	30.6	27.2	25.84		4.1×10^{-4}	23	.93	3.8×10^{-4}
			1417	2.13	59.2	55.8	53.01		3.8×10^{-4}	24	.91	3.4×10^{-4}
			1504	2.92	77.8	74.4	70.68		3.7×10^{-4}	24	.91	3.4×10^{-4}
			1519	3.17	83.2	79.8	75.81		3.6×10^{-4}	24	.91	3.3×10^{-4}
			1604	3.92	98.8	95.4	90.63		3.5×10^{-4}	24	.91	3.2×10^{-4}

CONSTANT-HEAD TEST

$$K = \frac{V\ell}{thA}$$

K = coeff. of perm. in cm/sec
V = volume of water in cc.
ℓ = length of sample in inches
t = elapsed time in hours
h = head of water in inches
A = area of sample in sq. inches

For a sample with ℓ = 1", d = 2.375"

$$K = 9.72 \times 10^{-6} \frac{V}{th}$$

For a sample with ℓ = 4.59", d = 4"

$$K = 1.57 \times 10^{-6} \frac{V}{th}$$

MOISTURE-DENSITY DATA

Before Test		After Test
129.4	Wt. of 1 rings + soil	131.1
34.7	Wt. of _____ rings	34.7
94.7	Wt. of soil	96.4
1.342	Ring Factor	1.342
127.1	WET DENSITY, PCF	129.4
	Wt. of soil + dish No. 4	116.3
	Dry wt. of soil + dish	101.4
	Net loss of moisture	14.9
	Wt. of dish	21.1
	Wt. of dry soil	80.3
16.5	MOISTURE CONTENT, %	18.6
109.1	DRY DENSITY, PCF	

d = 1.9"

$$K = 1.52 \times 10^{-5} \frac{V}{th}$$

VISCOSITY CORRECTION FACTORS

Test Temp. in °C	Viscosity Correc. Factor
16	1.11
17	1.08
18	1.05
19	1.03
20	1.00
21	.98
22	.95
23	.93
24	.91

CONVERSION FACTORS

(Multiply by these factors to convert from cm/sec to the indicated units)

ft/sec = 3.28×10^{-6}
ft/day = 2.84×10^{-3}
ft/yr = 1.04×10^{-1}
gal/ft²-day = 2.12×10^{-4}

Lab 13 (4-60)

COOPER TESTING LABORATORY

LABORATORY PERMEABILITY TEST DATA SHEET

Initial Moisture Content 16.8 %
Initial Dry Density 109.6 pcf.
Perm. at 20°C $1 \times 10^{-}$ cm/sec

Job 0314 (CALDWELL 96-05-506) Boring No. B-DB-7 Sample No. _____ Depth 10'

Date Sampled _____ By _____ : Test Started 9/27/90 By DC : Computed by _____

Description of Soil LIGHT BROWN CLAYEY FINE SAND (SC) DENSE Checked by _____

☑ UNDISTURBED, d = ~~2.375"~~ 1.50", ℓ = 1" ☑ or ℓ = 2" ☐

☐ REMOLDED, d = 4.00", ℓ = 4.59" (1/30 cubic foot mold)

_____ blows of a _____ lb. hammer dropped _____ inches on each of _____ layers

Apparatus No. 1 Surcharge Pressure 300 lbs./sq. ft.

Dial Readings in .001 inch: Sample Dial Before Corr.	Dial Dial After Corr.	Date	Time	Elapsed Time, t, in hours	Burette Reading in cc	Volume of Water Used, V, in cc: Original	Corr. .95 x orig.	Head of Water, h in inches	Perm. in cm/sec at test temp.	Test Temp. in °C	Viscosity Correc. Factor	Permeability, K, in cm/sec at 20°C
524	101	9/27	1700	SATURATING								
100		9/28	851	0	33.8	0		15		–		
124	099		1616	7.42	35.6	1.8	1.71		2.3×10^{-7}	24	.91	2.1×10^{-7}
		9/29	947	24.93	38.4	4.6	4.37		1.8×10^{-7}	23	.93	1.7×10^{-7}
		9/30	1028	48.62	42.0	8.2	7.79		1.6×10^{-7}	23	.93	1.5×10^{-7}
		10/1	835	71.73	44.6	10.8	10.26		1.4×10^{-7}	23	.93	1.3×10^{-7}
			1605	79.23	45.6	11.8	11.21		1.4×10^{-7}	24	.91	1.3×10^{-7}
		10/2	821	95.50	47.2	13.4	12.73		1.4×10^{-7}	20	1.0	1.4×10^{-7}

CONSTANT-HEAD TEST

$$K = \frac{V\ell}{thA}$$

K = coeff. of perm. in cm/sec
V = volume of water in cc.
ℓ = length of sample in inches
t = elapsed time in hours
h = head of water in inches
A = area of sample in sq. inches

For a sample with ℓ = 1", d = 2.375"

$$K = 9.72 \times 10^{-6} \frac{V}{th}$$

For a sample with ℓ = 4.59", d = 4"

$$K = 1.57 \times 10^{-6} \frac{V}{th}$$

MOISTURE-DENSITY DATA

Before Test		After Test
179.9	Wt. of 1 rings + soil	131.2
34.5	Wt. of _____ rings	34.5
95.4	Wt. of soil	96.7
1.342	Ring Factor	1.342
128.0	WET DENSITY, PCF	129.8
	Wt. of soil + dish No. 27	116.8
	Dry wt. of soil + dish	101.8
	Net loss of moisture	15.0
	Wt. of dish	20.5
	Wt. of dry soil	81.3
16.8	MOISTURE CONTENT, %	18.5
109.6	DRY DENSITY, PCF	

d = 1.9"
$K = 1.52 \times 10^{-5} \frac{V}{th}$

VISCOSITY CORRECTION FACTORS

Test Temp. in °C	Viscosity Correc. Factor
16	1.11
17	1.08
18	1.05
19	1.03
20	1.00
21	.98
22	.95
23	.93
24	.91

CONVERSION FACTORS

(Multiply by these factors to convert from cm/sec to the indicated units)

ft/sec = 3.28×10^{-6}
ft/day = 2.84×10^{-3}
ft/yr = 1.04×10^{0}
gal/ft²-day = 2.12×10^{4}

Lab 13 (4-60)

COOPER TESTING LABORATORY

LABORATORY PERMEABILITY TEST DATA SHEET

Initial Moisture Content _____ %
Initial Dry Density _____ pcf.
Perm. at 20°C 5 x 10^-8 cm/sec

Job 034-14 (CANONITE 86-018-1806) Boring No. B-410-7 Sample No. _____ Depth 10'

Date Sampled _____ By _____ : Test Started 9/24/90 By DC : Computed by _____

Description of Soil MIX OF BAYMUD & FINE SAND (SC) Checked by _____

☒ UNDISTURBED, d = ~~2.375"~~ 1.93", ℓ = 1" ☒ or ℓ = 2" ☐

☐ REMOLDED, d = 4.00", ℓ = 4.59" (1/30 cubic foot mold)

_____ blows of a _____ lb. hammer dropped _____ inches on each of _____ layers

Apparatus No. 2 Surcharge Pressure 300 lbs./sq. ft.

Dial Readings in .001 inch: Sample Dial Before Corr.	Dial Dial After Corr.	Date	Time	Elapsed Time, t, in hours	Burette Reading in cc	Volume of Water Used, V, in cc: Original	Corr. .95 x orig.	Head of Water, h in inches	Perm. in cm/sec at test temp.	Test Temp. in °C	Viscosity Correc. Factor	Permeability, K, in cm/sec at 20°C
682	050	9/24	1159	SATURATING								
-100		9/25	914	0	2.2	0		22		—		
582	047		1338	4.4	5.4	3.2	3.04		4.9 x 10^-7	24	.91	4.5 x 10^-7
			1733	8.32	9.0	6.8	6.46		5.5 x 10^-7	25	.89	4.9 x 10^-7
		9/26	912	23.97	21.6	19.4	18.43		5.5 x 10^-7	22	.95	5.2 x 10^-7
			1712	31.97	27.6	25.4	24.13		5.4 x 10^-7	25	.89	4.8 x 10^-7
		9/27	1144	50.50	39.4	37.2	35.34		5.0 x 10^-7	24	.91	4.5 x 10^-7

CONSTANT-HEAD TEST

$$K = \frac{V\ell}{thA}$$

K = coeff. of perm. in cm/sec
V = volume of water in cc.
ℓ = length of sample in inches
t = elapsed time in hours
h = head of water in inches
A = area of sample in sq. inches

For a sample with ℓ = 1", d = 2.375"

$$K = 9.72 \times 10^{-4} \frac{V}{th}$$

For a sample with ℓ = 4.59", d = 4"

$$K = 1.57 \times 10^{-4} \frac{V}{th}$$

MOISTURE-DENSITY DATA

Before Test		After Test
114.6	Wt. of 1 rings + soil	112.7
28.4	Wt. of _____ rings	28.4
86.2	Wt. of soil	84.3
1.302	Ring Factor	1.302
112.2	WET DENSITY, PCF	109.8
	Wt. of soil + dish No. 61	103.6
	Dry wt. of soil + dish	80.5
	Net loss of moisture	23.1
	Wt. of dish	19.7
	Wt. of dry soil	60.8
41.1	MOISTURE CONTENT, %	38.0
79.5	DRY DENSITY, PCF	

d = 1.93"

$$K = 1.57 \times 10^{-5} \frac{V}{th}$$

VISCOSITY CORRECTION FACTOR

Test Temp. in °C	Viscosity Correc. Factor
16	1.11
17	1.08
18	1.05
19	1.03
20	1.00
21	.98
22	.95
23	.93
24	.91

CONVERSION FACTORS

(Multiply by these factors to convert from cm/sec to the indicated units)

ft/sec = 3.28×10^{-2}
ft/day = 2.84×10^{3}
ft/yr = 1.04×10^{6}
gal/ft²-day = 2.12×10^{4}

Lab 13 (4-60)

COOPER TESTING LABORATORY

LABORATORY PERMEABILITY TEST DATA SHEET

Initial Moisture Content ____ %
Initial Dry Density 99.5 pcf.
Perm. at 20°C 6×10^{-6} cm/sec

Job 234-14 (CANDLE SL-019-1806) Boring No. MW-580-L Sample No. ____ Depth 10'

Date Sampled ____ By ____ : Test Started 9/24/80 By DC : Computed by ____

Description of Soil MOTTLED LIGHT & DARK GRAY. SILTY FINE SAND (SM) NEAR (SP) Checked by ____

☑ UNDISTURBED, d = 1.90", ℓ = 1" ☑ or ℓ = 2" ☐

☐ REMOLDED, d = 4.00", ℓ = 4.59" (1/30 cubic foot mold)

____ blows of a ____ lb. hammer dropped ____ inches on each of ____ layers

Apparatus No. 1 Surcharge Pressure 320 lbs./sq. ft.

Dial Readings in .001 inch: Sample Dial Before Corr.	Dial After Corr.	Date	Time	Elapsed Time, t, in hours	Burette Reading in cc	Volume of Water Used, V, in cc: Original	Corr. .99 x orig.	Head of Water, h in inches	Perm. in cm/sec at test temp.	Test Temp. in °C	Viscosity Correc. Factor	Permeability, K, in cm/sec at 20°C
546	086	9/24	1145	SATURATING								
100		9/25	912	0	2.7	0		15		—		
446	083		1001	.82	11.4	8.7	8.27		1.0×10^{-5}	23	.93	9.5×10^{-6}
			1130	2.30	24.5	21.8	20.71		9.1×10^{-6}	23	.93	8.5×10^{-6}
			1338	4.43	40.4	37.7	35.82		8.2×10^{-6}	24	.91	7.5×10^{-6}
			1732	8.33	61.2	58.5	55.58		6.8×10^{-6}	25	.89	6.0×10^{-6}
			1918	10.10	68.4	65.70	62.42		6.3×10^{-6}	25	.89	5.6×10^{-6}
		9/26	912	0	1.4	0				—		
			1140	2.47	9.6	8.2	7.79		3.2×10^{-6}	22	.95	3.0×10^{-6}
			1151	0	10.6	0		20		—		

CONSTANT-HEAD TEST

$$K = \frac{V\ell}{thA}$$

K = coeff. of perm. in cm/sec
V = volume of water in cc.
ℓ = length of sample in inches
t = elapsed time in hours
h = head of water in inches
A = area of sample in sq. inches

For a sample with ℓ = 1", d = 2.375"

$$K = 9.72 \times 10^{-6} \frac{V}{th}$$

For a sample with ℓ = 4.59", d = 4"

$$K = 1.57 \times 10^{-6} \frac{V}{th}$$

MOISTURE-DENSITY DATA

Before Test		After Test
124.7	Wt. of 1 rings + soil	124.9
34.6	Wt. of ____ rings	34.6
90.1	Wt. of soil	90.3
1.342	Ring Factor	1.342
120.9	WET DENSITY, PCF	121.2
	Wt. of soil + dish No. 39	111.6
	Dry wt. of soil + dish	96.5
	Net loss of moisture	16.1
	Wt. of dish	21.5
	Wt. of dry soil	74.0
21.5	MOISTURE CONTENT, %	21.8
99.5	DRY DENSITY, PCF	

d = 1.9"

$$K = 1.52 \times 10^{-5} \frac{V}{th}$$

VISCOSITY CORRECTION FACTORS

OVER-

Test Temp. in °C	Viscosity Correc. Factor
16	1.11
17	1.08
18	1.05
19	1.03
20	1.00
21	.98
22	.95
23	.93
24	.91

CONVERSION FACTORS

(Multiply by these factors to convert from cm/sec to the indicated units)

ft/sec = 3.28×10^{-6}
ft/day = 2.84×10^{-3}
ft/yr = 1.04×10^{-1}
gal/ft²-day = 2.12×10^{4}

Lab 13 (4-60)

COOPER TESTING LABORATORY

LABORATORY PERMEABILITY TEST DATA SHEET

SUMMARY

Initial Moisture Content 7.5 %
Initial Dry Density 110.1 pcf.
Perm. at 20°C 2×10^{-5} cm/sec

Job 034-14 (CALTRANS 86-018-1906) Boring No. MW-OR-1 Sample No. _____ Depth 10.5'

Date Sampled _____ By _____ : Test Started 10/15/90 By DC : Computed by ---

Description of Soil BROWN SILTY FINE SAND (SM) DENSE Checked by

☑ UNDISTURBED, d = ~~2.375"~~ 1.93", ℓ = 1" ☑ or ℓ = 2" ☐.

☐ REMOLDED, d = 4.00", ℓ = 4.59" (1/30 cubic foot mold)

_____ blows of a _____ lb. hammer dropped _____ inches on each of _____ layers

Apparatus No. 2 Surcharge Pressure 300 lbs./sq. ft.

Dial Readings in .001 inch: Sample Dial Before Corr.	Dial Dial After Corr.	Date	Time	Elapsed Time, t, in hours	Burette Reading in cc	Volume of Water Used, V, in cc: Original	Corr. .95 x orig.	Head of Water, h in inches	Perm. in cm/sec at test temp.	Test Temp. in °C	Viscosity Correc. Factor	Permeability, K, in cm/sec at 20°C
684	050	10/12		SATURATING								
100		10/15	1305	0	22.6	0		36		–		
584	047		1747	4.70	24.6	2.0	1.9		1.7×10^{-5}	24	.91	1.5×10^{-5}
		10/16	820	19.25	32.2	9.6	9.12		1.9×10^{-5}	20	1.0	1.9×10^{-5}
			1654	27.82	36.0	13.4	12.73		1.8×10^{-5}	24	.91	1.7×10^{-5}
		10/17	759	42.90	43.6	21.0	19.95		1.9×10^{-5}	19	1.03	2.0×10^{-5}
			1647	51.70	46.8	24.2	22.99		1.8×10^{-5}	24	.91	1.7×10^{-5}
		10/18	846	67.68	54.0	31.4	29.83		1.9×10^{-5}	21	.98	1.8×10^{-5}

CONSTANT-HEAD TEST

$$K = \frac{V\ell}{thA}$$

K = coeff. of perm. in cm/sec
V = volume of water in cc.
ℓ = length of sample in inches
t = elapsed time in hours
h = head of water in inches
A = area of sample in sq. inches

For a sample with ℓ = 1", d = 2.375"

$$K = 9.72 \times 10^{-6} \frac{V}{th}$$

For a sample with ℓ = 4.59", d = 4"

$$K = 1.57 \times 10^{-6} \frac{V}{th}$$

MOISTURE - DENSITY DATA

Before Test		After Test
126.4	Wt. of 1 rings + soil	126.5
27.0	Wt. of ____ rings	27.0
99.4	Wt. of soil	99.5
1.302	Ring Factor	1.302
129.4	WET DENSITY, PCF	129.5
	Wt. of soil + dish No. 55	119.1
	Dry wt. of soil + dish	104.2
	Net loss of moisture	14.9
	Wt. of dish	19.9
	Wt. of dry soil	84.3
17.5	MOISTURE CONTENT, %	17.7
110.1	DRY DENSITY, PCF	

d = 1.93"
$K = 1.47 \times 10^{-5} \frac{V}{th}$

VISCOSITY CORRECTION FACTOR

Test Temp. in °C	Viscosity Correc. Factor
16	1.11
17	1.08
18	1.05
19	1.03
20	1.00
21	.98
22	.95
23	.93
24	.91

CONVERSION FACTORS

(Multiply by these factors to convert from cm/sec to the indicated units)

ft/sec = 3.28×10^{-6}
ft/day = 2.84×10^{-3}
ft/yr = 1.04×10^{-1}
gal/ft²-day = 2.12×10^{-4}

Lab 13 (4-60)

COOPER TESTING LABORATORY

LABORATORY PERMEABILITY TEST DATA SHEET

SUMMARY

Initial Moisture Content 7.2 %
Initial Dry Density 98.9 pcf.
Perm. at 20°C 3×10^{-3} cm/sec

Job 034-14 (CANONIE 86-058-1806) Boring No. BOR-10 Sample No. ____ Depth 2

Date Sampled ____ By ____ : Test Started 10/10/90 By DC : Computed by ____

Description of Soil BROWN FINE SAND (SP) Checked by ____

☒ UNDISTURBED, d = ~~2.375"~~ 1.98, ℓ = 1" ☒ or ℓ = 2" ☐

☐ REMOLDED, d = 4.00", ℓ = 4.59" (1/30 cubic foot mold)

____ blows of a ____ lb. hammer dropped ____ inches on each of ____ layers

Apparatus No. 2 Surcharge Pressure 300 lbs./sq. ft.

Dial Readings in .001 inch: Sample Dial Before Corr.	Dial Readings in .001 inch: Dial After Corr.	Date	Time	Elapsed Time, t, in hours	Burette Reading in cc	Volume of Water Used, V, in cc: Original	Volume of Water Used, V, in cc: Corr. .95 x orig.	Head of Water, h in inches	Perm. in cm/sec at test temp.	Test Temp. in °C	Viscosity Correc. Factor	Permeability, K, in cm/sec at 20°C
808	052	10/10	1535		SATURATING							
-060			830½	0	1.0	0		1		—		
748	049		833½	.05	12.0	11.0	10.45		3.3×10^{-3}	21	.98	3.2×10^{-3}
			842	.19	42.4	41.4	39.33		3.2×10^{-3}	21	.98	3.2×10^{-3}
			851	.34	73.4	72.4	68.78		3.2×10^{-3}	21	.98	3.1×10^{-3}
			1302	0	3.6	0				23	.93	
			1308	.10	26.3	22.7	21.57		3.4×10^{-3}	23	.93	3.1×10^{-3}
			1326	.40	92.0	88.4	83.98		3.3×10^{-3}	23	.93	3.1×10^{-3}

CONSTANT-HEAD TEST

$$K = \frac{V\ell}{thA}$$

K = coeff. of perm. in cm/sec
V = volume of water in cc.
ℓ = length of sample in inches
t = elapsed time in hours
h = head of water in inches
A = area of sample in sq. inches

For a sample with ℓ = 1", d = 2.375"

$$K = 9.72 \times 10^{-4} \frac{V}{th}$$

For a sample with ℓ = 4.59", d = 4"

$$K = 1.57 \times 10^{-5} \frac{V}{th}$$

MOISTURE-DENSITY DATA

Before Test		After Test
113.7	Wt. of 1 rings + soil	124.8
34.7	Wt. of ____ rings	34.7
79.0	Wt. of soil	90.1
1.342	Ring Factor	1.342
106.0	WET DENSITY, PCF	120.9
	Wt. of soil + dish No. 53	110.5
	Dry wt. of soil + dish	94.1
	Net loss of moisture	16.4
	Wt. of dish	20.6
	Wt. of dry soil	73.5
7.2	MOISTURE CONTENT, %	22.3
98.9	DRY DENSITY, PCF	

d = 1.9"

$K = 1.57 \times 10^{-5} \frac{V}{th}$

VISCOSITY CORRECTION FACTORS

Test Temp. in °C	Viscosity Correc. Factor
16	1.11
17	1.08
18	1.05
19	1.03
20	1.00
21	.98
22	.95
23	.93
24	.91

CONVERSION FACTORS

(Multiply by these factors to convert from cm/sec to the indicated units)

ft/sec = 3.28×10^{-4}
ft/day = 2.84×10^{2}
ft/yr = 1.04×10^{5}
gal/ft²-day = 2.12×10^{4}

Lab 13 (4-60)

FALLING HEAD PERMEABILITY TEST

PROJECT & LOCATION: 034-14 / LANDSIDE (96-019-1906)
BORING NO.: BOR-11 SAMPLE NO.: _____ DEPTH (FT): 10.5' SAMPLED BY: _____
LABORATORY CLASSIFICATION: MOTTLED BROWN & GRAY SILTY CLAY / RAYMOND

TESTED BY: DK 10/4/90 COMPUTED BY: _____ / / CHECKED BY: _____

TYPE OF SAMPLE: ☑ Undisturbed ☐ Remolded

SAMPLE DIMENSIONS	Initial	Final
Sample Height (In.)	1.0	.98
Sample Diameter (In.)	1.90	1.85
Sample Area (In.^{2})	2.84	2.69
Sample Volume (In.^{3})	2.84	2.64
VOID RATIO		
Volume of Sample - V_T (CC)	46.54	43.26
Volume of Solid - V_s (CC)	14.26	14.26
Volume of Void - V_v (CC)	32.3	29.0
Void Ratio - e	2.266	2.034
Degree of Saturation - S (%)	99.1	99.3

Specific Gravity (ASSUMED) 2.7

SATURATION & CONSOLIDATION

DATE TIME	PRESSURE CELL	PRESSURE BACK	PORE PRESSURE	Δ U	Δ CELL	B

MOISTURE & DENSITY DATA

	Before	After
Wet Weight + Tare, gm		87.1
Dry Weight + Tare, gm		58.7
Weight of Water, gm		28.8
Weight of Tare, gm		19.8
Weight of Dry Soil, gm		38.5
Moisture Content, %	83.1	74.8
Total Wet Weight, gm	70.5	67.3
Total Dry Weight, gm	38.5	38.5
Weight of Water, gm.	32.0	28.8
Wet Density, pcf	94.5	97.0
Dry Density, pcf	51.6	55.5

Cell# 2

VISCOSITY CORRECTION FACTORS

Test Temp. in °C	Viscosity Correct. Factor
16	1.11
17	1.08
18	1.05
19	1.03
20	1.00
21	.98
22	.95
23	.93
24	.91

CONSOLIDATION DATA

DATE	TIME Hr.	TIME Elapsed Min.	Burette Reading
		0	

FALLING HEAD PERMEABILITY TEST

PROJECT & LOCATION: 034-14 (CANONIE 86-018-1806)
BORING NO.: 30R 13 SAMPLE NO.: _____ DEPTH (FT): 9.5 SAMPLED BY: _____ /
LABORATORY CLASSIFICATION: GRAY SILTY CLAY (BAYMUD)

TESTED BY: DC 10/12/90 COMPUTED BY: _____ / / CHECKED BY: _____ /

TYPE OF SAMPLE: ☑ Undisturbed ☐ Remolded

SAMPLE DIMENSIONS	Initial	Final
Sample Height (In.)	1.0	.99
Sample Diameter (In.)	1.93	1.88
Sample Area (In.^{2})	2.93	2.78
Sample Volume (In.^{3})	2.93	2.75
VOID RATIO		
Volume of Sample - V_T (CC)	48.01	45.10
Volume of Solid - V_s (CC)	19.48	19.48
Volume of Void - V_v (CC)	28.5	25.62
Void Ratio - e	1.465	1.315
Degree of Saturation - S (%)	95.4	100

Specific Gravity (Assumed) 2.7

SATURATION & CONSOLIDATION

DATE TIME	PRESSURE CELL	PRESSURE BACK	PORE PRESSURE	Δ U	Δ CELL	B

MOISTURE & DENSITY DATA

	Before	After
Wet Weight + Tare, gm		99.9
Dry Weight + Tare, gm		74.3
Weight of Water, gm		25.6
Weight of Tare, gm 75		21.7
Weight of Dry Soil, gm		52.6
Moisture Content, %	51.7	48.7
Total Wet Weight, gm	79.8	78.3
Total Dry Weight, gm	52.6	53.6
Weight of Water, gm	27.2	25.7
Wet Density, pcf	103.7	108.4
Dry Density, pcf	68.3	72.9

Cell# 2

VISCOSITY CORRECTION FACTORS

Test Temp. in °C	Viscosity Correc. Factor
16	1.11
17	1.08
18	1.05
19	1.03
20	1.00
21	.98
22	.95
23	.93
24	.91

CONSOLIDATION DATA

DATE	TIME Hr.	TIME Elapsed Min.	Burette Reading
		0	

COOPER TESTING LABORATORY

LABORATORY PERMEABILITY TEST DATA SHEET

SUMMARY

Initial Moisture Content 18.0 %
Initial Dry Density 109.1 pcf.
Perm. at 20°C 2×10^{-8} cm/sec

Job 034-14 (CALVONIE 96-018-RAO) Boring No. BOR-18 Sample No. _____ Depth 10.5'

Date Sampled _____ By _____ : Test Started 10/12/90 By DC : Computed by _____

Description of Soil BROWN SILTY FINE SAND (SM) DENSE Checked by _____

☑ UNDISTURBED, d = ~~2.375"~~ 1.90", ℓ = 1" ☐ or ℓ = 2" ☐

☐ REMOLDED, d = 4.00", ℓ = 4.59" (1/30 cubic foot mold)

_____ blows of a _____ lb. hammer dropped _____ inches on each of _____ layers

Apparatus No. 1 Surcharge Pressure 300 lbs./sq. ft.

Dial Readings in .001 inch: Sample Dial Before Corr.	Dial Readings in .001 inch: Dial After Corr.	Date	Time	Elapsed Time, t, in hours	Burette Reading in cc	Volume of Water Used, V, in cc: Original	Volume of Water Used, V, in cc: Corr. .95 x orig.	Head of Water, h in inches	Perm. in cm/sec at test temp.	Test Temp. in °C	Viscosity Correc. Factor	Permeability, K_o in cm/sec at 20°C
564	104	10/12		SATURATING				36				
-100		10/15	1304	0	56.4	0				–		
464	103		1746	4.7	57.0	0.6	0.57		5.1×10^{-8}	24	.91	4.7×10^{-8}
		10/16	820	19.26	56.7	0.3	0.29		6.2×10^{-9}	20	1.0	6.2×10^{-9}
			1654	27.83	57.8	1.40	1.33		2.0×10^{-8}	19	1.03	2.1×10^{-8}
		10/17	759	42.92	57.9	1.50	1.43		1.4×10^{-8}	19	1.03	1.4×10^{-8}
			1647	51.72	59.0	2.60	2.47		2.0×10^{-8}	24	.91	1.8×10^{-8}

CONSTANT-HEAD TEST

$$K = \frac{V\ell}{thA}$$

K = coeff. of perm. in cm/sec
V = volume of water in cc.
ℓ = length of sample in inches
t = elapsed time in hours
h = head of water in inches
A = area of sample in sq. inches

For a sample with ℓ = 1", d = 2.375"

$$K = 9.72 \times 10^{-6} \frac{V}{th}$$

For a sample with ℓ = 4.59", d = 4"

$$K = 1.57 \times 10^{-6} \frac{V}{th}$$

MOISTURE-DENSITY DATA

Before Test		After Test
130.5	Wt. of 1 rings + soil	130.2
34.6	Wt. of _____ rings	34.6
95.9	Wt. of soil	95.6
1.342	Ring Factor	1.342
128.7	WET DENSITY, PCF	128.3
	Wt. of soil + dish No. 29	115.3
	Dry wt. of soil + dish	101.1
	Net loss of moisture	14.2
	Wt. of dish	20.6
	Wt. of dry soil	80.5
18.0	MOISTURE CONTENT, %	17.6
109.1	DRY DENSITY, PCF	

d = 1.9"

$K = 1.52 \times 10^{-5} \frac{V}{th}$

VISCOSITY CORRECTION FACTOR

Test Temp. in °C	Viscosity Correc. Factor
16	1.11
17	1.08
18	1.05
19	1.03
20	1.00
21	.98
22	.95
23	.93
24	.91

CONVERSION FACTORS

(Multiply by these factors to convert from cm/sec to the indicated units)

ft/sec = 3.28×10^{-6}
ft/day = 2.84×10^{-3}
ft/yr = 1.04×10^{-1}
gal/ft²-day = 2.12×10^{-4}

Lab 13 (4-60)

COOPER TESTING LABORATORY

LABORATORY PERMEABILITY TEST DATA SHEET

Initial Moisture Content 4.4 %
Initial Dry Density 101.5 pcf.
Perm. at 20°C 1×10^{-3} cm/sec

Job 034-14 (Granite 86-DIP-1506) Boring No. BOR-23 Sample No. ____ Depth 1.5'
Date Sampled ____ By ____ : Test Started 10/10/90 By DC : Computed by ____
Description of Soil Brown Fine Sand (SP) Checked by ____
☑ UNDISTURBED, d = ~~2.375~~ 1.93, ℓ = 1" ☑ or ℓ = 2" ☐
☐ REMOLDED, d = 4.00", ℓ = 4.59" (1/30 cubic foot mold)

____ blows of a ____ lb. hammer dropped ____ inches on each of ____ layers

Apparatus No. 5 Surcharge Pressure 300 lbs./sq. ft.

Dial Readings in .001 inch: Sample Dial Before Cons.	Dial Dial After Cons.	Date	Time	Elapsed Time, t, in hours	Burette Reading in cc	Volume of Water Used, V, in cc: Original	Corr. .95 x orig.	Head of Water, h in inches	Perm. in cm/sec at test temp.	Test Temp. in °C	Viscosity Correc. Factor	Permeability, K, in cm/sec at 20°C
764	196	10/10	510	SATURATING								
100			833	0	1.8	0		1		-		
664	195		853	.33	26.4	24.6	23.37		1.0×10^{-3}	21	.98	1.0×10^{-3}
			900	.45	34.6	32.8	31.16		1.0×10^{-3}	21	.98	1.0×10^{-3}
			1004	0	2.8	0				-		
			1327	.38	36.8	34.0	32.3		1.2×10^{-3}	23	.93	1.2×10^{-3}
			1349	.75	68.4	65.6	62.3		1.2×10^{-3}	24	.91	1.1×10^{-3}

CONSTANT-HEAD TEST

$$K = \frac{V\ell}{thA}$$

K = coeff. of perm. in cm/sec
V = volume of water in cc.
ℓ = length of sample in inches
t = elapsed time in hours
h = head of water in inches
A = area of sample in sq. inches

For a sample with ℓ = 1", d = 2.375"
$$K = 9.72 \times 10^{-4} \frac{V}{th}$$

For a sample with ℓ = 4.59", d = 4"
$$K = 1.57 \times 10^{-6} \frac{V}{th}$$

MOISTURE-DENSITY DATA

Before Test		After Test
108.4	Wt. of 1 rings + soil	119.0
27.0	Wt. of ____ rings	27.0
81.4	Wt. of soil	92.0
1.307	Ring Factor	1.307
106.0	WET DENSITY, PCF	119.8
	Wt. of soil + dish No. A-4	112.5
	Dry wt. of soil + dish	98.5
	Net loss of moisture	14.0
	Wt. of dish	20.7
	Wt. of dry soil	77.8
4.4	MOISTURE CONTENT, %	18.0
101.5	DRY DENSITY, PCF	

d = 1.93"
$K = 1.47 \times 10^{-5} \frac{V}{th}$

VISCOSITY CORRECTION FACTORS

Test Temp. in °C	Viscosity Correc. Factor
16	1.11
17	1.08
18	1.05
19	1.03
20	1.00
21	.98
22	.95
23	.93
24	.91

CONVERSION FACTORS

(Multiply by these factors to convert from cm/sec to the indicated units)

ft/sec = 3.28×10^{-6}
ft/day = 2.84×10^{-3}
ft/yr = 1.04×10^{-6}
gal/ft²-day = 2.12×10^{-6}

Lab 13 (4-60)

COOPER TESTING LABORATORY

LABORATORY PERMEABILITY TEST DATA SHEET

SUMMARY

Initial Moisture Content 18.0 %
Initial Dry Density 101.9 pcf.
Perm. at 20°C 2×10^{-3} cm/sec

Job 034-14 CANDLE 86-018-1506 Boring No. MW-C2-L Sample No. _____ Depth 3.5'

Date Sampled _____ By _____ : Test Started 10/3/90 By DC : Computed by ---

Description of Soil BROWN FINE SAND (SP) Checked by -

☑ UNDISTURBED, d = ~~2.375~~ 1.87", ℓ = 1" ☐ or ℓ = 2" ☐

☐ REMOLDED, d = 4.00", ℓ = 4.59" (1/30 cubic foot mold)

_____ blows of a _____ lb. hammer dropped _____ inches on each of _____ layers

Apparatus No. 1 Surcharge Pressure 30 lbs./sq. ft.

Dial Readings in .001 inch: Switch Dial Before Corr.	Dial After Corr.	Date	Time	Elapsed Time, t, in hours	Burette Reading in cc	Volume of Water Used, V, in cc: Original	Corr. .95 x orig.	Head of Water, h in inches	Perm. in cm/sec at test temp.	Test Temp. in °C	Viscosity Correc. Factor	Permeability, K, in cm/sec at 20°C
537	083	10/3	1014	SATURATING								
100			1042	0	4.1	0		1				
437	081		1056	.23	34.5	30.4	28.88		2×10^{-3}	22	.95	1.9×10^{-3}
			1114½	.54	71.8	67.7	64.32		1.9×10^{-3}	23	.93	1.7×10^{-3}
			1141	0	4.2	0				—		
			1205	.40	56.4	52.2	49.59		1.9×10^{-3}	23	.93	1.8×10^{-3}
			1217½	.61	82.0	77.80	73.91		1.9×10^{-3}	23	.93	1.8×10^{-3}

CONSTANT-HEAD TEST

$$K = \frac{V\ell}{thA}$$

K = coeff. of perm. in cm/sec
V = volume of water in cc.
ℓ = length of sample in inches
t = elapsed time in hours
h = head of water in inches
A = area of sample in sq. inches

For a sample with ℓ = 1", d = 2.375"

$$K = 9.72 \times 10^{-6} \frac{V}{th}$$

For a sample with ℓ = 4.59", d = 4"

$$K = 1.57 \times 10^{-6} \frac{V}{th}$$

MOISTURE - DENSITY DATA

Before Test		After Test
1420	Wt. of 1 rings + soil	1428
554	Wt. of ____ rings	554
866	Wt. of soil	875
1.389	Ring Factor	1.389
120.3	WET DENSITY, PCF	121.5
	Wt. of soil + dish No. 40	107.5
	Dry wt. of soil + dish	93.4
	Net loss of moisture	14.1
	Wt. of dish	20.1
	Wt. of dry soil	73.3
18.0	MOISTURE CONTENT, %	19.2
101.9	DRY DENSITY, PCF	

d = 1.87"

$K = 1.57 \times 10^{-5} \frac{V}{th}$

VISCOSITY CORRECTION FACTOR

Test Temp. in °C	Viscosity Correc. Factor
16	1.11
17	1.08
18	1.05
19	1.03
20	1.00
21	.98
22	.95
23	.93
24	.91

CONVERSION FACTORS

(Multiply by these factors to convert from cm/sec to the indicated units)

ft/sec = 3.28×10^{-6}
ft/day = 2.84×10^{-3}
ft/yr = 1.04×10^{-6}
gal/ft²-day = 2.12×10^{-4}

Lab 13 (4-60)

APPENDIX D

ATTERBURG LIMITS RESULTS

DATA SHEET FOR CLASSIFICATION TEST

COOPER TESTING LABORATORY

SUMMARY:

LIQUID LIMIT 38 PLASTICITY INDEX 8

% GRAVEL ____ SAND ____ FINES ____ CLASSIFICATION ____

JOB 231-14 (ANOUNE 96-019-R006) BORING NO. MW D3-3 SAMPLE NO. ____ DEPTH 10'

DATE TESTED 9/21/90 BY DC COMPUTED BY ____ CHECKED BY ____

DESCRIPTION OF SOIL GRAY & GREEN SANDY SILT w/ GRAVEL

PAN C

110

DISH NUMBER	E-5
WT. IN GMS. — MOIST SOIL & DISH	10.57
DRY SOIL & DISH	9.18
MOISTURE	1.39
DISH	4.42
DRY SOIL	4.76
MOISTURE CONTENT, %	29.2%

PLASTIC LIMIT

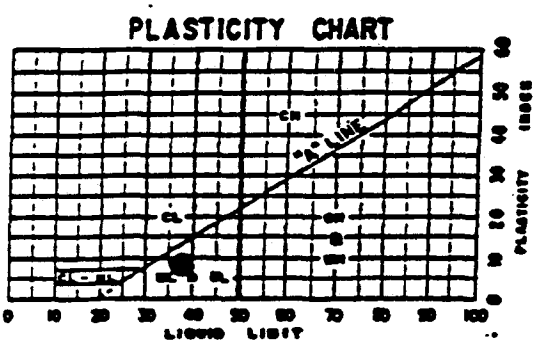
	B-7	B-52	B-58
MOIST SOIL & DISH	17.83	16.48	
DRY SOIL & DISH	15.29	14.24	
MOISTURE	2.54	2.24	
DISH	6.67	6.75	
DRY SOIL	8.62	7.49	
MOISTURE CONTENT, %	29.5%	29.9%	

LIQUID LIMIT

	A-8	A-20	A-21	A-24
MOIST SOIL & DISH	27.33	25.26	22.63	23.80
DRY SOIL & DISH	23.03	21.47	19.43	20.30
MOISTURE	4.30	3.79	3.20	3.50
DISH	11.22	11.46	11.33	11.75
DRY SOIL	11.81	10.01	8.10	8.55
MOISTURE CONTENT, %	36.4%	37.9%	39.5%	40.9%
NUMBER OF BLOWS	47	24	15	10

This line is 1/8" thick

PLASTICITY CHART



LIQUID LIMIT 38

PLASTIC LIMIT 30

PLASTICITY INDEX 8

WASH ANALYSIS (NO 200 SIEVE)

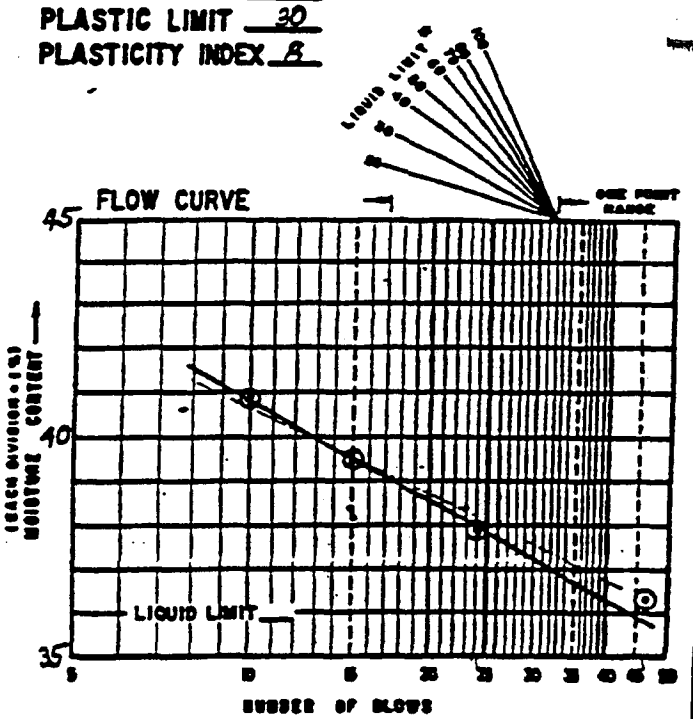
	BEFORE WASH	AFTER WASH
WT. OF DISH + OVEN-DRY SOIL		
WT. OF DISH NO. ____		
WT. OF OVEN-DRY SOIL		

% COARSE SOIL ____

SIEVE ANALYSIS

U.S. SIEVE NUMBER	CUMULATIVE WEIGHT RETAINED	CUMULATIVE % RETAINED	CUMULATIVE % PASSING
3"			
3/4"			
#4			
#10			
#40			
#200			
PAN		100	0

FLOW CURVE



* USE THE APPROPRIATE SLOPE TO EXTRAPOLATE ONE-POINT LIQUID LIMIT TRIALS (BETWEEN 5 AND 35 BLOWS) TO THE 25-BLOW LINE.

DATA SHEET FOR CLASSIFICATION TEST

COOPER TESTING LABORATORY

SUMMARY:

LIQUID LIMIT 48 PLASTICITY INDEX 16

% GRAVEL _____ SAND _____ FINES _____ CLASSIFICATION (ML)

JOB 331-14 (CANONIE Fo-019-FOC) BORING NO. D13-6 SAMPLE NO. _____ DEPTH 6'

DATE TESTED 9/2/80 BY DC COMPUTED BY _____ CHECKED BY _____

DESCRIPTION OF SOIL DARK GRAY CLAY w/ PEAT, SAND POCKET

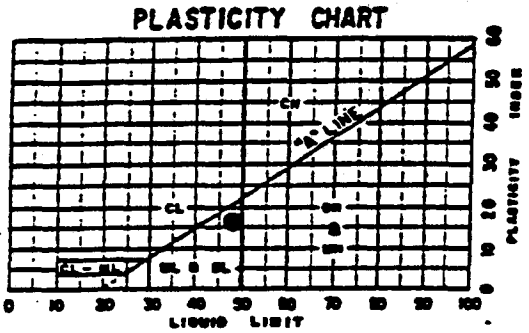
90 gm

PAN I

DISH NUMBER E-8		PLASTIC LIMIT B-5	B-13	B-55	LIQUID LIMIT A-1	A-7	A-12	A-13
WT. IN GMS.	MOIST SOIL & DISH	10.99	11.08	17.18	22.77	21.32	19.48	22.52
	DRY SOIL & DISH	9.37	9.46	14.60	19.28	18.21	16.96	18.87
	MOISTURE	1.62	1.62	2.58	3.49	3.11	2.52	3.65
	DISH	4.48	4.42	6.64	11.50	11.46	11.73	11.78
	DRY SOIL	4.89	5.04	7.96	7.78	6.75	5.23	7.09
MOISTURE CONTENT, %		33.1%	32.1%	32.4%	44.9%	46.1%	48.2%	51.5%
					45	34	24	11
					NUMBER OF BLOWS			

This line is 1/8" thick

PLASTICITY CHART



LIQUID LIMIT 48
PLASTIC LIMIT 32
PLASTICITY INDEX 16

WASH ANALYSIS (NO 200 SIEVE)

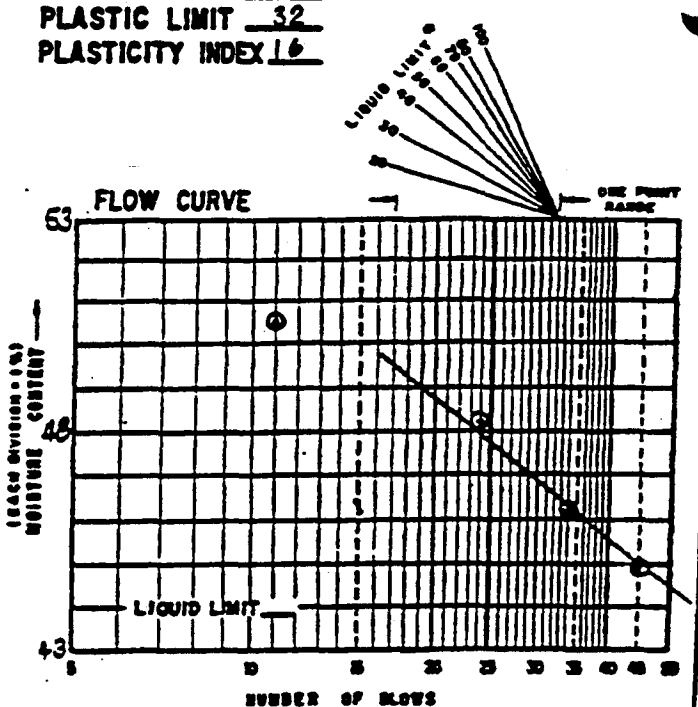
	BEFORE WASH	AFTER WASH
WT. OF DISH + OVEN-DRY SOIL		
WT. OF DISH NO. _____		
WT. OF OVEN-DRY SOIL		

% COARSE SOIL _____

SIEVE ANALYSIS

U.S. SIEVE NUMBER	CUMULATIVE WEIGHT RETAINED	CUMULATIVE % RETAINED	CUMULATIVE % PASSING
3"			
3/8"			
#4			
#10			
#40			
#200			
PAN		100	0

FLOW CURVE



* USE THE APPROPRIATE SLOPE TO EXTRAPOLATE ONE-POINT LIQUID LIMIT TRIALS (BETWEEN 5* AND 35 BLOWS) TO THE 25-BLOW LINE.

DATA SHEET FOR CLASSIFICATION TEST

COOPER TESTING LABORATORY

SUMMARY:

LIQUID LIMIT 43 PLASTICITY INDEX 20

% GRAVEL _____ SAND _____ FINES _____ CLASSIFICATION (CL)

JOB 03W-14 (SALVOLIE '86-014-1 PSA) BORING NO. B-D2-11 SAMPLE NO. _____ DEPTH 10'

DATE TESTED 9/21/90 BY DC COMPUTED BY _____ CHECKED BY _____

DESCRIPTION OF SOIL D. GRAY SILTY CLAY (RAYMUD)

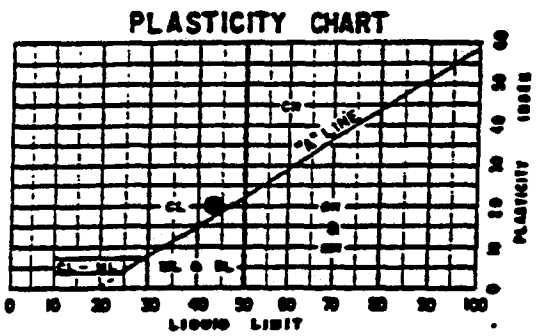
110

PAN 1C

DISH NUMBER E-4		PLASTIC LIMIT B-13	B-15	B-18	LIQUID LIMIT A-9	A-18	A-23	A-31
WT. IN GMS.	MOIST SOIL & DISH	14.13	11.67	15.84	24.74	24.29	23.81	24.84
	DRY SOIL & DISH	12.35	10.32	13.72	20.87	20.54	20.03	20.72
	MOISTURE	1.78	1.35	2.12	3.87	3.75	3.78	4.12
	DISH	4.42	4.35	4.38	11.15	11.42	11.23	11.70
	DRY SOIL	7.93	5.97	9.34	9.72	9.12	8.80	9.02
MOISTURE CONTENT, %		22.4%	22.6%	22.7%	39.8%	41.1%	43.0%	45.7%
					54	36	25	16
					NUMBER OF BLOWS			

This line is $\frac{1}{8}$" thick

PLASTICITY CHART



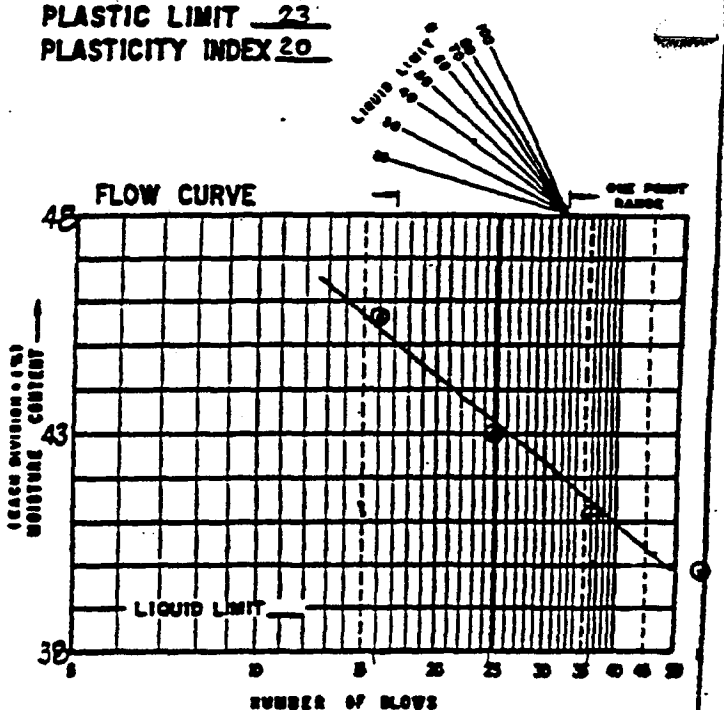
LIQUID LIMIT 43
PLASTIC LIMIT 23
PLASTICITY INDEX 20

WASH ANALYSIS (to 200 SIEVE)

	BEFORE WASH	AFTER WASH
WT. OF DISH + OVEN-DRY SOIL		
WT. OF DISH WT. _____		
WT. OF OVEN-DRY SOIL		

% COARSE SOIL _____

FLOW CURVE



* USE THE APPROPRIATE SLOPE TO EXTRAPOLATE ONE-POINT LIQUID LIMIT TRIALS (BETWEEN 17 AND 35 BLOWS) TO THE 25-BLOW LINE.

SIEVE ANALYSIS

U.S. SIEVE NUMBER	CUMULATIVE WEIGHT RETAINED	CUMULATIVE % RETAINED	CUMULATIVE % PASSING
3"			
3/8"			
#4			
#10			
#40			
#200			
PAN		100	0

DRAWN BY _____ DATE _____
CHECKED BY _____ DATE _____
JOB NUMBER _____ DATE _____
LOCATION _____

.AB 3/12-8b

DATA SHEET FOR CLASSIFICATION TEST

COOPER TESTING LABORATORY

SUMMARY:

LIQUID LIMIT _____ PLASTICITY INDEX _____

% GRAVEL _____ SAND _____ FINES _____ CLASSIFICATION _____

JOB 3J-1 (CANDLE F6-014-1506) BORING NO. B-D13-12 SAMPLE NO. _____ DEPTH 7'/2

DATE TESTED 9/21/90 BY DC COMPUTED BY _____ CHECKED BY _____

DESCRIPTION OF SOIL GRAY CLAYEY SAND

PAN D

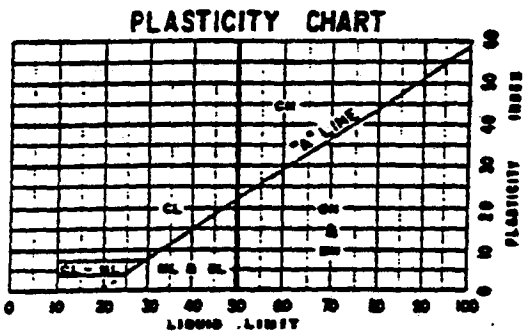
10

		PLASTIC LIMIT		
DISH NUMBER	E-7	B-12	B-67	B-69
WT. IN GMS.	MOIST SOIL & DISH			
	DRY SOIL & DISH	NONPLASTIC		
	MOISTURE			
	DISH	4.42	6.86	6.73
	DRY SOIL			
MOISTURE CONTENT, %				

LIQUID LIMIT			
A-13	A-22	A-24	A-31
11.78	11.41	11.61	11.70
NUMBER OF BLOWS			

This line is 1/8" thick

PLASTICITY CHART

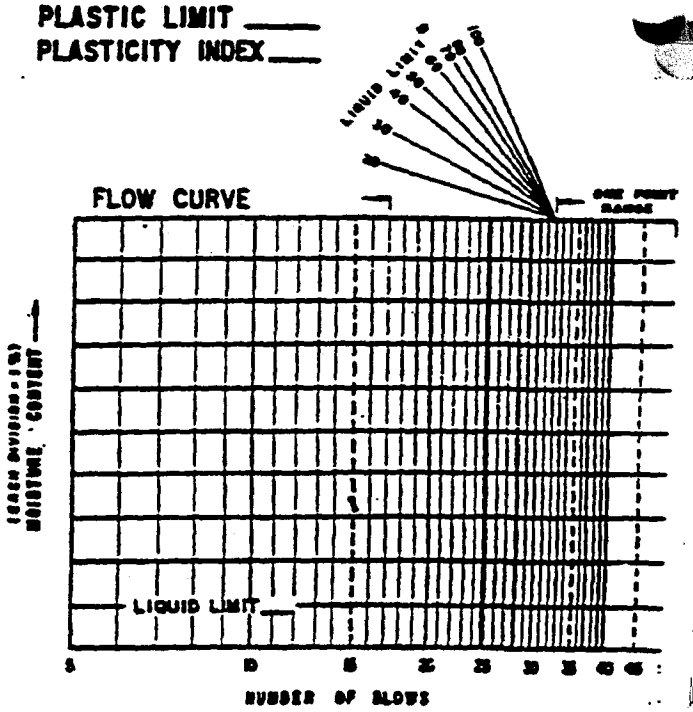


LIQUID LIMIT _____

PLASTIC LIMIT _____

PLASTICITY INDEX _____

FLOW CURVE



* USE THE APPROPRIATE SLOPE TO EXTRAPOLATE ONE-POINT LIQUID LIMIT TRIALS (BETWEEN 17 AND 35 BLOWS) TO THE 25-BLOW LINE.

WASH ANALYSIS (#200 SIEVE)

	BEFORE WASH	AFTER WASH
WT. OF DISH + OVEN-DRY SOIL		
WT. OF DISH #2 _____		
WT. OF OVEN-DRY SOIL		

% COARSE SOIL _____

SIEVE ANALYSIS

U.S. SIEVE NUMBER	CUMULATIVE WEIGHT RETAINED	CUMULATIVE % RETAINED	CUMULATIVE % PASSING
3"			
3/4"			
#4			
#10			
#40			
#200			
PAN		100	0

LAB 312-88)

DATA SHEET FOR CLASSIFICATION TEST

COOPER TESTING LABORATORY

SUMMARY:

LIQUID LIMIT 83 PLASTICITY INDEX 55

% GRAVEL _____ SAND _____ FINES _____ CLASSIFICATION (CH)

JOB 034-14 CANONIE (86-018-1406) BORING NO. B02 10 SAMPLE NO. _____ DEPTH 10'

DATE TESTED 10-4-90 BY EAF COMPUTED BY _____ CHECKED BY _____

DESCRIPTION OF SOIL Black & gray brn clay (Bay Mud)

PAN I

DISH NUMBER		A7		A34
WT. IN GMS	MOIST SOIL & DISH	19.18	7.27	17.21
	DRY SOIL & DISH	17.42	6.17	16.07
	MOISTURE	1.76	1.10	1.14
	DISH	11.46	2.27	11.82
	DRY SOIL	5.96	3.90	4.25
MOISTURE CONTENT, %		29.5%	28.2%	26.8%

PLASTIC LIMIT

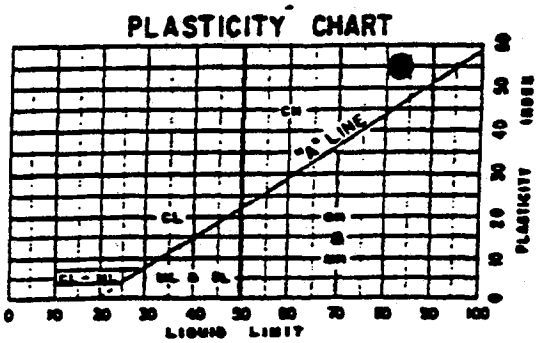
LIQUID LIMIT

A32	A33	A11	A23
22.30	18.79	18.70	17.37
17.76	15.70	15.40	6.69
4.54	3.09	3.30	3.28
11.89	11.79	11.68	11.22
5.87	3.91	3.72	3.47
77.3%	79.0%	88.7%	94.5%
31	38	14	8

NUMBER OF BLOWS

This line is 1/8" thick

PLASTICITY CHART



LIQUID LIMIT 83
PLASTIC LIMIT 28
PLASTICITY INDEX 55

WASH ANALYSIS (#200 SIEVE)

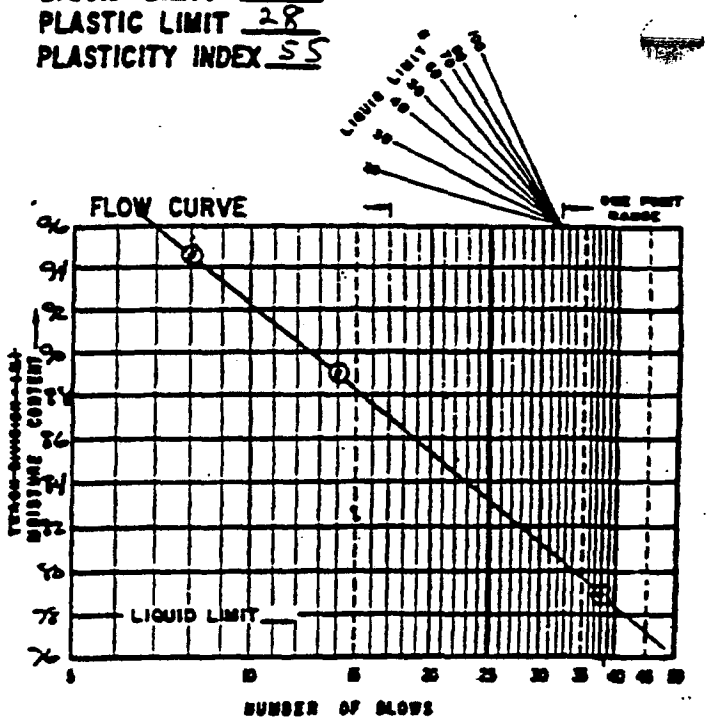
	BEFORE WASH	AFTER WASH
WT. OF DISH + OVEN-DRY SOIL		
WT. OF DISH NO. _____		
WT. OF OVEN-DRY SOIL		

% COARSE SOIL _____

SIEVE ANALYSIS

U.S. SIEVE NUMBER	CUMULATIVE WEIGHT RETAINED	CUMULATIVE % RETAINED	CUMULATIVE % PASSING
3"			
3/4"			
#4			
#10			
#40			
#200			
PAN		100	0

FLOW CURVE



* USE THE APPROPRIATE SLOPE TO EXTRAPOLATE ONE-POINT LIQUID LIMIT TRIALS (BETWEEN 17 AND 35 BLOWS) TO THE 25-BLOW LINE.

LAB 312-(88)

DATA SHEET FOR CLASSIFICATION TEST

COOPER TESTING LABORATORY

SUMMARY:

LIQUID LIMIT 81 PLASTICITY INDEX 55

% GRAVEL ____ SAND ____ FINES ____ CLASSIFICATION (CH)

JOB 234-14 (CANDLE 96-04-126) BORING NO. B2-11 SAMPLE NO. ____ DEPTH 10.5'

Possible faint odor of sewa

DATE TESTED 10/24/96 BY DC COMPUTED BY ____ CHECKED BY ____

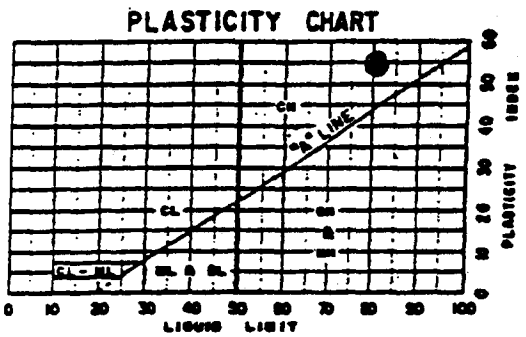
DESCRIPTION OF SOIL MOTTLED BROWN & GRAY SILTY CLAY (BAYMUD)

Pan B

DISH NUMBER E-7		PLASTIC LIMIT B-10	PLASTIC LIMIT B-13	PLASTIC LIMIT B-15	LIQUID LIMIT BD	LIQUID LIMIT ND	LIQUID LIMIT ID	LIQUID LIMIT KD
WT IN GMS.	MOIST SOIL & DISH	13.40	15.36	14.63	19.72	15.96	16.01	15.44
	DRY SOIL & DISH	11.52	13.08	12.50	15.13	11.59	12.21	11.17
	MOISTURE	1.88	2.28	2.13	4.59	4.37	3.80	4.27
	DISH	4.41	4.42	4.35	9.17	6.12	7.22	6.34
	DRY SOIL	7.11	8.66	8.15	5.96	5.47	4.99	4.83
MOISTURE CONTENT, %		26.4	26.3	26.1	77.0	79.9	76.2	88.4
					58	26	42	13
					NUMBER OF BLOWS			

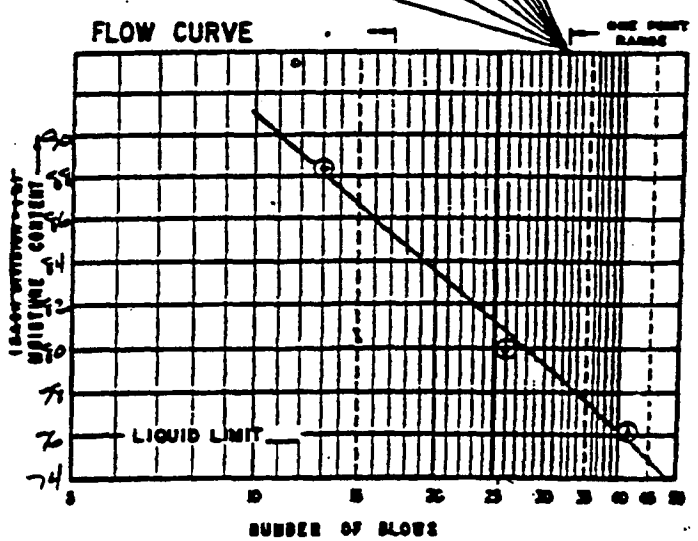
This line is 1/8" thick

PLASTICITY CHART



LIQUID LIMIT 81
PLASTIC LIMIT 26
PLASTICITY INDEX 55

FLOW CURVE



* USE THE APPROPRIATE SLOPE TO EXTRAPOLATE ONE-POINT LIQUID LIMIT TRIALS (BETWEEN 0 AND 25 BLOWS) TO THE 25-BLOW LINE.

WASH ANALYSIS (#200 SIEVE)

	BEFORE WASH	AFTER WASH
WT. OF DISH + OVEN-DRY SOIL		
WT. OF DISH NO. ____		
WT. OF OVEN-DRY SOIL		

% COARSE SOIL ____

SIEVE ANALYSIS

U.S. SIEVE NUMBER	CUMULATIVE WEIGHT RETAINED	CUMULATIVE % RETAINED	CUMULATIVE % PASSING
3"			
3/8"			
#4			
#10			
#40			
#200			
PAN		100	0

LAB 3(2-68)

DATA SHEET FOR CLASSIFICATION TEST

COOPER TESTING LABORATORY

SUMMARY:

LIQUID LIMIT 42 PLASTICITY INDEX 22

% GRAVEL ____ SAND ____ FINES ____ CLASSIFICATION (CL)

JOB 234-14 (CALIMESA SL-AIR-FROG) BORING NO. 38-13 SAMPLE NO. ____ DEPTH 8

DATE TESTED 10/4/80 BY DC COMPUTED BY ____ CHECKED BY ____

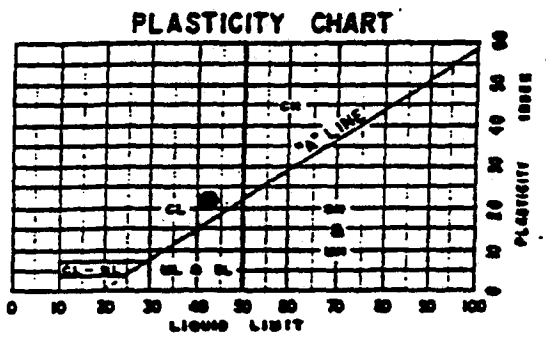
DESCRIPTION OF SOIL GRAY SILTY CLAY (RAVHUD)
SAVE SAMPLE FOR SPECIFIC GRAVITY

PAN # 8-X

		PLASTIC LIMIT			LIQUID LIMIT			
DISH NUMBER		E-8	B-16	B-64	B-57	A-30	A-32	A-23	A-36
WT. IN GMS.	MOIST. SOIL & DISH		12.52	17.90	20.48	22.49	23.80	23.28	23.30
	DRY SOIL & DISH		11.16	16.03	18.15	19.42	20.31	19.83	19.65
	MOISTURE		1.36	1.87	2.33	3.07	3.49	3.45	3.65
	DISH		4.30	6.80	6.86	11.76	11.89	11.79	11.81
	DRY SOIL		6.86	9.23	11.29	7.66	8.42	8.04	7.84
MOISTURE CONTENT, %			19.8%	20.3%	20.6%	40.1%	41.4%	42.9%	46.6%
NUMBER OF BLOWS						40	27	18	10

This line is 1/8" thick

PLASTICITY CHART



LIQUID LIMIT 41.9
PLASTIC LIMIT 20.2
PLASTICITY INDEX 21.7

WASH ANALYSIS (#200 SIEVE)

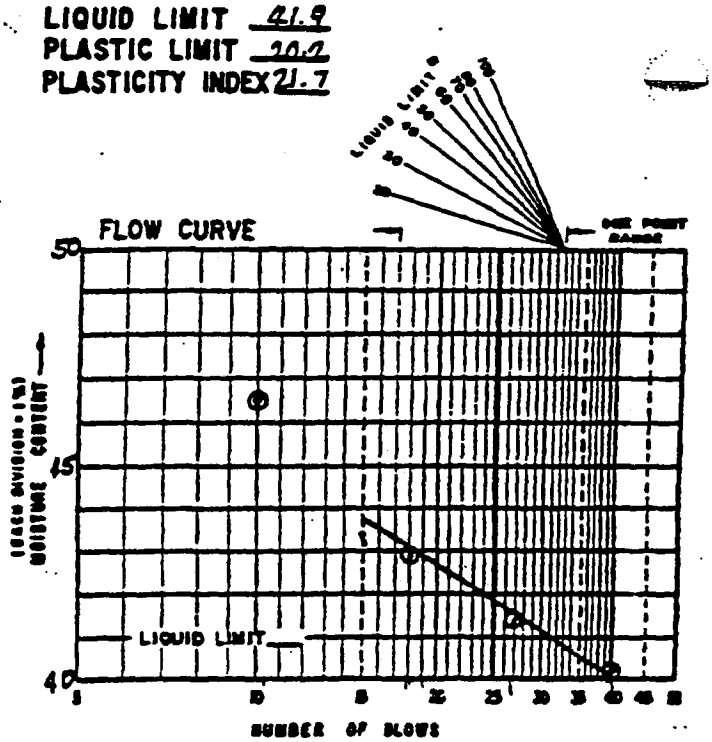
	BEFORE WASH	AFTER WASH
WT. OF DISH + OVEN-DRY SOIL		
WT. OF DISH NO. ____		
WT. OF OVEN-DRY SOIL		

% COARSE SOIL ____

SIEVE ANALYSIS

U.S. SIEVE NUMBER	CUMULATIVE WEIGHT RETAINED	CUMULATIVE % RETAINED	CUMULATIVE % PASSING
3"			
3/8"			
#4			
#10			
#40			
#200			
PAN		100	0

FLOW CURVE



* USE THE APPROPRIATE SLOPE TO EXTRAPOLATE ONE-POINT LIQUID LIMIT TRIALS (BETWEEN 17 AND 35 BLOWS) TO THE 25-BLOW LINE.

LAB 312-80

DATA SHEET FOR CLASSIFICATION TEST

COOPER TESTING LABORATORY

SUMMARY:

LIQUID LIMIT 51 PLASTICITY INDEX 31

% GRAVEL ____ SAND ____ FINES ____ CLASSIFICATION (CH)

JOB 034-14 CAMMIE (86-018-18M2) BORING NO. B-2 13 SAMPLE NO. ____ DEPTH 8.5'

DATE TESTED 11-11-90 BY EAF COMPUTED BY ____ CHECKED BY ____

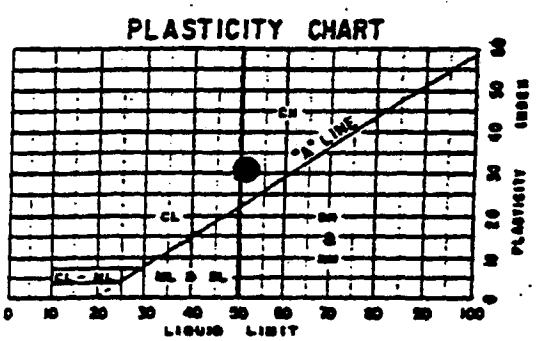
DESCRIPTION OF SOIL Gray clay with lens of fine sand (Bay mud) Clay tested

PAN E

DISH NUMBER		PLASTIC LIMIT			LIQUID LIMIT			
WT. IN GMS.	MOIST SOIL & DISH	9.30	8.60	8.54	16.20	23.35	16.95	15.14
	DRY SOIL & DISH	8.46	7.91	7.90	12.45	19.31	12.63	11.14
	MOISTURE	.84	.69	.64	3.75	4.04	4.32	4.00
	DISH	4.39	4.41	4.48	4.37	11.42	4.42	4.47
	DRY SOIL	4.07	3.50	3.42	8.08	7.29	8.21	6.67
MOISTURE CONTENT, %		21%	20%	19%	46.4%	51.2%	52.6%	60.0%
NUMBER OF BLOWS					40	32	19	8

This line is 1/8" thick

PLASTICITY CHART



LIQUID LIMIT 51
PLASTIC LIMIT 20
PLASTICITY INDEX 31

WASH ANALYSIS (#200 SIEVE)

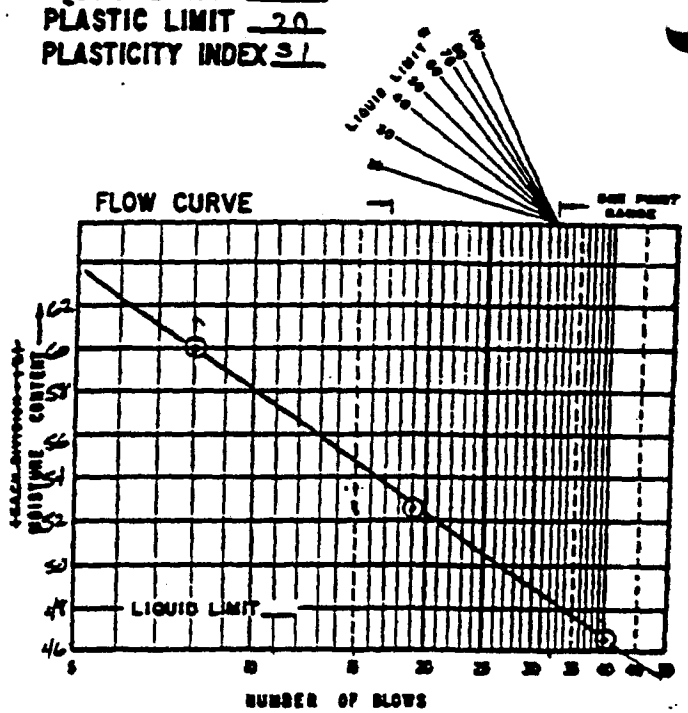
	BEFORE WASH	AFTER WASH
WT. OF DISH + OVEN-DRY SOIL		
WT. OF DISH - NO. ____		
WT. OF OVEN-DRY SOIL		

% COARSE SOIL ____

SIEVE ANALYSIS

U.S. SIEVE NUMBER	CUMULATIVE WEIGHT RETAINED	CUMULATIVE % RETAINED	CUMULATIVE % PASSING
3"			
3/4"			
#4			
#10			
#40			
#200			
PAN		100	0

FLOW CURVE



* USE THE APPROPRIATE SLOPE TO EXTRAPOLATE ONE-POINT LIQUID LIMIT TRIALS (BETWEEN 17 AND 35 BLOWS) TO THE 25-BLOW LINE.

DATA SHEET FOR CLASSIFICATION TEST

COOPER TESTING LABORATORY

SUMMARY:

LIQUID LIMIT 56 PLASTICITY INDEX 34

% GRAVEL _____ SAND _____ FINES _____ CLASSIFICATION (CH)

JOB 03J-14 (CALHOUN'S 80-05-RCC) BORING NO. B12-13 SAMPLE NO. _____ DEPTH 9.5

DATE TESTED 10/12/80 BY DC COMPUTED BY _____ CHECKED BY _____

DESCRIPTION OF SOIL GRAY SILTY CLAY

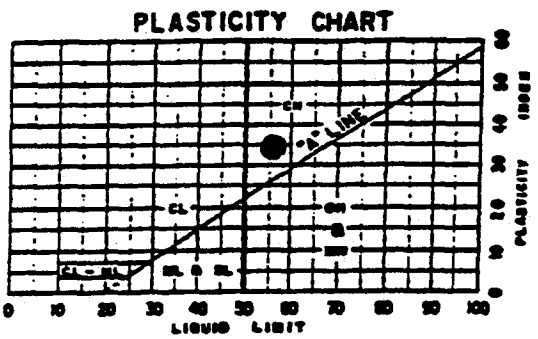
SAVE SAMPLE FOR SPECIFIC GRAVITY!

PAN # 4

DISH NUMBER		PLASTIC LIMIT A13	PLASTIC LIMIT A36	PLASTIC LIMIT A8	LIQUID LIMIT A12	LIQUID LIMIT A24	LIQUID LIMIT A20	LIQUID LIMIT A-1
WT. IN GMS.	MOIST SOIL & DISH	20.29	22.03	19.56	24.32	20.68	21.86	20.72
	DRY SOIL & DISH	18.76	20.19	18.06	20.07	17.54	18.22	17.17
	MOISTURE	1.53	1.84	1.50	4.25	3.14	3.64	3.55
	DISH	11.78	11.81	11.22	11.73	11.61	11.46	11.50
	DRY SOIL	6.98	8.38	6.84	8.34	5.93	6.76	5.67
MOISTURE CONTENT, %		21.9%	22.0%	21.9%	51.0%	52.0%	53.8%	62.6%
NUMBER OF BLOWS					40	34	25	13

This line is 1/8" thick

PLASTICITY CHART

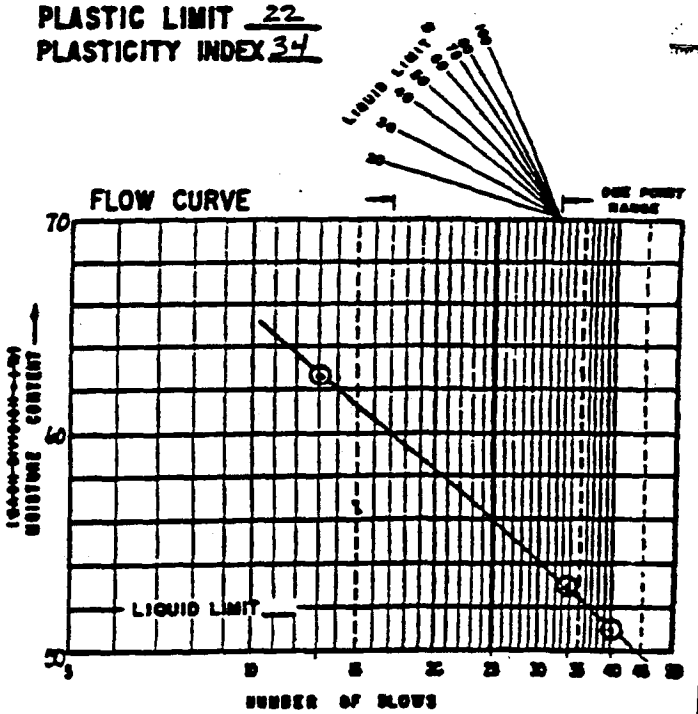


LIQUID LIMIT 56

PLASTIC LIMIT 22

PLASTICITY INDEX 34

FLOW CURVE



* USE THE APPROPRIATE SLOPE TO EXTRAPOLATE ONE-POINT LIQUID LIMIT TRIALS (BETWEEN 17 AND 30 BLOWS) TO THE 25-BLOW LINE.

WASH ANALYSIS (#200 SIEVE)

	BEFORE WASH	AFTER WASH
WT. OF DISH + OVEN-DRY SOIL		
WT. OF DISH ___		
WT. OF OVEN-DRY SOIL		

% COARSE SOIL _____

SIEVE ANALYSIS

U.S. SIEVE NUMBER	CUMULATIVE WEIGHT RETAINED	CUMULATIVE % RETAINED	CUMULATIVE % PASSING
3"			
3/4"			
#4			
#10			
#40			
#200			
PAN		100	0

LAB 312

DATA SHEET FOR CLASSIFICATION TEST

COOPER TESTING LABORATORY

SUMMARY:

LIQUID LIMIT _____ PLASTICITY INDEX _____

% GRAVEL _____ SAND _____ FINES _____ CLASSIFICATION _____

JOB 034-14 CANONIE (86-017-1806) BORING NO. BOR 15 SAMPLE NO. _____ DEPTH 10.5'

DATE TESTED _____ BY _____ COMPUTED BY _____ CHECKED BY _____

Definite odor of petroleum products

DESCRIPTION OF SOIL Grey si fi sand

PAN M

DISH NUMBER				
WT. GMS.	MOIST SOIL & DISH			
	DRY SOIL & DISH			
	MOISTURE			
	DISH			
	DRY SOIL			
MOISTURE CONTENT, %				

PLASTIC LIMIT

Non-plastic

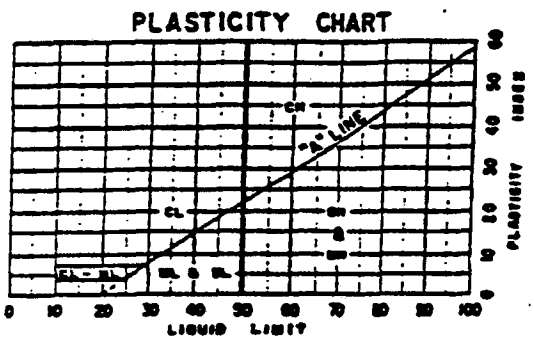
LIQUID LIMIT

A21	A28	A26	A31
21.10	23.02	22.60	24.88
19.17	21.06	20.75	22.76
11.33	11.86	11.75	11.70
11	21	26	37

NUMBER OF BLOWS

This line is 1/8" thick

PLASTICITY CHART

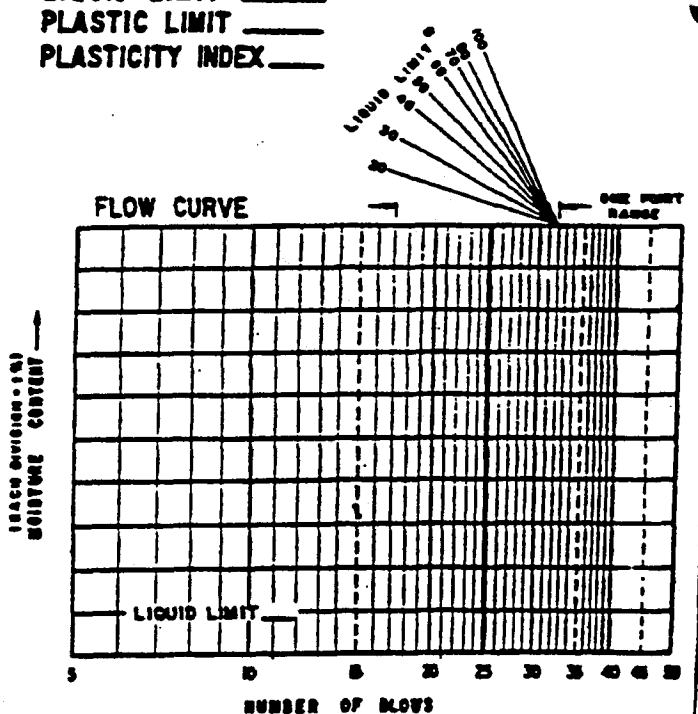


LIQUID LIMIT _____

PLASTIC LIMIT _____

PLASTICITY INDEX _____

FLOW CURVE



* USE THE APPROPRIATE SLOPE TO EXTRAPOLATE ONE-POINT LIQUID LIMIT TRIALS (BETWEEN 17 AND 30 BLOWS) TO THE 25-BLOW LINE.

WASH ANALYSIS (#200 SIEVE)

	BEFORE WASH	AFTER WASH
WT. OF DISH + OVEN-DRY SOIL		
WT. OF DISH NO. _____		
WT. OF OVEN-DRY SOIL		

% COARSE SOIL _____

SIEVE ANALYSIS

U.S. SIEVE NUMBER	CUMULATIVE WEIGHT RETAINED	CUMULATIVE % RETAINED	CUMULATIVE % PASSING
3"			
3/4"			
#4			
#10			
#40			
#200			
PAN		100	0

DATA SHEET FOR CLASSIFICATION TEST

COOPER TESTING LABORATORY

SUMMARY:

LIQUID LIMIT 25 PLASTICITY INDEX 8

% GRAVEL ____ SAND ____ FINES ____ CLASSIFICATION ____

JOB 034-IN (CANDLINE 346-515-1506) BORING NO. BK-12 SAMPLE NO. ____ DEPTH 5'

DATE TESTED 10/4/90 BY DC COMPUTED BY ____ CHECKED BY ____

DESCRIPTION OF SOIL MOTTLED GRAY & BROWN SILTY SAND

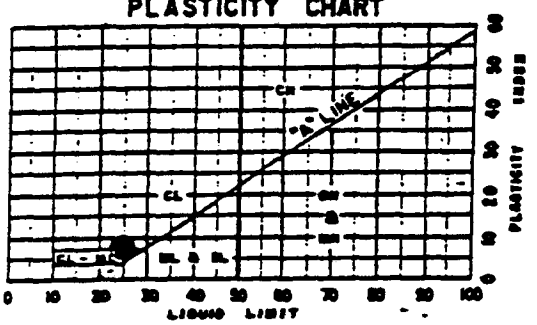
Possible presence of hydrocarbons. Water would not mix easily with sample

PAN # 6

		PLASTIC LIMIT			LIQUID LIMIT			
DISH NUMBER		E-10	B-50	B-55	B-59	AD	CD	BD	3D
WT. IN GMS	MOIST SOIL & DISH		14.00	17.21	22.06	21.76	23.04	21.68	23.22
	DRY SOIL & DISH		12.63	15.68	19.85	19.40	20.74	19.44	20.55
	MOISTURE		1.37	1.53	2.21	2.36	2.30	2.24	2.67
	DISH		4.39	6.64	6.73	9.12	11.02	10.59	10.51
	DRY SOIL		7.88	9.04	13.12	10.28	9.72	8.85	10.04
MOISTURE CONTENT, %			16.6	16.9	16.8	23.0	23.7	25.3	26.6
						50	31	19	10
						NUMBER OF BLOWS			

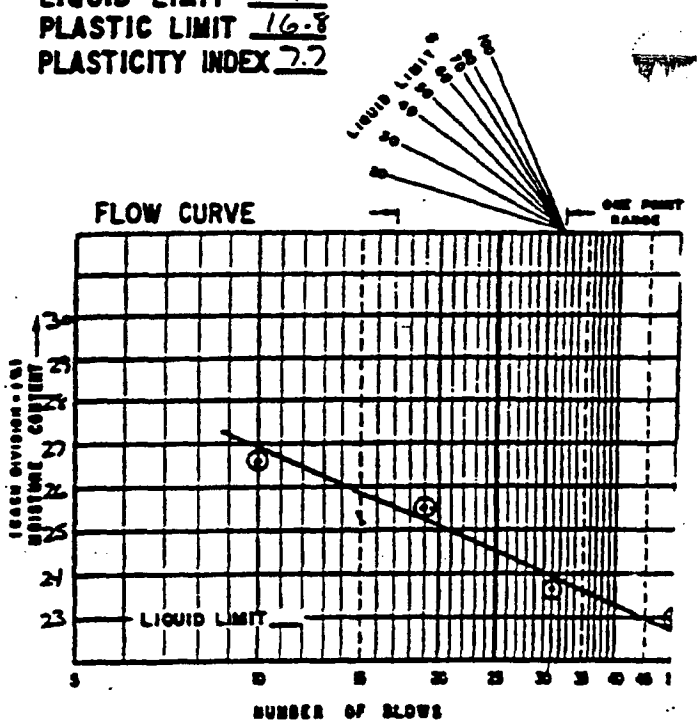
This line is 1/8" thick

PLASTICITY CHART



LIQUID LIMIT 24.5
PLASTIC LIMIT 16.8
PLASTICITY INDEX 7.7

FLOW CURVE



* USE THE APPROPRIATE SLOPE TO EXTRAPOLATE ONE-POINT LIQUID LIMIT TRIALS (BETWEEN 17 AND 26 BLOWS) TO THE 25-BLOW LINE.

WASH ANALYSIS (NO 200 SIEVE)

	BEFORE WASH	AFTER WASH
WT. OF DISH + OVEN-DRY SOIL		
WT. OF DISH NO. ____		
WT. OF OVEN-DRY SOIL		

% COARSE SOIL ____

SIEVE ANALYSIS

U.S. SIEVE NUMBER	CUMULATIVE WEIGHT RETAINED	CUMULATIVE % RETAINED	CUMULATIVE % PASSING
3"			
3/8"			
#4			
#10			
#40			
#200			
PAN		100	0

LAB 3(12-88)

APPENDIX E

SPECIFIC GRAVITY RESULTS

COOPER TESTING LABS

DATA SHEET FOR SPECIFIC GRAVITY TEST

JOB NO. 034-13 NAME CANONIE 86-014-1906 LOCATION ALAMEDA NAS

TESTED BY DC DATE 9/11/90 CHECKED BY

Dish Number	E			
Boring Number	MW 360-1			
Depth of Sample in Feet	4 1/2			
Field Classification of Soil				
Lab Classification of Soil	BROWN FINE SAND (SP)			
Test Performed on Whole Sample? Or Some Fraction? Specify Percent	100%			
Pycnometer Number	3			
Wt. of Pycnometer + Soil + Water ..... Wb	323.1			
Test Temperature in °C, Tx	23			
Wt. of Pycnometer + Water ..... Wa (from calibration curve)	291.74			
Drying Dish Number				
Wt. of Dry Soil + Dish				
Wt. of Dish				
Wt. of Dry Soil ..... Wo	50.05			
Temp. Correction Factor ..... K (from chart below)	.9993			
K Wo	50.015			
Wo + Wa — Wb	18.69			
Specify Gravity (20°C) = $\frac{K\,Wo}{Wo + Wa - Wb}$	2.68			

Notes: 1. Based on "Standard Method of Test for Specific Gravity of Soils," ASTM Designation D 854-52. (For sand and fines)

2. All weights are in grams.

Tx	K
18	1.0004
19	1.0002
20	1.0000
21	.9998
22	.9996
23	.9993
24	.9991
25	.9989
26	.9986
27	.9983
28	.9980
29	.9977
30	.9974

Lab 11 (2-60)

COOPER TESTING LABS

DATA SHEET FOR SPECIFIC GRAVITY TEST

JOB NO. 034-14 NAME CANONIE 96-018-1906 LOCATION ALAMEDA NAS

TESTED BY DC DATE 9/27/96 CHECKED BY

Dish Number	C-2	C-22	E	C-2
Boring Number	MW-D13-1	MW-H10-1	B-D13-7	B-D13-6
Depth of Sample in Feet	2'	2.5'	10'	7
Field Classification of Soil				
Lab Classification of Soil	LT. BROWN FINE SILTY SAND (SM)	LT. BROWN FINE SAND (SP)	LT. BROWN CLAYEY FINE SAND (SC)	BROWN SILTY FINE SAN (SM)
Test Performed on Whole Sample? Or Some Fraction? Specify Percent	100	100	100	100
Pycnometer Number	3	3	3	3
Wt. of Pycnometer + Soil + Water ..... Wb	322.0	323.2	322.3	312.5
Test Temperature in °C, Tx	24	24	25	25
Wt. of Pycnometer + Water ..... Wa (from calibration curve)	291.68	291.68	291.64	291.6[illegible]
Drying Dish Number				
Wt. of Dry Soil + Dish				
Wt. of Dish				
Wt. of Dry Soil ..... Wo	48.53	50.07	49.96	33.97
Temp. Correction Factor ..... K (from chart below)	.9991	.9991	.9989	.9989
K Wo	48.49	50.02	49.91	33.93
Wo + Wa — Wb	18.17	18.50	19.25	12.77
Specify Gravity (20°C) = $\frac{K\,Wo}{Wo + Wa - Wb}$	2.67	2.70	2.59	2.66

Notes: 1. Based on "Standard Method of Test for Specific Gravity of Soils," ASTM Designation D 854-52. (For sand and fines)

2. All weights are in grams.

Tx	K
18	1.0004
19	1.0002
20	1.0000
21	.9998
22	.9996
23	.9993
24	.9991
25	.9989
26	.9986
27	.9983
28	.9980
29	.9977
30	.9974

Lab 11 (2-60)

COOPER TESTING LABS

DATA SHEET FOR SPECIFIC GRAVITY TEST

JOB NO. 034-14 NAME CANONIE 96-018-R06 LOCATION ALAMEDA NAS

TESTED BY DC DATE 10/2/90 CHECKED BY

Dish Number	F	L-22	L-13	[illegible]
Boring Number	B-D13-15	B-D13-9	BOR-19	BOR-[illegible]
Depth of Sample in Feet	3.5'	10'	5'	1.5'
Field Classification of Soil				
Lab Classification of Soil	BROWN FINE SAND (SP)	BROWN SILTY FINE SAND (SM)	MOTTLED GRAY & BROWN SILTY SAND (SM)	BROWN FINE SAND (SP)
Test Performed on Whole Sample? Or Some Fraction? Specify Percent	-#4 100%	-#4 100%	-#4 100%	-#4 100%
Pycnometer Number	3	3	3	3
Wt. of Pycnometer + Soil + Water ..... Wb	322.6	322.4	322.58	322.9
Test Temperature in °C, Tx	24	24	25	25
Wt. of Pycnometer + Water ..... Wa (from calibration curve)	291.68	291.68	291.64	29[illegible]
Drying Dish Number				
Wt. of Dry Soil + Dish				
Wt. of Dish				
Wt. of Dry Soil ..... Wo	49.60	49.90	50.03	49.27
Temp. Correction Factor ..... K (from chart below)	.9991	.9991	.9989	.9989
K Wo	49.55	49.86	49.98	49.22
Wo + Wa — Wb	18.64	19.14	19.04	18.01
Specify Gravity (20°C) = K Wo / (Wo + Wa — Wb)	2.66	2.61	2.63	2.73

Notes: 1. Based on "Standard Method of Test for Specific Gravity of Soils," ASTM Designation D 854-52. (For sand and fines)

2. All weights are in grams.

Tx	K
18	1.0004
19	1.0002
20	1.0000
21	.9998
22	.9996
23	.9993
24	.9991
25	.9989
26	.9986
27	.9983
28	.9980
29	.9977
30	.9974

Lab 11 (3-60)

COOPER TESTING LABS

DATA SHEET FOR SPECIFIC GRAVITY TEST

JOB NO. 034-14 NAME CANONIE 86-018-1806 LOCATION ALAMEDA NAS

TESTED BY DC DATE 10/5/90 CHECKED BY

Dish Number	C-8	F	C-3	F
Boring Number	BOR - 13	BOR 12	BOR-18	BOR - 15
Depth of Sample in Feet	8	1.0	10.5'	5.5
Field Classification of Soil				
Lab Classification of Soil	GRAY SANDY CLAY (BAYMUD)	Grey-to a fine sand poorly graded (SP)	Brown SILTY FINE SAND	GREEN-BROWN FINE SAND w/SILT (SP/SM)
Test Performed on Whole Sample? Or Some Fraction? Specify Percent	100% -#4	100% -#4	100% -#4	100% -#4
Pycnometer Number	3	3	3	3
Wt. of Pycnometer + Soil + Water ..... Wb	308.55	323.26	322.6	323
Test Temperature in °C, Tx	26	24.5°	25	25
Wt. of Pycnometer + Water ..... Wa (from calibration curve)	291.58	291.66	291.64	291.
Drying Dish Number				
Wt. of Dry Soil + Dish				
Wt. of Dish				
Wt. of Dry Soil ..... Wo	27.50	50.15	49.91	50.46
Temp. Correction Factor ..... K (from chart below)	.9986	.9990	.9989	.9989
K Wo	27.46	50.10	49.86	50.40
Wo + Wa — Wb	10.49	18.50	18.95	19.0
Specify Gravity (20°C) = $\frac{K\,Wo}{Wo + Wa - Wb}$	2.62	2.71	2.63	2.65

Notes: 1. Based on "Standard Method of Test for Specific Gravity of Soils," ASTM Designation D 854-52. (For sand and fines)

2. All weights are in grams.

$$\frac{K\,W_o}{(K\,W_o) + W_o - W_b}$$

Tx	K
18	1.0004
19	1.0002
20	1.0000
21	.9998
22	.9996
23	.9993
24	.9991
25	.9989
26	.9986
27	.9983
28	.9980
29	.9977
30	.9974

Lab 11 (2-60)

COOPER TESTING LABS

DATA SHEET FOR SPECIFIC GRAVITY TEST

JOB NO. 034-14 NAME CANONIE 96-019-1906 LOCATION ALAMEDA NAS

TESTED BY DC DATE 10/22/96 CHECKED BY

Dish Number	C-13	E	1	
Boring Number	BOR 21	B-CZ-9	BOR-13	
Depth of Sample in Feet	13	1'	9.5	
Field Classification of Soil				
Lab Classification of Soil	BROWN SILTY FINE SAND (SM)	GREENISH BROWN FINE SAND (SP)	GRAY SILTY CLAY BAY MUD	
Test Performed on Whole Sample? Or Some Fraction? Specify Percent	100% -#4	100% -#4	100% -#4	
Pycnometer Number	3	3	3	
Wt. of Pycnometer + Soil + Water ..... Wb	321.70	322.78	304.68	
Test Temperature in °C, Tx	22	22	22	
Wt. of Pycnometer + Water ..... Wa (from calibration curve)	291.78	291.78	291.78	
Drying Dish Number				
Wt. of Dry Soil + Dish				
Wt. of Dish				
Wt. of Dry Soil ..... Wo	48.18	49.41	21.44	
Temp. Correction Factor ..... K (from chart below)	.9996	.9996	.9996	
K Wo	48.16	49.39	21.43	
Wo + Wa — Wb	18.26	18.41	8.54	
Specify Gravity (20°C) = $\frac{K\,Wo}{Wo + Wa - Wb}$	2.64	2.68	2.51	

Notes: 1. Based on "Standard Method of Test for Specific Gravity of Soils," ASTM Designation D 854-52. (For sand and fines)

2. All weights are in grams.

Tx	K
18	1.0004
19	1.0002
20	1.0000
21	.9998
22	.9996
23	.9993
24	.9991
25	.9989
26	.9986
27	.9983
28	.9980
29	.9977
30	.9974

Lab 11 (2-68)

APPENDIX F

CONSOLIDATION RESULTS

COOPER TESTING LABORATORY

Project: CANONIE 916-018-1906 Location: ALAMEDA NAS Job No. 034-14

Soil Classification: DARK GRAY SANDY SILT w/ GRAVEL TO BROWN CLAYEY SAND w/ GRAVEL Boring No. MW-D13-3

Sample No.

Test Started By: DC 9/21/90 Test Completed By: / / Depth (ft) 10

Date Computed By: / / Date Plotted By: / / Checked By: / /

SAMPLE TYPE

☐ Undisturbed ☐ Undisturbed (Trimmed to) ☐ Remolded to ☐ % D_d ☐ % Compaction

DATA REQUIREMENT

$\gamma_{dmx.}$ = pcf

☐ e log P curve ☐ c log P curves ☐ k vs. e plot ☐ others (specify)

TEST METHOD

☐ STANDARD:

– Inundate sample at ☑ beginning ☐ completion of 150 psf

– Load cycle:

DARK GRAY CLAY TESTED.

– Take time vs. deformation reading at:

☐ SPECIAL:

Instruction and notes:

By: / /

MOISTURE & DENSITY DATA

	Initial	Final
Sample Height (H_o) – in.	1.00	.9543
Sample Diameter (D_o) – in.	1.87	1.87
Sample Area (A_o) – in.	2.75	2.75
Sample Volume (V_o) – in./cc	2.75	2.35
Weight of Ring(s) + Wet Soil – gm	135.8	131.6
Weight of Rings Only – gm	55.2	55.2
Weight of Wet Soil – gm	80.6	76.4
Wet Density – pcf	112.0	124.2
Weight of Wet Soil + Dish (Ring) – gm	80.6	96.3
Weight of Dry Soil + Dish (Ring) – gm	56.5	76.8
Weight of Lost Moisture – gm	24.1	19.5
Weight of Dish (Ring) – gm (51)		20.3
Weight of Dry Soil – gm		56.5
Moisture as % of Dry Weight – %	42.0	34.5
Dry Density – pcf (Final Dry Density = Initial Dry Density x H_o/H_f)	78.9	92.3

G_s: Specific Gravity 2.7 ☑ Assumed ☐ Determined

S : Degree of Saturation = (G_s x Water Content) / e

Initial	Final
98	94

REMARKS:

EQUIPMENT: Consolidometer 2

Load Factor: 1 CGR = psf

VOID RATIO COMPUTATION

H_s: Height of Solid

$= \frac{\text{Weight of Solid in gm}}{(G_s)\ (A_o \text{ in cm}^2)\ (\gamma_w)} = \frac{(56.5)}{(2.7)\ (2.79)\ (18.4)\ (1)} =$

H_c: Height of sample after consolidation

e : Void ratio

$= \frac{H_c - H_s}{H_s} = H_c \frac{1}{H_s} - 1$

$\frac{1}{H_s} = (1) / (.4641) = 2.155$

Load, psf	Dial Reading .0001 in.	H, in.	Height of Sample, H_c	e
0		.0000	1.00	1.155
150		.0066	.9934	1.141
300		.0168	.9832	1.13[illegible]
550		.0240	.9760	1.127
1100		.0472	.9528	1.101
2200		.0780	.9220	1.06[illegible]
4400		.1249	.8751	1.01[illegible]
8800		.1760	.8240	.95[illegible]
2200		.1699	.8301	.95[illegible]
550		.1590	.8410	.9[illegible]
150		.1457	.8543	.98[illegible]

CONSOLIDATION TEST DATA SHEET (Continued)

PAGE _____ OF

Date	Time	Elapsed Time in Mins.	Load (PSF)	Dial Reading (.0001 in.)	Consol. Under This Load	Total Consolidation
7/21	1047	0	150	5000		
	1048		(.4)	4958	Sat.	
	1126			4936		
7/22	1028			4934		.0066
	1029	0	300	4934		
7/23	1002		(.7)	4832		.0168
	1003	0	550	4832		
7/24	905		(.9)	4760		.0240
	906	0	1100	4760		
	1500		(1.3)	4534		
7/25	805			4528		.0472
	807	0	2200	4528		
		.1	(2.2)	4476		
		.25		4461		
		.5		4448		
	808	1		4428		
	809	2		4404		
	811	4		4377		
	815	8		4344		
	822	15		4313		
	837	30		4281		
	907	60		4260		
	1007	120		4247		
	1207	240		4237		
	1607	480		4228		
	1926			4223		
7/26	812			4220		.0780
	813	0	4400	4220		
		.1	(4.0)	4148		
		.25		4132		
		.5		4112		
	814	1		4083		
	815	2		4047		
	817	4		4008		
	821	8		3961		
	828	15		3913		
	843	30		3858		
	913	60		3823		
	1013	120		3796		
	1213	240		3777		
	1547			3756		
9/27	810			3751		.1249
	815	0	8800	3751		
	1131		(7.5)	3247		
9/28	833			3240		.1760
	835	0	2200	3240		
	1615		(2.2)	3296		
7/29	949			3301		.1699

Date	Time	Elapsed Time in Mins.	Load (PSF)	Dial Reading (.0001 in.)	Consol. Under This Load	Total Consolidation
	950	0	550	3201		
3/30	1015		(.9)	3160		.1590
	1046	0	150	3410		
10/1	737		(.9)	3272		.1450

NOTES: _____

CONSOLIDATION TEST DATA SHEET (Continued)

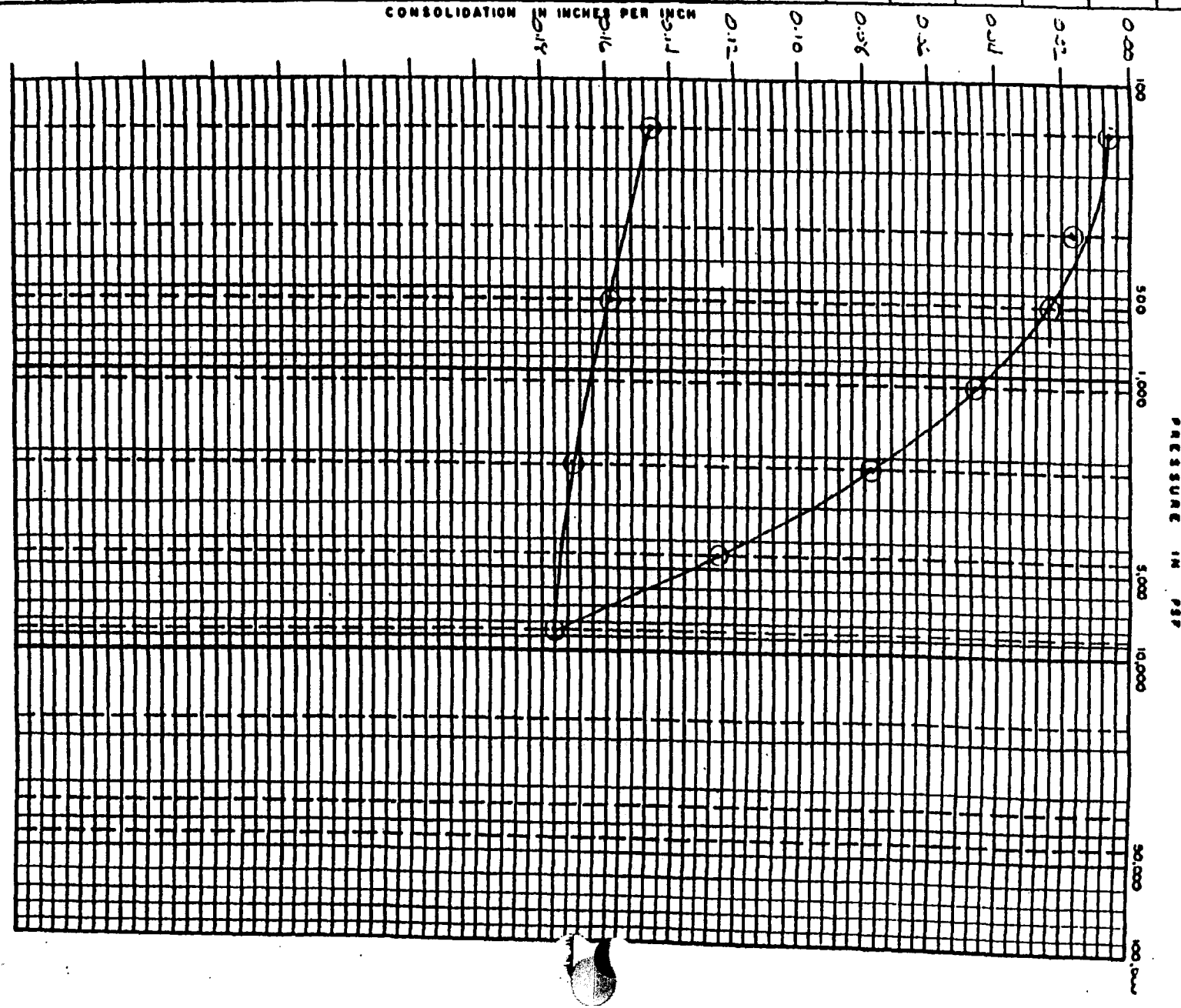
PAGE ____ OF ____

Date	Time	Elapsed Time in Mins.	Load (PSF)	Dial Reading (.0001 in.)	Consol. Under This Load	Total Consolidation

Date	Time	Elapsed Time in Mins.	Load (PSF)	Dial Reading (.0001 in.)	Consol. Under This Load	Total Consolidation

NOTES: _____

Key	Boring	Sample	Depth (ft)	Elev. (ft)	SOIL CLASSIFICATION		ATTERBERG LIMITS			INITIAL		FINAL		Po PSF	Pc PSF	C
					DESCRIPTION	Symbol	LL %	PL %	PI	Moist. %	Dry Density pcf	Moist. %	Dry Density pcf			



COOPER TESTING LABORATORY

Project: CANONIE 96-018-1806 Location: ALAMEDA NAS Job No. 034-14

Soil Classification: DARK GRAY SILT W/ PEAT TO SAND Boring No. B-D13-6

SILT TESTED Sample No.

Test Started By: DC 9/21 PM Test Completed By: / / Depth (ft) 6'

Data Computed By: / / Data Plotted By: / / Checked By: /

SAMPLE TYPE

☐ Undisturbed ☐ Undisturbed (Trimmed to) ☐ Remolded to ☐ % D_d ☐ % Compaction

$\gamma_{d_{max.}}$ = pcf

DATA REQUIREMENT

☐ e log P curve ☐ c log P curves ☐ k vs. e plot ☐ others (specify)

TEST METHOD

☐ STANDARD:

– Inundate sample at ☑ beginning ☐ completion of 150 psf

– Load cycle:

– Take time vs. deformation reading at:

☐ SPECIAL:

Instruction and notes:

By: / /

MOISTURE & DENSITY DATA

	Initial	Final
Sample Height (H_o) – in.	1.0	.7818
Sample Diameter (D_o) – in.	1.93	1.93
Sample Area (A_o) – in.	2.93	2.93
Sample Volume (V_o) – in./cc	2.93	2.29
Weight of Ring(s) + Wet Soil – gm	90.5	83.8
Weight of Rings Only – gm	27.7	27.7
Weight of Wet Soil – gm	62.8	56.1
Wet Density – pcf	81.8	93.4
Weight of Wet Soil + Dish (Ring) – gm	62.8	75.7
Weight of Dry Soil + Dish (Ring) – gm	31.5	51.5
Weight of Lost Moisture – gm	31.3	24.2
Weight of Dish (Ring) – gm (23)		20.0
Weight of Dry Soil – gm		31.5
Moisture as % of Dry Weight – %	98.1	76.8
Dry Density – pcf (Final Dry Density = Initial Dry Density x H_o/H_f)	41.3	52.8

G_s: Specific Gravity 2.6 ☑ Assumed ☐ Determined

S : Degree of Saturation = (G_s x Water Content) / e

Initial	Final
86	

REMARKS:

EQUIPMENT: Consolidometer 3

Load Factor: 1 CGR = pcf

VOID RATIO COMPUTATION

H_s: Height of Solid

$= \frac{\text{Weight of Solid in gm}}{(G_s)\ (A_o \text{ in cm}^2)\ (\gamma_w)} = \frac{(31.5)}{(2.6)\ (2.93)\ (18.4)\ (1)} = .2$

H_c: Height of sample after consolidation.

e : Void ratio

$= \frac{H_c - H_s}{H_s} = H_c \frac{1}{H_s} - 1$

$\cdots\cdots \frac{1}{H_s} = (1)/(.254) = 3.966 - 1$

Load, psf	Dial Reading .0001 in.	H, in.	Height of Sample, H_c	e
0		.0000	1.000	2.
150		.0041	.9959	2.5
300		.0134	.9866	2.92
550		.0343	.9657	2.86
1100		.0729	.9271	2.7
2200		.1204	.8796	2.6
4400		.1910	.8090	2.4
8800		.2751	.7249	2.
2200		.2598	.7402	2.10
550		.2418	.7582	2.2
150		.2182	.7818	2.3

CONSOLIDATION TEST DATA SHEET (Continued)

PAGE _____ OF _____

Date	Time	Elapsed Time in Mins.	Load (PSF)	Dial Reading (.0001 in.)	Consol. Under This Load	Total Consolidation
9/21	1113	0	150	5000		
	1127		(.5)	4957	SAT.	
	1727			4960		
9/22	1029			4959		.0041
	1230	0	300	4959		
9/23	1003		(.7)	4866		.0134
	1204	0	550	4866		
9/24	907		(.9)	4657		.0343
	909	0	1100	4657		
		1	(1.3)	4553		
		.25		4537		
		.5		4515		
	910	1		4497		
	911	2		4475		
	913	4		4460		
	917	8		4445		
	924	15		4431		
	939	30		4413		
	1009	60		4391		
	1109	120		4370		
	1309	240		4346		
	1800			4311		
9/25	809			4271		.0729
	810	0	2200	4271		
		.1	(2.3)	4162		
		.25		4136		
		.5		4115		
	811	1		4088		
	812	2		4061		
	814	4		4031		
	818	8		4001		
	825	15		3975		
	840	30		3948		
	910	60		3921		
	1010	120		3892		
	1210	240		3858		
	1610	480		3820		
	1926			3796		.1204
9/26	819	0	4400	3796		
	1847		(4.0)	3733		
9/27	815			3680		.1910
	817	0	5800	3680		
	1231		(7.5)	2329		
9/28	835			2249		.2751
	847	0	7200	2249		
	1615		(2.2)	2389		
9/29	950			2402		.2598
	951	0	550	2402		
9/30	1046		(.9)	2582		.2418

Date	Time	Elapsed Time in Mins.	Load (PSF)	Dial Reading (.0001 in.)	Consol. Under This Load	Total Consolidation
	1046	0	150	2582		
10/1	740		(.5)	2818		.2182

NOTES: _____

CONSOLIDATION TEST DATA SHEET (Continued)

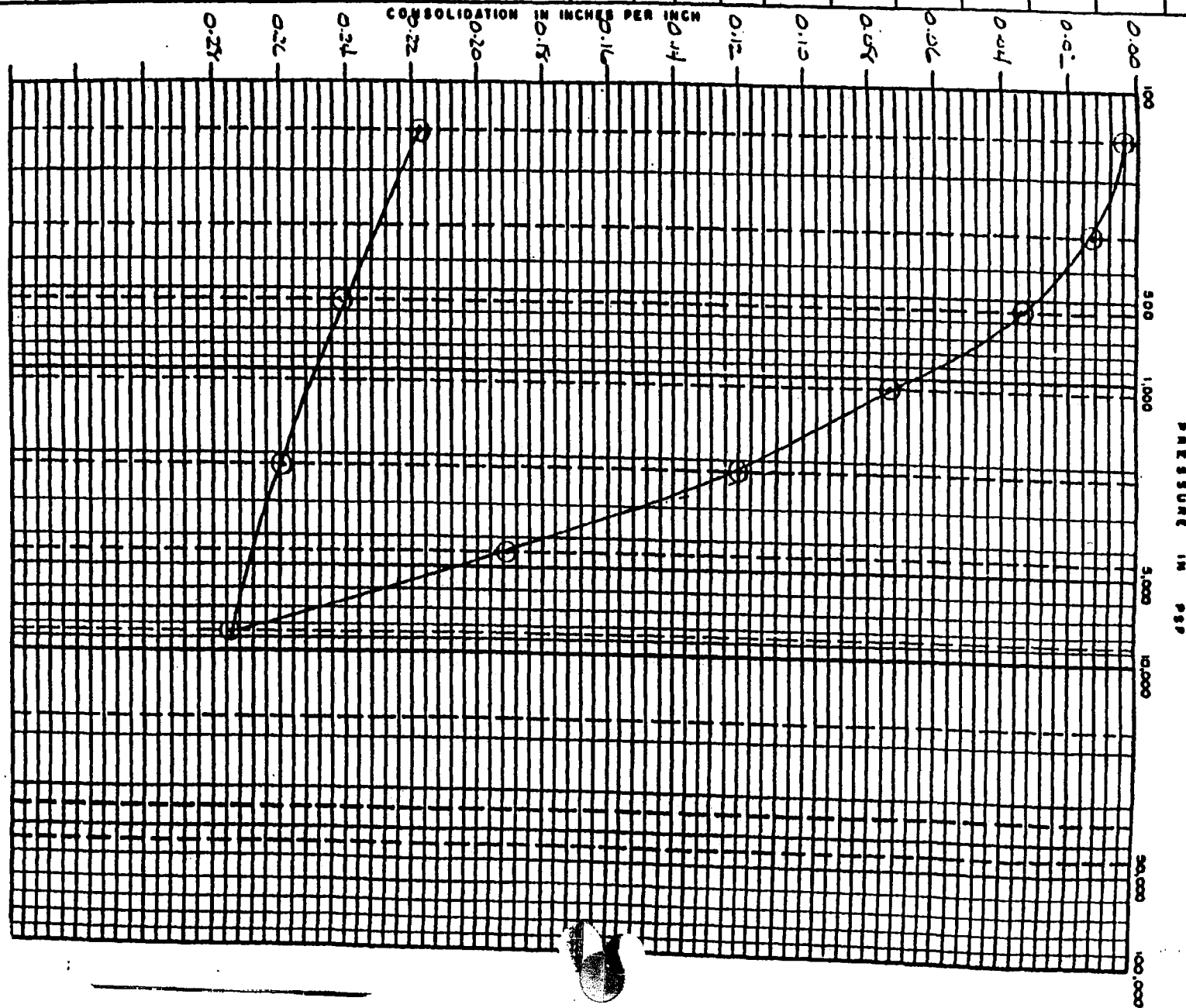
PAGE _____ OF _____

Date	Time	Elapsed Time in Mins.	Load (PSF)	Dial Reading (.0001 in.)	Consol. Under This Load	Total Consolidation

Date	Time	Elapsed Time in Mins.	Load (PSF)	Dial Reading (.0001 in.)	Consol. Under This Load	Total Consolidation

NOTES: _____

Key	Boring	Sample	Depth (ft)	Elev. (ft)	SOIL CLASSIFICATION		ATTERBERG LIMITS			INITIAL		FINAL		Po PSF	Pc PSF	C
					DESCRIPTION	Symbol	LL %	PL %	PI	Moist. %	Dry Density pcf	Moist. %	Dry Density pcf			
									[illegible]		[illegible]		[illegible]			



CONSOLIDATION TEST DATA

COOPER TESTING LABORATORY

Project: CANONIE Ke-018-1806 Location: ALAMEDA NAS Job No. 034-14

Soil Classification: DARK GRAY SILTY CLAY (BAYMUD) (CL) Boring No. B-D13-11

Sample No.

Test Started By: VC 9/21/80 Test Completed By: / / Depth (ft) 10

Data Computed By: / / Data Plotted By: / / Checked By: /

SAMPLE TYPE

☐ Undisturbed ☐ Undisturbed (Trimmed to) ☐ Remolded to ☐ % D_d ☐ % Compaction

DATA REQUIREMENT

$\gamma_{dmx.}$ = pcf

☐ e log P curve ☐ c log P curves ☐ k vs. e plot ☐ others (specify)

TEST METHOD

☐ STANDARD:

– Inundate sample at ☑ beginning ☐ completion of 150 psf

– Load cycle:

– Take time vs. deformation reading at:

☐ SPECIAL:

Instruction and notes:

By: / /

MOISTURE & DENSITY DATA

	Initial	Final
Sample Height (H_o) – in.	1.00	.8260
Sample Diameter (D_o) – in.	1.90	1.90
Sample Area (A_o) – in.	2.84	2.84
Sample Volume (V_o) – in./cc	2.84	2.34
Weight of Ring(s) + Wet Soil – gm	111.9	106.5
Weight of Rings Only – gm	34.7	34.7
Weight of Wet Soil – gm	77.2	71.8
Wet Density – pcf	103.6	116.7
Weight of Wet Soil + Dish (Ring) – gm	77.2	92.5
Weight of Dry Soil + Dish (Ring) – gm	50.6	72.3
Weight of Lost Moisture – gm	26.6	20.2
Weight of Dish (Ring) – gm (75)		21.7
Weight of Dry Soil – gm		50.6
Moisture as % of Dry Weight – %	50.4	39.9
Dry Density – pcf	68.9	83.4

(Final Dry Density = Initial Dry Density x H_o/H_f)

G_s: Specific Gravity 2.7 ☑ Assumed ☐ Determined

S : Degree of Saturation = (G_s x Water Content) / e

Initial	Final
92	88

REMARKS:

EQUIPMENT: Consolidometer 4

Load Factor: 1 CGR = psf

VOID RATIO COMPUTATION

H_s: Height of Solid

$= \frac{\text{Weight of Solid in gm}}{(G_s)\ (A_o \text{ in cm}^2)\ (\gamma_w)} = \frac{(50.6)}{(2.7)(2.54)(18.4)(1)} = .40$

H_c: Height of sample after consolidation

e : Void ratio

$= \frac{H_c - H_s}{H_s} = H_c \frac{1}{H_s} - 1$

$\cdots\cdots \frac{1}{H_s} = (1)/(.402) = 2.485 - 1$

Load, psf	Dial Reading .0001 in.	H_c in.	Height of Sample, H_c	e
0		.0000	1.000	1.485
150		.0016	.9984	1.476
300		.0125	.9875	1.466
550		.0233	.9767	1.450
1100		.0532	.9468	1.406
2200		.0963	.9037	1.342
4400		.1481	.8519	1.265
8800		.2000	.8000	1.188
2200		.1913	.8087	1.201
550		.1864	.8136	1.208
150		.1740	.8260	1.227

CONSOLIDATION TEST DATA SHEET (Continued)

PAGE _____ OF _____

Date	Time	Elapsed Time in Mins.	Load (PSF)	Dial Reading (.0001 in.)	Consol. Under This Load	Total Consolidation
3/22	1126	0	150	5000		
	1127		(.5)	4990	5000	
	1127			4986		
3/22	1230			4984		.0016
	1031	0	300	4984		
3/23	1203		(.7)	4875		.0125
	1004	0	550	4875		
3/24	913		(.9)	4767		.0233
	914	0	1100	4767		
		.1	(1.3)	4696		
		.25		4684		
		.5		4673		
	915	1		4660		
	916	2		4644		
	918	4		4626		
	922	8		4605		
	929	15		4584		
	944	30		4555		
	1014	100		4528		
	1114	120		4508		
	1314	240		4493		
	1900			4450		
3/25	815			4468		.0532
	816	0	2200	4468		
		.1	(2.2)	4410		
		.25		4395		
		.5		4378		
	817	1		4360		
	818	2		4335		
	820	4		4304		
	824	8		4263		
	831	15		4220		
	846	30		4167		
	916	60		4117		
	1132			4065		
	1216	240		4060		
	1907			4043		.0963
3/26	824			4037		
	826	0	4400	4037		
		.1	(4.0)	3986		
		.25		3970		
		.5		3952		
	827	1		3928		
	828	2		3900		
	830	4		3859		
	834	8		3807		
	841	15		3750		
	856	30		3682		
	926	60		3616		
	1026	120		3571		
	1226	240		3546		
	1847			3525		

Date	Time	Elapsed Time in Mins.	Load (PSF)	Dial Reading (.0001 in.)	Consol. Under This Load	Total Consolidation
3/27	817			3518		.148
	1735	0	8800	3518		
3/28	835		(7.5)	3000		.200
	840	0	2200	3000		
	1616		(2.3)	3088		
9/29	950			3087		.1913
	951	0	550	3087		
3/30	1048		(.9)	3136		.1864
	1048	0	150	3136		
10/1	746		(.5)	3260		.1740

NOTES:

CONSOLIDATION TEST DATA SHEET (Continued)

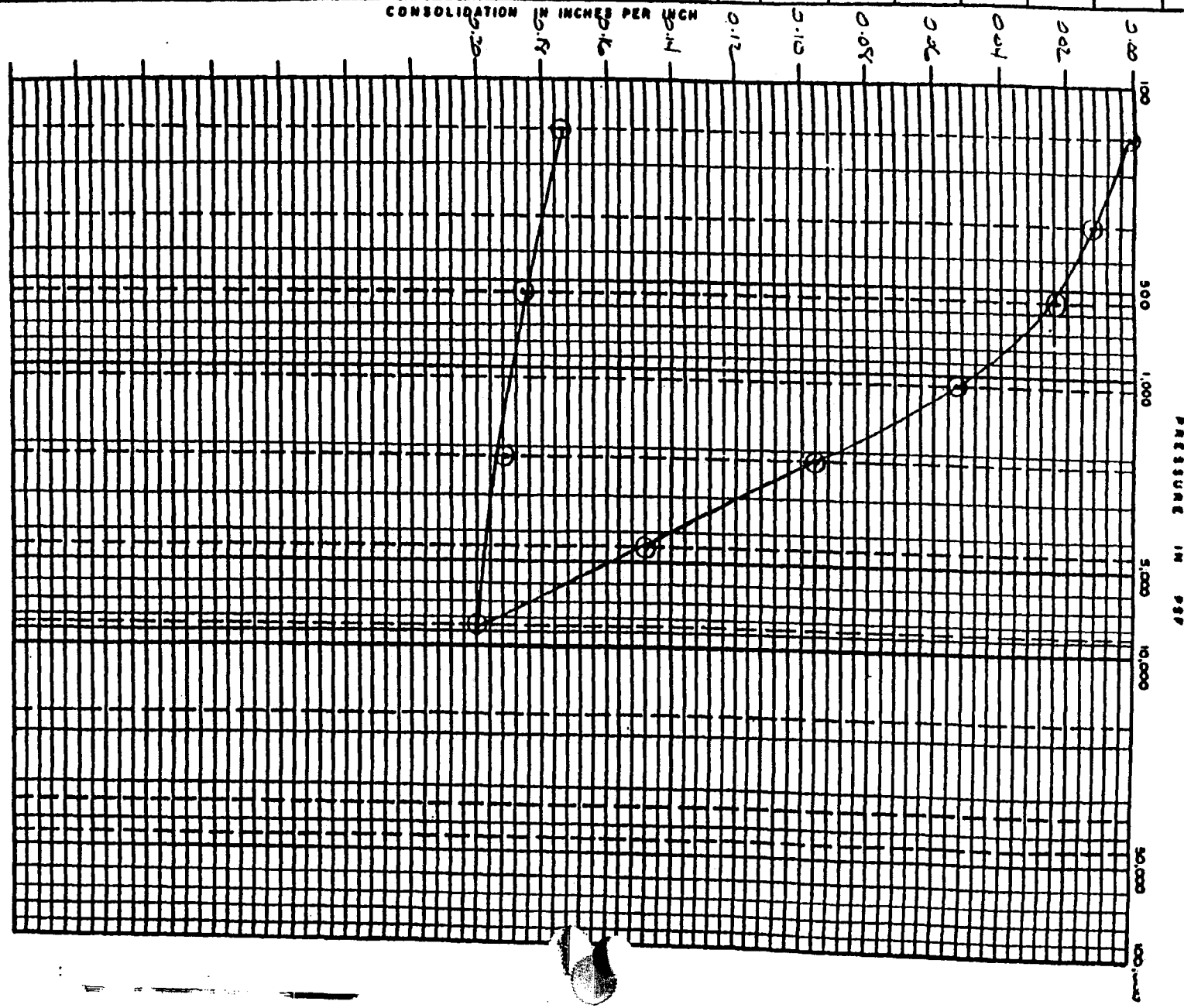
PAGE _____ OF _____

Date	Time	Elapsed Time in Mins.	Load (PSF)	Dial Reading (.0001 in.)	Consol. Under This Load	Total Consoli-dation

Date	Time	Elapsed Time in Mins.	Load (PSF)	Dial Reading (.0001 in.)	Consol. Under This Load	Total Consoli-dation

NOTES: _____

Key	Boring	Sample	Depth (ft)	Elev. (ft)	SOIL CLASSIFICATION		ATTERBERG LIMITS			INITIAL		FINAL		Po PSF	Pc PSF	C
					DESCRIPTION ..	Symbol	LL %	PL %	PI	Moist. %	Dry Density pcf	Moist. %	Dry Density pcf			



COOPER TESTING LABORATORY

Project: CANONIE Fig-018-1806 Location: ALAMEDA NAS Job No. 034-14

Soil Classification: DARK GRAY CLAYEY SAND (SC) Boring No. 3-D13-17

Sample No.

Test Started By: JC 9/21 Test Completed By: / / Depth (ft) 7½

Data Computed By: / / Data Plotted By: / / Checked By: /

SAMPLE TYPE

☐ Undisturbed ☐ Undisturbed (Trimmed to) ☐ Remolded to ☐ % D_d ☐ % Compaction

DATA REQUIREMENT

$\gamma_{dmx.}$ = pcf

☐ e log P curve ☐ c log P curves ☐ k vs. e plot ☐ others (specify)

TEST METHOD

☐ STANDARD:

– Inundate sample at ☑ beginning ☐ completion of 150 psf

– Load cycle:

– Take time vs. deformation reading at:

☐ SPECIAL:

Instruction and notes:

By: / /

MOISTURE & DENSITY DATA

	Initial	Final
Sample Height (H_o) – in.	1.0	.8700
Sample Diameter (D_o) – in.	1.93	1.93
Sample Area (A_o) – in.	2.93	2.93
Sample Volume (V_o) – in./cc	2.93	2.55
Weight of Ring(s) + Wet Soil – gm	120.5	114.8
Weight of Rings Only – gm	28.7	28.7
Weight of Wet Soil – gm	91.8	86.1
Wet Density – pcf	119.5	128.9
Weight of Wet Soil + Dish (Ring) – gm	91.8	105.7
Weight of Dry Soil + Dish (Ring) – gm	69.7	89.7
Weight of Lost Moisture – gm	22.1	16.0
Weight of Dish (Ring) – gm (47)		20.0
Weight of Dry Soil – gm		69.7
Moisture as % of Dry Weight – %	31.1	23.0
Dry Density – pcf (Final Dry Density = Initial Dry Density x H_o/H_f)	91.2	104.8

G_s: Specific Gravity 2.7 ☑ Assumed ☐ Determined

S : Degree of Saturation = (G_s x Water Content) / e

Initial	Final
98	83

REMARKS:

EQUIPMENT: Consolidometer 5

Load Factor: 1 CGR = pcf

VOID RATIO COMPUTATION

H_s: Height of Solid

$= \frac{\text{Weight of Solid in gm}}{(G_s)\ (A_o \text{ in cm}^2)\ (\gamma_w)} = \frac{(69.7)}{(2.7)\ (293)\ (16.4)\ (1)} =$

H_c: Height of sample after consolidation

e : Void ratio

$= \frac{H_c - H_s}{H_s} = H_c \frac{1}{H_s} - 1$

$\frac{1}{H_s} = (1)/(.537) = 1.861$ – 1

Load, psf	Dial Reading .0001 in.	H_c in.	Height of Sample, H_c	e
0		.0000	1.000	.86.
150		.0096	.9904	.85.
300		.0205	.9795	.843
550		.0369	.9631	.829
1100		.0590	.9410	.81.
2200		.0870	.9130	.78.
4400		.1173	.8827	.76.
8800		.1459	.8541	.7.
2200		.1413	.8587	.73.
550		.1359	.8641	.74.
150		.1300	.8700	.74.

CONSOLIDATION TEST DATA SHEET (Continued)

PAGE _____ OF _____

Date	Time	Elapsed Time in Mins.	Load (PSF)	Dial Reading (.0001 in.)	Consol. Under This Load	Total Consolidation
9/21	1146	0	150	5000		
	1150		(.5)	4951	SAT	
	1727			4911		
9/22	1051			4904		.0096
	1031	0	300	4904		
9/23	1004		(.7)	4795		.0205
	1005	0	550	4795		
9/24	919		(1.9)	4631		.0369
	920	0	1100	4631		
		.1	(1.3)	4607		
		.25		4600		
		.5		4592		
	921	1		4582		
	922	2		4568		
	924	4		4550		
	928	8		4529		
	935	15		4507		
	1005			4476		
	1020	60		4468		
	1120	120		4453		
	1320	240		4439		
	1700			4423		
9/25	822			4410		.0590
	826	0	2200	4410		
		.1	(2.2)	4372		
		.25		4360		
		.5		4348		
	827	1		4332		
	828	2		4309		
	830	4		4281		
	834	8		4249		
	841	15		4221		
	856	30		4198		
	926	60		4159		
	1026	120		4165		
	1226	240		4150		
	1927			4130		.0870
9/26	828	0	4400	4130		
	1848		(4.0)	3936		
9/27	836			3867		.1173
	838	0	8800	3827		
	1755		(7.5)	3552		
9/28	848			3541		.1459
	850	0	2200	3541		
	1616		(2.2)	3583		
9/29	952			3587		.1413
	952	0	550	3587		
9/30	1049		(.9)	3641		.1359

Date	Time	Elapsed Time in Mins.	Load (PSF)	Dial Reading (.0001 in.)	Consol. Under This Load	Total Consolidation
	1049	0	150	3641		
10/1	750		(.5)	3700		.1300

NOTES: _____

CONSOLIDATION TEST DATA SHEET (Continued)

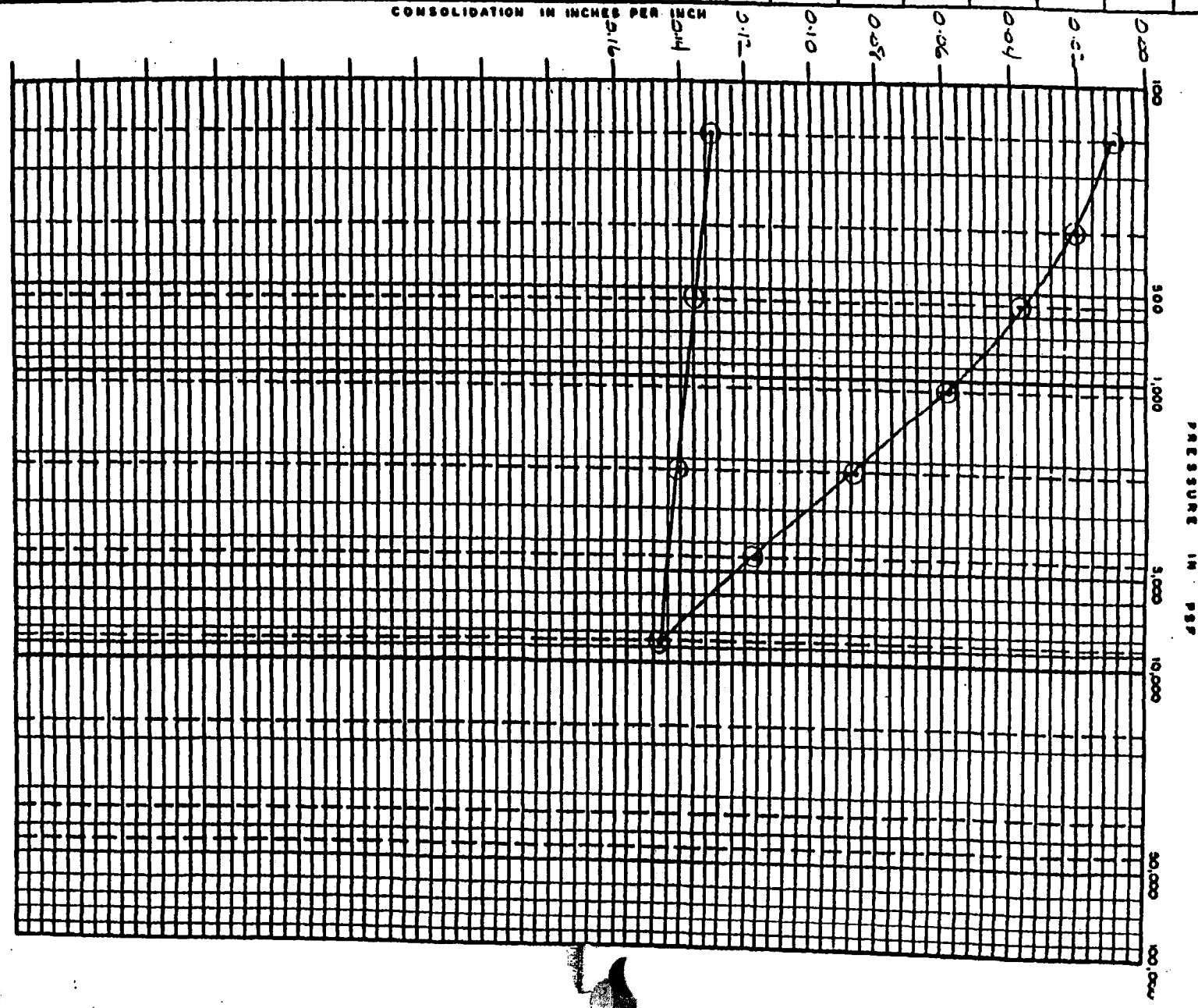
PAGE _____ OF _____

Date	Time	Elapsed Time in Mins.	Load (PSF)	Dial Reading (.0001 in.)	Consol. Under This Load	Total Consolidation

Date	Time	Elapsed Time in Mins.	Load (PSF)	Dial Reading (.0001 in.)	Consol. Under This Load	Total Consolidation

NOTES: _____

Key	Boring	Sample	Depth (ft)	Elev. (ft)	SOIL CLASSIFICATION		ATTERBERG LIMITS			INITIAL		FINAL		Po PSF	Pc PSF	C
					DESCRIPTION	Symbol	LL %	PL %	PI	Moist. %	Dry Density pcf	Moist. %	Dry Density pcf			



COOPER TESTING LABORATORY

Project: CANDLE Pro-018-1826 Location: ALAMEDA NAS Job No. 034-14

Soil Classification: MOTTLED BROWN & GRAY SILTY CLAY (BAYMUD) (CH) Boring No. B-02-11

Sample No.

Test Started By: DC 10/14 80 Test Completed By: / / Depth (ft) 10.5'

Data Computed By: / / Data Plotted By: / / Checked By: /

SAMPLE TYPE

☐ Undisturbed ☐ Undisturbed (Trimmed to) ☐ Remolded to ☐ % D_d ☐ % Compaction

DATA REQUIREMENT

$\gamma_{dmx.}$ = pcf

☐ e log P curve ☐ c log P curves ☐ k vs. e plot ☐ others (specify)

TEST METHOD

☐ STANDARD:

– Inundate sample at ☑ beginning ☐ completion of 150 psf

– Load cycle:

– Take time vs. deformation reading at:

☐ SPECIAL:

Instruction and notes:

V_T = 46.54

V_S = 14.44

V_V = 32.10

e_o = 2.22

By: / /

MOISTURE & DENSITY DATA

	Initial	Final
Sample Height (H_o) – in.	1.0	.8351
Sample Diameter (D_o) – in.	1.90	1.90
Sample Area (A_o) – in.	2.84	2.84
Sample Volume (V_o) – in./cc	2.84	2.37
Weight of Ring(s) + Wet Soil – gm	106.2	99.3
Weight of Rings Only – gm	34.3	34.3
Weight of Wet Soil – gm	71.9	65.0
Wet Density – pcf	96.5	104.5
Weight of Wet Soil + Dish (Ring) – gm	71.9	118.6
Weight of Dry Soil + Dish (Ring) – gm	39.0	92.7
Weight of Lost Moisture – gm	32.9	25.9
Weight of Dish (Ring) – gm (78 / 19.4)		53.7
Weight of Dry Soil – gm		39.0
Moisture as % of Dry Weight – %	84.4	66.4
Dry Density – pcf (Final Dry Density = Initial Dry Density x H_o/H_f)	52.4	62.8

G_s: Specific Gravity 2.7 ☑ Assumed ☐ Determined

S : Degree of Saturation = (G_s x Water Content) / e

Initial	Final
100	97

REMARKS:

EQUIPMENT: Consolidometer 4

Load Factor: 1 CGR = psf

VOID RATIO COMPUTATION

H_s: Height of Solid

$= \frac{\text{Weight of Solid in gm}}{(G_s)\ (A_o \text{ in cm}^2)\ (\gamma_w)} = \frac{(\ 39.0\ )}{(2.7)\ (2.54)\ (16.4)\ (1)} =$

H_c: Height of sample after consolidation

e : Void ratio

$= \frac{H_c - H_s}{H_s} = H_c \frac{1}{H_s} - 1$

$\frac{1}{H_s} = (\ /\ )\ /\ (.3101) = 3.225$

Load, psf	Dial Reading .001 in.	H_c in.	Height of Sample, H_c	e
0		.0000	1.000	2.2[illegible]
150		.0016	.9984	2.2[illegible]
300		.0101	.9899	2.2[illegible]
550		.0283	.9717	2.16[illegible]
1100		.0659	.9341	2.0[illegible]
2200		.1287	.8713	1.9[illegible]
4400		.2043	.7957	1.7[illegible]
1100		.1853	.8147	1.8[illegible]
150		.1649	.8351	1.[illegible]

CONSOLIDATION TEST DATA SHEET (Continued)

PAGE _____ OF _____

Date	Time	Elapsed Time in Mins.	Load (PSF)	Dial Reading (.0001 in.)	Consol. Under This Load	Total Consolidation
10/4	1512	0	150	5000		
	1517		(.5)	4993	5	
	1554			4985		
10/5	857			4984		.0016
	857	0	300	4984		
			(1)			
	708			4905		
10/6	1104			4899		.0101
	1105	0	550	4899		
10/8	811		(.9)	4717		.0583
	814	0	1100	4717		
		.1	(1.3)	4695		
		.25		4688		
		.5		4681		
	815	1		4670		
	816	2		4656		
	818	4		4634		
	823	8		4604		
	829	15		4571		
	844	30		4522		
	914	60		4471		
	1014	120		4424		
	1214	240		4393		
	1652			4364		
10/9	825			4341		.0659
	846	0	2200	4341		
		.1	(2.2)	4305		
		.25		4295		
		.5		4283		
	847	1		4265		
	848	2		4239		
	850	4		4219		
	854	8		4151		
	901	15		4088		
	916	30		3999		
	946	60		3905		
	1046	120		3829		
	1246	240		3783		
	1646	480		3747		
10/10	817			3713		.1287
	822	0	4400	3713		
		.1	(4.0)	3674		
		.25		3657		
		.5		3645		
	823	1		3623		
	824	2		3591		
	826	4		3546		
	830	8		3481		
	837	15		3403		
	852	30		3291		
	922	60		3177		

Date	Time	Elapsed Time in Mins.	Load (PSF)	Dial Reading (.0001 in.)	Consol. Under This Load	Total Consolidation
	1022	120				
	1222	240		3036		
	1630			2986		
10/11	857			2957		.2243
	859	0	1100	2957		
	1202		(1.3)	3137		
10/12	831			3147		.1853
	831	0	150	3147		
10-13	1522		(.5)	3151		.149

NOTES: _____

CONSOLIDATION TEST DATA SHEET (Continued)

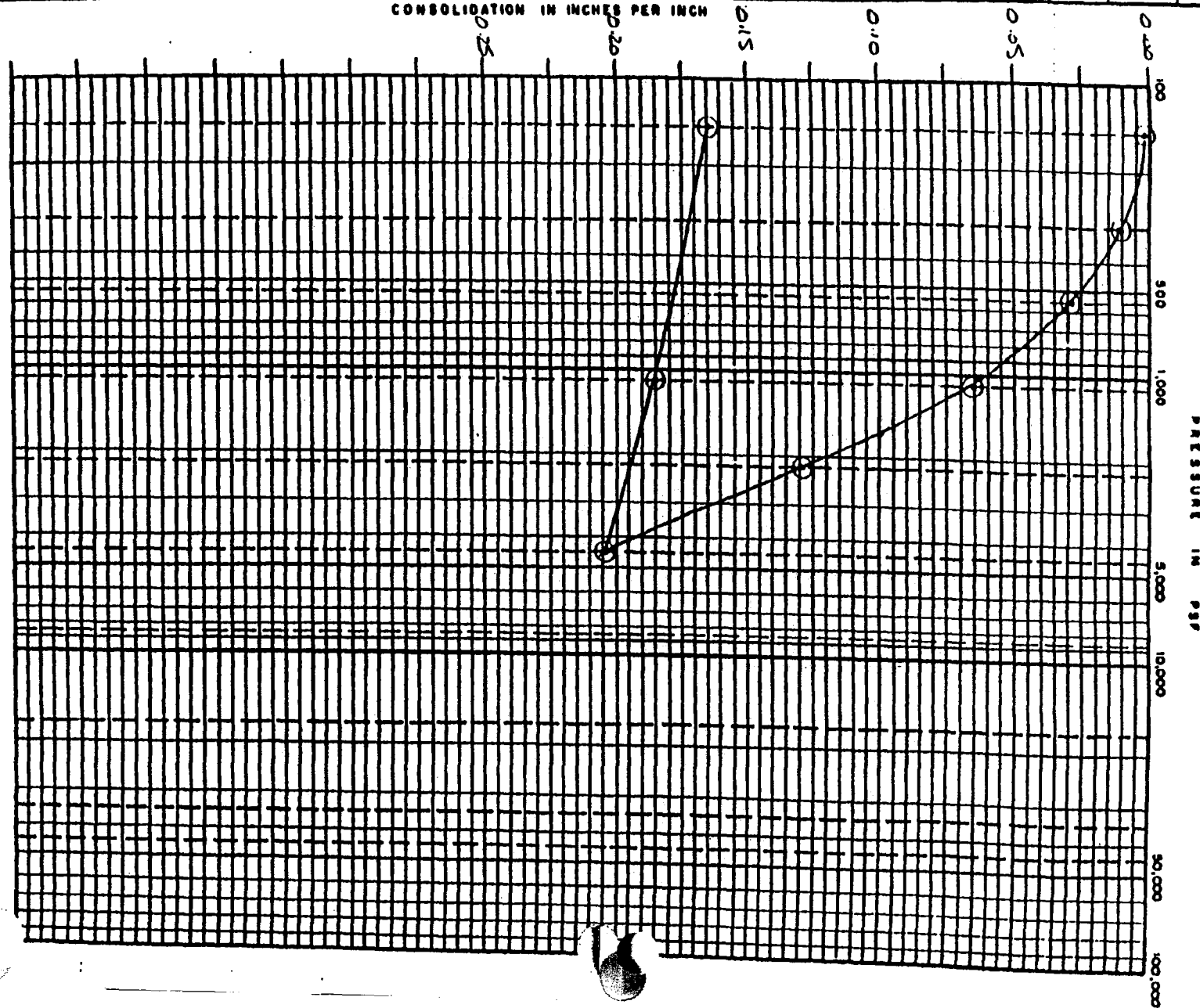
PAGE _____ OF _____

Date	Time	Elapsed Time in Mins.	Load (PSF)	Dial Reading (.0001 in.)	Consol. Under This Load	Total Consolidation

Date	Time	Elapsed Time in Mins.	Load (PSF)	Dial Reading (.0001 in.)	Consol. Under This Load	Total Consolidation

NOTES: _____

Key	Boring	Sample	Depth (ft)	Elev. (ft)	SOIL CLASSIFICATION		ATTERBERG LIMITS			INITIAL		FINAL		Po PSF	Pc PSF	C
					DESCRIPTION	Symbol	LL %	PL %	PI	Moist. %	Dry Density pcf	Moist. %	Dry Density pcf			



COOPER TESTING LABORATORY

Project: CANDLE 86-018-1901a Location: ALAMEDA NAS Job No. 031-14

Soil Classification: GRAY SANDY CLAY (BAYMUD) (CL) Boring No. B012 13

Sample No.

Test Started By: DC 10/4 Test Completed By: / / Depth (ft) 8

Data Computed By: / / Data Plotted By: / / Checked By: / /

SAMPLE TYPE

☐ Undisturbed ☐ Undisturbed (Trimmed to) ☐ Remolded to ☐ % D_d ☐ % Compaction

$\gamma_{dmx.}$ = pcf

DATA REQUIREMENT

☐ e log P curve ☐ c log P curves ☐ k vs. e plot ☐ others (specify)

TEST METHOD

☐ STANDARD:

– Inundate sample at ☑ beginning ☐ completion of 150 psf

– Load cycle:

– Take time vs. deformation reading at:

☐ SPECIAL:

Instruction and notes:

By: / /

MOISTURE & DENSITY DATA

	Initial	Final
Sample Height (H_o) – in.	1.0	.8668
Sample Diameter (D_o) – in.	1.93	1.93
Sample Area (A_o) – in.	2.93	2.93
Sample Volume (V_o) – in./cc	2.93	2.54
Weight of Ring(s) + Wet Soil – gm	116.1	111.7
Weight of Rings Only – gm	28.5	28.5
Weight of Wet Soil – gm	87.6	83.2
Wet Density – pcf	114.1	125.0
Weight of Wet Soil + Dish (Ring) – gm	87.6	133.4
Weight of Dry Soil + Dish (Ring) – gm	65.0	115.2
Weight of Lost Moisture – gm	22.6	18.2
Weight of Dish (Ring) – gm (75) 21.7		50.2
Weight of Dry Soil – gm		65.0
Moisture as % of Dry Weight – %	34.9	28.0
Dry Density – pcf (Final Dry Density = Initial Dry Density x H_o/H_f)	84.6	97.6

G_s: Specific Gravity 2.62 ☐ Assumed ☑ Determined

S : Degree of Saturation = (G_s x Water Content) / e

Initial	Final
98	

REMARKS:

EQUIPMENT: Consolidometer S

Load Factor: 1 CGR = psf

VOID RATIO COMPUTATION

H_s: Height of Solid

$= \frac{\text{Weight of Solid in gm}}{(G_s)\ (A_o \text{ in cm}^2)\ (\gamma_w)} = \frac{(65.0)}{(2.62)\ (2.93)\ (18.4)\ (1)} =$

H_c: Height of sample after consolidation

e : Void ratio

$= \frac{H_c - H_s}{H_s} = H_c \frac{1}{H_s} - 1$

$\frac{1}{H_s} = (1)/(.516) = 1.937 - 1$

Load, psf	Dial Reading .0001 in.	H, in.	Height of Sample, H_c	e
0		.0000	1.000	.937
150		.0009	.9991	.936
300		.0074	.9926	.930
550		.0166	.9834	.921
1100		.0285	.9715	.910
2200		.0486	.9514	.891
4400		.0778	.9222	.863
8800		.1157	.8843	.828
17,600		.1562	.8438	.790
4400		.1501	.8499	.796
1100		.1440	.8560	.802
150		.1332	.8668	.812

Date	Time	Elapsed Time in Mins.	Load (PSF)	Dial Reading (.0001 in.)	Consol. Under This Load	Total Consolidation
10/4	1002	0	150	5000		
	1006		(.5)	4981	SAT.	
	1054			4990		
10/5	808			4991		.0009
	808	0	300	4991		
	1707		(.7)	4927		
10/6	1105			4926		.0074
	1106	0	550	4926		
10/7	818		(.9)	4834		.0166
	819	0	1100	4834		
	1653		(1.3)	4720		
10/9	849			4715		.0285
	855	0	2200	4715		
		.1	(2.2)	4669		
		.25		4658		
		.5		4648		
	856	1		4636		
	857	2		4620		
	859	4		4608		
	903	8		4589		
	910	15		4578		
	925	30		4569		
	955	60		4556		
	1055	120		4546		
	1255	240		4535		
	1655	480		4519		
10/10	825			4514		.0486
	828	0	4400	4514		
		.1	(4.0)	4452		
		.25		4432		
		.5		4415		
	829	1		4394		
	830	2		4371		
	832	4		4350		
	836	8		4329		
	843	15		4316		
	858	30		4300		
	928	60		4285		
	1028	120		4271		
	1228	240		4249		
	1630			4233		
10/11	800			4222		.0778
	802	0	8800	4222		
		.1	(7.5)	4156		
		.25		4130		
		.5		4097		
	803	1		4065		
	804	2		4025		
	806	4		3986		
	810	8		3961		
	817	15		3939		

Date	Time	Elapsed Time in Mins.	Load (PSF)	Dial Reading (.0001 in.)	Consol. Under This Load	Total Consolidation
	832	30		3922		
	902	60		3907		
	1002	120		3893		
	1202	240		3877		
	1602			3864		
10/12	833			3843		.115
	836	0	17,600	3843		
10-13	1533		(14.5)	~~3843~~		
10/14	1039			3439		.156
	1042	0	4400	3439		
10/15	757		(4.0)	3499		.150
	758	0	1100	3499		
	1057		(1.3)	3556		
	1748			3560		.144
	1749	0	150	3560		
10/16	812		(.5)	3668		.1332

NOTES: _____

CONSOLIDATION TEST DATA SHEET (Continued)

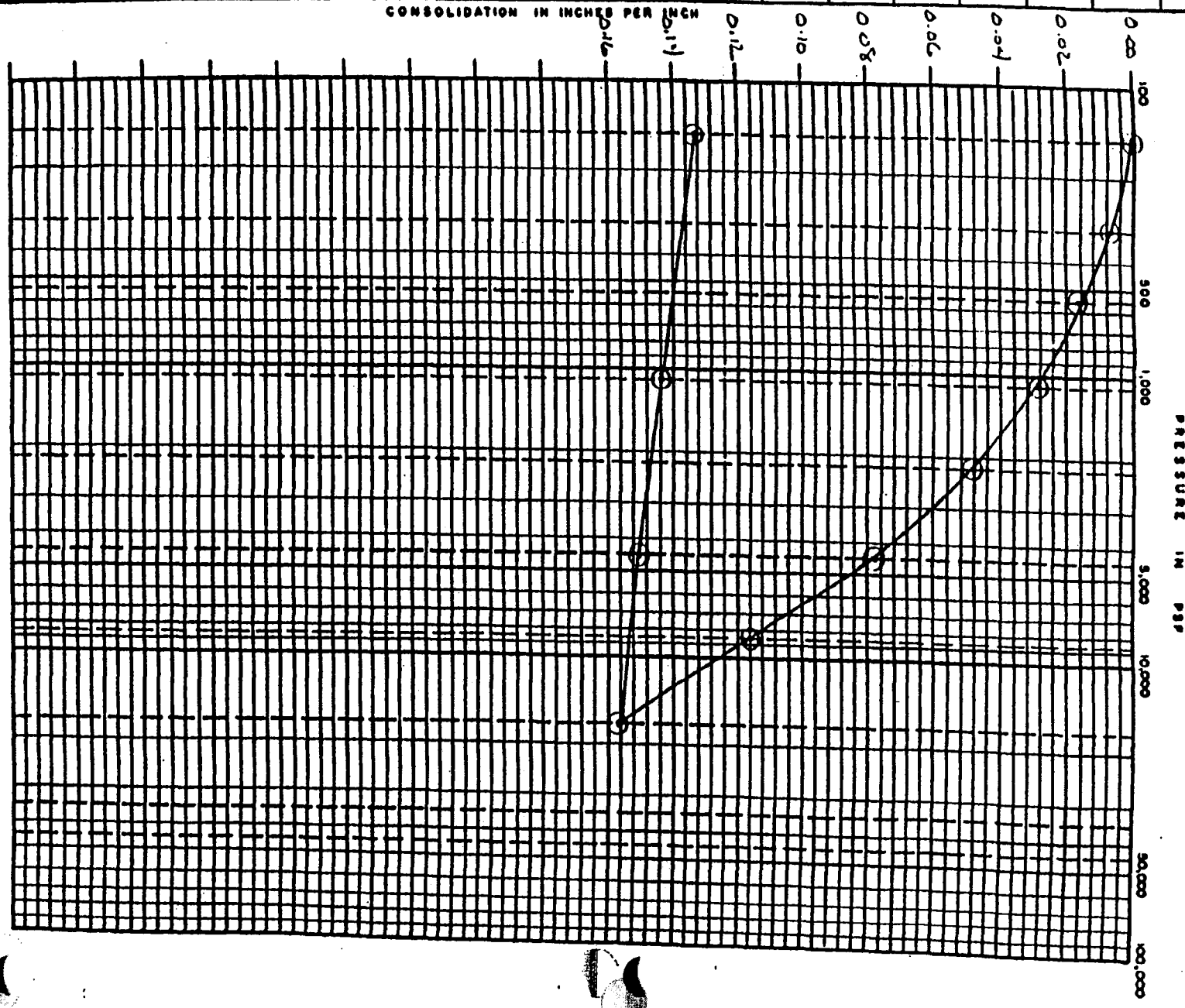
PAGE _____ OF _____

Date	Time	Elapsed Time in Mins.	Load (PSF)	Dial Reading (.0001 in.)	Consol. Under This Load	Total Consoli-dation

Date	Time	Elapsed Time in Mins.	Load (PSF)	Dial Reading (.0001 in.)	Consol. Under This Load	Total Consoli-dation

NOTES: _____

Key	Boring	Sample	Depth (ft)	Elev. (ft)	SOIL CLASSIFICATION DESCRIPTION	Symbol	ATTERBERG LIMITS LL %	PL %	PI	INITIAL Moist. %	Dry Density pcf	FINAL Moist. %	Dry Density pcf	Po PSF	Pc PSF	C



COOPER TESTING LABORATORY

Project: CANONIE 86-08-1806 Location: ALAMEDA NAS Job No. 034-14

Soil Classification: MOTTLED GRAY & BROWN SILTY SAND Boring No. 30E 19

Sample No.

Test Started By: DC 10/4/90 Test Completed By: / / Depth (ft) 5'

Data Computed By: / / Data Plotted By: / / Checked By: /

SAMPLE TYPE

☐ Undisturbed ☐ Undisturbed (Trimmed to) ☐ Remolded to ☐ % D_d ☐ % Compaction

DATA REQUIREMENT

$\gamma_{dmx.}$ = pcf

☐ e log P curve ☐ c log P curves ☐ k vs. e plot ☐ others (specify)

TEST METHOD

☐ STANDARD:

– Inundate sample at ☑ beginning ☐ completion of 150 psf

– Load cycle:

– Take time vs. deformation reading at:

☐ SPECIAL:

Instruction and notes:

By: / /

MOISTURE & DENSITY DATA

	Initial	Final
Sample Height (H_o) – in.	1.0	.9616
Sample Diameter (D_o) – in.	1.93	1.93
Sample Area (A_o) – in.	2.93	2.93
Sample Volume (V_o) – in./cc	2.93	2.82
Weight of Ring(s) + Wet Soil – gm	127.3	126.5
Weight of Rings Only – gm	27.3	27.3
Weight of Wet Soil – gm	100.0	99.2
Wet Density – pcf	130.2	134.3
Weight of Wet Soil + Dish (Ring) – gm	100.0	148.5
Weight of Dry Soil + Dish (Ring) – gm	86.2	135.5
Weight of Lost Moisture – gm	13.8	13.0
Weight of Dish (Ring) – gm (90 / 22.0)		49.3
Weight of Dry Soil – gm		86.2
Moisture as % of Dry Weight – %	16.0	15.1
Dry Density – pcf (Final Dry Density = Initial Dry Density x H_o/H_f)	112.2	116.7

G_s: Specific Gravity 2.63 ☐ Assumed ☑ Determined

S : Degree of Saturation = (G_s x Water Content) / e

Initial	Final
90	89

REMARKS:

EQUIPMENT: Consolidometer 8

Load Factor: 1 CGR = pcf

VOID RATIO COMPUTATION

H_s: Height of Solid

$= \frac{\text{Weight of Solid in gm}}{(G_s)\ (A_o \text{ in cm}^2)\ (\gamma_w)} = \frac{(\ 86.2\ )}{(2.63)\ (293)\ (18.4)\ (1)} = .6$

H_c: Height of sample after consolidation

e : Void ratio

$= \frac{H_c - H_s}{H_s} = H_c \frac{1}{H_s} - 1$

$\cdots\cdots \frac{1}{H_s} = (\ 1\ )\ /\ (.652) = 1.466 - 1$

Load, psf	Dial Reading .0001 in.	H, in.	Height of Sample, H_c	e
0		.0000	1.000	.46
150		.0034	.9966	.4
300		.0048	.9957	.46
550		.0079	.9921	.46
1100		.0118	.9882	.461
2200		.0197	.9803	.45
4400		.0283	.9717	.45
8800		.0382	.9618	.45
17600		.0504	.9496	.45
4400		.0467	.9538	.45
1100		.0413	.9587	.45
150		.0384	.9616	.448

CONSOLIDATION TEST DATA SHEET (Continued)

PAGE _____ OF _____

Date	Time	Elapsed Time in Mins.	Load (PSF)	Dial Reading (.0001 in.)	Consol. Under This Load	Total Consolidation
10/10	856	0	150	5000		
	928		(.5)	4965	SAT	
	1630			4966		
10/11	837			4966		.0034
	808	0	300	4966		
	308		(.9)	4953		
	1702			4952		
10/12	836			4952		.0048
	837	0	550	4952		
10-13	1530		(.9)	4920		
10/14	1047			4921		.0079
	1043	0	1100	4921		
10/15	758		(1.3)	4882		.0118
	800	0	2200	4882		
	1758		(2.2)	4803		
10/16	817			4803		.0197
	818	0	4400	4803		
	1752		(4.0)	4717		
10/17	802			4717		.0283
	804	0	8800	4717		
		.1	(7.5)	4672		
		.25		4666		
		.5		4662		
	805	1		4657		
	806	2		4652		
	808	4		4647		
	812	8		4642		
	820	16		4639		
	834	30		4636		
	904	60		4633		
	1004	120		4630		
	1204	240		4626		
	1758			4619		
10/18	838			4618		.0382
	842	0	17,600	4618		
		.1	(14.5)	4658		
		.25		4651		
		.5		4646		
	843	1		4640		
	844	2		4634		
	846	4		4629		
	850	8		4523		
	857	15		4518		
	912	30		4514		
	942	60		4511		
	1042	120		4507		
	1242	240		4503		
	1728			4497		
10/19	810			4496		.0504

Date	Time	Elapsed Time in Mins.	Load (PSF)	Dial Reading (.0001 in.)	Consol. Under This Load	Total Consolidation
10/19	816	0	4400	4496		
	1640		(4.0)	4534		
10/20	1001			4538		.046
	1002	0	1100	4538		
10/21	1110		(1.3)	4587		.041
	1111	0	150	4587		
10/22	838		(.5)	4615		.038

NOTES: _____

CONSOLIDATION TEST DATA SHEET (Continued)

PAGE _____ OF _____

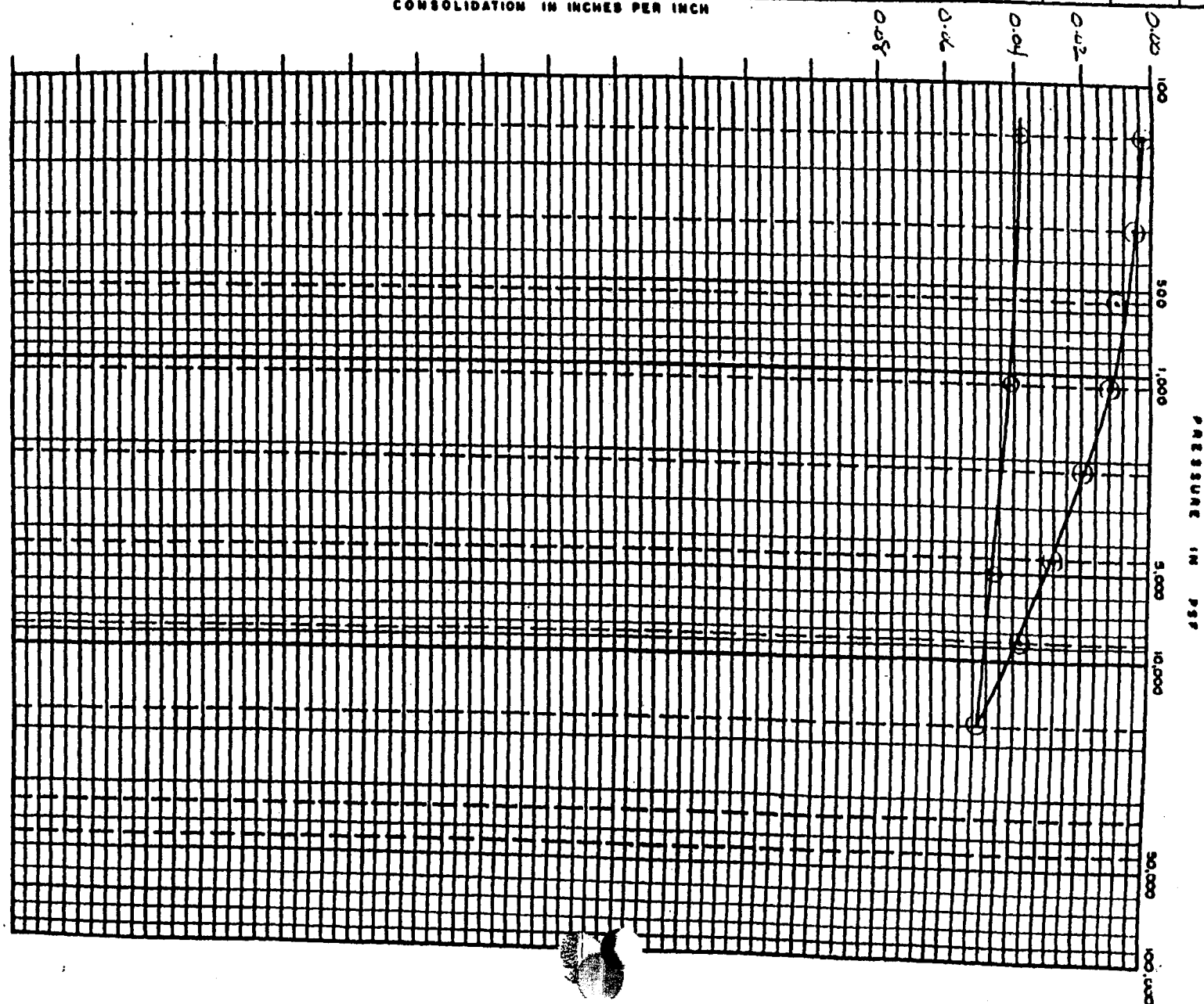
Date	Time	Elapsed Time in Mins.	Load (PSF)	Dial Reading (.0001 in.)	Consol. Under This Load	Total Consoli-dation

Date	Time	Elapsed Time in Mins.	Load (PSF)	Dial Reading (.0001 in.)	Consol. Under This Load	Total Consoli-dation

NOTES: _____

Key	Boring	Sample	Depth (ft)	Elev. (ft)	SOIL CLASSIFICATION		ATTERBERG LIMITS			INITIAL		FINAL		Po PSF	Pc PSF	C
					DESCRIPTION	Symbol	LL %	PL %	PI	Moist. %	Dry Density pcf	Moist. %	Dry Density pcf			

CONSOLIDATION IN INCHES PER INCH



APPENDIX G

MODIFIED PROCTOR COMPACTION RESULTS

Date Tested _____ By _____ Boring No. [illegible] Sample No. [illegible] Depth [illegible]

Description of Soil Grey silty fine sand with gravel

Initial Gradation : +¾ _____ %. Portion Tested: All ☐, —¾" ☒, +¾" Repl. with No. 4 x ¾" ☐ — No.4 ☐

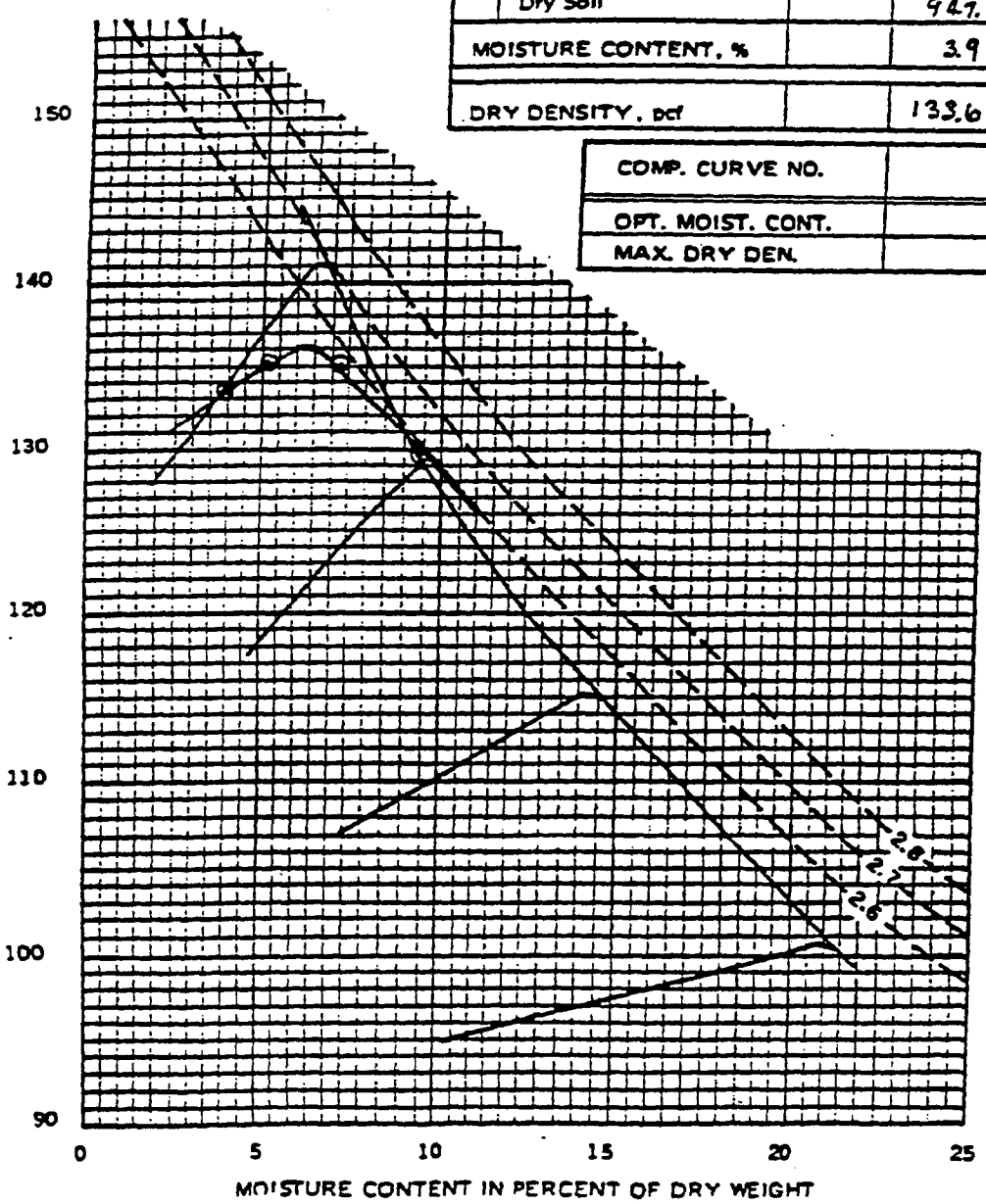
☐ MODIFIED AASHO
10 lb. rammer dropped 18" on each of 5 layers (ASTM Des¾ D1557-70T)

☒ 6" MOLD 1/13 cu ft

☐ 4" MOLD 1/30 cu ft

wt. in lb.	Mold and Moist Soil		16.65	16.89	17.10	16.86
	Mold		6.24	6.24	6.24	6.24
	Moist Soil		10.41	10.65	10.86	10.62
Factor (1/Vol. of Soil, cu ft)			13.33			
WET DENSITY, pcf			138.8	142.0	144.8	141.6
wt. in gms.	Moist Soil and Dish		1024.4	774.6	1116.7	1382.0
	Dry Soil and Dish		987.0	737.4	1045.2	1268.4
	Moisture		37.4	37.2	71.5	113.6
	Dish		39.8	10.4	52.8	53.4
	Dry Soil		947.2	727.0	992.4	1215.0
MOISTURE CONTENT, %			3.9	5.1	7.2	9.3
DRY DENSITY, pcf			133.6	135.1	135.0	129.5

COMP. CURVE NO.				
OPT. MOIST. CONT.		6½		
MAX. DRY DEN.		136		



SOURCE OF SOIL:
USE OF SOIL:
REASON FOR TEST:
ETC.

NOTE:
Composition made it diffic
to obtain good check poi

APPENDIX E
SOIL AND GROUNDWATER ANALYTICAL RESULTS

APPENDIX E TABLES

Environmental Baseline Survey Investigations

E-1 Site 9 Pesticides, PCBs, and Herbicides in Soil
E-2 Site 9 Semivolatile Organic Compounds in Soil
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SITE 9
ENVIRONMENTAL BASELINE SURVEY INVESTIGATIONS

TABLE E-1: SITE 9 PESTICIDES, PCBs, AND HERBICIDES IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

(Page 1 of 1)

Location	153-IW-001	153-IW-002	211-IWPS3-001	211-SS-005
Sample ID	153I-001	153I-002	211P-001	211M-005
Sampling Date	1/13/1995	1/23/1995	1/30/1995	5/31/1995
Sampling Depth (feet bgs)	8 - 8.5	7 - 7.5	8.5 - 9	10 - 11
Units	UG/KG	UG/KG	UG/KG	UG/KG
Investigation	EBS PHASE 2A	EBS PHASE 2A	EBS PHASE 2A	EBS PHASE 2A
Analyte				
2,4,5-T	600 U	500 U	1220 U	
2,4,5-TP (SILVEX)	600 U	500 U	1220 U	
2,4-D	600 U	500 U	1220 U	
2,4-DB	600 U	500 U	1220 U	
4,4'-DDD	4 U	3.9 U	4 U	
4,4'-DDE	4 U	3.9 U	4 U	
4,4'-DDT	4 U	3.9 U	4 U	
ALDRIN	2 U	2 U	2.1 U	
ALPHA-BHC	2 U	2 U	2.1 U	
ALPHA-CHLORDANE	2 U	2 U	2.1 U	
AROCLOR-1016	40 U	39 U	40 U	39 U
AROCLOR-1221	81 U	79 U	82 U	79 U
AROCLOR-1232	40 U	39 U	40 U	39 U
AROCLOR-1242	40 U	39 U	40 U	39 U
AROCLOR-1248	40 U	39 U	40 U	39 U
AROCLOR-1254	40 U	39 U	40 U	39 U
AROCLOR-1260	40 U	39 U	40 U	39 U
AZINPHOS-METHYL	200 U	190 U	200 U	
BETA-BHC	2 U	2 U	2.1 U	
DALAPON; 2,2-DICHLOROPROPANOIC	600 U	500 U	1220 U	
DELTA-BHC	2 U	2 U	2.1 U	
DEMETON	200 U	190 U	200 U	
DIAZINON	200 U	190 U	200 U	
DICAMBA	600 U	500 U	1220 U	
DICHLORPROP	600 U	500 U	1220 U	
DIELDRIN	4 U	3.9 U	4 U	
DINOSEB	600 U	500 U	1220 U	
DISULFOTON	200 U	190 U	200 U	
ENDOSULFAN I	2 U	2 U	2.1 U	
ENDOSULFAN II	4 U	3.9 U	4 U	
ENDOSULFAN SULFATE	4 U	3.9 U	4 U	
ENDRIN	4 U	3.9 U	4 U	
ENDRIN ALDEHYDE	4 U	3.9 U	4 U	
ENDRIN KETONE	4 U	3.9 U	4 U	
ETHION	200 U	190 U	200 U	
ETHYL PARATHION	200 U	190 U	200 U	
GAMMA-BHC (LINDANE)	2 U	2 U	2.1 U	
GAMMA-CHLORDANE	2 U	2 U	2.1 U	
HEPTACHLOR	2 U	2 U	2.1 U	
HEPTACHLOR EPOXIDE	2 U	2 U	2.1 U	
MALATHION	200 U	190 U	200 U	
MCPA	30100 U	25000 U	61000 U	
MCPP	30100 U	25000 U	61000 U	
METHOXYCHLOR	20 U	20 U	21 U	
METHYL PARATHION	200 U	190 U	200 U	
TOXAPHENE	200 U	200 U	210 U	

Notes:

PCB Polychlorinated biphenyl

UG/KG Micrograms per kilogram

TABLE E-2: SITE 9 SEMIVOLATILE ORGANIC COMPOUNDS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	153-IW-001	153-IW-002	211-IWPS3-001	211-SS-005
Sample Code	153I-001	153I-002	211P-001	211M-005
Sampling Date	1/13/1995	1/23/1995	1/30/1995	5/31/1995
Sampling Depth (feet bgs)	8 - 8.5	7 - 7.5	8.5 - 9	10 - 11
Units	UG/KG	UG/KG	UG/KG	UG/KG
Investigation	EBS PHASE 2A	EBS PHASE 2A	EBS PHASE 2A	EBS PHASE 2A
Analyte				
1,2,4-TRICHLOROBENZENE	390 U	390 U	400 U	390 U
1,2-DICHLOROBENZENE	390 U	390 U	400 U	390 U
1,3-DICHLOROBENZENE	390 U	390 U	400 U	390 U
1,4-DICHLOROBENZENE	390 U	390 U	400 U	390 U
2,2'-OXYBIS(1-CHLOROPROPANE)	390 U	390 U	400 U	390 U
2,4,5-TRICHLOROPHENOL	950 U	940 U	970 U	940 U
2,4,6-TRICHLOROPHENOL	390 U	390 U	400 U	390 U
2,4-DICHLOROPHENOL	390 U	390 U	400 U	390 U
2,4-DIMETHYLPHENOL	390 U	390 U	400 U	390 U
2,4-DINITROPHENOL	950 U	940 U	970 U	940 U
2,4-DINITROTOLUENE	390 U	390 U	400 U	390 U
2,6-DINITROTOLUENE	390 U	390 U	400 U	390 U
2-CHLORONAPHTHALENE	390 U	390 U	400 U	390 U
2-CHLOROPHENOL	390 U	390 U	400 U	390 U
2-METHYLNAPHTHALENE	390 U	390 U	400 U	390 U
2-METHYLPHENOL	390 U	390 U	400 U	390 U
2-NITROANILINE	950 U	940 U	970 U	940 U
2-NITROPHENOL	390 U	390 U	400 U	390 U
3,3'-DICHLOROBENZIDINE	390 U	390 U	400 U	390 U
3-NITROANILINE	950 U	940 U	970 U	940 U
4,6-DINITRO-2-METHYLPHENOL	950 U	940 U	970 U	940 U
4-BROMOPHENYL-PHENYLETHER	390 U	390 U	400 U	390 U
4-CHLORO-3-METHYLPHENOL	390 U	390 U	400 U	390 U
4-CHLOROANILINE	390 U	390 U	400 U	390 U
4-CHLOROPHENYL-PHENYLETHER	390 U	390 U	400 U	390 U
4-METHYLPHENOL	390 U	390 U	400 U	390 U
4-NITROANILINE	950 U	940 U	970 U	940 U
4-NITROPHENOL	950 U	940 U	970 U	940 U
BIS(2-CHLOROETHOXY)METHANE	390 U	390 U	400 U	390 U
BIS(2-CHLOROETHYL)ETHER	390 U	390 U	400 U	390 U
BIS(2-ETHYLHEXYL)PHTHALATE	63 J	47 J	400 U	25 J
BUTYLBENZYLPHTHALATE	390 U	390 U	400 U	390 U
CARBAZOLE	390 U	390 U	400 U	390 U
DIBENZOFURAN	390 U	390 U	400 U	390 U
DIETHYLPHTHALATE	390 U	390 U	400 U	390 U
DIMETHYLPHTHALATE	390 U	390 U	400 U	390 U
DI-N-BUTYLPHTHALATE	390 U	390 U	400 U	170 J
DI-N-OCTYLPHTHALATE	390 U	390 U	400 U	390 U
HEXACHLOROBENZENE	390 U	390 U	400 U	390 U
HEXACHLOROBUTADIENE	390 U	390 U	400 U	390 U
HEXACHLOROCYCLOPENTADIENE	390 U	390 U	400 U	390 U
HEXACHLOROETHANE	390 U	390 U	400 U	390 U
ISOPHORONE	390 U	390 U	400 U	390 U
NITROBENZENE	390 U	390 U	400 U	390 U
N-NITROSO-DI-N-PROPYLAMINE	390 U	390 U	400 U	390 U
N-NITROSODIPHENYLAMINE	390 U	390 U	400 U	390 U
PENTACHLOROPHENOL	950 U	940 U	970 U	940 U
PHENOL	390 U	390 U	400 U	390 U

Notes:

UG/KG Micrograms per kilogram

TABLE E-3: SITE 9 VOLATILE ORGANIC COMPOUNDS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

(Page 1 of 2)

Location	153-001-001	153-001-002	153-IW-001	153-IW-001	153-IW-002	153-IW-002	211-SS-005	211-IWPS3-001	211-IWPS3-001
Sample Code	153-0001	153-0002	153I-001	153I-001M	153I-002	153I-002M	211M-005M	211P-001	211P-001M
Sampling Date	4/6/1995	4/6/1995	1/13/1995	1/13/1995	1/23/1995	1/23/1995	5/31/1995	1/30/1995	1/30/1995
Sampling Depth (feet bgs)	3 - 3.5	3 - 3.5	8 - 8.5	8 - 8.5	7 - 7.5	7 - 7.5	10 - 11	8.5 - 9	8.5 - 9
Units	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Investigation	EBS PHASE 2A	EBS PHASE 2A	EBS PHASE 2A	EBS PHASE 2A	EBS PHASE 2A	EBS PHASE 2A	EBS PHASE 2A	EBS PHASE 2A	EBS PHASE 2A
Analyte									
1,1,1,2-TETRACHLOROETHANE									
1,1,1-TRICHLOROETHANE	11 U	11 U	12 U	10 U	12 U	10 U	6 U	12 U	10 U
1,1,2,2-TETRACHLOROETHANE	11 U	11 U	12 U		12 U		6 U	12 U	
1,1,2-TRICHLOROETHANE	11 U	11 U	12 U		12 U		6 U	12 U	
1,1-DICHLOROETHANE	11 U	11 U	12 U		12 U		6 U	12 U	
1,1-DICHLOROETHENE	11 U	11 U	12 U	10 U	12 U	10 U	6 U	12 U	10 U
1,1-DICHLOROPROPENE									
1,2,3-TRICHLOROBENZENE									
1,2,3-TRICHLOROPROPANE									
1,2,4-TRICHLOROBENZENE									
1,2,4-TRIMETHYLBENZENE									
1,2-DIBROMO-3-CHLOROPROPANE									
1,2-DICHLOROBENZENE									
1,2-DICHLOROETHANE	11 U	11 U	12 U	10 U	12 U	10 U	6 U	12 U	10 U
1,2-DICHLOROETHENE (TOTAL)	11 U	11 U	12 U		12 U			12 U	
1,2-DICHLOROPROPANE	11 U	11 U	12 U		12 U		6 U	12 U	
1,3,5-TRIMETHYLBENZENE									
1,3-DICHLOROBENZENE									
1,3-DICHLOROPROPANE									
1,4-DICHLOROBENZENE									
2,2-DICHLOROPROPANE									
2-BUTANONE	11 U	11 U	12 U	10 U	12 U	10 U	11 U	12 U	10 U
2-CHLOROETHYLVINYLETHER									
2-CHLOROTOLUENE									
2-HEXANONE	11 U	11 U	12 U		12 U		6 U	12 U	
4-CHLOROTOLUENE									
4-METHYL-2-PENTANONE	11 U	11 U	12 U		12 U		11 U	12 U	
ACETONE	11 U	11 U	12 U		12 U		23 U	12 U	
BENZENE	11 U	11 U	12 U	10 U	12 U	10 U	6 U	12 U	10 U
BROMOBENZENE									
BROMOCHLOROMETHANE									
BROMODICHLOROMETHANE	11 U	11 U	12 U		12 U		6 U	12 U	
BROMOFORM	11 U	11 U	12 U		12 U		6 U	12 U	
BROMOMETHANE	11 U	11 U	12 U		12 U		11 U	12 U	
CARBON DISULFIDE	11 U	11 U	12 U		12 U		6 U	12 U	

TABLE E-3: SITE 9 VOLATILE ORGANIC COMPOUNDS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	153-001-001	153-001-002	153-IW-001	153-IW-001	153-IW-002	153-IW-002	211-SS-005	211-IWPS3-001	211-IWPS3-001
Sample Code	153-0001	153-0002	153I-001	153I-001M	153I-002	153I-002M	211M-005M	211P-001	211P-001M
Sampling Date	4/6/1995	4/6/1995	1/13/1995	1/13/1995	1/23/1995	1/23/1995	5/31/1995	1/30/1995	1/30/1995
Sampling Depth (feet bgs)	3 - 3.5	3 - 3.5	8 - 8.5	8 - 8.5	7 - 7.5	7 - 7.5	10 - 11	8.5 - 9	8.5 - 9
Units	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Investigation	EBS PHASE 2A	EBS PHASE 2A	EBS PHASE 2A	EBS PHASE 2A	EBS PHASE 2A	EBS PHASE 2A	EBS PHASE 2A	EBS PHASE 2A	EBS PHASE 2A
Analyte									
CARBON TETRACHLORIDE	11 U	11 U	12 U		12 U		6 U	12 U	
CHLOROBENZENE	11 U	11 U	12 U		12 U		6 U	12 U	
CHLOROETHANE	11 U	11 U	12 U		12 U		11 U	12 U	
CHLOROFORM	11 U	11 U	12 U		12 U		6 U	12 U	
CHLOROMETHANE	11 U	11 U	12 U		12 U		11 U	12 U	
CIS-1,2-DICHLOROETHENE				10 U		10 U	6 U		10 U
CIS-1,3-DICHLOROPROPENE	11 U	11 U	12 U		12 U		6 U	12 U	
DIBROMOCHLOROMETHANE	11 U	11 U	12 U		12 U		6 U	12 U	
DIBROMOMETHANE									
DICHLORODIFLUOROMETHANE									
ETHYLBENZENE	11 U	11 U	12 U	10 U	12 U	10 U	6 U	12 U	10 U
ETHYLENE DIBROMIDE									
HEXACHLOROBUTADIENE									
HEXANE				20 U		20 U	6 U		20 U
ISOPROPYLBENZENE									
M,P-XYLENE				20 U		20 U			20 U
METHYLENE CHLORIDE	11 U	11 U	2 J	10 U	12 U	10 U	23 U	12 U	10 U
METHYL-T-BUTYL ETHER									
NAPHTHALENE									
N-BUTYLBENZENE									
N-PROPYLBENZENE									
O-XYLENE				10 U		10 U	6 U		10 U
P-ISOPROPYLTOLUENE									
SEC-BUTYLBENZENE									
STYRENE	11 U	11 U	12 U		12 U		6 U	12 U	
TERT-BUTYLBENZENE									
TETRACHLOROETHENE	2 J	11 U	12 U	10 U	2 J	10 U	6 U	12 U	10 U
TOLUENE	11 U	11 U	12 U	10 U	12 U	10 U	6 U	12 U	10 U
TRANS-1,2-DICHLOROETHENE				10 U		10 U	6 U		10 U
TRANS-1,3-DICHLOROPROPENE	11 U	11 U	12 U		12 U		6 U	12 U	
TRICHLOROETHENE	11 U	11 U	12 U	10 U	12 U	10 U	6 U	12 U	10 U
TRICHLOROFLUOROMETHANE							6 U		
VINYL ACETATE							57 U		
VINYL CHLORIDE	11 U	11 U	12 U	10 U	12 U	10 U	11 U	12 U	10 U
XYLENE (TOTAL)	11 U	11 U	12 U		12 U		6 U	12 U	

Notes:

UG/KG Micrograms per kilogram

TABLE E-4: SITE 9 TOTAL METALS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

(Page 1 of 1)

Location	153-IW-001	153-IW-001	153-IW-002	153-IW-002	211-IWPS3-001	211-IWPS3-001	211-SS-005
Sample Code	153I-001	153I-001M	153I-002	153I-002M	211P-001	211P-001M	211M-005M
Sampling Date	1/13/1995	1/13/1995	1/23/1995	1/23/1995	1/30/1995	1/30/1995	5/31/1995
Sampling Depth (feet bgs)	8 - 8.5	8 - 8.5	7 - 7.5	7 - 7.5	8.5 - 9	8.5 - 9	10 - 11
Units*	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG
Investigation	EBS PHASE 2A	EBS PHASE 2A	EBS PHASE 2A	EBS PHASE 2A	EBS PHASE 2A	EBS PHASE 2A	EBS PHASE 2A
Analyte							
ALUMINUM	16200		5250		4950 J		
ANTIMONY	0.51 JUN	25 U	0.56 UNJ	25 U		25 U	3.4 U
ARSENIC	4.3		1.6 B		1.8 B		1.6
BARIUM	92.6		37.1 B		33.7 B		31.8
BERYLLIUM	0.58 B	25 U	0.29 U	25 U	0.19 U	25 U	0.28
CADMIUM	0.18 U	25 U	0.09 U	25 U	0.09 U	25 U	0.39
CALCIUM	4590		2680		2860		
CHROMIUM	59.6	25 U	47.4 EJ	26	31.8	25 U	37.3
COBALT	13.4 J		5.3 B		4.8 B		5.1
COPPER	36.5	42	10.6	25 U	9	25 U	7.6
IRON	25400		8590		8330 J		
LEAD	15.8	25 U	2.9	25 U	3.8	25 U	3.7
MAGNESIUM	7020 J		2360		2190 J		
MANGANESE	286		99.3		113 NJ		
MERCURY	0.18 U	25 U	0.18 U	25 U	0.18 U	25 U	0.11 U
MOLYBDENUM	2.2 JU		2.3 U		2.3 U		1.1 U
NICKEL	69.3	69	24.1	57	26	32	25.5
POTASSIUM	1980 J		704 BJ		603 BJ		
SELENIUM	1.4 U		0.61 U		0.64 U		0.29 U
SILVER	0.47 U	25 U	0.45 JU	25 U	0.47 JU	25 U	0.57 U
SODIUM	330 B		185 U		97.2 B		
THALLIUM	5.4		3.6		3.4		0.29 U
TITANIUM							
VANADIUM	56.7		20.8		20.9		22.2
ZINC	80.7 EJ	54	23.2	32	31.6 J	39	18.9

Notes:

* Unless otherwise specified

MG/KG Milligrams per kilogram

TABLE E-5: SITE 9 TOTAL PETROLEUM HYDROCARBONS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

(Page 1 of 1)

Location	153-001-001	153-001-002	153-001-003	153-001-003	153-IW-001	153-IW-002	211-IWPS3-001	211-SS-005
Sample Code	153-0001M	153-0002M	153-0003	153-0003M	153I-001	153I-002	211P-001	211M-005M
Sampling Date	4/6/1995	4/6/1995	4/6/1995	4/6/1995	1/13/1995	1/23/1995	1/30/1995	5/31/1995
Sampling Depth (feet bgs)	.5 - 1	.5 - 1	1 - 1.5	1 - 1.5	8 - 8.5	7 - 7.5	8.5 - 9	10 - 11
Units	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG
Investigation	EBS PHASE 2A	EBS PHASE 2A	EBS PHASE 2A	EBS PHASE 2A	EBS PHASE 2A	EBS PHASE 2A	EBS PHASE 2A	EBS PHASE 2A
Analyte								
DIESEL RANGE ORGANICS	11 U	11 U	10 U	1.1 U	12 U	12 U	12 U	38
GASOLINE RANGE ORGANICS	0.52 U	0.55 U	0.5 U	0.53 U	0.6 U	2.4 ZJ	0.61 U	0.6 U
MOTOR OIL RANGE ORGANICS	310	730	23 YJ	26 U	24 U	200 YJ	78 YJ	130

Notes:

MG/KG Miligrams per kilogram

TABLE E-6: SITE 9 GENERAL CHEMISTRY IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

(Page 1 of 1)

Location	153-001-001	153-001-002	153-001-003	153-IW-001	153-IW-002	211-IWPS3-001	211-SS-005
Sample Code	153-0001	153-0002	153-0003	153I-001	153I-002	211P-001	211M-005
Sampling Date	4/6/1995	4/6/1995	4/6/1995	1/13/1995	1/23/1995	1/30/1995	5/31/1995
Sampling Depth (feet bgs)	3 - 3.5	3 - 3.5	1 - 1.5	8 - 8.5	7 - 7.5	8.5 - 9	10 - 11
Units	%MST	%MST	%MST	MG/KG	MG/KG	MG/KG	%MST
Investigation	EBS PHASE 2A	EBS PHASE 2A	EBS PHASE 2A	EBS PHASE 2A	EBS PHASE 2A	EBS PHASE 2A	EBS PHASE 2A
Analyte							
CYANIDE, MG/KG				0.31 UJ	0.44 UNJ	0.58 UN	
PERCENT MOISTURE, %MST	11	7	7	17	15	18	15
PH	8.7	9	8.6	8.6	8.7	8.4	8.8
SULFIDE, MG/KG				29.9 U	29.4 UNJ	30.6 U	

Notes:

MG/KG Miligrams per kilogram

TABLE E-7: SITE 9 SEMIVOLTILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

(Page 1 of 2)

Location	154-006-024
Sample Code	154-0038
Sampling Date	10/30/1995
Sampling Depth (feet bgs)	7.5 - 8.5
Units*	UG/L
Investigation	EBS PHASE 2B
Analyte	
1,2,4-TRICHLOROBENZENE	10 U
1,2-DICHLOROBENZENE	10 U
1,3-DICHLOROBENZENE	10 U
1,4-DICHLOROBENZENE	10 U
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U
2,4,5-TRICHLOROPHENOL	25 U
2,4,6-TRICHLOROPHENOL	10 U
2,4-DICHLOROPHENOL	10 U
2,4-DIMETHYLPHENOL	10 U
2,4-DINITROPHENOL	25 U
2,4-DINITROTOLUENE	10 U
2,6-DINITROTOLUENE	10 U
2-CHLORONAPHTHALENE	10 U
2-CHLOROPHENOL	10 U
2-METHYLNAPHTHALENE	10 U
2-METHYLPHENOL	10 U
2-NITROANILINE	25 U
2-NITROPHENOL	10 U
3,3'-DICHLOROBENZIDINE	10 U
3-NITROANILINE	25 U
4,6-DINITRO-2-METHYLPHENOL	25 U
4-BROMOPHENYL-PHENYLETHER	10 U
4-CHLORO-3-METHYLPHENOL	10 U
4-CHLOROANILINE	10 U
4-CHLOROPHENYL-PHENYLETHER	10 U
4-METHYLPHENOL	10 U
4-NITROANILINE	25 U
4-NITROPHENOL	25 U
ACENAPHTHENE	10 U
ACENAPHTHYLENE	10 U
ANTHRACENE	10 U
BENZO(A)ANTHRACENE	10 U
BENZO(A)PYRENE	10 U
BENZO(B)FLUORANTHENE	10 U
BENZO(G,H,I)PERYLENE	10 U
BENZO(K)FLUORANTHENE	10 U
BENZOIC ACID	
BENZYL ALCOHOL	
BIS(2-CHLOROETHOXY)METHANE	10 U
BIS(2-CHLOROETHYL)ETHER	10 U
BIS(2-ETHYLHEXYL)PHTHALATE	10 U
BUTYLBENZYLPHTHALATE	10 U
CARBAZOLE	10 U
CHRYSENE	10 U
DIBENZO(A,H)ANTHRACENE	10 U
DIBENZOFURAN	10 U
DIETHYLPHTHALATE	10 U
DIMETHYLPHTHALATE	10 U
DI-N-BUTYLPHTHALATE	10 U
DI-N-OCTYLPHTHALATE	10 U
FLUORANTHENE	10 U
FLUORENE	10 U

TABLE E-7: SITE 9 SEMIVOLTILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California
(Page 2 of 2)

Location	154-006-024
Sample Code	154-0038
Sampling Date	10/30/1995
Sampling Depth (feet bgs)	7.5 - 8.5
Units*	UG/L
Investigation	EBS PHASE 2B
Analyte	
HEXACHLOROBENZENE	10 U
HEXACHLOROBUTADIENE	10 U
HEXACHLOROCYCLOPENTADIENE	10 U
HEXACHLOROETHANE	10 U
INDENO(1,2,3-CD)PYRENE	10 U
ISOPHORONE	10 U
NAPHTHALENE	10 U
NITROBENZENE	10 U
N-NITROSO-DI-N-PROPYLAMINE	10 U
N-NITROSODIPHENYLAMINE	10 U
PENTACHLOROPHENOL	25 U
PHENANTHRENE	10 U
PHENOL	10 U
PYRENE	10 U

Notes:

*	Unless otherwise specified
UG/L	Micrograms per liter

TABLE E-8: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	154-006-024	154-SN-007	154-SN-008	154-SN-009
Sample Code	154-0038	154S-015	154S-018	154S-021
Sampling Date	10/30/1995	10/30/1995	10/30/1995	10/30/1995
Sampling Depth (feet bgs)	7.5 - 8.5	9 - 9	8 - 9	9 - 9
Units	UG/L	UG/L	UG/L	UG/L
Investigation	EBS PHASE 2B	EBS PHASE 2B	EBS PHASE 2B	EBS PHASE 2B
Analyte				
1,1,1,2-TETRACHLOROETHANE				
1,1,1-TRICHLOROETHANE	1 UJ	1 UJ	1 UJ	1 UJ
1,1,2,2-TETRACHLOROETHANE	1 UJ	1 UJ	1 UJ	1 UJ
1,1,2-TRICHLOROETHANE	1 UJ	1 UJ	1 UJ	1 UJ
1,1-DICHLOROETHANE	1 UJ	1 UJ	1 UJ	1 UJ
1,1-DICHLOROETHENE	1 UJ	1 UJ	1 UJ	1 UJ
1,1-DICHLOROPROPENE				
1,2,3-TRICHLOROBENZENE				
1,2,3-TRICHLOROPROPANE				
1,2,4-TRICHLOROBENZENE				
1,2,4-TRIMETHYLBENZENE				
1,2-DIBROMO-3-CHLOROPROPANE				
1,2-DICHLOROBENZENE				
1,2-DICHLOROETHANE	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
1,2-DICHLOROETHENE (TOTAL)	1 UJ	1 UJ	1 UJ	1 UJ
1,2-DICHLOROPROPANE	1 UJ	1 UJ	1 UJ	1 UJ
1,3,5-TRIMETHYLBENZENE				
1,3-DICHLOROBENZENE				
1,3-DICHLOROPROPANE				
1,4-DICHLOROBENZENE				
2,2-DICHLOROPROPANE				
2-BUTANONE	2 UJ	2 UJ	2 UJ	2 UJ
2-CHLOROTOLUENE				
2-HEXANONE	2 UJ	2 UJ	2 UJ	2 UJ
4-CHLOROTOLUENE				
4-METHYL-2-PENTANONE	2 UJ	2 UJ	2 UJ	2 UJ
ACETONE	2 UJ	2 UJ	2 UJ	2 UJ
BENZENE	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
BROMOBENZENE				
BROMOCHLOROMETHANE				
BROMODICHLOROMETHANE	1 UJ	1 UJ	1 UJ	1 UJ
BROMOFORM	1 UJ	1 UJ	1 UJ	1 UJ
BROMOMETHANE	1 UJ	1 UJ	1 UJ	1 UJ
CARBON DISULFIDE	1 UJ	1 UJ	1 UJ	1 UJ
CARBON TETRACHLORIDE	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
CHLOROBENZENE	1 UJ	1 UJ	1 UJ	1 UJ
CHLOROETHANE	2 UJ	2 UJ	2 UJ	2 UJ
CHLOROFORM	1 UJ	9 J	1 UJ	1 UJ
CHLOROMETHANE	2 J	2 UJ	2 UJ	2 UJ
CIS-1,2-DICHLOROETHENE				
CIS-1,3-DICHLOROPROPENE	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
DIBROMOCHLOROMETHANE	1 UJ	1 UJ	1 UJ	1 UJ
DIBROMOMETHANE				
DICHLORODIFLUOROMETHANE				
DIISOPROPYL ETHER				
ETHYL TERT-BUTYL ETHER				
ETHYLBENZENE	1 UJ	1 UJ	1 UJ	1 UJ
ETHYLENE DIBROMIDE				
HEXACHLOROBUTADIENE				
ISOPROPYLBENZENE				
M,P-XYLENE				

TABLE E-8: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California
(Page 2 of 2)

Location	154-006-024	154-SN-007	154-SN-008	154-SN-009
Sample Code	154-0038	154S-015	154S-018	154S-021
Sampling Date	10/30/1995	10/30/1995	10/30/1995	10/30/1995
Sampling Depth (feet bgs)	7.5 - 8.5	9 - 9	8 - 9	9 - 9
Units	UG/L	UG/L	UG/L	UG/L
Investigation	EBS PHASE 2B	EBS PHASE 2B	EBS PHASE 2B	EBS PHASE 2B
Analyte				
METHYLENE CHLORIDE	1 UJ	1 UJ	1 UJ	1 UJ
METHYL-T-BUTYL ETHER				
NAPHTHALENE				
N-BUTYLBENZENE				
N-PROPYLBENZENE				
O-XYLENE				
P-ISOPROPYLTOLUENE				
SEC-BUTYLBENZENE				
STYRENE	1 UJ	1 UJ	1 UJ	1 UJ
TERT-AMYL METHYL ETHER				
TERT-BUTANOL				
TERT-BUTYLBENZENE				
TETRACHLOROETHENE	1 UJ	1 UJ	1 UJ	1 UJ
TOLUENE	1 UJ	1 UJ	1 UJ	1 UJ
TRANS-1,2-DICHLOROETHENE				
TRANS-1,3-DICHLOROPROPENE	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
TRICHLOROETHENE	1 UJ	1 UJ	1 UJ	1 UJ
TRICHLOROFLUOROMETHANE				
TRICHLOROTRIFLUOROETHANE				
VINYL ACETATE				
VINYL CHLORIDE	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
XYLENE (TOTAL)	1 UJ	1 UJ	1 UJ	1 UJ

Notes:

* Unless otherwise specified

UG/L Micrograms per liter

TABLE E-9: SITE 9 METALS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California
(Page 1 of 1)

Location	154-006-024
Sample Code	154-0038
Sampling Date	10/30/1995
Sampling Depth (feet bgs)	7.5 - 8.5
Units*	UG/L
Investigation	EBS PHASE 2B
Analyte	
ALUMINUM	376
ANTIMONY	1.6 U
ARSENIC	3.6 B
BARIUM	65.2 B
BERYLLIUM	0.5 U
CADMIUM	2.4 B
CALCIUM	23400
CHROMIUM	9.7 B
COBALT	5.2 U
COPPER	3.4 U
IRON	714
LEAD	1.3 U
MAGNESIUM	5240
MANGANESE	9.6 B
MERCURY	0.2 U
MOLYBDENUM	3.4 U
NICKEL	3.9 U
POTASSIUM	6220
SELENIUM	2.1 U
SILVER	1.5 U
SODIUM	41000
THALLIUM	1.3 UWJ
VANADIUM	10.8 B
ZINC	4.7 U

Notes:

* Unless otherwise specified

UG/L Micrograms per liter

TABLE E-10: SITE 9 TOTAL PETROLEUM HYDROCARBONS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

(Page 1 of 1)

Location	154-006-024	154-SN-007	154-SN-008	154-SN-009
Sample Code	154-0038	154S-015	154S-018	154S-021
Sampling Date	10/30/1995	10/30/1995	10/30/1995	10/30/1995
Sampling Depth (feet bgs)	7.5 - 8.5	9 - 9	8 - 9	9 - 9
Units*	UG/L	UG/L	UG/L	UG/L
Investigation	EBS PHASE 2B	EBS PHASE 2B	EBS PHASE 2B	EBS PHASE 2B
Analyte				
DIESEL RANGE ORGANICS	100 U	1700 dYJ	100 U	100 U
GASOLINE RANGE ORGANICS	50 UJ	50 UJ	50 UJ	50 UJ
JP5 RANGE ORGANICS				
MOTOR OIL RANGE ORGANICS	200 U	2800 dYJ	200 U	200 U

Notes:

* Unless otherwise specified

UG/L Micrograms per liter

TABLE E-11: SITE 9 PESTICIDES, PCBs, AND HERBICIDES IN SEDIMENT

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	J-2-J
Sample Code	J-2-J-01
Sampling Date	12/1/1994
Sampling Depth (feet bgs)	-
Units	UG/KG
Investigation	EBS PHASE 2A
Analyte	
2,4,5-T	1180 U
2,4,5-TP (SILVEX)	1180 U
2,4-D	1180 U
2,4-DB	1180 U
4,4'-DDD	3.9 U
4,4'-DDE	3.9 U
4,4'-DDT	3.9 U
ALDRIN	2 U
ALPHA-BHC	2 U
ALPHA-CHLORDANE	2 U
AROCLOR-1016	39 U
AROCLOR-1221	79 U
AROCLOR-1232	39 U
AROCLOR-1242	39 U
AROCLOR-1248	39 U
AROCLOR-1254	92
AROCLOR-1260	39 U
AZINPHOS-METHYL	190 U
BETA-BHC	2 U
DALAPON; 2,2-DICHLOROPROPANOIC	1180 U
DELTA-BHC	2 U
DEMETON	190 U
DIAZINON	190 U
DICAMBA	1180 U
DICHLORPROP	1180 U
DIELDRIN	3.9 U
DINOSEB	1180 U
DISULFOTON	190 U
ENDOSULFAN I	2 U
ENDOSULFAN II	3.9 U
ENDOSULFAN SULFATE	3.9 U
ENDRIN	3.9 U
ENDRIN ALDEHYDE	3.9 U
ENDRIN KETONE	3.9 U
ETHION	190 U
ETHYL PARATHION	190 U
GAMMA-BHC (LINDANE)	2 U
GAMMA-CHLORDANE	2 U
HEPTACHLOR	2 U
HEPTACHLOR EPOXIDE	2 U
MALATHION	190 U
MCPA	58800 U
MCPP	58800 U
METHOXYCHLOR	20 U
METHYL PARATHION	190 U
TOXAPHENE	200 U

Notes:

UG/KG Micrograms per kilogram

TABLE E-12: SITE 9 SEMIVOLATILE ORGANIC COMPOUNDS IN SEDIMENT

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	J-2-J
Sample Code	J-2-J-01
Sampling Date	12/1/1994
Sampling Depth (feet bgs)	-
Units	UG/KG
Investigation	EBS PHASE 2A
Analyte	
1,2,4-TRICHLOROBENZENE	6600 U
1,2-DICHLOROBENZENE	6600 U
1,3-DICHLOROBENZENE	6600 U
1,4-DICHLOROBENZENE	6600 U
2,2'-OXYBIS(1-CHLOROPROPANE)	6600 U
2,4,5-TRICHLOROPHENOL	16000 U
2,4,6-TRICHLOROPHENOL	6600 U
2,4-DICHLOROPHENOL	6600 U
2,4-DIMETHYLPHENOL	6600 U
2,4-DINITROPHENOL	16000 U
2,4-DINITROTOLUENE	6600 U
2,6-DINITROTOLUENE	6600 U
2-CHLORONAPHTHALENE	6600 U
2-CHLOROPHENOL	6600 U
2-METHYLNAPHTHALENE	6600 U
2-METHYLPHENOL	6600 U
2-NITROANILINE	16000 U
2-NITROPHENOL	6600 U
3,3'-DICHLOROBENZIDINE	6600 U
3-NITROANILINE	16000 U
4,6-DINITRO-2-METHYLPHENOL	16000 U
4-BROMOPHENYL-PHENYLETHER	6600 U
4-CHLORO-3-METHYLPHENOL	6600 U
4-CHLOROANILINE	6600 U
4-CHLOROPHENYL-PHENYLETHER	6600 U
4-METHYLPHENOL	6600 U
4-NITROANILINE	16000 U
4-NITROPHENOL	16000 U
ACENAPHTHENE	6600 U
ACENAPHTHYLENE	6600 U
ANTHRACENE	6600 U
BENZO(A)ANTHRACENE	1000 J
BENZO(A)PYRENE	1200 J
BENZO(B)FLUORANTHENE	2200 J
BENZO(G,H,I)PERYLENE	760 J
BENZO(K)FLUORANTHENE	730 J
BIS(2-CHLOROETHOXY)METHANE	6600 U
BIS(2-CHLOROETHYL)ETHER	6600 U
BIS(2-ETHYLHEXYL)PHTHALATE	1700 J
BUTYLBENZYLPHTHALATE	6600 U
CARBAZOLE	6600 U
CHRYSENE	1700 J
DIBENZO(A,H)ANTHRACENE	6600 U
DIBENZOFURAN	6600 U
DIETHYLPHTHALATE	1300 J
DIMETHYLPHTHALATE	6600 U
DI-N-BUTYLPHTHALATE	6600 U
DI-N-OCTYLPHTHALATE	6600 U
FLUORANTHENE	2700 J
FLUORENE	6600 U
HEXACHLOROBENZENE	6600 U
HEXACHLOROBUTADIENE	6600 U

TABLE E-12: SITE 9 SEMIVOLATILE ORGANIC COMPOUNDS IN SEDIMENT

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California
(Page 2 of 2)

Location	J-2-J
Sample Code	J-2-J-01
Sampling Date	12/1/1994
Sampling Depth (feet bgs)	-
Units	UG/KG
Investigation	EBS PHASE 2A
Analyte	
HEXACHLOROCYCLOPENTADIENE	6600 U
HEXACHLOROETHANE	6600 U
INDENO(1,2,3-CD)PYRENE	1300 J
ISOPHORONE	6600 U
NAPHTHALENE	6600 U
NITROBENZENE	6600 U
N-NITROSO-DI-N-PROPYLAMINE	6600 U
N-NITROSODIPHENYLAMINE	6600 U
PENTACHLOROPHENOL	16000 U
PHENANTHRENE	710 J
PHENOL	6600 U
PYRENE	2700 J

Notes:
UG/KG Micrograms per kilogram

TABLE E-13: SITE 9 VOLATILE ORGANIC COMPOUNDS IN SEDIMENT

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	J-2-J
Sample Code	J-2-J-01
Sampling Date	12/1/1994
Sampling Depth (feet bgs)	-
Units	UG/KG
Investigation	EBS PHASE 2A
Analyte	
1,1,1-TRICHLOROETHANE	12 U
1,1,2,2-TETRACHLOROETHANE	12 U
1,1,2-TRICHLOROETHANE	12 U
1,1-DICHLOROETHANE	12 U
1,1-DICHLOROETHENE	12 U
1,2-DICHLOROETHANE	12 U
1,2-DICHLOROETHENE (TOTAL)	12 U
1,2-DICHLOROPROPANE	12 U
2-BUTANONE	12 U
2-HEXANONE	12 U
4-METHYL-2-PENTANONE	12 U
ACETONE	12 U
BENZENE	12 U
BROMODICHLOROMETHANE	12 U
BROMOFORM	12 U
BROMOMETHANE	12 U
CARBON DISULFIDE	12 U
CARBON TETRACHLORIDE	12 U
CHLOROBENZENE	12 U
CHLOROETHANE	12 U
CHLOROFORM	12 U
CHLOROMETHANE	12 U
CIS-1,3-DICHLOROPROPENE	12 U
DIBROMOCHLOROMETHANE	12 U
ETHYLBENZENE	12 U
METHYLENE CHLORIDE	12 U
STYRENE	12 U
TETRACHLOROETHENE	12 U
TOLUENE	12 U
TRANS-1,3-DICHLOROPROPENE	12 U
TRICHLOROETHENE	12 U
VINYL CHLORIDE	12 U
XYLENE (TOTAL)	12 U

Notes:

UG/KG Micrograms per kilogram

TABLE E-14: SITE 9 TOTAL METALS IN SEDIMENT

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California
(Page 1 of 1)

Location	J-2-J
Sample Code	J-2-J-01
Sampling Date	12/1/1994
Sampling Depth (feet bgs)	-
Units	MG/KG
Investigation	EBS PHASE 2A
Analyte	
ALUMINUM	4070
ANTIMONY	0.77 UNJ
ARSENIC	2.9
BARIUM	68
BERYLLIUM	0.42 B
CADMIUM	2.2
CALCIUM	2780 J
CHROMIUM	82.6
COBALT	4.8 B
COPPER	122
IRON	9770
LEAD	68.6
LEAD, ORGANIC	0.59 U*
MAGNESIUM	2360
MANGANESE	142 NJ
MERCURY	0.18 U
MOLYBDENUM	3 U
NICKEL	116
POTASSIUM	480 B
SELENIUM	0.7 U
SILVER	0.67 B
SODIUM	1200
THALLIUM	0.54 U
VANADIUM	19.6
ZINC	251

Notes:

MG/KG Milligrams per kilogram

TABLE E-15: SITE 9 TOTAL PETROLEUM HYDROCARBONS IN SEDIMENT

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	J-2-J
Sample Code	J-2-J-01
Sampling Date	12/1/1994
Sampling Depth (feet bgs)	-
Units	MG/KG
Investigation	EBS PHASE 2A
Analyte	
DIESEL RANGE ORGANICS	12 U
GASOLINE RANGE ORGANICS	0.59 U
JP5 RANGE ORGANICS	
MOTOR OIL RANGE ORGANICS	160 YJ

Notes:

MG/KG Milligrams per kilogram

TABLE E-16: SITE 9 GENERAL CHEMISTRY IN SEDIMENT

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	J-2-J
Sample Code	J-2-J-01
Sampling Date	12/1/1994
Sampling Depth (feet bgs)	-
Units	MG/KG
Investigation	EBS PHASE 2A
Analyte	
CYANIDE	0.47 UNJ
DIBUTYL TIN	2 J
MONOBUTYL TIN	1 UJ
OIL & GREASE	594
PH	7.9
SULFIDE	29.5 U
TETRABUTYL TIN	1 UJ
TRIBUTYL TIN	2 J

Notes:

MG/KG Milligrams per kilogram

SITE 9
REMEDIAL INVESTIGATIONS

TABLE E-17: SITE 9 SEMIVOLATILE ORGANIC COMPOUNDS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California
(Page 1 of 9)

Location	B410-5	B410-5	B410-5	B410-5
Sample Code	B410-5 [0.5-1.0]	B410-5 [2.0-2.5]	B410-5 [5.0-5.5]	B410-5 [8.0-8.5]
Sampling Date	7/8/1990	7/8/1990	7/8/1990	7/8/1990
Sampling Depth (feet bgs)	.5 - 1	2 - 2.5	5 - 5.5	8 - 8.5
Units	UG/KG	UG/KG	UG/KG	UG/KG
Investigation	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991
Analyte				
1,2,4-TRICHLOROBENZENE	340 U	340 U	350 U	390 U
1,2-DICHLOROBENZENE	340 U	340 U	350 U	390 U
1,2-DIPHENYLHYDRAZINE	340 U	340 U	350 U	390 U
1,3-DICHLOROBENZENE	340 U	340 U	350 U	390 U
1,4-DICHLOROBENZENE	340 U	340 U	350 U	390 U
2,4,5-TRICHLOROPHENOL	1600 U	1700 U	1700 U	1900 U
2,4,6-TRICHLOROPHENOL	340 U	340 U	350 U	390 U
2,4-DICHLOROPHENOL	340 U	340 U	350 U	390 U
2,4-DIMETHYLPHENOL	340 U	340 U	350 U	390 U
2,4-DINITROPHENOL	1600 U	1700 U	1700 U	1900 U
2,4-DINITROTOLUENE	340 U	340 U	350 U	390 U
2,6-DINITROTOLUENE	340 U	340 U	350 U	390 U
2-CHLORONAPHTHALENE	340 U	340 U	350 U	390 U
2-CHLOROPHENOL	340 U	340 U	350 U	390 U
2-METHYLNAPHTHALENE	340 U	340 U	350 U	390 U
2-METHYLPHENOL	340 U	340 U	350 U	390 U
2-NITROANILINE	1600 U	1700 U	1700 U	1900 U
2-NITROPHENOL	340 U	340 U	350 U	390 U
3,3'-DICHLOROBENZIDINE	670 U	690 U	690 U	790 U
3-NITROANILINE	1600 U	1700 U	1700 U	1900 U
4,6-DINITRO-2-METHYLPHENOL	1600 U	1700 U	1700 U	1900 U
4-BROMOPHENYL-PHENYLETHER	340 U	340 U	350 U	390 U
4-CHLORO-3-METHYLPHENOL	340 U	340 U	43 J	390 U
4-CHLOROANILINE	340 U	340 U	350 U	390 U
4-CHLOROPHENYL-PHENYLETHER	340 U	340 U	350 U	390 U
4-METHYLPHENOL	340 U	340 U	350 U	390 U
4-NITROANILINE	1600 U	1700 U	1700 U	1900 U
4-NITROPHENOL	1600 U	1700 U	1700 U	1900 U
ANILINE				
BENZOIC ACID	1600 U	1700 U	1700 U	1900 U
BENZYL ALCOHOL	340 U	340 U	350 U	390 U
BIS(2-CHLOROETHOXY)METHANE	340 U	340 U	350 U	390 U
BIS(2-CHLOROETHYL)ETHER	340 U	340 U	350 U	390 U
BIS(2-ETHYLHEXYL)PHTHALATE	340 U	340 UJ	350 UJ	390 UJ
BUTYLBENZYLPHTHALATE	340 U	340 U	350 U	390 U
DIBENZOFURAN	340 U	340 U	350 U	390 U
DIETHYLPHTHALATE	340 U	340 U	350 U	390 U
DIMETHYLPHTHALATE	340 U	340 U	350 U	390 U
DI-N-BUTYLPHTHALATE	340 U	340 U	350 UJ	390 U
DI-N-OCTYLPHTHALATE	340 U	340 U	350 U	390 U
HEXACHLOROBENZENE	340 U	340 U	350 U	390 U
HEXACHLOROBUTADIENE	340 U	340 U	350 U	390 U
HEXACHLOROCYCLOPENTADIENE	340 U	340 U	350 U	390 U
HEXACHLOROETHANE	340 U	340 U	350 U	390 U
ISOPHORONE	340 U	340 U	350 U	390 U
NITROBENZENE	340 U	340 U	350 U	390 U
N-NITROSODIMETHYLAMINE				
N-NITROSO-DI-N-PROPYLAMINE	340 U	340 U	350 U	390 U
N-NITROSODIPHENYLAMINE	42 JB	45 JB	59 JB	55 JB
PENTACHLOROPHENOL	1600 U	1700 U	1700 U	1900 U
PHENOL	340 U	340 U	42 J	390 U

Notes:
UG/KG Micrograms per kilogram

TABLE E-17: SITE 9 SEMIVOLATILE ORGANIC COMPOUNDS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	B410-5	B410-5	B410-5	B410-7
Sample Code	B410-5 [10.5-11.0]	B410-5 [11.0-11.5]	B410-5 [14.0-14.5]	B410-7 [1.0-1.5]
Sampling Date	7/8/1990	7/8/1990	7/8/1990	7/12/1990
Sampling Depth (feet bgs)	10.5 - 11	11 - 11.5	14 - 14.5	1 - 1.5
Units	UG/KG	UG/KG	UG/KG	UG/KG
Investigation	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991
Analyte				
1,2,4-TRICHLOROBENZENE	400 U	570 U	850 U	340 U
1,2-DICHLOROBENZENE	400 U	570 U	850 U	340 U
1,2-DIPHENYLHYDRAZINE	400 U	570 U	850 U	340 U
1,3-DICHLOROBENZENE	400 U	570 U	850 U	340 U
1,4-DICHLOROBENZENE	400 U	570 U	850 U	340 U
2,4,5-TRICHLOROPHENOL	1900 U	2800 U	4100 U	1600 U
2,4,6-TRICHLOROPHENOL	400 U	570 U	850 U	340 U
2,4-DICHLOROPHENOL	400 U	570 U	850 U	340 U
2,4-DIMETHYLPHENOL	400 U	570 U	850 U	340 U
2,4-DINITROPHENOL	1900 U	2800 U	4100 U	1600 U
2,4-DINITROTOLUENE	400 U	570 U	850 U	340 U
2,6-DINITROTOLUENE	400 U	570 U	850 U	340 U
2-CHLORONAPHTHALENE	400 U	570 U	850 U	340 U
2-CHLOROPHENOL	400 U	570 U	850 U	340 U
2-METHYLNAPHTHALENE	400 U	570 U	850 U	340 U
2-METHYLPHENOL	400 U	570 U	850 U	340 U
2-NITROANILINE	1900 U	2800 U	4100 U	1600 U
2-NITROPHENOL	400 U	570 U	850 U	340 U
3,3'-DICHLOROBENZIDINE	800 U	1100 U	1700 U	680 U
3-NITROANILINE	1900 U	2800 U	4100 U	1600 U
4,6-DINITRO-2-METHYLPHENOL	1900 U	2800 U	4100 U	1600 U
4-BROMOPHENYL-PHENYLETHER	400 U	570 U	850 U	340 U
4-CHLORO-3-METHYLPHENOL	400 U	570 U	850 U	340 U
4-CHLOROANILINE	400 U	570 U	850 U	340 U
4-CHLOROPHENYL-PHENYLETHER	400 U	570 U	850 U	340 U
4-METHYLPHENOL	400 U	570 U	850 U	340 U
4-NITROANILINE	1900 U	2800 U	4100 U	1600 U
4-NITROPHENOL	1900 U	2800 U	4100 U	1600 U
ANILINE				
BENZOIC ACID	1900 U	2800 U	4100 U	1600 U
BENZYL ALCOHOL	400 U	570 U	850 U	340 U
BIS(2-CHLOROETHOXY)METHANE	400 U	570 U	850 U	340 U
BIS(2-CHLOROETHYL)ETHER	400 U	570 U	850 U	340 U
BIS(2-ETHYLHEXYL)PHTHALATE	400 UJ	570 U	850 U	340 U
BUTYLBENZYLPHTHALATE	400 U	570 U	850 U	340 U
DIBENZOFURAN	400 U	570 U	850 U	340 U
DIETHYLPHTHALATE	400 U	570 U	850 U	340 U
DIMETHYLPHTHALATE	400 U	570 U	850 U	340 U
DI-N-BUTYLPHTHALATE	400 U	570 U	850 U	340 U
DI-N-OCTYLPHTHALATE	400 U	570 U	850 U	340 U
HEXACHLOROBENZENE	400 U	570 U	850 U	340 U
HEXACHLOROBUTADIENE	400 U	570 U	850 U	340 U
HEXACHLOROCYCLOPENTADIENE	400 U	570 U	850 U	340 U
HEXACHLOROETHANE	400 U	570 U	850 U	340 U
ISOPHORONE	400 U	570 U	850 U	340 U
NITROBENZENE	400 U	570 U	850 U	340 U
N-NITROSODIMETHYLAMINE				
N-NITROSO-DI-N-PROPYLAMINE	400 U	570 U	850 U	340 U
N-NITROSODIPHENYLAMINE	50 JB	85 JB	96 JB	340 U
PENTACHLOROPHENOL	1900 U	2800 U	4100 U	1600 U
PHENOL	400 U	570 U	850 U	340 U

Notes:

UG/KG Micrograms per kilogram

TABLE E-17: SITE 9 SEMIVOLATILE ORGANIC COMPOUNDS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	B410-7	B410-7	B410-7	B410-7	B410-7
Sample Code	B410-7 [2.5-3.0]	B410-7 [5.5-6.0]	B410-7 [8.5-9.0]	B410-7 [11.0-11.5]	B410-7 [14.5-15.0]
Sampling Date	7/12/1990	7/16/1990	7/16/1990	7/16/1990	7/16/1990
Sampling Depth (feet bgs)	2.5 - 3	5.5 - 6	8.5 - 9	11 - 11.5	14.5 - 15
Units	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Investigation	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991
Analyte					
1,2,4-TRICHLOROBENZENE	730 U	420 U	460 U	470 U	410 U
1,2-DICHLOROBENZENE	730 U	420 U	460 U	470 U	410 U
1,2-DIPHENYLHYDRAZINE	730 U	420 U	460 U	470 U	410 U
1,3-DICHLOROBENZENE	730 U	420 U	460 U	470 U	410 U
1,4-DICHLOROBENZENE	730 U	420 U	460 U	470 U	410 U
2,4,5-TRICHLOROPHENOL	3500 U	2000 U	2300 U	2300 U	2000 U
2,4,6-TRICHLOROPHENOL	730 U	420 U	460 U	470 U	410 U
2,4-DICHLOROPHENOL	730 U	420 U	460 U	470 U	410 U
2,4-DIMETHYLPHENOL	730 U	420 U	460 U	470 U	410 U
2,4-DINITROPHENOL	3500 U	2000 U	2300 U	2300 U	2000 U
2,4-DINITROTOLUENE	730 U	420 U	460 U	470 U	410 U
2,6-DINITROTOLUENE	730 U	420 U	460 U	470 U	410 U
2-CHLORONAPHTHALENE	730 U	420 U	460 U	470 U	410 U
2-CHLOROPHENOL	730 U	420 U	460 U	470 U	410 U
2-METHYLNAPHTHALENE	730 U	420 U	460 U	470 U	410 U
2-METHYLPHENOL	730 U	420 U	460 U	470 U	410 U
2-NITROANILINE	3500 U	2000 U	2300 U	2300 U	2000 U
2-NITROPHENOL	730 U	420 U	460 U	470 U	410 U
3,3'-DICHLOROBENZIDINE	1500 U	840 U	930 U	940 U	820 U
3-NITROANILINE	3500 U	2000 U	2300 U	2300 U	2000 U
4,6-DINITRO-2-METHYLPHENOL	3500 U	2000 U	2300 U	2300 U	2000 U
4-BROMOPHENYL-PHENYLETHER	730 U	420 U	460 U	470 U	410 U
4-CHLORO-3-METHYLPHENOL	730 U	420 U	460 U	470 U	410 U
4-CHLOROANILINE	730 U	420 U	460 U	470 U	410 U
4-CHLOROPHENYL-PHENYLETHER	730 U	420 U	460 U	470 U	410 U
4-METHYLPHENOL	730 U	420 U	460 U	470 U	410 U
4-NITROANILINE	3500 U	2000 U	2300 U	2300 U	2000 U
4-NITROPHENOL	3500 U	2000 U	2300 U	2300 U	2000 U
ANILINE					
BENZOIC ACID	3500 U	2000 U	2300 U	2300 U	2000 U
BENZYL ALCOHOL	730 U	420 U	460 U	470 U	410 U
BIS(2-CHLOROETHOXY)METHANE	730 U	420 U	460 U	470 U	410 U
BIS(2-CHLOROETHYL)ETHER	730 U	420 U	460 U	470 U	410 U
BIS(2-ETHYLHEXYL)PHTHALATE	730 U	420 UJ	460 UJ	470 U	410 U
BUTYLBENZYLPHTHALATE	730 U	420 U	460 U	470 U	410 U
DIBENZOFURAN	730 U	420 U	460 U	470 U	410 U
DIETHYLPHTHALATE	730 U	420 U	460 U	470 U	410 U
DIMETHYLPHTHALATE	730 U	420 U	460 U	470 U	410 U
DI-N-BUTYLPHTHALATE	730 U	420 U	460 U	470 U	410 U
DI-N-OCTYLPHTHALATE	730 U	420 U	460 U	470 U	410 U
HEXACHLOROBENZENE	730 U	420 U	460 U	470 U	410 U
HEXACHLOROBUTADIENE	730 U	420 U	460 U	470 U	410 U
HEXACHLOROCYCLOPENTADIENE	730 U	420 U	460 U	470 U	410 U
HEXACHLOROETHANE	730 U	420 U	460 U	470 U	410 U
ISOPHORONE	730 U	420 U	460 U	470 U	410 U
NITROBENZENE	730 U	420 U	460 U	470 U	410 U
N-NITROSODIMETHYLAMINE					
N-NITROSO-DI-N-PROPYLAMINE	730 U	420 U	460 U	470 U	410 U
N-NITROSODIPHENYLAMINE	730 U	420 U	460 U	470 U	410 U
PENTACHLOROPHENOL	430 BJ	2000 U	2300 U	2300 U	2000 U
PHENOL	730 U	420 U	460 U	470 U	410 U

Notes:

UG/KG Micrograms per kilogram

TABLE E-17: SITE 9 SEMIVOLATILE ORGANIC COMPOUNDS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	B410-8	B410-8	B410-8	B410-8	B410-8
Sample Code	B410-8 [1.0-1.5]	B410-8 [2.5-3.0]	B410-8 [4.0-4.5]	B410-8 [5.5-6.0]	B410-8 [7.0-7.5]
Sampling Date	7/16/1990	7/16/1990	7/16/1990	7/16/1990	7/16/1990
Sampling Depth (feet bgs)	1 - 1.5	2.5 - 3	4 - 4.5	5.5 - 6	7 - 7.5
Units	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Investigation	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991
Analyte					
1,2,4-TRICHLOROBENZENE	720 U	720 U	350 U	360 U	390 U
1,2-DICHLOROBENZENE	720 U	720 U	350 U	360 U	390 U
1,2-DIPHENYLHYDRAZINE	720 U	720 U	350 U	360 U	390 U
1,3-DICHLOROBENZENE	720 U	720 U	350 U	360 U	390 U
1,4-DICHLOROBENZENE	720 U	720 U	350 U	360 U	390 U
2,4,5-TRICHLOROPHENOL	3500 U	3500 U	1700 U	1700 U	1900 U
2,4,6-TRICHLOROPHENOL	720 U	720 U	350 U	360 U	390 U
2,4-DICHLOROPHENOL	720 U	720 U	350 U	360 U	390 U
2,4-DIMETHYLPHENOL	720 U	720 U	350 U	360 U	390 U
2,4-DINITROPHENOL	3500 U	3500 U	1700 U	1700 U	1900 U
2,4-DINITROTOLUENE	720 U	720 U	350 U	360 U	390 U
2,6-DINITROTOLUENE	720 U	720 U	350 U	360 U	390 U
2-CHLORONAPHTHALENE	720 U	720 U	350 U	360 U	390 U
2-CHLOROPHENOL	720 U	720 U	350 U	360 U	390 U
2-METHYLNAPHTHALENE	720 U	720 U	350 U	360 U	390 U
2-METHYLPHENOL	720 U	720 U	350 U	360 U	390 U
2-NITROANILINE	3500 U	3500 U	1700 U	1700 U	1900 U
2-NITROPHENOL	720 U	720 U	350 U	360 U	390 U
3,3'-DICHLOROBENZIDINE	1400 U	1400 U	690 U	720 U	770 U
3-NITROANILINE	3500 U	3500 U	1700 U	1700 U	1900 U
4,6-DINITRO-2-METHYLPHENOL	3500 U	3500 U	1700 U	1700 U	1900 U
4-BROMOPHENYL-PHENYLETHER	720 U	720 U	350 U	360 U	390 U
4-CHLORO-3-METHYLPHENOL	720 U	720 U	350 U	360 U	390 U
4-CHLOROANILINE	720 U	720 U	350 U	360 U	390 U
4-CHLOROPHENYL-PHENYLETHER	720 U	720 U	350 U	360 U	390 U
4-METHYLPHENOL	720 U	720 U	350 U	360 U	390 U
4-NITROANILINE	3500 U	3500 U	1700 U	1700 U	1900 U
4-NITROPHENOL	3500 U	3500 U	1700 U	1700 U	1900 U
ANILINE	720 U	720 U	350 U	360 U	390 U
BENZOIC ACID	3500 U	3500 U	1700 U	1700 U	1900 U
BENZYL ALCOHOL	720 U	720 U	350 U	360 U	390 U
BIS(2-CHLOROETHOXY)METHANE	720 U	720 U	350 U	360 U	390 U
BIS(2-CHLOROETHYL)ETHER	720 U	720 U	350 U	360 U	390 U
BIS(2-ETHYLHEXYL)PHTHALATE	720 U	720 UJ	350 UJ	360 UJ	390 UJ
BUTYLBENZYLPHTHALATE	720 U	720 U	350 U	360 U	390 U
DIBENZOFURAN	720 U	720 U	350 U	360 U	390 U
DIETHYLPHTHALATE	720 U	720 U	350 U	360 U	390 U
DIMETHYLPHTHALATE	720 U	720 U	350 U	360 U	390 U
DI-N-BUTYLPHTHALATE	720 U	720 U	350 U	360 U	390 U
DI-N-OCTYLPHTHALATE	720 U	720 U	350 U	360 U	390 U
HEXACHLOROBENZENE	720 U	720 U	350 U	360 U	390 U
HEXACHLOROBUTADIENE	720 U	720 U	350 U	360 U	390 U
HEXACHLOROCYCLOPENTADIENE	720 U	720 U	350 U	360 U	390 U
HEXACHLOROETHANE	720 U	720 U	350 U	360 U	390 U
ISOPHORONE	720 U	720 U	350 U	360 U	390 U
NITROBENZENE	720 U	720 U	350 U	360 U	390 U
N-NITROSODIMETHYLAMINE	720 U	720 U	350 U	360 U	390 U
N-NITROSO-DI-N-PROPYLAMINE	720 U	720 U	350 U	360 U	390 U
N-NITROSODIPHENYLAMINE	720 U	720 U	38 JB	59 JB	58 JB
PENTACHLOROPHENOL	3500 U	3500 U	1700 U	1700 U	1900 U
PHENOL	720 U	720 U	350 U	360 U	390 U

Notes:

UG/KG Micrograms per kilogram

TABLE E-17: SITE 9 SEMIVOLATILE ORGANIC COMPOUNDS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	B410-8	B410-9	B410-9	B410-9	B410-9
Sample Code	B410-8 [8.5-9.0]	B410-9 [1.0-1.5]	B410-9 [2.5-3.0]	B410-9 [5.5-6.0]	B410-9 [8.5-9.0]
Sampling Date	7/16/1990	7/12/1990	7/8/1990	7/8/1990	7/8/1990
Sampling Depth (feet bgs)	8.5 - 9	1 - 1.5	2.5 - 3	5.5 - 6	8.5 - 9
Units	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Investigation	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991
Analyte					
1,2,4-TRICHLOROBENZENE	370 U	670 U	340 U	390 U	400 U
1,2-DICHLOROBENZENE	370 U	670 U	340 U	390 U	400 U
1,2-DIPHENYLHYDRAZINE	370 U	670 U	340 U	390 U	400 U
1,3-DICHLOROBENZENE	370 U	670 U	340 U	390 U	400 U
1,4-DICHLOROBENZENE	370 U	670 U	340 U	390 U	400 U
2,4,5-TRICHLOROPHENOL	1800 U	3300 U	1700 U	1900 U	2000 U
2,4,6-TRICHLOROPHENOL	370 U	670 U	340 U	390 U	400 U
2,4-DICHLOROPHENOL	370 U	670 U	340 U	390 U	400 U
2,4-DIMETHYLPHENOL	370 U	670 U	340 U	390 U	400 U
2,4-DINITROPHENOL	1800 U	3300 U	1700 U	1900 U	2000 U
2,4-DINITROTOLUENE	370 U	670 U	340 U	390 U	400 U
2,6-DINITROTOLUENE	370 U	670 U	340 U	390 U	400 U
2-CHLORONAPHTHALENE	370 U	670 U	340 U	390 U	400 U
2-CHLOROPHENOL	370 U	670 U	340 U	390 U	400 U
2-METHYLNAPHTHALENE	370 U	320 J	340 U	390 U	400 U
2-METHYLPHENOL	370 U	670 U	340 U	390 U	400 U
2-NITROANILINE	1800 U	3300 U	1700 U	1900 U	2000 U
2-NITROPHENOL	370 U	670 U	340 U	390 U	400 U
3,3'-DICHLOROBENZIDINE	740 U	1300 U	690 U	780 U	800 U
3-NITROANILINE	1800 U	3300 U	1700 U	1900 U	2000 U
4,6-DINITRO-2-METHYLPHENOL	1800 U	3300 U	1700 U	1900 U	2000 U
4-BROMOPHENYL-PHENYLETHER	370 U	670 U	340 U	390 U	400 U
4-CHLORO-3-METHYLPHENOL	370 U	670 U	340 U	390 U	400 U
4-CHLOROANILINE	370 U	670 U	340 U	390 U	400 U
4-CHLOROPHENYL-PHENYLETHER	370 U	670 U	340 U	390 U	400 U
4-METHYLPHENOL	370 U	670 U	340 U	390 U	400 U
4-NITROANILINE	1800 U	3300 U	1700 U	1900 U	2000 U
4-NITROPHENOL	1800 U	3300 U	1700 U	1900 U	2000 U
ANILINE	370 U				
BENZOIC ACID	1800 U	3300 U	1700 U	1900 U	2000 U
BENZYL ALCOHOL	370 U	670 U	340 U	390 U	400 U
BIS(2-CHLOROETHOXY)METHANE	370 U	670 U	340 U	390 U	400 U
BIS(2-CHLOROETHYL)ETHER	370 U	670 U	340 U	390 U	400 U
BIS(2-ETHYLHEXYL)PHTHALATE	370 UJ	670 U	340 U	390 UJ	400 U
BUTYLBENZYLPHTHALATE	370 U	670 U	340 U	390 U	400 U
DIBENZOFURAN	370 U	670 U	340 U	390 U	400 U
DIETHYLPHTHALATE	370 U	670 U	340 U	390 U	400 U
DIMETHYLPHTHALATE	370 U	670 U	340 U	390 U	400 U
DI-N-BUTYLPHTHALATE	370 U	670 U	340 U	390 U	400 U
DI-N-OCTYLPHTHALATE	370 U	670 U	340 U	390 U	400 U
HEXACHLOROBENZENE	370 U	670 U	340 U	390 U	400 U
HEXACHLOROBUTADIENE	370 U	670 U	340 U	390 U	400 U
HEXACHLOROCYCLOPENTADIENE	370 U	670 U	340 U	390 U	400 U
HEXACHLOROETHANE	370 U	670 U	340 U	390 U	400 U
ISOPHORONE	370 U	670 U	340 U	390 U	400 U
NITROBENZENE	370 U	670 U	340 U	390 U	400 U
N-NITROSODIMETHYLAMINE	370 U				
N-NITROSO-DI-N-PROPYLAMINE	370 U	670 U	340 U	390 U	400 U
N-NITROSODIPHENYLAMINE	56 JB	670 U	340 U	390 U	400 U
PENTACHLOROPHENOL	1800 U	3300 U	1700 U	1900 U	2000 U
PHENOL	370 U	670 U	340 U	390 U	400 U

Notes:

UG/KG Micrograms per kilogram

TABLE E-17: SITE 9 SEMIVOLATILE ORGANIC COMPOUNDS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California
(Page 6 of 9)

Location	B410-9	B410-9	MW410-1	MW410-1
Sample Code	B410-9 [11.5-12.0]	B410-9 [14.5-15.0]	MW410-1 [0.5-1.0]	MW410-1 [2.0-2.5]
Sampling Date	7/8/1990	7/8/1990	7/1/1990	7/1/1990
Sampling Depth (feet bgs)	11.5 - 12	14.5 - 15	.5 - 1	2 - 2.5
Units	UG/KG	UG/KG	UG/KG	UG/KG
Investigation	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991
Analyte				
1,2,4-TRICHLOROBENZENE	420 U	450 U	340 U	350 U
1,2-DICHLOROBENZENE	420 U	450 U	340 U	350 U
1,2-DIPHENYLHYDRAZINE	420 U	450 U	340 U	350 U
1,3-DICHLOROBENZENE	420 U	450 U	340 U	350 U
1,4-DICHLOROBENZENE	420 U	450 U	340 U	350 U
2,4,5-TRICHLOROPHENOL	2100 U	2200 U	1700 U	1700 U
2,4,6-TRICHLOROPHENOL	420 U	450 U	340 U	350 U
2,4-DICHLOROPHENOL	420 U	450 U	340 U	350 U
2,4-DIMETHYLPHENOL	420 U	450 U	340 U	350 U
2,4-DINITROPHENOL	2100 U	2200 U	1700 U	1700 U
2,4-DINITROTOLUENE	420 U	450 U	340 U	350 U
2,6-DINITROTOLUENE	420 U	450 U	340 U	350 U
2-CHLORONAPHTHALENE	420 U	450 U	340 U	350 U
2-CHLOROPHENOL	420 U	450 U	340 U	350 U
2-METHYLNAPHTHALENE	420 U	450 U	340 U	350 U
2-METHYLPHENOL	420 U	450 U	340 U	350 U
2-NITROANILINE	2100 U	2200 U	1700 U	1700 U
2-NITROPHENOL	420 U	450 U	340 U	350 U
3,3'-DICHLOROBENZIDINE	850 U	890 U	690 U	690 U
3-NITROANILINE	2100 U	2200 U	1700 U	1700 U
4,6-DINITRO-2-METHYLPHENOL	2100 U	2200 U	1700 U	1700 U
4-BROMOPHENYL-PHENYLETHER	420 U	450 U	340 U	350 U
4-CHLORO-3-METHYLPHENOL	420 U	450 U	340 U	350 U
4-CHLOROANILINE	420 U	450 U	340 U	350 U
4-CHLOROPHENYL-PHENYLETHER	420 U	450 U	340 U	350 U
4-METHYLPHENOL	420 U	450 U	340 U	350 U
4-NITROANILINE	2100 U	2200 U	1700 U	1700 U
4-NITROPHENOL	2100 U	2200 U	1700 U	1700 U
ANILINE				
BENZOIC ACID	2100 U	2200 U	1700 U	1700 U
BENZYL ALCOHOL	420 U	450 U	340 U	350 U
BIS(2-CHLOROETHOXY)METHANE	420 U	450 U	340 U	350 U
BIS(2-CHLOROETHYL)ETHER	420 U	450 U	340 U	350 U
BIS(2-ETHYLHEXYL)PHTHALATE	420 U	450 U	340 UJ	350 UJ
BUTYLBENZYLPHTHALATE	420 U	450 U	340 U	350 U
DIBENZOFURAN	420 U	450 U	340 U	350 U
DIETHYLPHTHALATE	420 U	450 U	340 U	350 U
DIMETHYLPHTHALATE	420 U	450 U	340 U	350 U
DI-N-BUTYLPHTHALATE	420 U	450 U	340 U	350 U
DI-N-OCTYLPHTHALATE	420 U	450 U	340 U	350 U
HEXACHLOROBENZENE	420 U	450 U	340 U	350 U
HEXACHLOROBUTADIENE	420 U	450 U	340 U	350 U
HEXACHLOROCYCLOPENTADIENE	420 U	450 U	340 U	350 U
HEXACHLOROETHANE	420 U	450 U	340 U	350 U
ISOPHORONE	420 U	450 U	340 U	350 U
NITROBENZENE	420 U	450 U	340 U	350 U
N-NITROSODIMETHYLAMINE				
N-NITROSO-DI-N-PROPYLAMINE	420 U	450 U	340 U	350 U
N-NITROSODIPHENYLAMINE	420 U	450 U	54 JB	350 U
PENTACHLOROPHENOL	2100 U	2200 U	1700 U	1700 U
PHENOL	420 U	450 U	340 U	350 U

Notes:
UG/KG Micrograms per kilogram

TABLE E-17: SITE 9 SEMIVOLATILE ORGANIC COMPOUNDS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	MW410-1	MW410-1	MW410-1	MW410-1
Sample Code	MW410-1 [5.5-6.0]	MW410-1 [7.0-7.5]	MW410-1 [11.0-11.5]	MW410-1 [11.5-12.0]
Sampling Date	7/1/1990	7/1/1990	7/1/1990	7/1/1990
Sampling Depth (feet bgs)	5.5 - 6	7 - 7.5	11 - 11.5	11.5 - 12
Units	UG/KG	UG/KG	UG/KG	UG/KG
Investigation	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991
Analyte				
1,2,4-TRICHLOROBENZENE	380 U	960 U	420 U	1000 U
1,2-DICHLOROBENZENE	380 U	960 U	420 U	1000 U
1,2-DIPHENYLHYDRAZINE	380 U	960 U	420 U	1000 U
1,3-DICHLOROBENZENE	380 U	960 U	420 U	1000 U
1,4-DICHLOROBENZENE	380 U	960 U	420 U	1000 U
2,4,5-TRICHLOROPHENOL	1800 U	4600 U	2100 U	4900 U
2,4,6-TRICHLOROPHENOL	380 U	960 U	420 U	1000 U
2,4-DICHLOROPHENOL	380 U	960 U	420 U	1000 U
2,4-DIMETHYLPHENOL	380 U	960 U	420 U	1000 U
2,4-DINITROPHENOL	1800 U	4600 U	2100 U	4900 U
2,4-DINITROTOLUENE	380 U	960 U	420 U	1000 U
2,6-DINITROTOLUENE	380 U	960 U	420 U	1000 U
2-CHLORONAPHTHALENE	380 U	960 U	420 U	1000 U
2-CHLOROPHENOL	380 U	960 U	420 U	1000 U
2-METHYLNAPHTHALENE	380 U	960 U	420 U	1000 U
2-METHYLPHENOL	380 U	960 U	420 U	1000 U
2-NITROANILINE	1800 U	4600 U	2100 U	4900 U
2-NITROPHENOL	380 U	960 U	420 U	1000 U
3,3'-DICHLOROBENZIDINE	760 U	1900 U	850 U	2000 U
3-NITROANILINE	1800 U	4600 U	2100 U	4900 U
4,6-DINITRO-2-METHYLPHENOL	1800 U	4600 U	2100 U	4900 U
4-BROMOPHENYL-PHENYLETHER	380 U	960 U	420 U	1000 U
4-CHLORO-3-METHYLPHENOL	380 U	960 U	420 U	1000 U
4-CHLOROANILINE	380 U	960 U	420 U	1000 U
4-CHLOROPHENYL-PHENYLETHER	380 U	960 U	420 U	1000 U
4-METHYLPHENOL	380 U	960 U	420 U	1000 U
4-NITROANILINE	1800 U	4600 U	2100 U	4900 U
4-NITROPHENOL	1800 U	4600 U	2100 U	4900 U
ANILINE				
BENZOIC ACID	1800 U	4600 U	2100 U	4900 U
BENZYL ALCOHOL	380 U	960 U	420 U	1000 U
BIS(2-CHLOROETHOXY)METHANE	380 U	960 U	420 U	1000 U
BIS(2-CHLOROETHYL)ETHER	380 U	960 U	420 U	1000 U
BIS(2-ETHYLHEXYL)PHTHALATE	380 UJ	960 UJ	420 UJ	1000 UJ
BUTYLBENZYLPHTHALATE	380 U	960 U	420 U	1000 U
DIBENZOFURAN	380 U	960 U	420 U	1000 U
DIETHYLPHTHALATE	380 U	960 U	420 UJ	1000 U
DIMETHYLPHTHALATE	380 U	960 U	420 U	1000 U
DI-N-BUTYLPHTHALATE	380 U	960 U	420 U	1000 U
DI-N-OCTYLPHTHALATE	380 U	960 U	420 U	1000 U
HEXACHLOROBENZENE	380 U	960 U	420 U	1000 U
HEXACHLOROBUTADIENE	380 U	960 U	420 U	1000 U
HEXACHLOROCYCLOPENTADIENE	380 U	960 U	420 U	1000 U
HEXACHLOROETHANE	380 U	960 U	420 U	1000 U
ISOPHORONE	380 U	960 U	420 U	1000 U
NITROBENZENE	380 U	960 U	420 U	1000 U
N-NITROSODIMETHYLAMINE				
N-NITROSO-DI-N-PROPYLAMINE	380 U	960 U	420 U	1000 U
N-NITROSODIPHENYLAMINE	43 JB	120 JB	52 JB	1000 U
PENTACHLOROPHENOL	1800 U	4600 U	2100 U	4900 U
PHENOL	380 U	960 U	420 U	1000 U

Notes:

UG/KG Micrograms per kilogram

TABLE E-17: SITE 9 SEMIVOLATILE ORGANIC COMPOUNDS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	MW410-1	MW410-2	MW410-2	MW410-2
Sample Code	MW410-1 [14.0-14.5]	MW410-2 [1.5-2.0]	MW410-2 [3.0-3.5]	MW410-2 [6.0-6.5]
Sampling Date	7/1/1990	7/16/1990	7/16/1990	7/16/1990
Sampling Depth (feet bgs)	14 - 14.5	1.5 - 2	3 - 3.5	6 - 6.5
Units	UG/KG	UG/KG	UG/KG	UG/KG
Investigation	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991
Analyte				
1,2,4-TRICHLOROBENZENE	860 U	690 U	690 U	350 U
1,2-DICHLOROBENZENE	860 U	690 U	690 U	350 U
1,2-DIPHENYLHYDRAZINE	860 U	690 U	690 U	350 U
1,3-DICHLOROBENZENE	860 U	690 U	690 U	350 U
1,4-DICHLOROBENZENE	860 U	690 U	690 U	350 U
2,4,5-TRICHLOROPHENOL	4200 U	3300 U	3300 U	1700 U
2,4,6-TRICHLOROPHENOL	860 U	690 U	690 U	350 U
2,4-DICHLOROPHENOL	860 U	690 U	690 U	350 U
2,4-DIMETHYLPHENOL	860 U	690 U	690 U	350 U
2,4-DINITROPHENOL	4200 U	3300 U	3300 U	1700 U
2,4-DINITROTOLUENE	860 U	690 U	690 U	350 U
2,6-DINITROTOLUENE	860 U	690 U	690 U	350 U
2-CHLORONAPHTHALENE	860 U	690 U	690 U	350 U
2-CHLOROPHENOL	860 U	690 U	690 U	350 U
2-METHYLNAPHTHALENE	860 U	690 U	690 U	350 U
2-METHYLPHENOL	860 U	690 U	690 U	350 U
2-NITROANILINE	4200 U	3300 U	3300 U	1700 U
2-NITROPHENOL	860 U	690 U	690 U	350 U
3,3'-DICHLOROBENZIDINE	1700 U	1400 U	1400 U	710 U
3-NITROANILINE	4200 U	3300 U	3300 U	1700 U
4,6-DINITRO-2-METHYLPHENOL	4200 U	3300 U	3300 U	1700 U
4-BROMOPHENYL-PHENYLETHER	860 U	690 U	690 U	350 U
4-CHLORO-3-METHYLPHENOL	860 U	690 U	690 U	350 U
4-CHLOROANILINE	860 U	690 U	690 U	350 U
4-CHLOROPHENYL-PHENYLETHER	860 U	690 U	690 U	350 U
4-METHYLPHENOL	860 U	690 U	690 U	350 U
4-NITROANILINE	4200 U	3300 U	3300 U	1700 U
4-NITROPHENOL	4200 U	3300 U	3300 U	1700 U
ANILINE		690 U	690 U	350 U
BENZOIC ACID	4200 U	3300 U	3300 U	1700 U
BENZYL ALCOHOL	860 U	690 U	690 U	350 U
BIS(2-CHLOROETHOXY)METHANE	860 U	690 U	690 U	350 U
BIS(2-CHLOROETHYL)ETHER	860 U	690 U	690 U	350 U
BIS(2-ETHYLHEXYL)PHTHALATE	860 UJ	690 U	690 U	350 U
BUTYLBENZYLPHTHALATE	860 U	690 U	690 U	350 U
DIBENZOFURAN	860 U	690 U	690 U	350 U
DIETHYLPHTHALATE	860 U	690 U	690 U	350 U
DIMETHYLPHTHALATE	860 U	690 U	690 U	350 U
DI-N-BUTYLPHTHALATE	860 U	690 U	690 U	350 U
DI-N-OCTYLPHTHALATE	860 U	690 U	690 U	350 U
HEXACHLOROBENZENE	860 U	690 U	690 U	350 U
HEXACHLOROBUTADIENE	860 U	690 U	690 U	350 U
HEXACHLOROCYCLOPENTADIENE	860 U	690 U	690 U	350 U
HEXACHLOROETHANE	860 U	690 U	690 U	350 U
ISOPHORONE	860 U	690 U	690 U	350 U
NITROBENZENE	860 U	690 U	690 U	350 U
N-NITROSODIMETHYLAMINE		690 U	690 U	350 U
N-NITROSO-DI-N-PROPYLAMINE	860 U	690 U	690 U	350 U
N-NITROSODIPHENYLAMINE	860 U	690 U	690 U	47 JB
PENTACHLOROPHENOL	4200 U	3300 U	3300 U	1700 U
PHENOL	860 U	690 U	690 U	350 U

Notes:

UG/KG Micrograms per kilogram

TABLE E-17: SITE 9 SEMIVOLATILE ORGANIC COMPOUNDS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California
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Location	MW410-2	MW410-2	MW410-2
Sample Code	MW410-2 [9.0-9.5]	MW410-2 [12.0-12.5]	MW410-2 [15.0-15.5]
Sampling Date	7/16/1990	7/16/1990	7/16/1990
Sampling Depth (feet bgs)	9 - 9.5	12 - 12.5	15 - 15.5
Units	UG/KG	UG/KG	UG/KG
Investigation	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991
Analyte			
1,2,4-TRICHLOROBENZENE	410 U	410 U	420 U
1,2-DICHLOROBENZENE	410 U	410 U	420 U
1,2-DIPHENYLHYDRAZINE	410 U	410 U	420 U
1,3-DICHLOROBENZENE	410 U	410 U	420 U
1,4-DICHLOROBENZENE	410 U	410 U	420 U
2,4,5-TRICHLOROPHENOL	2000 U	2000 U	2000 U
2,4,6-TRICHLOROPHENOL	410 U	410 U	420 U
2,4-DICHLOROPHENOL	410 U	410 U	420 U
2,4-DIMETHYLPHENOL	410 U	410 U	420 U
2,4-DINITROPHENOL	2000 U	2000 U	2000 U
2,4-DINITROTOLUENE	410 U	410 U	420 U
2,6-DINITROTOLUENE	410 U	410 U	420 U
2-CHLORONAPHTHALENE	410 U	410 U	420 U
2-CHLOROPHENOL	410 U	410 U	420 U
2-METHYLNAPHTHALENE	410 U	410 U	420 U
2-METHYLPHENOL	410 U	410 U	420 U
2-NITROANILINE	2000 U	2000 U	2000 U
2-NITROPHENOL	410 U	410 U	420 U
3,3'-DICHLOROBENZIDINE	820 U	830 U	840 U
3-NITROANILINE	2000 U	2000 U	2000 U
4,6-DINITRO-2-METHYLPHENOL	2000 U	2000 U	2000 U
4-BROMOPHENYL-PHENYLETHER	410 U	410 U	420 U
4-CHLORO-3-METHYLPHENOL	410 U	410 U	420 U
4-CHLOROANILINE	410 U	410 U	420 U
4-CHLOROPHENYL-PHENYLETHER	410 U	410 U	420 U
4-METHYLPHENOL	410 U	410 U	420 U
4-NITROANILINE	2000 U	2000 U	2000 U
4-NITROPHENOL	2000 U	2000 U	2000 U
ANILINE	410 U	410 U	420 U
BENZOIC ACID	2000 U	2000 U	2000 U
BENZYL ALCOHOL	410 U	410 U	420 U
BIS(2-CHLOROETHOXY)METHANE	410 U	410 U	420 U
BIS(2-CHLOROETHYL)ETHER	410 U	410 U	420 U
BIS(2-ETHYLHEXYL)PHTHALATE	410 U	410 U	420 UJ
BUTYLBENZYLPHTHALATE	410 U	410 U	420 U
DIBENZOFURAN	410 U	410 U	420 U
DIETHYLPHTHALATE	410 U	410 U	420 U
DIMETHYLPHTHALATE	410 U	410 U	420 U
DI-N-BUTYLPHTHALATE	410 U	410 U	420 U
DI-N-OCTYLPHTHALATE	410 U	410 U	420 U
HEXACHLOROBENZENE	410 U	410 U	420 U
HEXACHLOROBUTADIENE	410 U	410 U	420 U
HEXACHLOROCYCLOPENTADIENE	410 U	410 U	420 U
HEXACHLOROETHANE	410 U	410 U	420 U
ISOPHORONE	410 U	410 U	420 U
NITROBENZENE	410 U	410 U	420 U
N-NITROSODIMETHYLAMINE	410 U	410 U	420 U
N-NITROSO-DI-N-PROPYLAMINE	410 U	410 U	420 U
N-NITROSODIPHENYLAMINE	64 JB	60 JB	420 U
PENTACHLOROPHENOL	2000 U	2000 U	2000 U
PHENOL	410 U	410 U	420 U

Notes:
UG/KG Micrograms per kilogram

TABLE E-18: SITE 9 POLYNUCLEAR AROMATIC HYDROCARBONS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	C3S009B001	C3S009B001	C3S009B001	C3S009B001	C3S009B002	C3S009B002	C3S009B002	C3S009B002	C3S009B003
Sample Code	C0590525	C0590526	C0590527	C0590528	C0590529	C0590530	C0590531	C0590532	C0590533
Sampling Date	8/6/2003	8/6/2003	8/6/2003	8/6/2003	8/6/2003	8/6/2003	8/6/2003	8/6/2003	8/6/2003
Sampling Depth (feet bgs)	0 - 0.5	.5 - 2	2 - 4	4 - 8	0 - 0.5	.5 - 2	2 - 4	4 - 8	0 - 0.5
Units	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Investigation	PAH STUDY	PAH STUDY	PAH STUDY	PAH STUDY	PAH STUDY	PAH STUDY	PAH STUDY	PAH STUDY	PAH STUDY
Analyte									
2-METHYLNAPHTHALENE	0.79 J	5.3 U	5.5 U	5.8 U	1.3 J	0.36 J	5.2 U	0.43 J	2.4 J
ACENAPHTHENE	5.2 U	5.3 U	5.5 U	5.8 U	5.7 U	5.2 U	5.2 U	5.6 U	5.3 U
ACENAPHTHYLENE	5.2 U	5.3 U	5.5 U	5.8 U	5.7 U	0.24 J	5.2 U	5.6 U	2.9 J
ANTHRACENE	0.64 J	5.3 U	5.5 U	5.8 U	0.31 J	0.25 J	5.2 U	5.6 U	2.5 J
BENZ(A)ANTHRACENE	4 J	5.3 U	5.5 U	0.48 J	1.5 J	1.3 J	0.45 J	1.4 J	8.8
BENZO(A)PYRENE	4.3 J	5.3 U	0.45 J	1 J	1.2 J	2 J	0.34 J	1.8 J	15
BENZO(B)FLUORANTHENE	8	5.3 U	0.4 J	0.82 J	3.2 J	1.8 J	5.2 U	2.3 J	14
BENZO(G,H,I)PERYLENE	58	5.3 U	0.65 J	9.8	6.1	14	2.3 J	5.8	46
BENZO(K)FLUORANTHENE	5.2 U	5.3 U	5.5 U	5.8 U	0.68 J	1 J	5.2 U	0.87 J	8.1
CHRYSENE	4.6 J	5.3 U	5.5 U	1.3 J	6.1	1.7 J	0.44 J	6.3	16
DIBENZ(A,H)ANTHRACENE	5.2 U	5.3 U	5.5 U	0.93 J	1.4 J	1.4 J	5.2 U	0.8 J	6.9
FLUORANTHENE	4.4 J	5.3 U	5.5 U	1.3 J	1.9 J	1.7 J	0.76 J	2.3 J	16
FLUORENE	5.2 U	5.3 U	5.5 U	5.8 U	0.5 J	5.2 U	5.2 U	5.6 U	1.6 J
INDENO(1,2,3-CD)PYRENE	5.2 U	5.3 U	0.54 J	1.4 J	2.3 J	3.1 J	5.2 U	2 J	16
NAPHTHALENE	5.2 U	5.3 U	5.5 U	5.8 U	5.7 U	5.2 U	5.2 U	5.6 U	1.5 J
PHENANTHRENE	2.1 J	5.3 U	5.5 U	5.8 U	9.7	1.1 J	0.33 J	3.9 J	15
PYRENE	4.4 J	5.3 U	5.5 U	1.5 J	4.7 J	2.1 J	0.96 J	4.3 J	20

Notes:

UG/KG Micrograms per kilogram

TABLE E-18: SITE 9 POLYNUCLEAR AROMATIC HYDROCARBONS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	C3S009B003	C3S009B003	C3S009B003	C3S009B004	C3S009B004	C3S009B004	C3S009B004	C3S009B005	C3S009B005
Sample Code	C0590535	C0590536	C0590537	C0590538	C0590539	C0590540	C0590541	C0590542	C0590543
Sampling Date	8/6/2003	8/6/2003	8/6/2003	8/6/2003	8/6/2003	8/6/2003	8/6/2003	8/6/2003	8/6/2003
Sampling Depth (feet bgs)	.5 - 2	2 - 4	4 - 8	0 - 0.5	.5 - 2	2 - 4	4 - 8	0 - 0.5	.5 - 2
Units	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Investigation	PAH STUDY	PAH STUDY	PAH STUDY	PAH STUDY	PAH STUDY	PAH STUDY	PAH STUDY	PAH STUDY	PAH STUDY
Analyte									
2-METHYLNAPHTHALENE	5.7 U	7.4 U	0.26 J	1.9 J	0.56 J	5.3 U	0.35 J	0.36 J	5.3 U
ACENAPHTHENE	5.7 U	7.4 U	5.6 U	5.3 U	5.2 U	5.3 U	0.38 J	5.3 U	5.3 U
ACENAPHTHYLENE	0.28 J	7.4 U	0.21 J	5.3 U	5.2 U	5.3 U	0.38 J	5.3 U	5.3 U
ANTHRACENE	0.23 J	7.4 U	5.6 U	3 J	5.2 U	5.3 U	1.5 J	0.3 J	5.3 U
BENZ(A)ANTHRACENE	1.2 J	0.43 J	1.1 J	19	0.72 J	0.42 J	2.7 J	5.3 U	5.3 U
BENZO(A)PYRENE	1.5 J	0.53 J	1.5 J	23 J	0.6 J	0.72 J	2.2 J	1.9 J	5.3 U
BENZO(B)FLUORANTHENE	2 J	0.49 J	1.6 J	29 J	1.4 J	0.61 J	5.5 J	3.1 J	0.27 J
BENZO(G,H,I)PERYLENE	11	1 J	8.1	110 N	1.9 J	0.6 J	5.4 J	12	3.1 J
BENZO(K)FLUORANTHENE	1.1 J	0.43 J	0.8 J	6.5 J	0.34 J	0.26 J	5.5 U	0.63 J	5.3 U
CHRYSENE	3.4 J	0.41 J	1.4 J	79	4.3 J	0.44 J	15	9.4	5.3 U
DIBENZ(A,H)ANTHRACENE	5.7 U	0.67 J	0.79 J	34 J	0.52 J	5.3 U	1.8 J	4.2 J	0.33 J
FLUORANTHENE	2.5 J	0.75 J	1.7 J	17	1.3 J	0.59 J	4.4 J	1.5 J	5.3 U
FLUORENE	5.7 U	7.4 U	5.6 U	1 J	5.2 U	5.3 U	0.8 J	0.28 J	5.3 U
INDENO(1,2,3-CD)PYRENE	2.9 J	0.68 J	2.3 J	5.3 U	0.45 J	0.69 J	1.1 J	3.4 J	1.1 J
NAPHTHALENE	5.7 U	7.4 U	5.6 U	5.3 U	0.35 J	0.25 J	0.37 J	0.34 J	5.3 U
PHENANTHRENE	0.74 J	0.35 J	0.78 J	67	4.4 J	0.4 J	23	1.2 J	0.27 J
PYRENE	2.8 J	0.89 J	1.9 J	26	1.8 J	0.53 J	5.9	1.7 J	5.3 U

Notes:

UG/KG Micrograms per kilogram

TABLE E-18: SITE 9 POLYNUCLEAR AROMATIC HYDROCARBONS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	C3S009B005	C3S009B005	C3S009B006	C3S009B006	C3S009B006	C3S009B006	C3S009B007	C3S009B007	C3S009B007
Sample Code	C0590545	C0590546	C0590547	C0590548	C0590549	C0590550	C0591129	C0591130	C0591131
Sampling Date	8/6/2003	8/6/2003	8/6/2003	8/6/2003	8/6/2003	8/6/2003	8/6/2003	8/6/2003	8/6/2003
Sampling Depth (feet bgs)	2 - 4	4 - 8	0 - 0.5	.5 - 2	2 - 4	4 - 8	0 - 0.5	.5 - 2	2 - 4
Units	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Investigation	PAH STUDY	PAH STUDY	PAH STUDY	PAH STUDY	PAH STUDY	PAH STUDY	PAH STUDY	PAH STUDY	PAH STUDY
Analyte									
2-METHYLNAPHTHALENE	5.3 U	2800	1.1 J	5.2 U	5.3 U	0.25 J	4.7 J	1.8 J	220
ACENAPHTHENE	5.3 U	82	0.83 J	5.2 U	5.3 U	5.5 U	0.91 J	5.2 U	5.4
ACENAPHTHYLENE	5.3 U	24 U	0.21 J	5.2 U	5.3 U	5.5 U	0.23 J	5.2 U	5.2 U
ANTHRACENE	5.3 U	36	2.8 J	5.2 U	5.3 U	5.5 U	0.4 J	0.58 J	4.7 J
BENZ(A)ANTHRACENE	0.24 J	11	9.5	5.2 U	0.25 J	0.42 J	1.5 J	0.58 J	3.7 J
BENZO(A)PYRENE	2.4 J	8.2	9.5	5.2 U	0.34 J	0.61 J	0.94 J	0.38 J	2.8 J
BENZO(B)FLUORANTHENE	0.71 J	7.3	8.8	5.2 U	0.23 J	0.67 J	1.9 J	0.53 J	3.9 J
BENZO(G,H,I)PERYLENE	7	7.1	14	5.2 U	0.32 J	1.1 J	3.1 J	0.75 J	4.2 J
BENZO(K)FLUORANTHENE	0.78 J	6.5	6.9	5.2 U	5.3 U	0.28 J	0.76 J	0.25 J	2.6 J
CHRYSENE	4.1 J	16	15	5.2 U	0.3 J	0.71 J	5.5	0.94 J	5.2 J
DIBENZ(A,H)ANTHRACENE	0.96 J	1.2 J	2.5 J	5.2 U	5.3 U	5.5 U	1 J	5.2 U	0.49 J
FLUORANTHENE	5.3 U	33	17	5.2 U	5.3 U	5.5 U	1.9 J	1.6 J	10
FLUORENE	5.3 U	200	1.5 J	5.2 U	5.3 U	5.5 U	2 J	1.2 J	19
INDENO(1,2,3-CD)PYRENE	5.8	6.2	9.2	5.2 U	0.23 J	0.74 J	1.2 J	0.61 J	3.8 J
NAPHTHALENE	0.31 J	4300	5.1 U	5.2 U	5.3 U	5.5 U	16	5 J	490
PHENANTHRENE	5.3 U	460	17	5.2 U	5.3 U	5.5 U	2.9 J	4.6 J	47
PYRENE	1.3 J	42	18	5.2 U	5.3 U	5.5 U	2.3 J	1.5 J	10

Notes:

UG/KG Micrograms per kilogram

TABLE E-18: SITE 9 POLYNUCLEAR AROMATIC HYDROCARBONS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	C3S009B007	C3S009B008	C3S009B008	C3S009B008	C3S009B008	C3S009B009	C3S009B009	C3S009B009	C3S009B009
Sample Code	C0591133	C0590556	C0590557	C0590558	C0590559	C0590560	C0590561	C0590562	C0590563
Sampling Date	8/6/2003	8/6/2003	8/6/2003	8/6/2003	8/6/2003	8/7/2003	8/7/2003	8/7/2003	8/7/2003
Sampling Depth (feet bgs)	4 - 8	0 - 0.5	.5 - 2	2 - 4	4 - 8	0 - 0.5	.5 - 2	2 - 4	4 - 8
Units	UG/KG	MG/KG	MG/KG	MG/KG	MG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Investigation	PAH STUDY	PAH STUDY	PAH STUDY	PAH STUDY	PAH STUDY	PAH STUDY	PAH STUDY	PAH STUDY	PAH STUDY
Analyte									
2-METHYLNAPHTHALENE	240	0.026 U	0.01 U	0.006 U	0.006 U	1500	0.72 J	0.93 J	1.1 J
ACENAPHTHENE	8.7	0.026 U	0.01 U	0.006 U	0.006 U	140	5.2 U	5.2 U	0.65 J
ACENAPHTHYLENE	5.6 U	0.026 U	0.01 U	0.006 U	0.006 U	5.4 U	5.2 U	5.2 U	5.5 U
ANTHRACENE	9.2	0.026 U	0.01 U	0.006 U	0.006 U	43	5.2 U	5.2 U	3.5 J
BENZ(A)ANTHRACENE	18	0.026 U	0.01 U	0.0036 J	0.006 U	19	5.2 U	5.2 U	5.5 U
BENZO(A)PYRENE	33	0.026 U	0.01 U	0.0032 J	0.0018 J	39	5.2 U	5.2 U	1.1 J
BENZO(B)FLUORANTHENE	27	0.026 UJ	0.01 UJ	0.0048 J	0.0021 J	54	5.2 U	5.2 U	1.3 J
BENZO(G,H,I)PERYLENE	46	0.026 U	0.01 U	0.0022 J	0.0019 J	31	0.31 J	5.2 U	2 J
BENZO(K)FLUORANTHENE	21	0.026 U	0.01 U	0.006 U	0.006 U	11	5.2 U	5.2 U	0.79 J
CHRYSENE	24	0.026 U	0.01 U	0.0045 J	0.006 U	150	5.2 U	5.2 U	3.1 J
DIBENZ(A,H)ANTHRACENE	3.8 J	0.026 U	0.01 U	0.006 U	0.006 U	20	5.2 U	5.2 U	0.27 J
FLUORANTHENE	60	0.026 U	0.01 U	0.0076	0.0042 J	51	0.3 J	5.2 U	0.99 J
FLUORENE	24	0.026 U	0.01 U	0.006 U	0.006 U	380	5.2 U	0.23 J	0.62 J
INDENO(1,2,3-CD)PYRENE	39	0.026 U	0.01 U	0.006 U	0.006 U	12	5.2 U	5.2 U	0.75 J
NAPHTHALENE	610	0.026 U	0.01 U	0.006 U	0.006 U	380	0.61 J	0.76 J	2.8 J
PHENANTHRENE	67	0.026 U	0.01 U	0.006 U	0.006 U	640	1 J	0.89 J	5.5 U
PYRENE	85	0.026 U	0.01 U	0.0074	0.0038 J	110	0.42 J	0.23 J	10

Notes:

UG/KG Micrograms per kilogram

TABLE E-18: SITE 9 POLYNUCLEAR AROMATIC HYDROCARBONS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	C3S009B010	C3S009B010	C3S009B010	C3S009B010	C3S009B011	C3S009B011	C3S009B011	C3S009B011	C3S009B012
Sample Code	C0590565	C0590566	C0590567	C0590568	C0590569	C0590570	C0590571	C0590572	C0590573
Sampling Date	8/7/2003	8/7/2003	8/7/2003	8/7/2003	8/7/2003	8/7/2003	8/7/2003	8/7/2003	8/7/2003
Sampling Depth (feet bgs)	0 - 0.5	.5 - 2	2 - 4	4 - 8	0 - 0.5	.5 - 2	2 - 4	4 - 8	0 - 0.5
Units	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Investigation	PAH STUDY	PAH STUDY	PAH STUDY	PAH STUDY	PAH STUDY	PAH STUDY	PAH STUDY	PAH STUDY	PAH STUDY
Analyte									
2-METHYLNAPHTHALENE	3.9 J	5.1 U	5.2 U	5.5 U	0.23 J	5.4 U	5.8 U	6.3 U	0.56 J
ACENAPHTHENE	5.3 U	5.1 U	5.2 U	5.5 U	5.4 U	5.4 U	5.8 U	6.3 U	0.45 J
ACENAPHTHYLENE	5.3 U	5.1 U	5.2 U	5.5 U	5.4 U	5.4 U	5.8 U	6.3 U	0.42 J
ANTHRACENE	5.3 U	5.1 U	5.2 U	5.5 U	0.27 J	5.4 U	5.8 U	6.3 U	0.82 J
BENZ(A)ANTHRACENE	0.76 J	5.1 U	5.2 U	5.5 U	0.62 J	5.4 U	5.8 U	6.3 U	5.2 J
BENZO(A)PYRENE	2.6 J	5.1 U	5.2 U	5.5 U	1.6 J	5.4 U	0.21 J	0.47 J	6.5
BENZO(B)FLUORANTHENE	4.4 J	5.1 U	5.2 U	5.5 U	0.92 J	5.4 U	5.8 U	0.32 J	9.5
BENZO(G,H,I)PERYLENE	13	0.19 J	5.2 U	0.39 J	8	0.14 J	0.24 J	0.5 J	29
BENZO(K)FLUORANTHENE	1.2 J	5.1 U	5.2 U	5.5 U	0.61 J	5.4 U	5.8 U	0.29 J	5.2 J
CHRYSENE	5.8	5.1 U	5.2 U	0.28 J	1.3 J	5.4 U	5.8 U	0.3 J	13
DIBENZ(A,H)ANTHRACENE	3.1 J	5.1 U	5.2 U	5.5 U	0.5 J	5.4 U	5.8 U	6.3 U	5.9
FLUORANTHENE	1.8 J	5.1 U	5.2 U	0.23 J	1.3 J	5.4 U	0.35 J	0.46 J	13
FLUORENE	1.3 J	5.1 U	5.2 U	5.5 U	5.4 U	5.4 U	5.8 U	6.3 U	0.39 J
INDENO(1,2,3-CD)PYRENE	3.4 J	5.1 U	5.2 U	5.5 U	1.2 J	5.4 U	0.23 J	0.45 J	8.5
NAPHTHALENE	1.6 J	5.1 U	5.2 U	5.5 U	0.26 J	5.4 U	5.8 U	6.3 U	0.51 J
PHENANTHRENE	6.8	0.2 J	0.17 J	0.34 J	1 J	0.2 J	5.8 U	0.22 J	6.2
PYRENE	4.5 J	0.17 J	5.2 U	0.28 J	1.8 J	0.14 J	0.41 J	0.89 J	12

Notes:

UG/KG Micrograms per kilogram

TABLE E-18: SITE 9 POLYNUCLEAR AROMATIC HYDROCARBONS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	C3S009B012	C3S009B012	C3S009B012	C3S009B013	C3S009B013	C3S009B013	C3S009B013
Sample Code	C0590575	C0590576	C0590577	C0590578	C0590579	C0590580	C0590581
Sampling Date	8/7/2003	8/7/2003	8/7/2003	8/7/2003	8/7/2003	8/7/2003	8/7/2003
Sampling Depth (feet bgs)	.5 - 2	2 - 4	4 - 8	0 - 0.5	.5 - 2	2 - 4	4 - 8
Units	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Investigation	PAH STUDY	PAH STUDY	PAH STUDY	PAH STUDY	PAH STUDY	PAH STUDY	PAH STUDY
Analyte							
2-METHYLNAPHTHALENE	6.1 U	5.3 U	5.7 U	3 J	5.2 U	5.2 U	0.63 J
ACENAPHTHENE	6.1 U	5.3 U	5.7 U	5.2 U	5.2 U	5.2 U	5.6 U
ACENAPHTHYLENE	6.1 U	5.3 U	5.7 U	5.2 U	5.2 U	5.2 U	5.6 U
ANTHRACENE	6.1 U	5.3 U	5.7 U	5.2 U	5.2 U	5.2 U	5.6 U
BENZ(A)ANTHRACENE	0.18 J	5.3 U	0.85 J	1.1 J	5.2 U	0.22 J	5.6 U
BENZO(A)PYRENE	0.3 J	5.3 U	1.3 J	4.7 J	0.23 J	0.54 J	0.47 J
BENZO(B)FLUORANTHENE	6.1 U	5.3 U	2 J	6.4	0.21 J	0.42 J	0.91 J
BENZO(G,H,I)PERYLENE	0.47 J	5.3 U	4.5 J	12	0.38 J	0.87 J	1.5 J
BENZO(K)FLUORANTHENE	6.1 U	5.3 U	0.89 J	5.2 U	0.21 J	0.4 J	5.6 U
CHRYSENE	0.24 J	5.3 U	2.6 J	15	0.21 J	0.4 J	1.6 J
DIBENZ(A,H)ANTHRACENE	6.1 U	5.3 U	0.87 J	3.4 J	5.2 U	5.2 U	0.25 J
FLUORANTHENE	0.47 J	0.42 J	2.4 J	0.86 J	0.43 J	0.8 J	0.36 J
FLUORENE	6.1 U	5.3 U	5.7 U	2.6 J	5.2 U	5.2 U	0.41 J
INDENO(1,2,3-CD)PYRENE	0.41 J	5.3 U	1.7 J	2.2 J	0.31 J	0.84 J	0.23 J
NAPHTHALENE	0.3 J	5.3 U	5.7 U	1.2 J	5.2 U	5.2 U	0.5 J
PHENANTHRENE	0.3 J	0.28 J	0.95 J	7.8	0.29 J	0.38 J	2.3 J
PYRENE	0.62 J	5.3 U	2.7 J	7	0.51 J	1 J	1.2 J

Notes:

UG/KG Micrograms per kilogram

TABLE E-19: SITE 9 VOLATILE ORGANIC COMPOUNDS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	CPT-S09-05	CPT-S09-05	CPT-S09-05	CPT-S09-06	CPT-S09-06	CPT-S09-06
Sample Code	280-S09-004	280-S09-005	280-S09-006	280-S09-007	280-S09-008	280-S09-009
Sampling Date	9/8/1994	9/8/1994	9/8/1994	9/8/1994	9/8/1994	9/8/1994
Sampling Depth (feet bgs)	0 - 0.5	2.5 - 3	4.7 - 5.2	0 - 0.5	2.5 - 3	4.7 - 5.2
Units	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Investigation	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994
Analyte						
1,1,1,2-TETRACHLOROETHANE						
1,1,1-TRICHLOROETHANE	11 U	11 U	13 U	11 U	11 U	11 U
1,1,2,2-TETRACHLOROETHANE	11 U	11 U	13 U	11 U	11 U	11 U
1,1,2-TRICHLOROETHANE	11 U	11 U	13 U	11 U	11 U	11 U
1,1-DICHLOROETHANE	11 U	11 U	13 U	11 U	11 U	11 U
1,1-DICHLOROETHENE	11 U	11 U	13 U	11 U	11 U	11 U
1,1-DICHLOROPROPENE						
1,2,3-TRICHLOROBENZENE						
1,2,3-TRICHLOROPROPANE						
1,2,4-TRICHLOROBENZENE						
1,2,4-TRIMETHYLBENZENE						
1,2-DIBROMO-3-CHLOROPROPANE						
1,2-DICHLOROBENZENE						
1,2-DICHLOROETHANE	11 U	11 U	13 U	11 U	11 U	11 U
1,2-DICHLOROETHENE (TOTAL)	11 U	11 U	3 J	11 U	11 U	11 U
1,2-DICHLOROPROPANE	11 U	11 U	13 U	11 U	11 U	11 U
1,3,5-TRIMETHYLBENZENE						
1,3-DICHLOROBENZENE						
1,3-DICHLOROPROPANE						
1,4-DICHLOROBENZENE						
2,2-DICHLOROPROPANE						
2-BUTANONE	11 U	11 UJ	13 UJ	11 U	11 U	11 U
2-CHLOROETHYLVINYLETHER						
2-CHLOROTOLUENE						
2-HEXANONE	11 U	11 UJ	13 UJ	11 U	11 U	11 U
4-CHLOROTOLUENE						
4-METHYL-2-PENTANONE	11 U	11 U	13 U	11 U	11 U	11 U
ACETONE	11 UJ	11 U	72 UJ	11 UJ	11 UJ	11 UJ
BENZENE	11 U	11 U	13 U	11 U	11 U	11 U
BROMOBENZENE						
BROMOCHLOROMETHANE						
BROMODICHLOROMETHANE	11 U	11 U	13 U	11 U	11 U	11 U
BROMOFORM	11 U	11 U	13 U	11 U	11 U	11 U
BROMOMETHANE	11 U	11 U	13 U	11 U	11 U	11 U
CARBON DISULFIDE	11 UJ	11 UJ	13 UJ	11 UJ	11 UJ	11 UJ
CARBON TETRACHLORIDE	11 U	11 U	13 U	11 U	11 U	11 U
CHLOROBENZENE	11 U	11 U	13 U	11 U	11 U	11 U
CHLOROETHANE	11 U	11 U	13 U	11 U	11 U	11 U
CHLOROFORM	11 U	11 U	13 U	11 U	11 U	11 U
CHLOROMETHANE	11 UJ	11 UJ	13 UJ	11 UJ	11 UJ	11 UJ
CIS-1,2-DICHLOROETHENE						
CIS-1,3-DICHLOROPROPENE	11 U	11 U	13 U	11 U	11 U	11 U
DIBROMOCHLOROMETHANE	11 U	11 U	13 U	11 U	11 U	11 U
DIBROMOMETHANE						
DICHLORODIFLUOROMETHANE						
ETHYLBENZENE	11 U	11 U	160	11 U	11 U	11 U
ETHYLENE DIBROMIDE						
HEXACHLOROBUTADIENE						
HEXANE						

TABLE E-19: SITE 9 VOLATILE ORGANIC COMPOUNDS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	CPT-S09-05	CPT-S09-05	CPT-S09-05	CPT-S09-06	CPT-S09-06	CPT-S09-06
Sample Code	280-S09-004	280-S09-005	280-S09-006	280-S09-007	280-S09-008	280-S09-009
Sampling Date	9/8/1994	9/8/1994	9/8/1994	9/8/1994	9/8/1994	9/8/1994
Sampling Depth (feet bgs)	0 - 0.5	2.5 - 3	4.7 - 5.2	0 - 0.5	2.5 - 3	4.7 - 5.2
Units	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Investigation	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994
Analyte						
ISOPROPYLBENZENE						
M,P-XYLENE						
METHYLENE CHLORIDE	11 U	11 U	13 U	11 U	11 U	11 U
METHYL-T-BUTYL ETHER						
NAPHTHALENE						
N-BUTYLBENZENE						
N-PROPYLBENZENE						
O-XYLENE						
P-ISOPROPYLTOLUENE						
SEC-BUTYLBENZENE						
STYRENE	11 U	11 U	13 U	11 U	11 U	11 U
TERT-BUTYLBENZENE						
TETRACHLOROETHENE	11 UJ	11 U	13 U	11 UJ	11 UJ	11 UJ
TOLUENE	11 U	11 U	3 J	11 U	11 U	11 U
TRANS-1,2-DICHLOROETHENE						
TRANS-1,3-DICHLOROPROPENE	11 U	11 U	13 U	11 U	11 U	11 U
TRICHLOROETHENE	11 U	11 U	13 U	11 U	11 U	11 U
TRICHLOROFLUOROMETHANE						
VINYL ACETATE						
VINYL CHLORIDE	11 U	11 U	13 U	11 U	11 U	11 U
XYLENE (TOTAL)	2 J	11 U	86	11 U	11 U	11 U

Notes:

UG/KG Micrograms per kilogram

TABLE E-19: SITE 9 VOLATILE ORGANIC COMPOUNDS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	CPT-S09-07	CPT-S09-07	CPT-S09-07	CPT-S09-08	CPT-S09-08	CPT-S09-08
Sample Code	280-S09-010	280-S09-011	280-S09-012	280-S09-013	280-S09-014	280-S09-015
Sampling Date	9/7/1994	9/7/1994	9/7/1994	9/8/1994	9/8/1994	9/9/1994
Sampling Depth (feet bgs)	0 - 0.5	2.5 - 3	5 - 5.5	0 - 0.5	2.5 - 3	5 - 5.5
Units	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Investigation	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994
Analyte						
1,1,1,2-TETRACHLOROETHANE						
1,1,1-TRICHLOROETHANE	120 U	54 U	11 U	53 U	52 U	57 U
1,1,2,2-TETRACHLOROETHANE	120 U	54 U	11 U	53 U	52 U	57 U
1,1,2-TRICHLOROETHANE	120 U	54 U	11 U	53 U	52 U	57 U
1,1-DICHLOROETHANE	120 U	54 U	11 U	53 U	52 U	57 U
1,1-DICHLOROETHENE	120 U	54 U	11 U	53 U	52 U	57 U
1,1-DICHLOROPROPENE						
1,2,3-TRICHLOROBENZENE						
1,2,3-TRICHLOROPROPANE						
1,2,4-TRICHLOROBENZENE						
1,2,4-TRIMETHYLBENZENE						
1,2-DIBROMO-3-CHLOROPROPANE						
1,2-DICHLOROBENZENE						
1,2-DICHLOROETHANE	120 U	54 U	11 U	53 U	52 U	57 U
1,2-DICHLOROETHENE (TOTAL)	120 U	54 U	11 U	53 U	52 U	57 U
1,2-DICHLOROPROPANE	120 U	54 U	11 U	53 U	52 U	57 U
1,3,5-TRIMETHYLBENZENE						
1,3-DICHLOROBENZENE						
1,3-DICHLOROPROPANE						
1,4-DICHLOROBENZENE						
2,2-DICHLOROPROPANE						
2-BUTANONE	120 U	54 U	11 U	53 U	52 U	57 U
2-CHLOROETHYLVINYLETHER						
2-CHLOROTOLUENE						
2-HEXANONE	120 UJ	54 U	11 UJ	53 U	52 U	57 U
4-CHLOROTOLUENE						
4-METHYL-2-PENTANONE	120 U	54 U	11 U	53 U	52 U	57 U
ACETONE	120 U	54 U	11 U	53 UJ	52 UJ	57 U
BENZENE	120 U	54 U	11 U	53 U	52 U	57 U
BROMOBENZENE						
BROMOCHLOROMETHANE						
BROMODICHLOROMETHANE	120 U	54 U	11 U	53 U	52 U	57 U
BROMOFORM	120 U	54 U	11 U	53 U	52 U	57 U
BROMOMETHANE	120 U	54 U	11 U	53 U	52 U	57 U
CARBON DISULFIDE	120 UJ	54 UJ	11 UJ	53 UJ	52 UJ	57 UJ
CARBON TETRACHLORIDE	120 U	54 U	11 U	53 U	52 U	57 U
CHLOROBENZENE	120 U	54 U	11 U	53 U	52 U	57 U
CHLOROETHANE	120 U	54 U	11 U	53 U	52 U	57 U
CHLOROFORM	120 U	54 U	11 U	53 U	52 U	57 U
CHLOROMETHANE	120 UJ	54 UJ	11 UJ	53 UJ	52 UJ	57 UJ
CIS-1,2-DICHLOROETHENE						
CIS-1,3-DICHLOROPROPENE	120 U	54 U	11 U	53 U	52 U	57 U
DIBROMOCHLOROMETHANE	120 U	54 U	11 U	53 U	52 U	57 U
DIBROMOMETHANE						
DICHLORODIFLUOROMETHANE						
ETHYLBENZENE	120 U	54 U	11 U	53 U	52 U	57 U
ETHYLENE DIBROMIDE						
HEXACHLOROBUTADIENE						
HEXANE						

TABLE E-19: SITE 9 VOLATILE ORGANIC COMPOUNDS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	CPT-S09-07	CPT-S09-07	CPT-S09-07	CPT-S09-08	CPT-S09-08	CPT-S09-08
Sample Code	280-S09-010	280-S09-011	280-S09-012	280-S09-013	280-S09-014	280-S09-015
Sampling Date	9/7/1994	9/7/1994	9/7/1994	9/8/1994	9/8/1994	9/9/1994
Sampling Depth (feet bgs)	0 - 0.5	2.5 - 3	5 - 5.5	0 - 0.5	2.5 - 3	5 - 5.5
Units	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Investigation	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994
Analyte						
ISOPROPYLBENZENE						
M,P-XYLENE						
METHYLENE CHLORIDE	120 U	54 U	11 UJ	53 U	52 UJ	57 UJ
METHYL-T-BUTYL ETHER						
NAPHTHALENE						
N-BUTYLBENZENE						
N-PROPYLBENZENE						
O-XYLENE						
P-ISOPROPYLTOLUENE						
SEC-BUTYLBENZENE						
STYRENE	120 U	54 U	11 U	53 U	52 U	57 U
TERT-BUTYLBENZENE						
TETRACHLOROETHENE	120 U	54 U	11 U	53 UJ	52 U	57 U
TOLUENE	120 U	54 U	11 U	53 U	52 U	57 U
TRANS-1,2-DICHLOROETHENE						
TRANS-1,3-DICHLOROPROPENE	120 U	54 U	11 U	53 U	52 U	57 U
TRICHLOROETHENE	120 U	54 U	11 U	53 U	52 U	57 U
TRICHLOROFLUOROMETHANE						
VINYL ACETATE						
VINYL CHLORIDE	120 U	54 U	11 U	53 U	52 UJ	57 UJ
XYLENE (TOTAL)	120 U	240	11 U	53 U	120	2900

Notes:

UG/KG Micrograms per kilogram

TABLE E-19: SITE 9 VOLATILE ORGANIC COMPOUNDS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	CPT-S09-09	CPT-S09-09	CPT-S09-09	CPT-S09-10	CPT-S09-10	CPT-S09-10
Sample Code	280-S09-016	280-S09-017	280-S09-018	280-S09-019	280-S09-020	280-S09-021
Sampling Date	9/7/1994	9/7/1994	9/7/1994	9/9/1994	9/9/1994	9/9/1994
Sampling Depth (feet bgs)	0 -	2.5 -	5 -	0 - 0.5	2.5 - 3	5 - 5.5
Units	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Investigation	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994
Analyte						
1,1,1,2-TETRACHLOROETHANE						
1,1,1-TRICHLOROETHANE	11 U	11 U	11 U	54 U	52 U	55 U
1,1,2,2-TETRACHLOROETHANE	11 U	11 U	11 U	54 U	52 U	55 U
1,1,2-TRICHLOROETHANE	11 U	11 U	11 U	54 U	52 U	55 U
1,1-DICHLOROETHANE	11 U	11 U	11 U	54 U	52 U	55 U
1,1-DICHLOROETHENE	11 U	11 U	11 U	54 U	52 U	55 U
1,1-DICHLOROPROPENE						
1,2,3-TRICHLOROBENZENE						
1,2,3-TRICHLOROPROPANE						
1,2,4-TRICHLOROBENZENE						
1,2,4-TRIMETHYLBENZENE						
1,2-DIBROMO-3-CHLOROPROPANE						
1,2-DICHLOROBENZENE						
1,2-DICHLOROETHANE	11 U	11 U	11 U	54 U	52 U	55 U
1,2-DICHLOROETHENE (TOTAL)	1 J	11 U	11 U	130	52 U	55 U
1,2-DICHLOROPROPANE	11 U	11 U	11 U	54 U	52 U	55 U
1,3,5-TRIMETHYLBENZENE						
1,3-DICHLOROBENZENE						
1,3-DICHLOROPROPANE						
1,4-DICHLOROBENZENE						
2,2-DICHLOROPROPANE						
2-BUTANONE	11 U	11 U	11 U	54 U	52 U	55 U
2-CHLOROETHYLVINYLETHER						
2-CHLOROTOLUENE						
2-HEXANONE	11 UJ	11 UJ	11 UJ	54 U	52 U	55 U
4-CHLOROTOLUENE						
4-METHYL-2-PENTANONE	11 U	11 U	11 U	54 U	52 U	55 U
ACETONE	11 U	11 U	11 UJ	54 U	52 U	55 U
BENZENE	11 U	11 U	11 U	54 U	52 U	55 U
BROMOBENZENE						
BROMOCHLOROMETHANE						
BROMODICHLOROMETHANE	11 U	11 U	11 U	54 U	52 U	55 U
BROMOFORM	11 U	11 U	11 U	54 U	52 U	55 U
BROMOMETHANE	11 U	11 U	11 U	54 U	52 U	55 U
CARBON DISULFIDE	11 UJ	11 UJ	11 UJ	54 UJ	52 UJ	55 UJ
CARBON TETRACHLORIDE	11 U	11 U	11 U	54 U	52 U	55 U
CHLOROBENZENE	11 U	11 U	11 U	54 U	52 U	55 U
CHLOROETHANE	11 U	11 U	11 U	54 UJ	52 U	55 U
CHLOROFORM	11 U	11 U	11 U	54 U	52 U	55 U
CHLOROMETHANE	11 UJ	11 UJ	11 UJ	54 UJ	52 UJ	55 UJ
CIS-1,2-DICHLOROETHENE						
CIS-1,3-DICHLOROPROPENE	11 U	11 U	11 U	54 U	52 U	55 U
DIBROMOCHLOROMETHANE	11 U	11 U	11 U	54 U	52 U	55 U
DIBROMOMETHANE						
DICHLORODIFLUOROMETHANE						
ETHYLBENZENE	11 U	11 U	11 U	200	52 U	55 U
ETHYLENE DIBROMIDE						
HEXACHLOROBUTADIENE						
HEXANE						

TABLE E-19: SITE 9 VOLATILE ORGANIC COMPOUNDS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	CPT-S09-09	CPT-S09-09	CPT-S09-09	CPT-S09-10	CPT-S09-10	CPT-S09-10
Sample Code	280-S09-016	280-S09-017	280-S09-018	280-S09-019	280-S09-020	280-S09-021
Sampling Date	9/7/1994	9/7/1994	9/7/1994	9/9/1994	9/9/1994	9/9/1994
Sampling Depth (feet bgs)	0 -	2.5 -	5 -	0 - 0.5	2.5 - 3	5 - 5.5
Units	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Investigation	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994
Analyte						
ISOPROPYLBENZENE						
M,P-XYLENE						
METHYLENE CHLORIDE	11 U	11 UJ	11 UJ	54 U	52 UJ	55 U
METHYL-T-BUTYL ETHER						
NAPHTHALENE						
N-BUTYLBENZENE						
N-PROPYLBENZENE						
O-XYLENE						
P-ISOPROPYLTOLUENE						
SEC-BUTYLBENZENE						
STYRENE	11 U	11 U	11 U	54 U	52 U	55 U
TERT-BUTYLBENZENE						
TETRACHLOROETHENE	11 U	11 U	11 U	54 U	52 U	55 U
TOLUENE	11 U	11 U	11 U	49 J	52 U	55 U
TRANS-1,2-DICHLOROETHENE						
TRANS-1,3-DICHLOROPROPENE	11 U	11 U	11 U	54 U	52 U	55 U
TRICHLOROETHENE	11 U	11 U	11 U	54 U	52 U	55 U
TRICHLOROFLUOROMETHANE						
VINYL ACETATE						
VINYL CHLORIDE	11 U	11 U	11 U	54 UJ	52 UJ	55 UJ
XYLENE (TOTAL)	11 U	11 U	11 U	3100	39 J	330

Notes:

UG/KG Micrograms per kilogram

TABLE E-19: SITE 9 VOLATILE ORGANIC COMPOUNDS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	M09-06	M09-06	M09-06	9S-CH1	9S-CH2	9S-CH3
Sample Code	280-S09-167	280-S09-168	280-S09-169	9S-CH1	9S-CH2	9S-CH3
Sampling Date	11/5/1994	11/5/1994	11/5/1994	6/21/2002	6/21/2002	6/21/2002
Sampling Depth (feet bgs)	1 - 2	2.5 - 3.5	5.5 - 6.5	5 - 15	5 - 15	5 - 15
Units	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Investigation	FO 1994	FO 1994	FO 1994	CHEMOX RA	CHEMOX RA	CHEMOX RA
Analyte						
1,1,1,2-TETRACHLOROETHANE				5.1 U	5.3 U	7.1 U
1,1,1-TRICHLOROETHANE	11 U	11 U	11 U	5.1 U	5.3 U	7.1 U
1,1,2,2-TETRACHLOROETHANE	11 U	11 U	11 U	5.1 U	5.3 U	7.1 U
1,1,2-TRICHLOROETHANE	11 U	11 U	11 U	5.1 U	5.3 U	7.1 U
1,1-DICHLOROETHANE	11 UJ	11 U	11 UJ	5.1 U	5.3 U	7.1 U
1,1-DICHLOROETHENE	11 U	11 U	11 U	5.1 U	5.3 U	7.1 U
1,1-DICHLOROPROPENE				5.1 U	5.3 U	7.1 U
1,2,3-TRICHLOROBENZENE				5.1 U	5.3 U	7.1 U
1,2,3-TRICHLOROPROPANE				5.1 U	5.3 U	7.1 U
1,2,4-TRICHLOROBENZENE				5.1 U	5.3 U	7.1 U
1,2,4-TRIMETHYLBENZENE				5.1 U	25	28000
1,2-DIBROMO-3-CHLOROPROPANE				5.1 U	5.3 U	7.1 U
1,2-DICHLOROBENZENE				5.1 U	5.3 U	7.1 U
1,2-DICHLOROETHANE	11 U	11 U	11 U	5.1 U	5.3 U	7.1 U
1,2-DICHLOROETHENE (TOTAL)	11 U	11 U	11 U			
1,2-DICHLOROPROPANE	11 U	11 U	11 U	5.1 U	5.3 U	7.1 U
1,3,5-TRIMETHYLBENZENE				5.1 U	5.3 U	2400
1,3-DICHLOROBENZENE				5.1 U	5.3 U	7.1 U
1,3-DICHLOROPROPANE				5.1 U	5.3 U	7.1 U
1,4-DICHLOROBENZENE				5.1 U	5.3 U	7.1 U
2,2-DICHLOROPROPANE				5.1 U	5.3 U	7.1 U
2-BUTANONE	11 U	11 U	11 U	10 U	11 U	14 U
2-CHLOROETHYLVINYLETHER						
2-CHLOROTOLUENE				5.1 U	5.3 U	7.1 U
2-HEXANONE	11 U	11 U	11 U	10 U	11 U	14 U
4-CHLOROTOLUENE				5.1 U	5.3 U	7.1 U
4-METHYL-2-PENTANONE	11 U	11 U	11 U	10 U	11 U	14 U
ACETONE	14 UJ	11 UJ	11 UJ	24	24	51.7
BENZENE	11 U	11 U	11 U	5.1 U	5.3 U	7.1 U
BROMOBENZENE				5.1 U	5.3 U	7.1 U
BROMOCHLOROMETHANE				5.1 U	5.3 U	7.1 U
BROMODICHLOROMETHANE	11 U	11 U	11 U	5.1 U	5.3 U	7.1 U
BROMOFORM	11 U	11 U	11 U	5.1 U	5.3 U	7.1 U
BROMOMETHANE	11 U	11 U	11 U	10 U	11 U	14 U
CARBON DISULFIDE	11 U	11 U	11 U			
CARBON TETRACHLORIDE	11 U	11 U	11 U	5.1 U	5.3 U	7.1 U
CHLOROBENZENE	11 U	11 U	11 U	5.1 U	5.3 U	7.1 U
CHLOROETHANE	11 UJ	11 U	11 UJ	10 U	11 U	14 U
CHLOROFORM	11 U	11 U	11 U	5.1 U	5.3 U	7.1 U
CHLOROMETHANE	11 U	11 U	11 U	10 U	11 U	14 U
CIS-1,2-DICHLOROETHENE				5.1 U	5.3 U	23
CIS-1,3-DICHLOROPROPENE	11 U	11 U	11 U			
DIBROMOCHLOROMETHANE	11 U	11 U	11 U	5.1 U	5.3 U	7.1 U
DIBROMOMETHANE				5.1 U	5.3 U	7.1 U
DICHLORODIFLUOROMETHANE				5.1 U	5.3 U	7.1 U
ETHYLBENZENE	11 U	11 U	11 U	5.1 U	5.3 U	120
ETHYLENE DIBROMIDE				5.1 U	5.3 U	7.1 U
HEXACHLOROBUTADIENE				5.1 U	5.3 U	7.1 U
HEXANE						

TABLE E-19: SITE 9 VOLATILE ORGANIC COMPOUNDS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	M09-06	M09-06	M09-06	9S-CH1	9S-CH2	9S-CH3
Sample Code	280-S09-167	280-S09-168	280-S09-169	9S-CH1	9S-CH2	9S-CH3
Sampling Date	11/5/1994	11/5/1994	11/5/1994	6/21/2002	6/21/2002	6/21/2002
Sampling Depth (feet bgs)	1 - 2	2.5 - 3.5	5.5 - 6.5	5 - 15	5 - 15	5 - 15
Units	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Investigation	FO 1994	FO 1994	FO 1994	CHEMOX RA	CHEMOX RA	CHEMOX RA
Analyte						
ISOPROPYLBENZENE				2.1 J	8.8	100
M,P-XYLENE				5.1 U	5.3 U	320
METHYLENE CHLORIDE	11 UJ	11 UJ	11 UJ	5.6 JB	6.9 JB	7.7 JB
METHYL-T-BUTYL ETHER				5.1 U	5.3 U	7.1 U
NAPHTHALENE				13	40	170
N-BUTYLBENZENE				5.1 U	5.3 U	150
N-PROPYLBENZENE				5.1 U	5.3 U	240
O-XYLENE				5.1 U	5.3 U	47
P-ISOPROPYLTOLUENE				5.1 U	5.3 U	7.1 U
SEC-BUTYLBENZENE				5.1 U	5.3 U	110
STYRENE	11 U	11 U	11 U	5.1 U	5.3 U	7.1 U
TERT-BUTYLBENZENE				5.1 U	5.3 U	150
TETRACHLOROETHENE	11 U	11 U	11 U	5.1 U	5.3 U	7.1 U
TOLUENE	11 U	4 J	11 U	5.1 U	5.3 U	12
TRANS-1,2-DICHLOROETHENE				5.1 U	5.3 U	7.1 U
TRANS-1,3-DICHLOROPROPENE	11 U	11 U	11 U			
TRICHLOROETHENE	11 U	11 U	11 U	5.1 U	5.3 U	7.1 U
TRICHLOROFLUOROMETHANE				5.1 U	5.3 U	7.1 U
VINYL ACETATE						
VINYL CHLORIDE	11 U	11 U	11 U	10 U	11 U	14 U
XYLENE (TOTAL)	11 U	11 U	11 U			

Notes:

UG/KG Micrograms per kilogram

TABLE E-19: SITE 9 VOLATILE ORGANIC COMPOUNDS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	B410-5	B410-5	B410-5	B410-5	B410-5
Sample Code	B410-5 [10.5-11.0]	B410-5 [14.0-14.5]	B410-5 [2.0-2.5]	B410-5 [5.0-5.5]	B410-5 [8.0-8.5]
Sampling Date	7/8/1990	7/8/1990	7/8/1990	7/8/1990	7/8/1990
Sampling Depth (feet bgs)	10.5 - 11	14 - 14.5	2 - 2.5	5 - 5.5	8 - 8.5
Units	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Investigation	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991
Analyte					
1,1,1,2-TETRACHLOROETHANE					
1,1,1-TRICHLOROETHANE	6 U	6 U	5 U	5 U	6 U
1,1,2,2-TETRACHLOROETHANE	6 U	6 U	5 U	5 U	6 U
1,1,2-TRICHLOROETHANE	6 U	6 U	5 U	5 U	6 U
1,1-DICHLOROETHANE	6 U	6 U	5 U	5 U	6 U
1,1-DICHLOROETHENE	6 U	6 U	5 U	5 U	6 U
1,1-DICHLOROPROPENE					
1,2,3-TRICHLOROBENZENE					
1,2,3-TRICHLOROPROPANE					
1,2,4-TRICHLOROBENZENE					
1,2,4-TRIMETHYLBENZENE					
1,2-DIBROMO-3-CHLOROPROPANE					
1,2-DICHLOROBENZENE	400 U	850 U	340 U	350 U	390 U
1,2-DICHLOROETHANE	6 U	6 U	5 U	5 U	6 U
1,2-DICHLOROETHENE (TOTAL)	6 U	6 U	5 U	5 U	6 U
1,2-DICHLOROPROPANE	6 U	6 U	5 U	5 U	6 U
1,3,5-TRIMETHYLBENZENE					
1,3-DICHLOROBENZENE	400 U	850 U	340 U	350 U	390 U
1,3-DICHLOROPROPANE					
1,4-DICHLOROBENZENE	400 U	850 U	340 U	350 U	390 U
2,2-DICHLOROPROPANE					
2-BUTANONE	12 U	13 U	10 U	11 U	12 U
2-CHLOROETHYLVINYLETHER	12 U	13 U	10 U	11 U	12 U
2-CHLOROTOLUENE					
2-HEXANONE	12 U	13 U	10 U	11 U	12 U
4-CHLOROTOLUENE					
4-METHYL-2-PENTANONE	12 U	13 U	10 U	11 U	12 U
ACETONE	24 UJ	54 UJ	10 UJ	11 UJ	12 UJ
BENZENE	6 U	6 U	5 U	5 U	6 U
BROMOBENZENE					
BROMOCHLOROMETHANE					
BROMODICHLOROMETHANE	6 U	6 U	5 U	5 U	6 U
BROMOFORM	6 U	6 U	5 U	5 U	6 U
BROMOMETHANE	12 U	13 U	10 U	11 U	12 U
CARBON DISULFIDE	6 U	6 UJ	5 U	5 U	6 U
CARBON TETRACHLORIDE	6 U	6 U	5 U	5 U	6 U
CHLOROBENZENE	6 U	6 U	5 U	5 U	6 U
CHLOROETHANE	12 U	13 U	10 U	11 U	12 U
CHLOROFORM	6 U	6 U	5 U	5 U	6 U
CHLOROMETHANE	12 U	13 U	10 U	11 U	12 U
CIS-1,2-DICHLOROETHENE					
CIS-1,3-DICHLOROPROPENE	6 U	6 U	5 U	5 U	6 U
DIBROMOCHLOROMETHANE	6 U	6 U	5 U	5 U	6 U
DIBROMOMETHANE					
DICHLORODIFLUOROMETHANE					
ETHYLBENZENE	6 U	6 U	5 U	5 U	6 U
ETHYLENE DIBROMIDE					
HEXACHLOROBUTADIENE					
HEXANE					

TABLE E-19: SITE 9 VOLATILE ORGANIC COMPOUNDS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	B410-5	B410-5	B410-5	B410-5	B410-5
Sample Code	B410-5 [10.5-11.0]	B410-5 [14.0-14.5]	B410-5 [2.0-2.5]	B410-5 [5.0-5.5]	B410-5 [8.0-8.5]
Sampling Date	7/8/1990	7/8/1990	7/8/1990	7/8/1990	7/8/1990
Sampling Depth (feet bgs)	10.5 - 11	14 - 14.5	2 - 2.5	5 - 5.5	8 - 8.5
Units	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Investigation	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991
Analyte					
ISOPROPYLBENZENE					
M,P-XYLENE					
METHYLENE CHLORIDE	8 UJ	11 UJ	10 UJ	11 UJ	6 UJ
METHYL-T-BUTYL ETHER					
NAPHTHALENE					
N-BUTYLBENZENE					
N-PROPYLBENZENE					
O-XYLENE					
P-ISOPROPYLTOLUENE					
SEC-BUTYLBENZENE					
STYRENE	6 U	6 U	5 U	5 U	6 U
TERT-BUTYLBENZENE					
TETRACHLOROETHENE	6 U	6 U	5 U	5 U	6 U
TOLUENE	32	54	17	40	6 U
TRANS-1,2-DICHLOROETHENE					
TRANS-1,3-DICHLOROPROPENE	6 U	6 U	5 U	5 U	6 U
TRICHLOROETHENE	6 U	6 U	5 U	5 U	6 U
TRICHLOROFLUOROMETHANE	6 U	6 U	5 U	5 U	6 U
VINYL ACETATE	12 U	13 U	10 U	11 U	12 U
VINYL CHLORIDE	12 U	13 U	10 U	11 U	12 U
XYLENE (TOTAL)	6 U	6 U	5 U	5 U	6 U

Notes:

UG/KG Micrograms per kilogram

TABLE E-19: SITE 9 VOLATILE ORGANIC COMPOUNDS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	B410-7	B410-7	B410-7	B410-7	B410-7
Sample Code	B410-7 [11.0-11.5]	B410-7 [14.5-15.0]	B410-7 [2.5-3.0]	B410-7 [5.5-6.0]	B410-7 [8.5-9.0]
Sampling Date	7/16/1990	7/16/1990	7/12/1990	7/16/1990	7/16/1990
Sampling Depth (feet bgs)	11 - 11.5	14.5 - 15	2.5 - 3	5.5 - 6	8.5 - 9
Units	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Investigation	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991
Analyte					
1,1,1,2-TETRACHLOROETHANE					
1,1,1-TRICHLOROETHANE	7 U	7 U	27 U	6 U	7 U
1,1,2,2-TETRACHLOROETHANE	7 U	7 U	27 U	6 U	7 U
1,1,2-TRICHLOROETHANE	7 U	7 U	27 U	6 U	7 U
1,1-DICHLOROETHANE	7 U	7 U	27 U	6 U	7 U
1,1-DICHLOROETHENE	7 U	7 U	27 U	6 U	7 U
1,1-DICHLOROPROPENE					
1,2,3-TRICHLOROBENZENE					
1,2,3-TRICHLOROPROPANE					
1,2,4-TRICHLOROBENZENE					
1,2,4-TRIMETHYLBENZENE					
1,2-DIBROMO-3-CHLOROPROPANE					
1,2-DICHLOROBENZENE	7 U	7 U	27 U	6 U	7 U
1,2-DICHLOROETHANE	7 U	7 U	27 U	6 U	7 U
1,2-DICHLOROETHENE (TOTAL)	7 U	7 U	27 U	6 U	7 U
1,2-DICHLOROPROPANE	7 U	7 U	27 U	6 U	7 U
1,3,5-TRIMETHYLBENZENE					
1,3-DICHLOROBENZENE	7 U	7 U	27 U	6 U	7 U
1,3-DICHLOROPROPANE					
1,4-DICHLOROBENZENE	7 U	7 U	27 U	6 U	7 U
2,2-DICHLOROPROPANE					
2-BUTANONE	14 UJ	13 UJ	9 BDJ	11 UJ	14 UJ
2-CHLOROETHYLVINYLETHER	14 U	13 U	55 U	11 U	14 U
2-CHLOROTOLUENE					
2-HEXANONE	14 U	13 U	55 U	11 U	14 U
4-CHLOROTOLUENE					
4-METHYL-2-PENTANONE	14 U	13 U	55 U	11 U	14 U
ACETONE	27 UJ	16 UJ	55 U	20 UJ	23 UJ
BENZENE	7 U	7 U	27 U	6 U	7 U
BROMOBENZENE					
BROMOCHLOROMETHANE					
BROMODICHLOROMETHANE	7 U	7 U	27 U	6 U	7 U
BROMOFORM	7 U	7 U	27 U	6 U	7 U
BROMOMETHANE	14 U	13 U	55 U	11 U	14 U
CARBON DISULFIDE	7 UJ	7 UJ	27 U	6 U	7 U
CARBON TETRACHLORIDE	7 U	7 U	27 U	6 U	7 U
CHLOROBENZENE	7 U	7 U	27 U	6 U	7 U
CHLOROETHANE	14 U	13 U	55 U	11 U	14 U
CHLOROFORM	7 U	7 U	27 U	6 U	7 U
CHLOROMETHANE	14 U	13 U	55 U	11 U	14 U
CIS-1,2-DICHLOROETHENE					
CIS-1,3-DICHLOROPROPENE	7 U	7 U	27 U	6 U	7 U
DIBROMOCHLOROMETHANE	7 U	7 U	27 U	6 U	7 U
DIBROMOMETHANE					
DICHLORODIFLUOROMETHANE					
ETHYLBENZENE	7 U	7 U	27 U	6 U	7 U
ETHYLENE DIBROMIDE					
HEXACHLOROBUTADIENE					
HEXANE					

TABLE E-19: SITE 9 VOLATILE ORGANIC COMPOUNDS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	B410-7	B410-7	B410-7	B410-7	B410-7
Sample Code	B410-7 [11.0-11.5]	B410-7 [14.5-15.0]	B410-7 [2.5-3.0]	B410-7 [5.5-6.0]	B410-7 [8.5-9.0]
Sampling Date	7/16/1990	7/16/1990	7/12/1990	7/16/1990	7/16/1990
Sampling Depth (feet bgs)	11 - 11.5	14.5 - 15	2.5 - 3	5.5 - 6	8.5 - 9
Units	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Investigation	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991
Analyte					
ISOPROPYLBENZENE					
M,P-XYLENE					
METHYLENE CHLORIDE	8 UJ	11 UJ	27 U	6 UJ	12 UJ
METHYL-T-BUTYL ETHER					
NAPHTHALENE					
N-BUTYLBENZENE					
N-PROPYLBENZENE					
O-XYLENE					
P-ISOPROPYLTOLUENE					
SEC-BUTYLBENZENE					
STYRENE	7 U	7 U	27 U	6 U	7 U
TERT-BUTYLBENZENE					
TETRACHLOROETHENE	7 U	7 U	27 U	6 U	7 U
TOLUENE	30	12	730 D	110	56
TRANS-1,2-DICHLOROETHENE					
TRANS-1,3-DICHLOROPROPENE	7 U	7 U	27 U	6 U	7 U
TRICHLOROETHENE	7 U	7 U	27 U	6 U	7 U
TRICHLOROFLUOROMETHANE	7 U	7 U	27 U	6 U	7 U
VINYL ACETATE	14 U	13 U	55 U	11 U	14 U
VINYL CHLORIDE	14 U	13 U	55 U	11 U	14 U
XYLENE (TOTAL)	7 U	7 U	27 U	6 U	7 U

Notes:

UG/KG Micrograms per kilogram

TABLE E-19: SITE 9 VOLATILE ORGANIC COMPOUNDS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	B410-8	B410-8	B410-8	B410-8	B410-8
Sample Code	B410-8 [2.5-3.0]	B410-8 [4.0-4.5]	B410-8 [5.5-6.0]	B410-8 [7.0-7.5]	B410-8 [8.5-9.0]
Sampling Date	7/16/1990	7/16/1990	7/16/1990	7/16/1990	7/16/1990
Sampling Depth (feet bgs)	2.5 - 3	4 - 4.5	5.5 - 6	7 - 7.5	8.5 - 9
Units	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Investigation	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991
Analyte					
1,1,1,2-TETRACHLOROETHANE					
1,1,1-TRICHLOROETHANE	5 U	5 U	5 U	6 U	
1,1,2,2-TETRACHLOROETHANE	5 U	5 U	5 U	6 U	
1,1,2-TRICHLOROETHANE	5 U	5 U	5 U	6 U	
1,1-DICHLOROETHANE	5 U	5 U	5 U		
1,1-DICHLOROETHENE	5 U	5 U	5 U	6 U	6 U
1,1-DICHLOROPROPENE					
1,2,3-TRICHLOROBENZENE					
1,2,3-TRICHLOROPROPANE					
1,2,4-TRICHLOROBENZENE					
1,2,4-TRIMETHYLBENZENE					
1,2-DIBROMO-3-CHLOROPROPANE					
1,2-DICHLOROBENZENE	6 U	5 U	5 U	6 U	
1,2-DICHLOROETHANE	5 U	5 U	5 U		6 U
1,2-DICHLOROETHENE (TOTAL)	5 U	5 U	5 U	4 J	3 J
1,2-DICHLOROPROPANE	5 U	5 U	5 U	6 U	
1,3,5-TRIMETHYLBENZENE					
1,3-DICHLOROBENZENE	6 U	5 U	5 U	6 U	
1,3-DICHLOROPROPANE					
1,4-DICHLOROBENZENE	6 U	5 U	5 U	6 U	
2,2-DICHLOROPROPANE					
2-BUTANONE	11 U	10 U	11 U	12 UJ	
2-CHLOROETHYLVINYLETHER	11 U	10 U	11 U	12 U	
2-CHLOROTOLUENE					
2-HEXANONE	11 U	10 U	11 U	12 U	
4-CHLOROTOLUENE					
4-METHYL-2-PENTANONE	11 U	10 U	11 U	12 U	
ACETONE	11 UJ	10 UJ	11 UJ	14 UJ	
BENZENE	5 U	5 U	5 U	6 U	
BROMOBENZENE					
BROMOCHLOROMETHANE					
BROMODICHLOROMETHANE	5 U	5 U	5 U	6 U	
BROMOFORM	5 U	5 U	5 U	6 U	
BROMOMETHANE	11 U	10 U	11 U	12 U	
CARBON DISULFIDE	5 U	5 U	5 U	6 U	
CARBON TETRACHLORIDE	5 U	5 U	5 U	6 U	
CHLOROBENZENE	6 U	5 U	5 U	6 U	
CHLOROETHANE	11 U	10 U	11 U	12 U	
CHLOROFORM	5 U	5 U	5 U	6 U	
CHLOROMETHANE	11 U	10 U	11 U	12 U	
CIS-1,2-DICHLOROETHENE					
CIS-1,3-DICHLOROPROPENE	5 U	5 U	5 U	6 U	
DIBROMOCHLOROMETHANE	5 U	5 U	5 U	6 U	
DIBROMOMETHANE					
DICHLORODIFLUOROMETHANE					
ETHYLBENZENE	6 U	5 U	5 U	2 J	
ETHYLENE DIBROMIDE					
HEXACHLOROBUTADIENE					
HEXANE					

TABLE E-19: SITE 9 VOLATILE ORGANIC COMPOUNDS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	B410-8	B410-8	B410-8	B410-8	B410-8
Sample Code	B410-8 [2.5-3.0]	B410-8 [4.0-4.5]	B410-8 [5.5-6.0]	B410-8 [7.0-7.5]	B410-8 [8.5-9.0]
Sampling Date	7/16/1990	7/16/1990	7/16/1990	7/16/1990	7/16/1990
Sampling Depth (feet bgs)	2.5 - 3	4 - 4.5	5.5 - 6	7 - 7.5	8.5 - 9
Units	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Investigation	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991
Analyte					
ISOPROPYLBENZENE					
M,P-XYLENE					
METHYLENE CHLORIDE	10 UJ	10 UJ	11 UJ	10 UJ	
METHYL-T-BUTYL ETHER					
NAPHTHALENE					
N-BUTYLBENZENE					
N-PROPYLBENZENE					
O-XYLENE					
P-ISOPROPYLTOLUENE					
SEC-BUTYLBENZENE					
STYRENE	6 U	5 U	5 U	6 U	
TERT-BUTYLBENZENE					
TETRACHLOROETHENE	1 J	5 U	5 U	6 U	
TOLUENE	6	19	25	19	2 J
TRANS-1,2-DICHLOROETHENE					
TRANS-1,3-DICHLOROPROPENE	5 U	5 U	5 U	6 U	
TRICHLOROETHENE	5 U	5 U	5 U	6 U	
TRICHLOROFLUOROMETHANE	5 U	5 U	5 U	6 U	
VINYL ACETATE	11 U	10 U	11 U	12 U	
VINYL CHLORIDE	11 U	10 U	11 U	12 U	
XYLENE (TOTAL)	6 U	5 U	5 U	29	

Notes:

UG/KG Micrograms per kilogram

TABLE E-19: SITE 9 VOLATILE ORGANIC COMPOUNDS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	B410-9	B410-9	B410-9	B410-9	B410-9
Sample Code	B410-9 [11.5-12.0]	B410-9 [14.5-15.0]	B410-9 [2.5-3.0]	B410-9 [5.5-6.0]	B410-9 [8.5-9.0]
Sampling Date	7/8/1990	7/8/1990	7/8/1990	7/8/1990	7/8/1990
Sampling Depth (feet bgs)	11.5 - 12	14.5 - 15	2.5 - 3	5.5 - 6	8.5 - 9
Units	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Investigation	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991
Analyte					
1,1,1,2-TETRACHLOROETHANE					
1,1,1-TRICHLOROETHANE	7 U	7 U	5 U	6 U	6 U
1,1,2,2-TETRACHLOROETHANE	7 U	7 U	5 U	6 U	6 U
1,1,2-TRICHLOROETHANE	7 U	7 U	5 U	6 U	6 U
1,1-DICHLOROETHANE	7 U	7 U	5 U	6 U	6 U
1,1-DICHLOROETHENE	7 U	7 U	5 U	6 U	6 U
1,1-DICHLOROPROPENE					
1,2,3-TRICHLOROBENZENE					
1,2,3-TRICHLOROPROPANE					
1,2,4-TRICHLOROBENZENE					
1,2,4-TRIMETHYLBENZENE					
1,2-DIBROMO-3-CHLOROPROPANE					
1,2-DICHLOROBENZENE	7 U	7 U	5 U	6 U	6 U
1,2-DICHLOROETHANE	7 U	7 U	5 U	6 U	6 U
1,2-DICHLOROETHENE (TOTAL)	7 U	7 U	5 U	6 U	6 U
1,2-DICHLOROPROPANE	7 U	7 U	5 U	6 U	6 U
1,3,5-TRIMETHYLBENZENE					
1,3-DICHLOROBENZENE	7 U	7 U	5 U	6 U	6 U
1,3-DICHLOROPROPANE					
1,4-DICHLOROBENZENE	7 U	7 U	5 U	6 U	6 U
2,2-DICHLOROPROPANE					
2-BUTANONE	13 UJ	14 UJ	10 U	12 U	12 UJ
2-CHLOROETHYLVINYLETHER	13 U	14 U	10 U	12 U	12 U
2-CHLOROTOLUENE					
2-HEXANONE	13 U	14 U	10 U	12 U	12 U
4-CHLOROTOLUENE					
4-METHYL-2-PENTANONE	13 U	14 U	10 U	12 U	12 U
ACETONE	42 UJ	27 UJ	12 UJ	12 UJ	12 UJ
BENZENE	7 U	7 U	5 U	6 U	6 U
BROMOBENZENE					
BROMOCHLOROMETHANE					
BROMODICHLOROMETHANE	7 U	7 U	5 U	6 U	6 U
BROMOFORM	7 U	7 U	5 U	6 U	6 U
BROMOMETHANE	13 U	14 U	10 U	12 U	12 U
CARBON DISULFIDE	7 U	7 UJ	5 U	6 U	6 U
CARBON TETRACHLORIDE	7 U	7 U	5 U	6 U	6 U
CHLOROBENZENE	7 U	7 U	5 U	6 U	6 U
CHLOROETHANE	13 U	14 U	10 U	12 U	12 U
CHLOROFORM	7 U	7 U	5 U	6 U	6 U
CHLOROMETHANE	13 U	14 U	10 U	12 U	12 U
CIS-1,2-DICHLOROETHENE					
CIS-1,3-DICHLOROPROPENE	7 U	7 U	5 U	6 U	6 U
DIBROMOCHLOROMETHANE	7 U	7 U	5 U	6 U	6 U
DIBROMOMETHANE					
DICHLORODIFLUOROMETHANE					
ETHYLBENZENE	7 U	7 U	5 U	6 U	6 U
ETHYLENE DIBROMIDE					
HEXACHLOROBUTADIENE					
HEXANE					

TABLE E-19: SITE 9 VOLATILE ORGANIC COMPOUNDS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	B410-9	B410-9	B410-9	B410-9	B410-9
Sample Code	B410-9 [11.5-12.0]	B410-9 [14.5-15.0]	B410-9 [2.5-3.0]	B410-9 [5.5-6.0]	B410-9 [8.5-9.0]
Sampling Date	7/8/1990	7/8/1990	7/8/1990	7/8/1990	7/8/1990
Sampling Depth (feet bgs)	11.5 - 12	14.5 - 15	2.5 - 3	5.5 - 6	8.5 - 9
Units	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Investigation	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991
Analyte					
ISOPROPYLBENZENE					
M,P-XYLENE					
METHYLENE CHLORIDE	12 UJ	12 UJ	18 UJ	19 UJ	10 UJ
METHYL-T-BUTYL ETHER					
NAPHTHALENE					
N-BUTYLBENZENE					
N-PROPYLBENZENE					
O-XYLENE					
P-ISOPROPYLTOLUENE					
SEC-BUTYLBENZENE					
STYRENE	7 U	7 U	5 U	6 U	6 U
TERT-BUTYLBENZENE					
TETRACHLOROETHENE	7 U	7 U	5 U	6 U	6 U
TOLUENE	14	23	4 J	36	8
TRANS-1,2-DICHLOROETHENE					
TRANS-1,3-DICHLOROPROPENE	7 U	7 U	5 U	6 U	6 U
TRICHLOROETHENE	7 U	7 U	5 U	6 U	6 U
TRICHLOROFLUOROMETHANE	7 U	7 U	5 U	6 U	6 U
VINYL ACETATE	13 U	14 U	10 U	12 U	12 U
VINYL CHLORIDE	13 U	14 U	10 U	12 U	12 U
XYLENE (TOTAL)	7 U	7 U	5 U	6 U	6 U

Notes:
UG/KG Micrograms per kilogram

TABLE E-19: SITE 9 VOLATILE ORGANIC COMPOUNDS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	MW410-1	MW410-1	MW410-1	MW410-1
Sample Code	MW410-1 [11.0-11.5]	MW410-1 [14.0-14.5]	MW410-1 [2.0-2.5]	MW410-1 [5.5-6.0]
Sampling Date	7/1/1990	7/1/1990	7/1/1990	7/1/1990
Sampling Depth (feet bgs)	11 - 11.5	14 - 14.5	2 - 2.5	5.5 - 6
Units	UG/KG	UG/KG	UG/KG	UG/KG
Investigation	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991
Analyte				
1,1,1,2-TETRACHLOROETHANE				
1,1,1-TRICHLOROETHANE	6 U	6 U	5 U	6 U
1,1,2,2-TETRACHLOROETHANE	6 U	6 U	5 U	6 U
1,1,2-TRICHLOROETHANE	6 U	6 U	5 U	6 U
1,1-DICHLOROETHANE	6 U	6 U	5 U	6 U
1,1-DICHLOROETHENE	6 U	6 U	5 U	6 U
1,1-DICHLOROPROPENE				
1,2,3-TRICHLOROBENZENE				
1,2,3-TRICHLOROPROPANE				
1,2,4-TRICHLOROBENZENE				
1,2,4-TRIMETHYLBENZENE				
1,2-DIBROMO-3-CHLOROPROPANE				
1,2-DICHLOROBENZENE	420 U	860 U	350 U	380 U
1,2-DICHLOROETHANE	6 U	6 U	5 U	6 U
1,2-DICHLOROETHENE (TOTAL)	6 U	6 U	5 U	6 U
1,2-DICHLOROPROPANE	6 U	6 U	5 U	6 U
1,3,5-TRIMETHYLBENZENE				
1,3-DICHLOROBENZENE	420 U	860 U	350 U	380 U
1,3-DICHLOROPROPANE				
1,4-DICHLOROBENZENE	420 U	860 U	350 U	380 U
2,2-DICHLOROPROPANE				
2-BUTANONE	13 U	13 U	11 U	11 U
2-CHLOROETHYLVINYLETHER	13 U	13 U	11 U	11 U
2-CHLOROTOLUENE				
2-HEXANONE	13 U	13 U	11 U	11 U
4-CHLOROTOLUENE				
4-METHYL-2-PENTANONE	13 U	13 U	11 U	11 U
ACETONE	24 UJ	22 UJ	28 UJ	21 UJ
BENZENE	6 U	6 U	5 U	6 U
BROMOBENZENE				
BROMOCHLOROMETHANE				
BROMODICHLOROMETHANE	6 U	6 U	5 U	6 U
BROMOFORM	6 U	6 U	5 U	6 U
BROMOMETHANE	13 U	13 U	11 U	11 U
CARBON DISULFIDE	6 U	6 UJ	5 U	6 U
CARBON TETRACHLORIDE	6 U	6 U	5 U	6 U
CHLOROBENZENE	6 U	6 U	5 U	6 U
CHLOROETHANE	13 U	13 U	11 U	11 U
CHLOROFORM	6 U	6 U	5 U	6 U
CHLOROMETHANE	13 U	13 U	11 U	11 U
CIS-1,2-DICHLOROETHENE				
CIS-1,3-DICHLOROPROPENE	6 U	6 U	5 U	6 U
DIBROMOCHLOROMETHANE	6 U	6 U	5 U	6 U
DIBROMOMETHANE				
DICHLORODIFLUOROMETHANE				
ETHYLBENZENE	6 U	6 U	5 U	6 U
ETHYLENE DIBROMIDE				
HEXACHLOROBUTADIENE				
HEXANE				

TABLE E-19: SITE 9 VOLATILE ORGANIC COMPOUNDS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	MW410-1	MW410-1	MW410-1	MW410-1
Sample Code	MW410-1 [11.0-11.5]	MW410-1 [14.0-14.5]	MW410-1 [2.0-2.5]	MW410-1 [5.5-6.0]
Sampling Date	7/1/1990	7/1/1990	7/1/1990	7/1/1990
Sampling Depth (feet bgs)	11 - 11.5	14 - 14.5	2 - 2.5	5.5 - 6
Units	UG/KG	UG/KG	UG/KG	UG/KG
Investigation	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991
Analyte				
ISOPROPYLBENZENE				
M,P-XYLENE				
METHYLENE CHLORIDE	13 UJ	14 UJ	11 UJ	13 UJ
METHYL-T-BUTYL ETHER				
NAPHTHALENE				
N-BUTYLBENZENE				
N-PROPYLBENZENE				
O-XYLENE				
P-ISOPROPYLTOLUENE				
SEC-BUTYLBENZENE				
STYRENE	6 U	6 U	5 U	6 U
TERT-BUTYLBENZENE				
TETRACHLOROETHENE	6 U	6 U	5 U	6 U
TOLUENE	27	22	51	64
TRANS-1,2-DICHLOROETHENE				
TRANS-1,3-DICHLOROPROPENE	6 U	6 U	5 U	6 U
TRICHLOROETHENE	6 U	6 U	5 U	6 U
TRICHLOROFLUOROMETHANE	6 U	6 U	5 U	6 U
VINYL ACETATE	13 U	13 U	11 U	11 U
VINYL CHLORIDE	13 U	13 U	11 U	11 U
XYLENE (TOTAL)	6 U	6 U	5 U	6 U

Notes:

UG/KG Micrograms per kilogram

TABLE E-19: SITE 9 VOLATILE ORGANIC COMPOUNDS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	MW410-1	MW410-2	MW410-2	MW410-2
Sample Code	MW410-1 [7.0-7.5]	MW410-2 [12.0-12.5]	MW410-2 [15.0-15.5]	MW410-2 [3.0-3.5]
Sampling Date	7/1/1990	7/16/1990	7/16/1990	7/16/1990
Sampling Depth (feet bgs)	7 - 7.5	12 - 12.5	15 - 15.5	3 - 3.5
Units	UG/KG	UG/KG	UG/KG	UG/KG
Investigation	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991
Analyte				
1,1,1,2-TETRACHLOROETHANE				
1,1,1-TRICHLOROETHANE	7 U	6 U	6 U	5 U
1,1,2,2-TETRACHLOROETHANE	7 U	6 U	6 U	5 U
1,1,2-TRICHLOROETHANE	7 U	6 U	6 U	5 U
1,1-DICHLOROETHANE	7 U	6 U	6 U	5 U
1,1-DICHLOROETHENE	7 U	6 U	6 U	5 U
1,1-DICHLOROPROPENE				
1,2,3-TRICHLOROBENZENE				
1,2,3-TRICHLOROPROPANE				
1,2,4-TRICHLOROBENZENE				
1,2,4-TRIMETHYLBENZENE				
1,2-DIBROMO-3-CHLOROPROPANE				
1,2-DICHLOROBENZENE	960 U	6 U	6 U	5 U
1,2-DICHLOROETHANE	7 U	6 U	6 U	5 U
1,2-DICHLOROETHENE (TOTAL)	7 U	6 U	6 U	5 U
1,2-DICHLOROPROPANE	7 U	6 U	6 U	5 U
1,3,5-TRIMETHYLBENZENE				
1,3-DICHLOROBENZENE	960 U	6 U	6 U	5 U
1,3-DICHLOROPROPANE				
1,4-DICHLOROBENZENE	960 U	6 U	6 U	5 U
2,2-DICHLOROPROPANE				
2-BUTANONE	14 U	13 U	13 UJ	10 U
2-CHLOROETHYLVINYLETHER	14 U	13 U	13 U	10 U
2-CHLOROTOLUENE				
2-HEXANONE	14 U	13 U	13 U	10 U
4-CHLOROTOLUENE				
4-METHYL-2-PENTANONE	14 U	13 U	13 U	10 U
ACETONE	38 UJ	20 UJ	27 UJ	10 UJ
BENZENE	7 U	6 U	6 U	5 U
BROMOBENZENE				
BROMOCHLOROMETHANE				
BROMODICHLOROMETHANE	7 U	6 U	6 U	5 U
BROMOFORM	7 U	6 U	6 U	5 U
BROMOMETHANE	14 U	13 U	13 U	10 U
CARBON DISULFIDE	7 U	6 U	6 U	5 U
CARBON TETRACHLORIDE	7 U	6 U	6 U	5 U
CHLOROBENZENE	7 U	6 U	6 U	5 U
CHLOROETHANE	14 U	13 U	13 U	10 U
CHLOROFORM	7 U	6 U	6 U	5 U
CHLOROMETHANE	14 U	13 U	13 U	10 U
CIS-1,2-DICHLOROETHENE				
CIS-1,3-DICHLOROPROPENE	7 U	6 U	6 U	5 U
DIBROMOCHLOROMETHANE	7 U	6 U	6 U	5 U
DIBROMOMETHANE				
DICHLORODIFLUOROMETHANE				
ETHYLBENZENE	7 U	6 U	6 U	5 U
ETHYLENE DIBROMIDE				
HEXACHLOROBUTADIENE				
HEXANE				

TABLE E-19: SITE 9 VOLATILE ORGANIC COMPOUNDS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	MW410-1	MW410-2	MW410-2	MW410-2
Sample Code	MW410-1 [7.0-7.5]	MW410-2 [12.0-12.5]	MW410-2 [15.0-15.5]	MW410-2 [3.0-3.5]
Sampling Date	7/1/1990	7/16/1990	7/16/1990	7/16/1990
Sampling Depth (feet bgs)	7 - 7.5	12 - 12.5	15 - 15.5	3 - 3.5
Units	UG/KG	UG/KG	UG/KG	UG/KG
Investigation	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991
Analyte				
ISOPROPYLBENZENE				
M,P-XYLENE				
METHYLENE CHLORIDE	15 UJ	15 UJ	17 UJ	8 UJ
METHYL-T-BUTYL ETHER				
NAPHTHALENE				
N-BUTYLBENZENE				
N-PROPYLBENZENE				
O-XYLENE				
P-ISOPROPYLTOLUENE				
SEC-BUTYLBENZENE				
STYRENE	7 U	6 U	6 U	5 U
TERT-BUTYLBENZENE				
TETRACHLOROETHENE	7 U	6 U	6 U	5 U
TOLUENE	36	9	9	81
TRANS-1,2-DICHLOROETHENE				
TRANS-1,3-DICHLOROPROPENE	7 U	6 U	6 U	5 U
TRICHLOROETHENE	7 U	6 U	6 U	5 U
TRICHLOROFLUOROMETHANE	7 U	6 U	6 U	5 U
VINYL ACETATE	14 U	13 U	13 U	10 U
VINYL CHLORIDE	14 U	13 U	13 U	10 U
XYLENE (TOTAL)	7 U	6 U	6 U	5 U

Notes:

UG/KG Micrograms per kilogram

TABLE E-19: SITE 9 VOLATILE ORGANIC COMPOUNDS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	MW410-2	MW410-2
Sample Code	MW410-2 [6.0-6.5]	MW410-2 [9.0-9.5]
Sampling Date	7/16/1990	7/16/1990
Sampling Depth (feet bgs)	6 - 6.5	9 - 9.5
Units	UG/KG	UG/KG
Investigation	PH 1&2A 1991	PH 1&2A 1991
Analyte		
1,1,1,2-TETRACHLOROETHANE		
1,1,1-TRICHLOROETHANE	5 U	6 U
1,1,2,2-TETRACHLOROETHANE	5 U	6 U
1,1,2-TRICHLOROETHANE	5 U	6 U
1,1-DICHLOROETHANE	5 U	6 U
1,1-DICHLOROETHENE	5 U	6 U
1,1-DICHLOROPROPENE		
1,2,3-TRICHLOROBENZENE		
1,2,3-TRICHLOROPROPANE		
1,2,4-TRICHLOROBENZENE		
1,2,4-TRIMETHYLBENZENE		
1,2-DIBROMO-3-CHLOROPROPANE		
1,2-DICHLOROBENZENE	5 U	6 U
1,2-DICHLOROETHANE	5 U	6 U
1,2-DICHLOROETHENE (TOTAL)	5 U	6 U
1,2-DICHLOROPROPANE	5 U	6 U
1,3,5-TRIMETHYLBENZENE		
1,3-DICHLOROBENZENE	5 U	6 U
1,3-DICHLOROPROPANE		
1,4-DICHLOROBENZENE	5 U	6 U
2,2-DICHLOROPROPANE		
2-BUTANONE	11 U	12 U
2-CHLOROETHYLVINYLETHER	11 U	12 U
2-CHLOROTOLUENE		
2-HEXANONE	11 U	12 U
4-CHLOROTOLUENE		
4-METHYL-2-PENTANONE	11 U	12 U
ACETONE	11 UJ	12 UJ
BENZENE	5 U	6 U
BROMOBENZENE		
BROMOCHLOROMETHANE		
BROMODICHLOROMETHANE	5 U	6 U
BROMOFORM	5 U	6 U
BROMOMETHANE	11 U	12 U
CARBON DISULFIDE	5 U	6 U
CARBON TETRACHLORIDE	5 U	6 U
CHLOROBENZENE	5 U	6 U
CHLOROETHANE	11 U	12 U
CHLOROFORM	5 U	6 U
CHLOROMETHANE	11 U	12 U
CIS-1,2-DICHLOROETHENE		
CIS-1,3-DICHLOROPROPENE	5 U	6 U
DIBROMOCHLOROMETHANE	5 U	6 U
DIBROMOMETHANE		
DICHLORODIFLUOROMETHANE		
ETHYLBENZENE	5 U	6 U
ETHYLENE DIBROMIDE		
HEXACHLOROBUTADIENE		
HEXANE		

TABLE E-19: SITE 9 VOLATILE ORGANIC COMPOUNDS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	MW410-2	MW410-2
Sample Code	MW410-2 [6.0-6.5]	MW410-2 [9.0-9.5]
Sampling Date	7/16/1990	7/16/1990
Sampling Depth (feet bgs)	6 - 6.5	9 - 9.5
Units	UG/KG	UG/KG
Investigation	PH 1&2A 1991	PH 1&2A 1991
Analyte		
ISOPROPYLBENZENE		
M,P-XYLENE		
METHYLENE CHLORIDE	15 UJ	10 UJ
METHYL-T-BUTYL ETHER		
NAPHTHALENE		
N-BUTYLBENZENE		
N-PROPYLBENZENE		
O-XYLENE		
P-ISOPROPYLTOLUENE		
SEC-BUTYLBENZENE		
STYRENE	5 U	6 U
TERT-BUTYLBENZENE		
TETRACHLOROETHENE	5 U	6 U
TOLUENE	6	11
TRANS-1,2-DICHLOROETHENE		
TRANS-1,3-DICHLOROPROPENE	5 U	6 U
TRICHLOROETHENE	5 U	6 U
TRICHLOROFLUOROMETHANE	5 U	6 U
VINYL ACETATE	11 U	12 U
VINYL CHLORIDE	11 U	12 U
XYLENE (TOTAL)	5 U	6 U

Notes:
UG/KG Micrograms per kilogram

TABLE E-20: SITE 9 TOTAL METALS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	9S-CH1	9S-CH2	9S-CH3	CPT-S09-05	CPT-S09-05	CPT-S09-05	CPT-S09-06	CPT-S09-06	CPT-S09-06
Sample Code	9S-CH1	9S-CH2	9S-CH3	280-S09-004	280-S09-005	280-S09-006	280-S09-007	280-S09-008	280-S09-009
Sampling Date	6/21/2002	6/21/2002	6/21/2002	9/8/1994	9/8/1994	9/8/1994	9/8/1994	9/8/1994	9/8/1994
Sampling Depth (feet bgs)	5 - 15	5 - 15	5 - 15	0 - 0.5	2.5 - 3	4.7 - 5.2	0 - 0.5	2.5 - 3	4.7 - 5.2
Units	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG
Investigation	CHEMOX RA	CHEMOX RA	CHEMOX RA	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994
Analyte									
ALUMINUM	6220	5610	20500	4750 J	4390 J	13900 J	4200 J	3630 J	3620 J
ANTIMONY	1.5 UN	0.31 BN	0.35 BN	0.49 UJ	0.49 UJ	1.8 UJ	0.51 UJ	0.92 UJ	0.54 UJ
ARSENIC	2.3	1.5	5.7	0.55 U	0.55 U	4	0.55 U	0.79 UJ	0.56 U
BARIUM	91.6	143	78.9	146	28 J	61.9	69.6	21.6 J	19.7 J
BERYLLIUM	0.19	0.16	0.49	0.7 J	0.63 J	1.5	0.77 J	0.39 J	0.78 J
CADMIUM	0.1 B	0.1 B	0.32 B	0.09 U	0.08 U	0.1 U	0.08 U	0.08 U	0.09 U
CALCIUM	4840	2390	3780	10400	2430	3390	8100	1920	2160
CHROMIUM	38.2	28.5	76.8	47	26.6	56.4	29.8	23.4	32
COBALT	4.3	4.3	12.9	5.4 UJ	5.4 UJ	10.7 J	5.4 UJ	4.6 UJ	4.6 UJ
COPPER	8.3	5.9	28.3	7.4	6.5	16	5.5 UJ	5.6 UJ	6.1 UJ
IRON	10500	10900	30200	8310	7570	21500	7220	6410	7260
LEAD	4.2	3.3	44.6	3.4	2.4	10.4	2.4	2.1	2.6
MAGNESIUM	2390 N	2730 N	7050 N	2240	2310	5100	1950	1840	1740
MANGANESE	123 N	98.4 N	270 N	102	87.1	182	104	75.4	77.4
MERCURY	0.01 B	0.03 U	0.1	0.16 U	0.16 U	0.19 U	0.16 U	0.16 U	0.16 U
MOLYBDENUM	0.86	0.13 B	0.34 B	3 U	3 U	3.6 U	3 U	3 U	3 U
NICKEL	29.1	22	78.1	28.5	23.4	50.8	19.6	17	18.3
POTASSIUM	839	764	2580	833 J	921 J	2130	598 J	571 J	625 J
SELENIUM	1.5 U	1.3 U	2 U	0.57 U	0.57 U	0.7 U	0.57 U	1 UJ	0.95 UJ
SILVER	0.22 U	0.2 U	0.29 U	0.27 UJ	0.19 U	0.23 U	0.19 U	0.28 UJ	0.19 U
SODIUM	235	500	1300	175 J	95.2 J	297 J	202 J	78.4 J	68 J
THALLIUM	2.3 U	2 U	2.9 U	0.43 U	0.42 U	0.52 U	0.42 U	0.42 U	0.43 U
TITANIUM									
VANADIUM	26.3	27.7	56.9	20.8	18.7	42.3	19.3	15.3	20.9
ZINC	20.6	16.5	66.6	21	20.4	51.3	17.9	16.2	16.6

Notes:

MG/KG Milligrams per kilogram

TABLE E-20: SITE 9 TOTAL METALS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	CPT-S09-07	CPT-S09-07	CPT-S09-07	CPT-S09-08	CPT-S09-08	CPT-S09-08	CPT-S09-09	CPT-S09-09	CPT-S09-09
Sample Code	280-S09-010	280-S09-011	280-S09-012	280-S09-013	280-S09-014	280-S09-015	280-S09-016	280-S09-017	280-S09-018
Sampling Date	9/7/1994	9/7/1994	9/7/1994	9/8/1994	9/8/1994	9/9/1994	9/7/1994	9/7/1994	9/7/1994
Sampling Depth (feet bgs)	0 - 0.5	2.5 - 3	5 - 5.5	0 - 0.5	2.5 - 3	5 - 5.5	0 -	2.5 -	5 -
Units	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG
Investigation	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994
Analyte									
ALUMINUM	7680 J	3300 J	3680 J	4210 J	4030 J	4580	3770 J	3910 J	3450 J
ANTIMONY	1.7 UJ	0.57 UJ	0.85 UJ	0.48 UJ	0.48 UJ	0.52 UJ	0.5 UJ	0.64 UJ	0.72 UJ
ARSENIC	1.5 UJ	2.2 UJ	0.99 UJ	0.95 UJ	1.2 UJ	1.3 J	1.2 UJ	0.83 UJ	0.84 UJ
BARIUM	61.8 J	17.8 J	22.9 J	153	39.4 J	46.9	45.1	84.1	63
BERYLLIUM	0.87 J	0.4 J	0.45 J	0.75 J	1.2	0.91 J	0.36 J	0.55 J	0.37 J
CADMIUM	0.19 U	0.09 U	0.08 U	0.49 J	0.08 U	0.29 J	0.09 U	0.08 U	0.08 U
CALCIUM	5120	1350	2780	5070	2470	6370 J	3380	3140	2330
CHROMIUM	110	178	44.3	74.7	25.4	34.3 J	30.4	29.8	23.5
COBALT	11.3 J	4.6 UJ	5.3 UJ	5.3 UJ	4.9 UJ	6.5 UJ	5.1 UJ	5.3 UJ	5 UJ
COPPER	11.2 J	7.3	6.6	8.1	6.5	6.1	6.9	6 UJ	6.6
IRON	14500	6440	6710	7240	9150	7740	6960	6960	6570
LEAD	5.8	4.3	2.6	4.5	3	22.2 J	3	2.3	2.5
MAGNESIUM	4170	1940	1880	1920	2020	2120	2000	1950	1950
MANGANESE	163	76.5	75.9	78.2	88.1	89.2	83.5	79.7	75.3
MERCURY	0.36 U	0.16 U	0.16 U	0.16 U	0.16 U	0.17 U	0.16 U	0.16 U	0.16 U
MOLYBDENUM	6.7 U	3 U	2.9 U	2.9 U	2.9 U	3.2 U	3 U	2.9 U	3 U
NICKEL	46.1	19.6	21.1	21.4	23.9	23.3	20.3	18.4	19.9
POTASSIUM	2170 J	918 J	567 J	608 J	778 J	783 J	670 J	598 J	618 J
SELENIUM	1.3 U	0.58 U	0.56 U	0.56 U	0.7 UJ	0.61 U	0.58 U	0.83 UJ	0.57 U
SILVER	0.43 U	0.19 U	0.19 U	0.19 U	0.58 UJ	0.2 U	0.69 UJ	0.31 UJ	0.81 UJ
SODIUM	236 J	167 J	126 J	82.7 J	91.5 J	143 J	96.1 J	93.3 J	68.7 J
THALLIUM	0.96 U	0.43 U	0.41 U	0.42 U	0.42 U	0.45 U	0.43 U	0.42 U	0.42 U
TITANIUM									
VANADIUM	35.4	15	16.5	22.1	15.8	18.8	16.3	18.3	16
ZINC	39.9	19.2	17.7	21.3	25.3	41.2 J	18.5	17.3	17.4

Notes:

MG/KG Milligrams per kilogram

TABLE E-20: SITE 9 TOTAL METALS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	CPT-S09-10	CPT-S09-10	CPT-S09-10	M09-06	M09-06	M09-06	B410-5	B410-5	B410-5
Sample Code	280-S09-019	280-S09-020	280-S09-021	280-S09-167	280-S09-168	280-S09-169	B410-5 [2.5-3.0]	B410-5 [0.5-1.0]	B410-5 [11.0-11.5]
Sampling Date	9/9/1994	9/9/1994	9/9/1994	11/5/1994	11/5/1994	11/5/1994	7/11/1990	7/8/1990	7/8/1990
Sampling Depth (feet bgs)	0 - 0.5	2.5 - 3	5 - 5.5	1 - 2	2.5 - 3.5	5.5 - 6.5	2.5 - 3	.5 - 1	11 - 11.5
Units	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG
Investigation	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991
Analyte									
ALUMINUM	5270	4300	4580	4870	4050	5330	3110	3260	28800
ANTIMONY	1.4 UJ	0.47 J	1.1 UJ	0.71 UJ	0.71 UJ	1.2 J	2.9 U	2.9 U	4.9 U
ARSENIC	0.85 J	1.6 J	0.56 U	0.73 U	1.3 J	2.2 J	2.2	3.8	9.7
BARIUM	57.8	266	45.9	25 J	28.1 J	45.9	17.3 B	24.4 B	91.5
BERYLLIUM	0.92 J	0.83 J	0.75 J	0.22 U	0.21 U	0.23 U	0.091 B	0.09 B	0.81 B
CADMIUM	0.11 J	0.08 U	0.09 U	0.06 U	0.06 U	0.07 U	0.27 B	0.32 B	0.99 B
CALCIUM	7160 J	16800 J	4440 J	9360	14000	3920	1360	2320	4050
CHROMIUM	56 J	28.5 J	34.6 J	27.9 J	30 J	28.4 J	24.2	24.1	107
COBALT	6.5 UJ	5.4 UJ	5.3 UJ	5.2 J	4.1 J	5.7 J	3.8 B	3.6 B	18.4
COPPER	5.7	4.1 J	4.6 J	5.2 J	4.3 J	6.2	6	8.8	43.9
IRON	7930	6700	7360	9020	7560	11300	5950	6260	39000
LEAD	6.8 J	2.1 UJ	2.4 UJ	1.3	1.6	2.8	3.5 U	3.5 U	13.4
MAGNESIUM	2190	1930	2060	2240	1920	2230	1820	1810	10200
MANGANESE	101	94.7	88.2	104	105	135	73.6	95.8	375
MERCURY	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.17 U			
MOLYBDENUM	3 U	2.8 U	3 U	2.8 U	2.7 U	2.9 U	0.31 U	0.31 U	0.52 U
NICKEL	27.5	17.4	21.1	21.8	18.5	21.7	20.6	17.8	111
POTASSIUM	845 J	594 J	663 J	618 J	568 J	713 J	524 B	390 B	3740
SELENIUM	0.57 U	0.55 U	0.64 UJ	0.64 U	0.64 U	0.67 U	5.2 U	5.1 U	8.6 U
SILVER	0.33 UJ	0.18 U	0.45 UJ	0.3 U	0.3 U	0.31 U	0.38 U	0.37 U	0.62 U
SODIUM	162 J	270 J	248 J	341 J	413 J	373 J	336 JB	231 JB	2900 J
THALLIUM	0.43 U	0.4 U	0.43 U	0.49 U	0.49 U	0.51 U	3.3 U	3.2 U	5.4 U
TITANIUM							263	281	1190
VANADIUM	23.6	19.1	23.1	24.1	20.4	25.1	14.4	14.8	70.8
ZINC	20.3 J	15.7 J	16.4 J	18.3	17.3	27.5	19.6	24.7	102

Notes:

MG/KG Milligrams per kilogram

TABLE E-20: SITE 9 TOTAL METALS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	B410-5	B410-5	B410-5	B410-5	B410-7	B410-7	B410-7
Sample Code	B410-5 [11.5-12.0]	B410-5 [14.5-15.0]	B410-5 [5.5-6.0]	B410-5 [8.5-9.0]	B410-7 [1.0-1.5]	B410-7 [11.5-12.0]	B410-7 [15.0-15.5]
Sampling Date	7/8/1990	7/8/1990	7/8/1990	7/8/1990	7/12/1990	7/12/1990	7/12/1990
Sampling Depth (feet bgs)	11.5 - 12	14.5 - 15	5.5 - 6	8.5 - 9	1 - 1.5	11.5 - 12	15 - 15.5
Units	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG
Investigation	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991
Analyte							
ALUMINUM	19300	5270	2950	4020	4360	16100	7580
ANTIMONY	4.8 U	3.6 U	3.3 U	3.4 U	2.1 U	2.7 U	2.4 U
ARSENIC	10	5.8	2.1 U	2.2 U	3.3	6.1	3.2
BARIUM	81	17.5 B	18.5 B	21.3 B	53.4	98.2	29.2
BERYLLIUM	0.6 B	0.16 B	0.15 B	0.11 B	0.2 U	0.4	0.3
CADMIUM	0.97 B	0.32 B	0.21 U	0.3 B	0.3	0.5	0.3
CALCIUM	4240	3740	1340	1360	5730	2910	2640
CHROMIUM	86	27.4	24.7	27.6	29.4	81.7	44.3
COBALT	16.6 B	6.9 B	3.9 B	3.7 B	4.2	13.7	6.7
COPPER	35.3	10.1	4.3 B	6 B	39.8	14.9	10.7
IRON	31500	8820	5510	7140	7920	26400	11900
LEAD	16.2	8.2	3.9 U	4.1 U	5.2 U	6.8 U	6 U
MAGNESIUM	9570	2720	1730	2240	2230	6140	3470
MANGANESE	461	120	62.5	79.1	128	241	113
MERCURY							
MOLYBDENUM	0.51 U	0.38 U	0.35 U	0.37 U	1 U	1.4 U	1.2 U
NICKEL	96.8	23.3	20.2	25	20.3	88.5	40.6
POTASSIUM	3110	1190 B	455 B	743 B	910	2200	1300
SELENIUM	8.4 U	6.3 U	5.8 U	6.1 U	4.4 U	5.7 U	5 U
SILVER	0.96 B	0.46 U	0.42 U	0.44 U	0.6 U	0.8 U	0.7 U
SODIUM	2800 J	855 JB	129 JB	375 JB	266	3410	1130
THALLIUM	5.3 U	4 U	3.7 U	3.8 U	2.7 U	3.5 U	3.1 U
TITANIUM	615	276	249	321	363	756	479
VANADIUM	55.3	18.9	12.7	16	17.5	46.3	26
ZINC	105	36.3	18.8	25.5	40.4	54.2	31.8

Notes:

MG/KG Milligrams per kilogram

TABLE E-20: SITE 9 TOTAL METALS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	B410-7	B410-7	B410-7	B410-8	B410-8	B410-8	B410-8	B410-8
Sample Code	B410-7 [3.0-3.5]	B410-7 [6.0-6.5]	B410-7 [9.0-9.5]	B410-8 [1.0-1.5]	B410-8 [3.0-3.5]	B410-8 [4.5-5.0]	B410-8 [6.0-6.5]	B410-8 [7.5-8.0]
Sampling Date	7/12/1990	7/12/1990	7/12/1990	7/16/1990	7/16/1990	7/16/1990	7/16/1990	7/16/1990
Sampling Depth (feet bgs)	3 - 3.5	6 - 6.5	9 - 9.5	1 - 1.5	3 - 3.5	4.5 - 5	6 - 6.5	7.5 - 8
Units	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG
Investigation	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991
Analyte								
ALUMINUM	3380	7070	16000	3520	3630	3340	3680	3330
ANTIMONY	2.2 U	2.5 U	2.8 U	6.4 U	6.3 U	6.3 U	6.9 U	7 U
ARSENIC	2.6 U	3 U	5	11 U	10 U	10 U	12 U	12 U
BARIUM	22.3	128	58.5	94	66	86	51	42
BERYLLIUM	0.2 U	0.2 U	0.4	1.1 U	1 U	1 U	1.2 U	1.2 U
CADMIUM	0.2	0.2 U	0.7	1.1 U	1 U	1 U	1.2 U	1.2 U
CALCIUM	1750	1950	2950	4200	12000	5300	2300	2100
CHROMIUM	25.8	41.4	66.1	27	22	22	25	23
COBALT	4.1	6.4	12.8	5.3 U	5.2 U	5.2 U	5.8 U	5.8 U
COPPER	10.7	10.9	24.5	36	9	6.7	7	6.2
IRON	6170	11900	25700	6280	6280	5980	5660	5680
LEAD	5.4 U	6.2 U	10.9	5.3 U	5.2 U	5.2 U	5.8 U	5.8 U
MAGNESIUM	2020	3170	7950	1700	1700	1600	1600	1600
MANGANESE	80.1	125	327	68	80	76	64	63
MERCURY								
MOLYBDENUM	1.1 U	1.2 U	1.4 U	5.3 U	5.2 U	5.2 U	5.8 U	5.8 U
NICKEL	20.8	33.9	67.5	19	18	18	17	18
POTASSIUM	470	1110	2600	570	530	540	580 U	650
SELENIUM	4.5 U	5.2 U	5.9 U	11 U	10 U	10 U	12 U	12 U
SILVER	0.6 U	0.7 U	0.8 U	5.3 U	5.2 U	5.2 U	5.8 U	5.8 U
SODIUM	208	939	3510	530 U	520 U	520 U	580 U	580 U
THALLIUM	2.8 U	3.2 U	3.7 U	11 U	10 U	10 U	12 U	12 U
TITANIUM	245	465	451	320	330	320	350	310
VANADIUM	14	26.3	41.5	15	16	15	16	15
ZINC	27.4	34.9	63.4	40	19	14	14	14

Notes:

MG/KG Milligrams per kilogram

TABLE E-20: SITE 9 TOTAL METALS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	B410-8	B410-9	B410-9	B410-9	B410-9	B410-9	B410-9
Sample Code	B410-8 [9.0-9.5]	B410-9 [1.0-1.5]	B410-9 [12.0-12.5]	B410-9 [15.0-15.5]	B410-9 [3.0-3.5]	B410-9 [6.0-6.5]	B410-9 [9.0-9.5]
Sampling Date	7/16/1990	7/12/1990	7/12/1990	7/12/1990	7/12/1990	7/12/1990	7/12/1990
Sampling Depth (feet bgs)	9 - 9.5	1 - 1.5	12 - 12.5	15 - 15.5	3 - 3.5	6 - 6.5	9 - 9.5
Units	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG
Investigation	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991
Analyte							
ALUMINUM	3070	11900	4660	8970	3880	2900	2880
ANTIMONY	7.2 U	2.1 U	2.6 U	2.6 U	2 U	2.4 U	2.5 U
ARSENIC	12 U	5.9	3.1 U	6	2.4 U	3.5	3 U
BARIUM	28	198	31.1	56.4	22.9	29.5	49.4
BERYLLIUM	1.2 U	0.6	0.3 U	0.3 U	0.2 U	0.2 U	0.3 U
CADMIUM	1.2 U	0.3	0.3 U	0.4	0.2 U	0.2 U	0.3 U
CALCIUM	2200	12700	2080	2850	3060	2360	19200
CHROMIUM	19	24.9	32.2	51.6	30.5	24.4	22.1
COBALT	6 U	11.1	4.7	8.5	4.3	3.4	2.9
COPPER	7.7	89.4	12.6	23.6	19.4	7.6	7.7
IRON	5370	19300	8180	15400	6410	5350	5090
LEAD	6 U	9.1	6.5 U	12.9	5.1 U	5.9 U	6.3 U
MAGNESIUM	1600	5860	2720	4370	1800	1570	1620
MANGANESE	72	1050	96	157	85.1	67.6	97
MERCURY							
MOLYBDENUM	6 U	1 U	1.3 U	1.3 U	1 U	1.2 U	1.3 U
NICKEL	17	33.7	29.3	46.8	18.3	16.5	14.6
POTASSIUM	600 U	2400	860	1500	470	310	340
SELENIUM	12 U	4.3 U	5.5 U	5.6 U	4.3 U	5 U	5.3 U
SILVER	6 U	0.6 U	0.8 U	0.8 U	0.6 U	0.7 U	0.8 U
SODIUM	600 U	343	222	1080	157	109	225
THALLIUM	12 U	2.7 U	3.4 U	3.4 U	2.7 U	3.1 U	3.3 U
TITANIUM	310	1020	365	609	366	282	274
VANADIUM	13	31.9	17.1	30.2	16.6	13.8	12.8
ZINC	16	80.6	33.3	53.5	27.5	17.7	17.4

Notes:

MG/KG Milligrams per kilogram

TABLE E-20: SITE 9 TOTAL METALS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	MW410-1	MW410-1	MW410-1	MW410-1	MW410-1	MW410-1
Sample Code	MW410-1 [0.5-1.0]	MW410-1 [12.5-13.0]	MW410-1 [14.5-15.0]	MW410-1 [3.0-3.5]	MW410-1 [6.5-7.0]	MW410-1 [7.5-8.0]
Sampling Date	7/1/1990	7/1/1990	7/1/1990	7/1/1990	7/1/1990	7/1/1990
Sampling Depth (feet bgs)	.5 - 1	12.5 - 13	14.5 - 15	3 - 3.5	6.5 - 7	7.5 - 8
Units	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG
Investigation	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991
Analyte						
ALUMINUM	2890	16200	6140	3270	3280	4320
ANTIMONY	2 9 U	4 8 U	3 7 U	3 U	3.4 U	3.3 U
ARSENIC	1 9 U	6 2	2 4 U	3.5	3.1	2.2 U
BARIUM	16 3 JB	107 J	44 3 JB	21.3 JB	31.1 JB	26.9 JB
BERYLLIUM	0 092 B	0 54 B	0 21 B	0.092 B	0.11 B	0.15 B
CADMIUM	0 19 B	0 82 B	0 32 B	0.23 B	0.25 B	0.21 U
CALCIUM	1680	14300	7180	17600	1640	2310
CHROMIUM	22 7	73 6	40.4	23.3	27.1	32.6
COBALT	3 4 B	14 B	5.8 B	3.6 B	3.3 B	4.2 B
COPPER	6.1	25.6	10.8	5.7	4.2 B	11.9
IRON	5480	26900	10900	5690	5920	7290
LEAD	3.5 U	10	4.4 U	3.5 U	4.1 U	4 U
MAGNESIUM	1710	9920	3380	1810	1850	2190
MANGANESE	68.4	1060	102	76.9	95.8	86.1
MERCURY						
MOLYBDENUM	0.31 U	0.51 U	0.39 U	0.31 U	0.36 U	0.36 U
NICKEL	20	86.5	39.4	19.3	19.9	24.4
POTASSIUM	541 B	2640	1190 B	492 B	507 B	645 B
SELENIUM	5.2 U	8.4 U	6.5 U	5.2 U	6 U	5.9 U
SILVER	0.38 U	0.61 B	0.47 U	0.38 U	0.44 U	0.43 U
SODIUM	121 B	1830	413 B	194 B	173 B	169 B
THALLIUM	3.3 U	5.3 B	4.1 U	3.3 U	3.8 U	3.7 U
TITANIUM	223	640	329	284	282	419
VANADIUM	13	47.9	21.3	14.5	13.5	18.1
ZINC	21.1 J	74.4 J	34.2 J	19.9 J	21 J	26.4 J

Notes:

MG/KG Milligrams per kilogram

TABLE E-20: SITE 9 TOTAL METALS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	MW410-1	MW410-2	MW410-2	MW410-2	MW410-2	MW410-2
Sample Code	MW410-1 [8.0-8.5]	MW410-2 [1.5-2.0]	MW410-2 [12.5-13.0]	MW410-2 [15.5-16.0]	MW410-2 [3.5-4.0]	MW410-2 [6.5-7.0]
Sampling Date	7/1/1990	7/16/1990	7/16/1990	7/16/1990	7/16/1990	7/16/1990
Sampling Depth (feet bgs)	8 - 8.5	1.5 - 2	12.5 - 13	15.5 - 16	3.5 - 4	6.5 - 7
Units	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG
Investigation	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991
Analyte						
ALUMINUM	3620	3670	3550	5220	3720	3300
ANTIMONY	3.3 U	6.2 U	7.3 U	7.6 U	6.3 U	6.7 U
ARSENIC	2.8	10 U	12 U	13 U	10 U	11 U
BARIUM	24.5 JB	29	24 U	25 U	42	45
BERYLLIUM	0.1 B	1 U	1.2 U	1.3 U	1 U	1.1 U
CADMIUM	0.28 B	1 U	1.2 U	1.3 U	1 U	1.1 U
CALCIUM	2800	2300	1700	3500	2600	6400
CHROMIUM	28.4	25	22	20	25	21
COBALT	3.8 B	5.2 U	6.1 U	6.3 U	23	5.6 U
COPPER	4.6 B	7.8	20	58	23	6.1
IRON	6070	6810	6220	7970	6830	5450
LEAD	4 U	5.2 U	6.1 U	8.6	7	5.6 U
MAGNESIUM	1870	1900	1900	2400	520 U	1700
MANGANESE	77.4	80	73	110	81	70
MERCURY						
MOLYBDENUM	0.35 U	5.2 U	6.1 U	6.3 U	5.2 U	5.6 U
NICKEL	20.2	21	20	23	21	17
POTASSIUM	581 B	650	610 U	880	650	560 U
SELENIUM	5.8 U	10 U	12 U	13 U	10 U	11 U
SILVER	0.44 B	5.2 U	6.1 U	6.3 U	5.2 U	5.6 U
SODIUM	138 B	520 U	610 U	630 U	520 U	560 U
THALLIUM	3.7 U	10 U	12 U	13 U	10 U	11 U
TITANIUM	358	330	340	280	320	340
VANADIUM	15.3	16	15	18	16	14
ZINC	18.7 J	18	22	52	25	12

Notes:

MG/KG Milligrams per kilogram

TABLE E-20: SITE 9 TOTAL METALS IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California
(Page 9 of 9)

Location	MW410-2
Sample Code	MW410-2 [9.5-10.0]
Sampling Date	7/16/1990
Sampling Depth (feet bgs)	9.5 - 10
Units	MG/KG
Investigation	PH 1&2A 1991
Analyte	
ALUMINUM	3750
ANTIMONY	7.2 U
ARSENIC	12 U
BARIUM	24
BERYLLIUM	1.2 U
CADMIUM	1.2 U
CALCIUM	2000
CHROMIUM	25
COBALT	6 U
COPPER	6
IRON	5960
LEAD	6 U
MAGNESIUM	2000
MANGANESE	73
MERCURY	
MOLYBDENUM	6 U
NICKEL	20
POTASSIUM	660
SELENIUM	12 U
SILVER	6 U
SODIUM	600 U
THALLIUM	12 U
TITANIUM	360
VANADIUM	16
ZINC	16

Notes:
MG/KG Milligrams per kilogram

TABLE E-21: SITE 9 GENERAL CHEMISTRY IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

(Page 1 of 4)

Location	B410-5	B410-5	B410-7	B410-7	B410-8	B410-8	B410-9	B410-9
Sample Code	B410-5 [1.0-1.5]	B410-5 [2.5-3.0]	B410-7 [3.0-3.5]	B410-7 [4.0-4.5]	B410-8 [1.5-2.0]	B410-8 [3.0-3.5]	B410-9 [1.5-2.0]	B410-9 [3.0-3.5]
Sampling Date	7/11/1990	7/11/1990	7/12/1990	7/12/1990	7/16/1990	7/16/1990	7/12/1990	7/12/1990
Sampling Depth (feet bgs)	1 - 1.5	2.5 - 3	3 - 3.5	4 - 4.5	1.5 - 2	3 - 3.5	1.5 - 2	3 - 3.5
Units*	MEQ/G	UNITS	UNITS	MG/KG	MG/KG	UNITS	MG/KG	UNITS
Investigation	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991
Analyte								
PERCENT MOISTURE, %MST								
PH		9.95	9.57			8.3		9.3
TOTAL ORGANIC CARBON	3.16			1680	473		263	

Notes:

* Unless otherwise specified

MEQ/G Milliequivalents per gram

MG/KG Miligrams per kilogram

TABLE E-21: SITE 9 GENERAL CHEMISTRY IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California
(Page 2 of 4)

Location	CPT-S09-05	CPT-S09-05	CPT-S09-05	CPT-S09-06	CPT-S09-06	CPT-S09-06	CPT-S09-07	CPT-S09-07	CPT-S09-07
Sample Code	280-S09-004	280-S09-005	280-S09-006	280-S09-007	280-S09-008	280-S09-009	280-S09-010	280-S09-011	280-S09-012
Sampling Date	9/8/1994	9/8/1994	9/8/1994	9/8/1994	9/8/1994	9/8/1994	9/7/1994	9/7/1994	9/7/1994
Sampling Depth (feet bgs)	0 - 0.5	2.5 - 3	4.7 - 5.2	0 - 0.5	2.5 - 3	4.7 - 5.2	0 - 0.5	2.5 - 3	5 - 5.5
Units*	%MST	%MST	%MST	%MST	%MST	%MST	%MST	%MST	%MST
Investigation	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994
Analyte									
PERCENT MOISTURE, %MST	7.9	6.4	22.5	6.5	5.6	7.4	58.3	7.1	6.3
PH	7.8	9	7.4	9.3	8.2	8.7	8.6	9.4	8.8
TOTAL ORGANIC CARBON		325							

Notes:

* Unless otherwise specified

MEQ/G Milliequivalents per gram

MG/KG Miligrams per kilogram

TABLE E-21: SITE 9 GENERAL CHEMISTRY IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California
(Page 3 of 4)

Location	CPT-S09-08	CPT-S09-08	CPT-S09-08	CPT-S09-09	CPT-S09-09	CPT-S09-09	CPT-S09-10	CPT-S09-10	CPT-S09-10
Sample Code	280-S09-013	280-S09-014	280-S09-015	280-S09-016	280-S09-017	280-S09-018	280-S09-019	280-S09-020	280-S09-021
Sampling Date	9/8/1994	9/8/1994	9/9/1994	9/7/1994	9/7/1994	9/7/1994	9/9/1994	9/9/1994	9/9/1994
Sampling Depth (feet bgs)	0 - 0.5	2.5 - 3	5 - 5.5	0 -	2.5 -	5 -	0 - 0.5	2.5 - 3	5 - 5.5
Units*	%MST	%MST	%MST	%MST	%MST	%MST	%MST	%MST	%MST
Investigation	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994
Analyte									
PERCENT MOISTURE, %MST	6.2	4.2	12	9	4.9	5.8	7	4	9
PH	8.7	7.7	8.6	8.7	8.8	8.7	8.9	9.7	9.5
TOTAL ORGANIC CARBON								633	

Notes:

* Unless otherwise specified

MEQ/G Milliequivalents per gram

MG/KG Miligrams per kilogram

TABLE E-21: SITE 9 GENERAL CHEMISTRY IN SOIL

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California
(Page 4 of 4)

Location	M09-06	M09-06	M09-06	MW410-1	MW410-1	MW410-2	MW410-2
Sample Code	280-S09-167	280-S09-168	280-S09-169	MW410-1 [3.0-3.5]	MW410-1 [1.0-1.5]	MW410-2 [2.0-2.5]	MW410-2 [3.5-4.0]
Sampling Date	11/5/1994	11/5/1994	11/5/1994	7/1/1990	7/11/1990	7/16/1990	7/16/1990
Sampling Depth (feet bgs)	1 - 2	2.5 - 3.5	5.5 - 6.5	3 - 3.5	1 - 1.5	2 - 2.5	3.5 - 4
Units*	%MST	%MST	%MST	UNITS	MEQ/G	MG/KG	UNITS
Investigation	FO 1994	FO 1994	FO 1994	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991
Analyte							
PERCENT MOISTURE, %MST	8	7	11				
PH	9.5	9.5	9.1	9.37			10
TOTAL ORGANIC CARBON					2.63	263	

Notes:

* Unless otherwise specified

MEQ/G Milliequivalents per gram

MG/KG Miligrams per kilogram

TABLE E-22: SITE 9 SEMIVOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	3-J	D09-01	M09-06	MW410-1	MW410-2	MW410-3
Sample Code	385-S09-036	385-S09-031	385-S09-030	385-S09-025	385-S09-026	385-S09-027
Sampling Date	7/20/2001	6/26/2001	6/25/2001	6/25/2001	6/25/2001	6/26/2001
Sampling Depth (feet bgs)	0 -	-	-	-	-	-
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	DGS	DGS	DGS	DGS	DGS	DGS
Analyte						
1,2,4-TRICHLOROBENZENE	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	5 U
1,3-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	5 U
1,4-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	5 U
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-TRICHLOROPHENOL	25 U	25 U	25 U	25 U	25 U	25 U
2,4,6-TRICHLOROPHENOL	10 U	10 U	10 U	10 U	10 U	10 U
2,4-DICHLOROPHENOL	10 U	10 U	10 U	10 U	10 U	10 U
2,4-DIMETHYLPHENOL	10 U	10 U	10 U	10 U	10 U	10 U
2,4-DINITROPHENOL	50 UJ	25 U	25 U	25 U	25 U	25 U
2,4-DINITROTOLUENE	10 U	10 U	10 U	10 U	10 U	10 U
2,6-DINITROTOLUENE	10 U	10 U	10 U	10 U	10 U	10 U
2-CHLORONAPHTHALENE	10 U	10 U	10 U	10 U	10 U	10 U
2-CHLOROPHENOL	10 U	10 U	10 U	10 U	10 U	10 U
2-METHYLNAPHTHALENE	10 U	10 U	10 U	10 U	10 U	10 U
2-METHYLPHENOL	10 U	10 U	10 U	10 U	10 U	10 U
2-NITROANILINE	25 U	25 U	25 U	25 U	25 U	25 U
2-NITROPHENOL	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-DICHLOROBENZIDINE	12 U	12 U	12 U	12 U	12 U	12 U
3-NITROANILINE	25 U	25 U	25 U	25 U	25 U	25 U
4,6-DINITRO-2-METHYLPHENOL	25 U	25 U	25 U	25 U	25 U	25 U
4-BROMOPHENYL-PHENYLETHER	10 U	10 U	10 U	10 U	10 U	10 U
4-CHLORO-3-METHYLPHENOL	10 U	10 U	10 U	10 U	10 U	10 U
4-CHLOROANILINE	17 U	19 U	19 U	19 U	19 U	19 U
4-CHLOROPHENYL-PHENYLETHER	10 U	10 U	10 U	10 U	10 U	10 U
4-METHYLPHENOL	10 U	10 U	10 U	10 U	10 U	10 U
4-NITROANILINE	25 U	25 U	25 U	25 U	25 U	25 U
4-NITROPHENOL	25 U	25 UJ	25 U	25 U	25 U	25 UJ
ACENAPHTHENE	10 U	10 U	10 U	10 U	10 U	10 U
ACENAPHTHYLENE	10 U	10 U	10 U	10 U	10 U	10 U
ANTHRACENE	10 U	10 U	10 U	10 U	10 U	10 U
BENZO(A)ANTHRACENE	10 U	10 U	10 U	10 U	10 U	10 U
BENZO(A)PYRENE	1.4 U	2.7 U	2.7 U	2.7 U	2.7 U	2.7 U
BENZO(B)FLUORANTHENE	10 U	10 U	10 U	10 U	10 U	10 U
BENZO(G,H,I)PERYLENE	10 U	10 U	10 U	10 U	10 U	10 U
BENZO(K)FLUORANTHENE	10 U	10 U	10 U	10 U	10 U	10 U
BENZOIC ACID						
BENZYL ALCOHOL						
BIS(2-CHLOROETHOXY)METHANE	10 U	10 U	10 U	10 U	10 U	10 U
BIS(2-CHLOROETHYL)ETHER	10 U	10 U	10 U	10 U	10 U	10 U
BIS(2-ETHYLHEXYL)PHTHALATE	4 U	4 U	4 U	4 U	4 U	4 U
BUTYLBENZYLPHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U
CARBAZOLE	10 U	14 U	14 U	14 U	14 U	14 U
CHRYSENE	10 U	10 U	10 U	10 U	10 U	10 U
DIBENZO(A,H)ANTHRACENE	20 U	20 U	20 U	20 U	20 U	20 U
DIBENZOFURAN	10 U	10 U	10 U	10 U	10 U	10 U
DIETHYLPHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U
DIMETHYLPHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U
DI-N-BUTYLPHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U
DI-N-OCTYLPHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U
FLUORANTHENE	10 U	10 U	10 U	10 U	10 U	10 U

TABLE E-22: SITE 9 SEMIVOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	3-J	D09-01	M09-06	MW410-1	MW410-2	MW410-3
Sample Code	385-S09-036	385-S09-031	385-S09-030	385-S09-025	385-S09-026	385-S09-027
Sampling Date	7/20/2001	6/26/2001	6/25/2001	6/25/2001	6/25/2001	6/26/2001
Sampling Depth (feet bgs)	0 -	-	-	-	-	-
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	DGS	DGS	DGS	DGS	DGS	DGS
Analyte						
FLUORENE	10 U	10 U	10 U	10 U	10 U	10 U
HEXACHLOROBENZENE	10 U	10 U	10 U	10 U	10 U	10 U
HEXACHLOROBUTADIENE	10 U	10 U	10 U	10 U	10 U	10 U
HEXACHLOROCYCLOPENTADIENE	11 UJ	16 UJ	16 U	16 U	16 U	16 UJ
HEXACHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U
INDENO(1,2,3-CD)PYRENE	10 U	10 U	10 U	10 U	10 U	10 U
ISOPHORONE	10 U	10 U	10 U	10 U	10 U	10 U
NAPHTHALENE	10 U	10 U	10 U	10 U	10 U	10 U
NITROBENZENE	10 U	10 U	10 U	10 U	10 U	10 U
N-NITROSO-DI-N-PROPYLAMINE	10 U	10 U	10 U	10 U	10 U	10 U
N-NITROSODIPHENYLAMINE	10 U	18 U	18 U	18 U	18 U	18 U
PENTACHLOROPHENOL	25 U	25 U	25 U	25 U	25 U	25 U
PHENANTHRENE	10 U	10 U	10 U	10 U	10 U	10 U
PHENOL	10 U	10 U	10 U	10 U	10 U	10 U
PYRENE	10 U	10 U	10 U	10 U	10 U	10 U

Notes:

UG/L Micrograms per liter

TABLE E-22: SITE 9 SEMIVOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	MW410-3	S09-DGS-DP01	S09-DGS-DP01	S09-DGS-DP01	S09-DGS-DP02
Sample Code	385-S09-028	385-S09-001A	385-S09-002A	385-S09-003A	385-S09-004A
Sampling Date	6/26/2001	7/18/2001	7/18/2001	7/18/2001	7/28/2001
Sampling Depth (feet bgs)	-	8 - 10	15 - 17	30 - 32	8 -
Units	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	DGS	DGS	DGS	DGS	DGS
Analyte					
1,2,4-TRICHLOROBENZENE	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 U
1,3-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 U
1,4-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 U
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	10 U	10 U	10 U	10 U
2,4,5-TRICHLOROPHENOL	25 U	25 U	25 U	25 U	25 U
2,4,6-TRICHLOROPHENOL	10 U	10 U	10 U	10 U	10 U
2,4-DICHLOROPHENOL	10 U	10 U	10 U	10 U	10 U
2,4-DIMETHYLPHENOL	10 U	10 U	10 U	10 U	10 U
2,4-DINITROPHENOL	25 U	25 U	25 U	25 U	25 U
2,4-DINITROTOLUENE	10 U	10 U	10 U	10 U	10 U
2,6-DINITROTOLUENE	10 U	10 U	10 U	10 U	10 U
2-CHLORONAPHTHALENE	10 U	10 U	10 U	10 U	10 U
2-CHLOROPHENOL	10 U	10 U	10 U	10 U	10 U
2-METHYLNAPHTHALENE	10 U	10 U	10 U	10 U	10 U
2-METHYLPHENOL	10 U	10 U	10 U	10 U	10 U
2-NITROANILINE	25 U	25 U	25 U	25 U	25 U
2-NITROPHENOL	10 U	10 U	10 U	10 U	10 U
3,3'-DICHLOROBENZIDINE	12 U	12 U	12 U	12 U	12 U
3-NITROANILINE	25 U	25 U	25 U	25 U	25 U
4,6-DINITRO-2-METHYLPHENOL	25 U	25 U	25 U	25 U	25 U
4-BROMOPHENYL-PHENYLETHER	10 U	10 U	10 U	10 U	10 U
4-CHLORO-3-METHYLPHENOL	10 U	10 U	10 U	10 U	10 U
4-CHLOROANILINE	19 U	19 U	19 U	19 U	19 U
4-CHLOROPHENYL-PHENYLETHER	10 U	10 U	10 U	10 U	10 U
4-METHYLPHENOL	10 U	10 U	10 U	10 U	10 U
4-NITROANILINE	25 U	25 UJ	25 UJ	25 UJ	25 U
4-NITROPHENOL	25 UJ	25 U	25 U	25 U	25 U
ACENAPHTHENE	10 U	10 U	10 U	10 U	10 U
ACENAPHTHYLENE	10 U	10 U	10 U	10 U	10 U
ANTHRACENE	10 U	10 U	10 U	10 U	10 U
BENZO(A)ANTHRACENE	10 U	10 U	10 U	10 U	10 U
BENZO(A)PYRENE	2.7 U	2.7 U	2.7 U	2.7 U	2.7 U
BENZO(B)FLUORANTHENE	10 U	10 U	10 U	10 U	10 U
BENZO(G,H,I)PERYLENE	10 U	10 U	10 U	10 U	10 U
BENZO(K)FLUORANTHENE	10 U	10 U	10 U	10 U	10 U
BENZOIC ACID					
BENZYL ALCOHOL					
BIS(2-CHLOROETHOXY)METHANE	10 U	10 U	10 U	10 U	10 U
BIS(2-CHLOROETHYL)ETHER	10 U	10 U	10 U	10 U	10 U
BIS(2-ETHYLHEXYL)PHTHALATE	4 U	4 U	4 U	4 U	4 U
BUTYLBENZYLPHTHALATE	10 U	10 U	10 U	10 U	10 U
CARBAZOLE	14 U	14 U	14 U	14 U	14 U
CHRYSENE	10 U	10 U	10 U	10 U	10 U
DIBENZO(A,H)ANTHRACENE	20 U	20 U	20 U	20 U	20 U
DIBENZOFURAN	10 U	10 U	10 U	10 U	10 U
DIETHYLPHTHALATE	10 U	10 U	10 U	10 U	10 U
DIMETHYLPHTHALATE	10 U	10 U	10 U	10 U	10 U
DI-N-BUTYLPHTHALATE	10 U	10 U	10 U	10 U	10 U
DI-N-OCTYLPHTHALATE	10 U	10 U	10 U	10 U	10 U
FLUORANTHENE	10 U	10 U	10 U	10 U	10 U

TABLE E-22: SITE 9 SEMIVOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	MW410-3	S09-DGS-DP01	S09-DGS-DP01	S09-DGS-DP01	S09-DGS-DP02
Sample Code	385-S09-028	385-S09-001A	385-S09-002A	385-S09-003A	385-S09-004A
Sampling Date	6/26/2001	7/18/2001	7/18/2001	7/18/2001	7/28/2001
Sampling Depth (feet bgs)	-	8 - 10	15 - 17	30 - 32	8 -
Units	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	DGS	DGS	DGS	DGS	DGS
Analyte					
FLUORENE	10 U	10 U	10 U	10 U	10 U
HEXACHLOROBENZENE	10 U	10 U	10 U	10 U	10 U
HEXACHLOROBUTADIENE	10 U	10 U	10 U	10 U	10 U
HEXACHLOROCYCLOPENTADIENE	16 UJ	16 U	16 U	16 U	16 U
HEXACHLOROETHANE	10 U	10 U	10 U	10 U	10 U
INDENO(1,2,3-CD)PYRENE	10 U	10 U	10 U	10 U	10 U
ISOPHORONE	10 U	10 U	10 U	10 U	10 U
NAPHTHALENE	10 U	10 U	10 U	10 U	10 U
NITROBENZENE	10 U	10 U	10 U	10 U	10 U
N-NITROSO-DI-N-PROPYLAMINE	10 U	10 U	10 U	10 U	10 U
N-NITROSODIPHENYLAMINE	18 U	18 U	18 U	18 U	18 U
PENTACHLOROPHENOL	25 U	25 U	25 U	25 U	25 U
PHENANTHRENE	10 U	10 U	10 U	10 U	10 U
PHENOL	10 U	10 U	10 U	10 U	10 U
PYRENE	10 U	10 U	10 U	10 U	10 U

Notes:

UG/L Micrograms per liter

TABLE E-22: SITE 9 SEMIVOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	S09-DGS-DP02	S09-DGS-DP02	S09-DGS-DP02	S09-DGS-DP02	S09-DGS-DP02
Sample Code	385-S09-005A	385-S09-006A	385-S09-007A	385-S09-008A	385-S09-009A
Sampling Date	7/28/2001	7/28/2001	7/28/2001	7/28/2001	7/28/2001
Sampling Depth (feet bgs)	15 -	35 -	45 -	60 -	78 -
Units	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	DGS	DGS	DGS	DGS	DGS
Analyte					
1,2,4-TRICHLOROBENZENE	10 U	10 U	10 U	10 UJ	10 U
1,2-DICHLOROBENZENE	5 U	5 U	5 U	5 UJ	5 U
1,3-DICHLOROBENZENE	5 U	5 U	5 U	5 UJ	5 U
1,4-DICHLOROBENZENE	5 U	5 U	5 U	5 UJ	5 U
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	10 U	10 U	10 UJ	10 U
2,4,5-TRICHLOROPHENOL	25 U	25 U	25 U	25 U	25 U
2,4,6-TRICHLOROPHENOL	10 U	10 U	10 U	10 U	10 U
2,4-DICHLOROPHENOL	10 U	10 U	10 U	10 U	10 U
2,4-DIMETHYLPHENOL	10 U	10 U	10 U	10 U	10 U
2,4-DINITROPHENOL	25 UJ	25 U	25 UJ	25 UJ	25 U
2,4-DINITROTOLUENE	10 U	10 U	10 U	10 UJ	10 U
2,6-DINITROTOLUENE	10 U	10 U	10 U	10 UJ	10 U
2-CHLORONAPHTHALENE	10 U	10 U	10 U	10 UJ	10 U
2-CHLOROPHENOL	10 U	10 U	10 U	10 U	10 U
2-METHYLNAPHTHALENE	10 U	10 U	10 U	10 UJ	10 U
2-METHYLPHENOL	10 U	10 U	10 U	10 U	10 U
2-NITROANILINE	25 U	25 U	25 U	25 UJ	25 U
2-NITROPHENOL	10 U	10 U	10 U	10 U	10 U
3,3'-DICHLOROBENZIDINE	12 U	12 U	12 U	12 UJ	12 U
3-NITROANILINE	25 U	25 U	25 U	25 UJ	25 U
4,6-DINITRO-2-METHYLPHENOL	25 U	25 U	25 U	25 U	25 U
4-BROMOPHENYL-PHENYLETHER	10 U	10 U	10 U	10 UJ	10 U
4-CHLORO-3-METHYLPHENOL	10 U	10 U	10 U	10 U	10 U
4-CHLOROANILINE	19 U	19 U	19 U	19 UJ	19 U
4-CHLOROPHENYL-PHENYLETHER	10 U	10 U	10 U	10 UJ	10 U
4-METHYLPHENOL	10 U	10 U	10 U	10 U	10 U
4-NITROANILINE	25 U	25 U	25 U	25 UJ	25 U
4-NITROPHENOL	25 U	25 U	25 U	25 U	25 U
ACENAPHTHENE	10 U	10 U	10 U	10 UJ	10 U
ACENAPHTHYLENE	10 U	10 U	10 U	10 UJ	10 U
ANTHRACENE	10 U	10 U	10 U	10 UJ	10 U
BENZO(A)ANTHRACENE	10 U	10 U	10 U	10 UJ	10 U
BENZO(A)PYRENE	2.7 U	2.7 U	2.7 U	2.7 UJ	2.7 U
BENZO(B)FLUORANTHENE	10 U	10 U	10 U	10 UJ	10 U
BENZO(G,H,I)PERYLENE	10 U	10 U	10 U	10 UJ	10 U
BENZO(K)FLUORANTHENE	10 U	10 U	10 U	10 UJ	10 U
BENZOIC ACID					
BENZYL ALCOHOL					
BIS(2-CHLOROETHOXY)METHANE	10 U	10 U	10 U	10 UJ	10 U
BIS(2-CHLOROETHYL)ETHER	10 U	10 U	10 U	10 UJ	10 U
BIS(2-ETHYLHEXYL)PHTHALATE	4 U	4 U	4 U	4 UJ	4 U
BUTYLBENZYLPHTHALATE	10 U	10 U	10 U	10 UJ	10 U
CARBAZOLE	14 U	14 U	14 U	14 UJ	14 U
CHRYSENE	10 U	10 U	10 U	10 UJ	10 U
DIBENZO(A,H)ANTHRACENE	20 U	20 U	20 U	20 UJ	20 U
DIBENZOFURAN	10 U	10 U	10 U	10 UJ	10 U
DIETHYLPHTHALATE	10 U	10 U	10 U	10 UJ	10 U
DIMETHYLPHTHALATE	10 U	10 U	10 U	10 UJ	10 U
DI-N-BUTYLPHTHALATE	10 U	10 U	10 U	10 UJ	10 U
DI-N-OCTYLPHTHALATE	10 U	10 U	10 U	10 UJ	10 U
FLUORANTHENE	10 U	10 U	10 U	10 UJ	10 U

TABLE E-22: SITE 9 SEMIVOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	S09-DGS-DP02	S09-DGS-DP02	S09-DGS-DP02	S09-DGS-DP02	S09-DGS-DP02
Sample Code	385-S09-005A	385-S09-006A	385-S09-007A	385-S09-008A	385-S09-009A
Sampling Date	7/28/2001	7/28/2001	7/28/2001	7/28/2001	7/28/2001
Sampling Depth (feet bgs)	15 -	35 -	45 -	60 -	78 -
Units	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	DGS	DGS	DGS	DGS	DGS
Analyte					
FLUORENE	10 U	10 U	10 U	10 UJ	10 U
HEXACHLOROBENZENE	10 U	10 U	10 U	10 UJ	10 U
HEXACHLOROBUTADIENE	10 U	10 U	10 U	10 UJ	10 U
HEXACHLOROCYCLOPENTADIENE	16 U	16 U	16 U	16 UJ	16 U
HEXACHLOROETHANE	10 U	10 U	10 U	10 UJ	10 U
INDENO(1,2,3-CD)PYRENE	10 U	10 U	10 U	10 UJ	10 U
ISOPHORONE	10 U	10 U	10 U	10 UJ	10 U
NAPHTHALENE	10 U	10 U	10 U	10 UJ	10 U
NITROBENZENE	10 U	10 U	10 U	10 UJ	10 U
N-NITROSO-DI-N-PROPYLAMINE	10 U	10 U	10 U	10 UJ	10 U
N-NITROSODIPHENYLAMINE	18 U	18 U	18 U	18 UJ	18 U
PENTACHLOROPHENOL	25 U	25 U	25 U	25 U	25 U
PHENANTHRENE	10 U	10 U	10 U	10 UJ	10 U
PHENOL	10 U	10 U	10 U	10 U	10 U
PYRENE	10 U	10 U	10 U	10 UJ	10 U

Notes:
UG/L Micrograms per liter

TABLE E-22: SITE 9 SEMIVOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	S09-DGS-DP03	S09-DGS-DP03	S09-DGS-DP03	S09-DGS-DP04	S09-DGS-DP04
Sample Code	385-S09-013A	385-S09-014A	385-S09-015A	385-S09-022A	385-S09-023A
Sampling Date	7/26/2001	7/26/2001	7/26/2001	7/18/2001	7/18/2001
Sampling Depth (feet bgs)	43 -	60 -	74 -	8 - 10	15 - 17
Units	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	DGS	DGS	DGS	DGS	DGS
Analyte					
1,2,4-TRICHLOROBENZENE	10 U	50 U	10 U	10 U	10 U
1,2-DICHLOROBENZENE	5 U	25 U	5 U	5 U	5 U
1,3-DICHLOROBENZENE	5 U	25 U	5 U	5 U	5 U
1,4-DICHLOROBENZENE	5 U	25 U	5 U	5 U	5 U
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	50 U	10 U	10 U	10 U
2,4,5-TRICHLOROPHENOL	25 U	130 U	25 U	25 U	25 U
2,4,6-TRICHLOROPHENOL	10 U	50 U	10 U	10 U	10 U
2,4-DICHLOROPHENOL	10 U	50 U	10 U	10 U	10 U
2,4-DIMETHYLPHENOL	10 U	50 U	10 U	10 U	10 U
2,4-DINITROPHENOL	50 U	250 U	50 U	25 U	25 U
2,4-DINITROTOLUENE	10 U	50 U	10 U	10 U	10 U
2,6-DINITROTOLUENE	10 U	50 U	10 U	10 U	10 U
2-CHLORONAPHTHALENE	10 U	50 U	10 U	10 U	10 U
2-CHLOROPHENOL	10 U	50 U	10 U	10 U	10 U
2-METHYLNAPHTHALENE	10 U	50 U	10 U	10 U	10 U
2-METHYLPHENOL	10 U	50 U	10 U	10 U	10 U
2-NITROANILINE	25 U	130 U	25 U	25 U	25 U
2-NITROPHENOL	10 U	50 U	10 U	10 U	10 U
3,3'-DICHLOROBENZIDINE	12 U	60 U	12 U	12 U	12 U
3-NITROANILINE	25 U	130 U	25 U	25 U	25 U
4,6-DINITRO-2-METHYLPHENOL	25 U	130 U	25 U	25 U	25 U
4-BROMOPHENYL-PHENYLETHER	10 U	50 U	10 U	10 U	10 U
4-CHLORO-3-METHYLPHENOL	10 U	50 U	10 U	10 U	10 U
4-CHLOROANILINE	17 U	85 U	17 U	19 U	19 U
4-CHLOROPHENYL-PHENYLETHER	10 U	50 U	10 U	10 U	10 U
4-METHYLPHENOL	10 U	50 U	10 U	10 U	10 U
4-NITROANILINE	25 U	130 U	25 U	25 UJ	25 UJ
4-NITROPHENOL	25 U	130 U	25 U	25 U	25 U
ACENAPHTHENE	10 U	50 U	10 U	10 U	10 U
ACENAPHTHYLENE	10 U	50 U	10 U	10 U	10 U
ANTHRACENE	10 U	50 U	10 U	10 U	10 U
BENZO(A)ANTHRACENE	10 U	50 U	10 U	10 U	10 U
BENZO(A)PYRENE	1.4 U	7 U	1.4 U	2.7 U	2.7 U
BENZO(B)FLUORANTHENE	10 U	50 U	10 U	10 U	10 U
BENZO(G,H,I)PERYLENE	10 U	50 U	10 U	10 U	10 U
BENZO(K)FLUORANTHENE	10 U	50 U	10 U	10 U	10 U
BENZOIC ACID					
BENZYL ALCOHOL					
BIS(2-CHLOROETHOXY)METHANE	10 U	50 U	10 U	10 U	10 U
BIS(2-CHLOROETHYL)ETHER	10 U	50 U	10 U	10 U	10 U
BIS(2-ETHYLHEXYL)PHTHALATE	4 U	20 U	4 U	4 U	4 U
BUTYLBENZYLPHTHALATE	10 U	50 U	10 U	10 U	10 U
CARBAZOLE	10 U	50 U	10 U	14 U	14 U
CHRYSENE	10 U	50 U	10 U	10 U	10 U
DIBENZO(A,H)ANTHRACENE	20 U	100 U	20 U	20 U	20 U
DIBENZOFURAN	10 U	50 U	10 U	10 U	10 U
DIETHYLPHTHALATE	10 U	50 U	10 U	10 U	10 U
DIMETHYLPHTHALATE	10 U	50 U	10 U	10 U	10 U
DI-N-BUTYLPHTHALATE	10 U	50 U	10 U	10 U	10 U
DI-N-OCTYLPHTHALATE	10 U	50 U	10 U	10 U	10 U
FLUORANTHENE	10 U	50 U	10 U	10 U	10 U

TABLE E-22: SITE 9 SEMIVOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	S09-DGS-DP03	S09-DGS-DP03	S09-DGS-DP03	S09-DGS-DP04	S09-DGS-DP04
Sample Code	385-S09-013A	385-S09-014A	385-S09-015A	385-S09-022A	385-S09-023A
Sampling Date	7/26/2001	7/26/2001	7/26/2001	7/18/2001	7/18/2001
Sampling Depth (feet bgs)	43 -	60 -	74 -	8 - 10	15 - 17
Units	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	DGS	DGS	DGS	DGS	DGS
Analyte					
FLUORENE	10 U	50 U	10 U	10 U	10 U
HEXACHLOROBENZENE	10 U	50 U	10 U	10 U	10 U
HEXACHLOROBUTADIENE	10 U	50 U	10 U	10 U	10 U
HEXACHLOROCYCLOPENTADIENE	11 UJ	55 UJ	11 UJ	16 U	16 U
HEXACHLOROETHANE	10 U	50 U	10 U	10 U	10 U
INDENO(1,2,3-CD)PYRENE	10 U	50 U	10 U	10 U	10 U
ISOPHORONE	10 U	50 U	10 U	10 U	10 U
NAPHTHALENE	10 U	50 U	10 U	10 U	10 U
NITROBENZENE	10 U	50 U	10 U	10 U	10 U
N-NITROSO-DI-N-PROPYLAMINE	10 U	50 U	10 U	10 U	10 U
N-NITROSODIPHENYLAMINE	10 U	50 U	10 U	18 U	18 U
PENTACHLOROPHENOL	25 U	130 U	25 U	25 U	25 U
PHENANTHRENE	10 U	50 U	10 U	10 U	10 U
PHENOL	10 U	50 U	10 U	10 U	10 U
PYRENE	10 U	50 U	10 U	10 U	10 U

Notes:

UG/L Micrograms per liter

TABLE E-22: SITE 9 SEMIVOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	S09-DGS-DP04	S09-DGS-DP04	S09-DGS-DP04	S09-DGS-DP04	S09-DGS-DP05
Sample Code	385-S09-024A	385-S09-019A	385-S09-020A	385-S09-021A	385-S09-016A
Sampling Date	7/18/2001	7/25/2001	7/25/2001	7/25/2001	8/3/2001
Sampling Depth (feet bgs)	25 - 27	50 -	65 -	80 -	7 - 9
Units	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	DGS	DGS	DGS	DGS	DGS
Analyte					
1,2,4-TRICHLOROBENZENE	10 U	30 U	20 U	10 U	10 U
1,2-DICHLOROBENZENE	5 U	15 U	10 U	5 U	5 U
1,3-DICHLOROBENZENE	5 U	15 U	10 U	5 U	5 U
1,4-DICHLOROBENZENE	5 U	15 U	10 U	5 U	5 U
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	30 U	20 U	10 U	10 U
2,4,5-TRICHLOROPHENOL	25 U	75 U	50 U	25 U	25 U
2,4,6-TRICHLOROPHENOL	10 U	30 U	20 U	10 U	10 U
2,4-DICHLOROPHENOL	10 U	30 U	20 U	10 U	10 U
2,4-DIMETHYLPHENOL	10 U	30 U	20 U	10 U	40
2,4-DINITROPHENOL	25 U	150 U	100 U	50 U	50 UJ
2,4-DINITROTOLUENE	10 U	30 U	20 U	10 U	10 U
2,6-DINITROTOLUENE	10 U	30 U	20 U	10 U	10 U
2-CHLORONAPHTHALENE	10 U	30 U	20 U	10 U	10 U
2-CHLOROPHENOL	10 U	30 U	20 U	10 U	10 U
2-METHYLNAPHTHALENE	10 U	30 U	20 U	10 U	10 U
2-METHYLPHENOL	10 U	30 U	20 U	10 U	10 U
2-NITROANILINE	25 U	75 U	50 U	25 U	25 U
2-NITROPHENOL	10 U	30 U	20 U	10 U	10 U
3,3'-DICHLOROBENZIDINE	12 U	36 U	24 U	12 U	12 U
3-NITROANILINE	25 U	75 U	50 U	25 U	25 U
4,6-DINITRO-2-METHYLPHENOL	25 U	75 U	50 U	25 U	25 U
4-BROMOPHENYL-PHENYLETHER	10 U	30 U	20 U	10 U	10 U
4-CHLORO-3-METHYLPHENOL	10 U	30 U	20 U	10 U	10 U
4-CHLOROANILINE	19 U	51 U	34 U	17 U	17 U
4-CHLOROPHENYL-PHENYLETHER	10 U	30 U	20 U	10 U	10 U
4-METHYLPHENOL	10 U	30 U	20 U	10 U	10 U
4-NITROANILINE	25 UJ	75 U	50 U	25 U	25 U
4-NITROPHENOL	25 U	75 U	50 U	25 U	25 U
ACENAPHTHENE	10 U	30 U	20 U	10 U	10 U
ACENAPHTHYLENE	10 U	30 U	20 U	10 U	10 U
ANTHRACENE	10 U	30 U	20 U	10 U	10 U
BENZO(A)ANTHRACENE	10 U	30 U	20 U	10 U	10 U
BENZO(A)PYRENE	2.7 U	4.2 U	2.8 U	1.4 U	1.4 U
BENZO(B)FLUORANTHENE	10 U	30 U	20 U	10 U	10 U
BENZO(G,H,I)PERYLENE	10 U	30 U	20 U	10 U	10 U
BENZO(K)FLUORANTHENE	10 U	30 U	20 U	10 U	10 U
BENZOIC ACID					
BENZYL ALCOHOL					
BIS(2-CHLOROETHOXY)METHANE	10 U	30 U	20 U	10 U	10 U
BIS(2-CHLOROETHYL)ETHER	10 U	30 U	20 U	10 U	10 U
BIS(2-ETHYLHEXYL)PHTHALATE	4 U	12 U	8 U	4 U	4 U
BUTYLBENZYLPHTHALATE	10 U	30 U	20 U	10 U	10 U
CARBAZOLE	14 U	30 U	20 U	10 U	10 U
CHRYSENE	10 U	30 U	20 U	10 U	10 U
DIBENZO(A,H)ANTHRACENE	20 U	60 U	40 U	20 U	20 U
DIBENZOFURAN	10 U	30 U	20 U	10 U	10 U
DIETHYLPHTHALATE	10 U	30 U	20 U	10 U	10 U
DIMETHYLPHTHALATE	10 U	30 U	20 U	10 U	10 U
DI-N-BUTYLPHTHALATE	10 U	30 U	20 U	10 U	10 U
DI-N-OCTYLPHTHALATE	10 U	30 U	20 U	10 U	10 U
FLUORANTHENE	10 U	30 U	20 U	10 U	10 U

TABLE E-22: SITE 9 SEMIVOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	S09-DGS-DP04	S09-DGS-DP04	S09-DGS-DP04	S09-DGS-DP04	S09-DGS-DP05
Sample Code	385-S09-024A	385-S09-019A	385-S09-020A	385-S09-021A	385-S09-016A
Sampling Date	7/18/2001	7/25/2001	7/25/2001	7/25/2001	8/3/2001
Sampling Depth (feet bgs)	25 - 27	50 -	65 -	80 -	7 - 9
Units	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	DGS	DGS	DGS	DGS	DGS
Analyte					
FLUORENE	10 U	30 U	20 U	10 U	10 U
HEXACHLOROBENZENE	10 U	30 U	20 U	10 U	10 U
HEXACHLOROBUTADIENE	10 U	30 U	20 U	10 U	10 U
HEXACHLOROCYCLOPENTADIENE	16 U	33 UJ	22 UJ	11 UJ	11 U
HEXACHLOROETHANE	10 U	30 U	20 U	10 U	10 U
INDENO(1,2,3-CD)PYRENE	10 U	30 U	20 U	10 U	10 U
ISOPHORONE	10 U	30 U	20 U	10 U	10 U
NAPHTHALENE	10 U	30 U	20 U	10 U	85
NITROBENZENE	10 U	30 U	20 U	10 U	10 U
N-NITROSO-DI-N-PROPYLAMINE	10 U	30 U	20 U	10 U	10 U
N-NITROSODIPHENYLAMINE	18 U	30 U	20 U	10 U	10 U
PENTACHLOROPHENOL	25 U	75 U	50 U	25 U	25 U
PHENANTHRENE	10 U	30 U	20 U	10 U	10 U
PHENOL	10 U	30 U	20 U	10 U	59
PYRENE	10 U	30 U	20 U	10 U	10 U

Notes:

UG/L Micrograms per liter

TABLE E-22: SITE 9 SEMIVOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	S09-DGS-DP05	S09-DGS-DP05	S09-DGS-VE01	D09-01	D09-01	D09-01
Sample Code	385-S09-017A	385-S09-018A	385-S09-034A	280-S09-100	280-S09-107	280-S09-108
Sampling Date	8/3/2001	8/3/2001	8/7/2001	12/20/1994	2/21/1995	6/22/1995
Sampling Depth (feet bgs)	15 - 17	25 - 27	8.5 - 10	-	-	-
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	DGS	DGS	DGS	FO 1994	FO 1994	FO 1994
Analyte						
1,2,4-TRICHLOROBENZENE	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	5 U
1,3-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	5 U
1,4-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	5 U
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	10 U	10 U	10 U	10 U	10 UJ
2,4,5-TRICHLOROPHENOL	25 U	25 U	25 U	25 U	25 U	25 U
2,4,6-TRICHLOROPHENOL	10 U	10 U	10 U	10 U	10 U	10 U
2,4-DICHLOROPHENOL	10 U	10 U	10 U	10 U	10 U	10 U
2,4-DIMETHYLPHENOL	10 U	10 U	10 U	10 U	10 U	10 U
2,4-DINITROPHENOL	50 UJ	50 UJ	50 UJ	25 U		25 UJ
2,4-DINITROTOLUENE	10 U	10 U	10 U	10 U	10 U	10 U
2,6-DINITROTOLUENE	10 U	10 U	10 U	10 U	10 U	10 U
2-CHLORONAPHTHALENE	10 U	10 U	10 U	10 U	10 U	10 U
2-CHLOROPHENOL	10 U	10 U	10 U	10 U	10 U	10 U
2-METHYLNAPHTHALENE	10 U	10 U	10 U	10 U	10 U	10 U
2-METHYLPHENOL	10 U	10 U	10 U	10 U	10 U	10 U
2-NITROANILINE	25 U	25 U	25 U	25 U	25 U	25 U
2-NITROPHENOL	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-DICHLOROBENZIDINE	12 U	12 U	12 U	10 U	10 U	10 U
3-NITROANILINE	25 U	25 U	25 U	25 U	25 U	25 U
4,6-DINITRO-2-METHYLPHENOL	25 U	25 U	25 UJ	25 U	25 UJ	25 U
4-BROMOPHENYL-PHENYLETHER	10 U	10 U	10 U	10 U	10 U	10 U
4-CHLORO-3-METHYLPHENOL	10 U	10 U	10 U	10 U	10 U	10 U
4-CHLOROANILINE	17 U	17 U	17 U	10 U	10 U	10 U
4-CHLOROPHENYL-PHENYLETHER	10 U	10 U	10 U	10 U	10 U	10 U
4-METHYLPHENOL	10 U	10 U	10 U	10 U	10 U	10 U
4-NITROANILINE	25 U	25 U	25 U	25 U	25 U	25 U
4-NITROPHENOL	25 U	25 U	25 U	25 U	25 U	25 U
ACENAPHTHENE	10 U	10 U	10 U	10 U	10 U	10 U
ACENAPHTHYLENE	10 U	10 U	10 U	10 U	10 U	10 U
ANTHRACENE	10 U	10 U	10 U	10 U	10 U	10 U
BENZO(A)ANTHRACENE	10 U	10 U	10 U	10 U	10 U	10 U
BENZO(A)PYRENE	1.4 U	1.4 U	1.4 U	10 U	10 U	10 U
BENZO(B)FLUORANTHENE	10 U	10 U	10 U	10 U	10 U	10 U
BENZO(G,H,I)PERYLENE	10 U	10 U	10 U	10 UJ	10 U	10 U
BENZO(K)FLUORANTHENE	10 U	10 U	10 U	10 U	10 U	10 U
BENZOIC ACID						
BENZYL ALCOHOL						
BIS(2-CHLOROETHOXY)METHANE	10 U	10 U	10 U	10 U	10 U	10 U
BIS(2-CHLOROETHYL)ETHER	10 U	10 U	10 U	10 U	10 U	10 U
BIS(2-ETHYLHEXYL)PHTHALATE	4 U	6 UJ	4 U	4 UJ	6 UJ	4 UJ
BUTYLBENZYLPHTHALATE	10 U	10 U	10 U	10 UJ	10 UJ	10 U
CARBAZOLE	10 U	10 U	10 U	10 U	10 U	10 U
CHRYSENE	10 U	10 U	10 U	10 U	10 U	10 U
DIBENZO(A,H)ANTHRACENE	20 U	20 U	20 U	10 UJ	10 U	10 U
DIBENZOFURAN	10 U	10 U	10 U	10 U	10 U	10 U
DIETHYLPHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U
DIMETHYLPHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U
DI-N-BUTYLPHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U
DI-N-OCTYLPHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U
FLUORANTHENE	10 U	10 U	10 U	10 U	10 U	10 U

TABLE E-22: SITE 9 SEMIVOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	S09-DGS-DP05	S09-DGS-DP05	S09-DGS-VE01	D09-01	D09-01	D09-01
Sample Code	385-S09-017A	385-S09-018A	385-S09-034A	280-S09-100	280-S09-107	280-S09-108
Sampling Date	8/3/2001	8/3/2001	8/7/2001	12/20/1994	2/21/1995	6/22/1995
Sampling Depth (feet bgs)	15 - 17	25 - 27	8.5 - 10	-	-	-
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	DGS	DGS	DGS	FO 1994	FO 1994	FO 1994
Analyte						
FLUORENE	10 U	10 U	10 U	10 U	10 U	10 U
HEXACHLOROBENZENE	10 U	10 U	10 U	10 U	10 U	10 U
HEXACHLOROBUTADIENE	10 U	10 U	10 U	10 U	10 U	10 U
HEXACHLOROCYCLOPENTADIENE	11 U	11 U	11 U	10 U	10 U	10 U
HEXACHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U
INDENO(1,2,3-CD)PYRENE	10 U	10 U	10 U	10 UJ	10 U	10 U
ISOPHORONE	10 U	10 U	10 U	10 U	10 U	10 U
NAPHTHALENE	10 U	10 U	10 U	10 U	10 U	10 U
NITROBENZENE	10 U	10 U	10 U	10 U	10 U	10 U
N-NITROSO-DI-N-PROPYLAMINE	10 U	10 U	10 U	10 U	10 U	10 U
N-NITROSODIPHENYLAMINE	10 U	10 U	10 U	10 U	10 U	10 U
PENTACHLOROPHENOL	25 U	25 U	25 U	25 U	25 U	25 U
PHENANTHRENE	10 U	10 U	10 U	10 U	10 U	10 U
PHENOL	10 U	10 U	10 U	10 U	10 U	10 U
PYRENE	10 U	10 U	10 U	10 U	10 U	10 U

Notes:
UG/L Micrograms per liter

TABLE E-22: SITE 9 SEMIVOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	D09-01	DHP-S09-01	DHP-S09-02	DHP-S09-03	DHP-S09-05	DHP-S09-06
Sample Code	280-S09-109	280-S09-053	280-S09-054	280-S09-055	280-S09-058	280-S09-059
Sampling Date	9/14/1995	7/28/1994	7/28/1994	7/29/1994	8/23/1994	9/8/1994
Sampling Depth (feet bgs)	-	25.8 -	30 -	24 -	23 - 26	8 - 11
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994
Analyte						
1,2,4-TRICHLOROBENZENE	10 U	10 U	10 U	10 U	10 U	20 U
1,2-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	10 U
1,3-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	10 U
1,4-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	10 U
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	10 U	10 U	10 U	10 U	20 UJ
2,4,5-TRICHLOROPHENOL	25 U	25 U	25 U	25 U	25 U	50 U
2,4,6-TRICHLOROPHENOL	10 U	10 U	10 U	10 U	10 U	20 U
2,4-DICHLOROPHENOL	10 U	10 U	10 U	10 U	10 U	20 U
2,4-DIMETHYLPHENOL	10 U	10 U	10 U	10 U	10 U	9 J
2,4-DINITROPHENOL	25 UJ	25 U	25 U	25 UJ	25 UJ	50 U
2,4-DINITROTOLUENE	10 U	10 U	10 U	10 U	10 U	20 U
2,6-DINITROTOLUENE	10 U	10 U	10 U	10 U	10 U	20 U
2-CHLORONAPHTHALENE	10 U	10 U	10 U	10 U	10 U	20 U
2-CHLOROPHENOL	10 U	10 U	10 U	10 U	10 U	20 U
2-METHYLNAPHTHALENE	10 U	10 U	10 U	10 U	10 U	13 J
2-METHYLPHENOL	10 U	10 U	10 U	10 U	10 U	20 U
2-NITROANILINE	25 U	25 U	25 U	25 U	25 U	50 U
2-NITROPHENOL	10 U	10 U	10 U	10 U	10 U	20 U
3,3'-DICHLOROBENZIDINE	10 U	10 U	10 U	10 UJ	10 U	20 U
3-NITROANILINE	25 U	25 U	25 U	25 U	25 U	50 U
4,6-DINITRO-2-METHYLPHENOL	25 U	25 U	25 U	25 UJ	25 U	50 U
4-BROMOPHENYL-PHENYLETHER	10 U	10 U	10 U	10 U	10 U	20 U
4-CHLORO-3-METHYLPHENOL	10 U	10 U	10 U	10 U	10 U	20 UJ
4-CHLOROANILINE	10 U	10 U	10 U	10 U	10 U	20 UJ
4-CHLOROPHENYL-PHENYLETHER	10 U	10 U	10 U	10 U	10 U	20 U
4-METHYLPHENOL	10 U	10 U	10 U	10 U	10 U	20 U
4-NITROANILINE	25 U	25 U	25 U	25 U	25 U	50 UJ
4-NITROPHENOL	25 U	25 U	25 U	25 U	25 U	50 UJ
ACENAPHTHENE	10 U	10 U	10 U	10 U	10 U	20 U
ACENAPHTHYLENE	10 U	10 U	10 U	10 U	10 U	20 U
ANTHRACENE	10 U	10 U	10 U	10 U	10 U	20 U
BENZO(A)ANTHRACENE	10 U	10 U	10 U	10 U	10 U	20 U
BENZO(A)PYRENE	10 U	10 U	10 U	10 U	10 U	20 U
BENZO(B)FLUORANTHENE	10 U	10 U	10 U	10 U	10 U	20 U
BENZO(G,H,I)PERYLENE	10 U	10 U	10 U	10 U	10 U	20 U
BENZO(K)FLUORANTHENE	10 U	10 U	10 U	10 U	10 UJ	20 U
BENZOIC ACID						
BENZYL ALCOHOL						
BIS(2-CHLOROETHOXY)METHANE	10 U	10 U	10 U	10 U	10 U	20 U
BIS(2-CHLOROETHYL)ETHER	10 U	10 U	10 U	10 U	10 U	20 U
BIS(2-ETHYLHEXYL)PHTHALATE	8 UJ	5 UJ	4 UJ	4 UJ	7 UJ	8 U
BUTYLBENZYLPHTHALATE	10 U	10 U	10 U	10 U	10 U	20 U
CARBAZOLE	10 U	10 U	10 U	10 U	10 U	20 U
CHRYSENE	10 U	10 U	10 U	10 UJ	10 U	20 U
DIBENZO(A,H)ANTHRACENE	10 U	10 U	10 U	10 U	10 U	20 U
DIBENZOFURAN	10 U	10 U	10 U	10 U	10 U	20 U
DIETHYLPHTHALATE	10 U	10 U	10 U	10 UJ	10 UJ	20 U
DIMETHYLPHTHALATE	10 U	10 U	10 U	10 U	10 U	20 U
DI-N-BUTYLPHTHALATE	10 U	10 U	10 U	10 U	10 UJ	20 U
DI-N-OCTYLPHTHALATE	10 U	10 U	10 U	10 U	10 U	20 U
FLUORANTHENE	10 U	10 U	10 U	10 U	10 U	20 U

TABLE E-22: SITE 9 SEMIVOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	D09-01	DHP-S09-01	DHP-S09-02	DHP-S09-03	DHP-S09-05	DHP-S09-06
Sample Code	280-S09-109	280-S09-053	280-S09-054	280-S09-055	280-S09-058	280-S09-059
Sampling Date	9/14/1995	7/28/1994	7/28/1994	7/29/1994	8/23/1994	9/8/1994
Sampling Depth (feet bgs)	-	25.8 -	30 -	24 -	23 - 26	8 - 11
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994
Analyte						
FLUORENE	10 U	10 U	10 U	10 U	10 U	20 U
HEXACHLOROBENZENE	10 U	10 U	10 U	10 U	10 UJ	20 U
HEXACHLOROBUTADIENE	10 U	10 U	10 U	10 U	10 U	20 U
HEXACHLOROCYCLOPENTADIENE	10 U	10 U	10 U	10 U	10 U	20 UJ
HEXACHLOROETHANE	10 U	10 U	10 U	10 U	10 U	20 U
INDENO(1,2,3-CD)PYRENE	10 U	10 U	10 U	10 U	10 U	20 U
ISOPHORONE	10 U	1 J	10 U	1 J	10 U	20 U
NAPHTHALENE	10 U	10 U	10 U	10 U	10 U	77
NITROBENZENE	10 U	10 U	10 U	10 U	10 U	20 U
N-NITROSO-DI-N-PROPYLAMINE	10 U	10 U	10 U	10 U	10 U	20 U
N-NITROSODIPHENYLAMINE	10 U	10 U	10 U	10 U	10 U	20 U
PENTACHLOROPHENOL	25 U	25 U	25 U	25 UJ	25 UJ	50 UJ
PHENANTHRENE	10 U	10 U	10 U	10 U	10 U	20 U
PHENOL	10 U	10 U	10 U	10 U	10 U	20 U
PYRENE	10 U	10 U	10 U	10 U	10 U	20 U

Notes:
UG/L Micrograms per liter

TABLE E-22: SITE 9 SEMIVOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	DHP-S09-07	DHP-S09-08	DHP-S09-09	DHP-S09-10	DHP-S09-11	DHP-S09-12
Sample Code	280-S09-062	280-S09-064	280-S09-066	280-S09-068	280-S09-094	280-S09-096
Sampling Date	9/7/1994	9/7/1994	9/12/1994	9/9/1994	8/25/1994	8/25/1994
Sampling Depth (feet bgs)	21 - 24	0 -	22 - 25	27 - 30	20 - 24	22.5 - 26
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994
Analyte						
1,2,4-TRICHLOROBENZENE	10 U	50 UJ	10 U	10 U	10 U	10 U
1,2-DICHLOROBENZENE	5 U	25 UJ	5 U	5 U	5 U	5 U
1,3-DICHLOROBENZENE	5 U	25 UJ	5 U	5 U	5 U	5 U
1,4-DICHLOROBENZENE	5 U	25 UJ	5 U	5 U	5 U	5 U
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	50 UJ	10 U	10 U	10 U	10 U
2,4,5-TRICHLOROPHENOL	25 U	120 UJ	25 U	25 U	25 U	25 U
2,4,6-TRICHLOROPHENOL	10 U	50 UJ	10 U	10 U	10 U	10 U
2,4-DICHLOROPHENOL	10 U	50 UJ	10 U	10 U	10 U	10 U
2,4-DIMETHYLPHENOL	10 U	50 UJ	10 U	10 U	10 U	10 U
2,4-DINITROPHENOL	25 U	120 UJ	25 U	25 U	25 UJ	25 UJ
2,4-DINITROTOLUENE	10 U	50 UJ	10 U	10 U	10 U	10 U
2,6-DINITROTOLUENE	10 U	50 UJ	10 U	10 U	10 U	10 U
2-CHLORONAPHTHALENE	10 U	50 UJ	10 U	10 U	10 U	10 U
2-CHLOROPHENOL	10 U	50 UJ	10 U	10 U	10 U	10 U
2-METHYLNAPHTHALENE	10 U	50 UJ	10 U	10 U	10 U	10 U
2-METHYLPHENOL	10 U	50 UJ	10 U	10 U	10 U	10 U
2-NITROANILINE	25 U	120 UJ	25 U	25 U	25 U	25 U
2-NITROPHENOL	10 U	50 UJ	10 U	10 U	10 U	10 U
3,3'-DICHLOROBENZIDINE	10 U	50 UJ	10 U	10 U	10 U	10 U
3-NITROANILINE	25 U	120 UJ	25 U	25 U	25 U	25 U
4,6-DINITRO-2-METHYLPHENOL	25 U	120 UJ	25 U	25 U	25 U	25 UJ
4-BROMOPHENYL-PHENYLETHER	10 U	50 UJ	10 U	10 U	10 U	10 UJ
4-CHLORO-3-METHYLPHENOL	10 U	50 UJ	10 U	10 U	10 U	10 U
4-CHLOROANILINE	10 U	50 UJ	10 U	10 U	10 U	10 U
4-CHLOROPHENYL-PHENYLETHER	10 U	50 UJ	10 U	10 U	10 U	10 U
4-METHYLPHENOL	10 U	50 UJ	10 U	10 U	10 U	10 U
4-NITROANILINE	25 U	120 UJ	25 U	25 UJ	25 U	25 U
4-NITROPHENOL	25 U	6 J	25 U	25 U	25 U	25 UJ
ACENAPHTHENE	10 U	50 UJ	10 U	10 U	10 U	10 U
ACENAPHTHYLENE	10 U	50 UJ	10 U	10 U	10 U	10 U
ANTHRACENE	10 U	50 UJ	10 U	10 U	10 U	10 U
BENZO(A)ANTHRACENE	10 U	50 UJ	10 U	10 U	10 U	10 U
BENZO(A)PYRENE	10 U	50 UJ	10 U	10 U	10 U	10 U
BENZO(B)FLUORANTHENE	10 U	50 UJ	10 U	10 U	10 U	10 U
BENZO(G,H,I)PERYLENE	10 U	50 UJ	10 U	10 U	10 U	10 U
BENZO(K)FLUORANTHENE	10 U	50 UJ	10 U	10 U	10 U	10 U
BENZOIC ACID						
BENZYL ALCOHOL						
BIS(2-CHLOROETHOXY)METHANE	10 U	50 UJ	10 U	10 U	10 U	10 U
BIS(2-CHLOROETHYL)ETHER	10 U	50 UJ	10 U	10 U	10 U	10 U
BIS(2-ETHYLHEXYL)PHTHALATE	4 UJ	20 UJ	4 UJ	4 UJ	4 UJ	20 UJ
BUTYLBENZYLPHTHALATE	10 U	50 UJ	10 U	10 UJ	10 U	10 U
CARBAZOLE	10 U	50 UJ	10 U	10 U	10 U	10 U
CHRYSENE	10 U	50 UJ	10 U	10 U	10 U	10 U
DIBENZO(A,H)ANTHRACENE	10 U	50 UJ	10 U	10 U	10 U	10 U
DIBENZOFURAN	10 U	50 UJ	10 U	10 U	10 U	10 U
DIETHYLPHTHALATE	10 UJ	50 UJ	10 UJ	10 U	10 UJ	10 UJ
DIMETHYLPHTHALATE	10 U	50 UJ	10 U	10 U	10 U	10 U
DI-N-BUTYLPHTHALATE	11 UJ	50 UJ	10 UJ	10 UJ	10 UJ	10 UJ
DI-N-OCTYLPHTHALATE	10 U	50 UJ	10 U	10 U	10 U	10 U
FLUORANTHENE	10 U	50 UJ	10 U	10 U	10 U	10 U

TABLE E-22: SITE 9 SEMIVOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	DHP-S09-07	DHP-S09-08	DHP-S09-09	DHP-S09-10	DHP-S09-11	DHP-S09-12
Sample Code	280-S09-062	280-S09-064	280-S09-066	280-S09-068	280-S09-094	280-S09-096
Sampling Date	9/7/1994	9/7/1994	9/12/1994	9/9/1994	8/25/1994	8/25/1994
Sampling Depth (feet bgs)	21 - 24	0 -	22 - 25	27 - 30	20 - 24	22.5 - 26
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994
Analyte						
FLUORENE	10 U	50 UJ	10 U	10 U	10 U	10 U
HEXACHLOROBENZENE	10 U	50 UJ	10 U	10 U	10 U	10 UJ
HEXACHLOROBUTADIENE	10 U	50 UJ	10 U	10 U	10 U	10 U
HEXACHLOROCYCLOPENTADIENE	10 U	50 UJ	10 U	10 U	10 U	10 UJ
HEXACHLOROETHANE	10 U	50 UJ	10 U	10 U	10 U	10 U
INDENO(1,2,3-CD)PYRENE	10 U	50 UJ	10 U	10 U	10 U	10 U
ISOPHORONE	10 U	50 UJ	10 U	10 U	10 U	10 U
NAPHTHALENE	10 U	50 UJ	10 U	10 U	10 U	10 U
NITROBENZENE	10 U	50 UJ	10 U	10 U	10 U	10 U
N-NITROSO-DI-N-PROPYLAMINE	10 U	50 UJ	10 U	10 U	10 U	10 UJ
N-NITROSODIPHENYLAMINE	10 U	50 UJ	10 U	10 U	10 U	10 U
PENTACHLOROPHENOL	25 U	120 UJ	25 U	1 J	25 UJ	25 UJ
PHENANTHRENE	10 U	50 UJ	10 U	10 U	10 U	10 U
PHENOL	10 U	50 UJ	7 J	10 U	10 U	10 U
PYRENE	10 U	50 UJ	10 U	0.5 J	10 U	10 U

Notes:

UG/L Micrograms per liter

TABLE E-22: SITE 9 SEMIVOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	M09-06	M09-06	M09-06	M09-06	MW410-1	MW410-1
Sample Code	280-S09-049	280-S09-050	280-S09-051	280-S09-052	280-S09-026	280-S09-028
Sampling Date	11/30/1994	2/21/1995	6/22/1995	8/8/1995	10/18/1994	6/23/1995
Sampling Depth (feet bgs)	-	-	-	-	-	-
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994
Analyte						
1,2,4-TRICHLOROBENZENE	10 U	10 U	10 U	10 U	10 U	10 U
1,2-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	5 U
1,3-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	5 U
1,4-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	5 U
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	10 U	10 UJ	10 U	10 U	10 U
2,4,5-TRICHLOROPHENOL	25 U	25 U	25 U	25 U	25 U	25 U
2,4,6-TRICHLOROPHENOL	10 U	10 U	10 U	10 U	10 U	10 U
2,4-DICHLOROPHENOL	10 U	10 U	10 U	10 U	10 U	10 U
2,4-DIMETHYLPHENOL	10 U	10 U	10 U	10 U	10 U	10 U
2,4-DINITROPHENOL	25 UJ		25 UJ		25 U	25 U
2,4-DINITROTOLUENE	10 U	10 U	10 U	10 U	10 U	10 U
2,6-DINITROTOLUENE	10 U	10 U	10 U	10 U	10 U	10 U
2-CHLORONAPHTHALENE	10 U	10 U	10 U	10 U	10 U	10 U
2-CHLOROPHENOL	10 U	10 U	10 U	10 U	10 U	10 U
2-METHYLNAPHTHALENE	10 U	10 U	10 U	10 U	10 U	10 U
2-METHYLPHENOL	10 U	10 U	10 U	10 U	10 U	10 U
2-NITROANILINE	25 U	25 U	25 U	25 U	25 U	25 U
2-NITROPHENOL	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-DICHLOROBENZIDINE	10 U	10 U	10 U	10 U	10 U	10 U
3-NITROANILINE	25 U	25 U	25 U	25 U	25 U	25 U
4,6-DINITRO-2-METHYLPHENOL	25 U	25 UJ	25 U	25 UJ	25 U	25 U
4-BROMOPHENYL-PHENYLETHER	10 U	10 U	10 U	10 U	10 U	10 U
4-CHLORO-3-METHYLPHENOL	10 U	10 U	10 U	10 U	10 U	10 U
4-CHLOROANILINE	10 U	10 U	10 U	10 U	10 U	10 U
4-CHLOROPHENYL-PHENYLETHER	10 U	10 U	10 U	10 U	10 U	10 U
4-METHYLPHENOL	10 U	10 U	10 U	10 U	10 U	10 U
4-NITROANILINE	25 U	25 U	25 U	25 U	25 U	25 U
4-NITROPHENOL	25 U	25 U	25 U	25 U	25 U	25 U
ACENAPHTHENE	10 U	10 U	10 U	10 U	10 U	10 U
ACENAPHTHYLENE	10 U	10 U	10 U	10 U	10 U	10 U
ANTHRACENE	10 U	10 U	10 U	10 U	10 U	10 U
BENZO(A)ANTHRACENE	10 U	10 U	10 U	10 U	10 U	10 U
BENZO(A)PYRENE	10 U	10 U	10 U	10 U	10 U	10 U
BENZO(B)FLUORANTHENE	10 U	10 U	10 U	10 U	10 U	10 U
BENZO(G,H,I)PERYLENE	10 U	10 U	10 U	10 U	10 U	10 U
BENZO(K)FLUORANTHENE	10 U	10 U	10 U	10 U	10 U	10 U
BENZOIC ACID						
BENZYL ALCOHOL						
BIS(2-CHLOROETHOXY)METHANE	10 U	10 U	10 U	10 U	10 U	10 U
BIS(2-CHLOROETHYL)ETHER	10 U	10 U	10 U	10 U	10 U	10 U
BIS(2-ETHYLHEXYL)PHTHALATE	4 UJ	4 UJ	4 U	4 UJ	4 U	4 U
BUTYLBENZYLPHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U
CARBAZOLE	10 U	10 U	10 U	10 U	10 U	10 U
CHRYSENE	10 U	10 U	10 U	10 U	10 U	10 U
DIBENZO(A,H)ANTHRACENE	10 U	10 U	10 U	10 U	10 U	10 U
DIBENZOFURAN	10 U	10 U	10 U	10 U	10 U	10 U
DIETHYLPHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U
DIMETHYLPHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U
DI-N-BUTYLPHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U
DI-N-OCTYLPHTHALATE	10 U	10 U	10 U	10 U	10 U	10 U
FLUORANTHENE	10 U	10 U	10 U	10 U	10 U	10 U

TABLE E-22: SITE 9 SEMIVOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	M09-06	M09-06	M09-06	M09-06	MW410-1	MW410-1
Sample Code	280-S09-049	280-S09-050	280-S09-051	280-S09-052	280-S09-026	280-S09-028
Sampling Date	11/30/1994	2/21/1995	6/22/1995	8/8/1995	10/18/1994	6/23/1995
Sampling Depth (feet bgs)	-	-	-	-	-	-
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994
Analyte						
FLUORENE	10 U	10 U	10 U	10 U	10 U	10 U
HEXACHLOROBENZENE	10 U	10 U	10 U	10 U	10 U	10 U
HEXACHLOROBUTADIENE	10 U	10 U	10 U	10 U	10 U	10 U
HEXACHLOROCYCLOPENTADIENE	10 U	10 U	10 U	10 U	10 U	10 U
HEXACHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 U
INDENO(1,2,3-CD)PYRENE	10 U	10 U	10 U	10 U	10 U	10 U
ISOPHORONE	10 U	10 U	10 U	10 U	10 U	10 U
NAPHTHALENE	10 U	10 U	10 U	10 U	10 U	10 U
NITROBENZENE	10 U	10 U	10 U	10 U	10 U	10 U
N-NITROSO-DI-N-PROPYLAMINE	10 U	10 U	10 U	10 U	10 U	10 U
N-NITROSODIPHENYLAMINE	10 U	10 U	10 U	10 U	10 U	10 U
PENTACHLOROPHENOL	25 U	25 U	25 U	25 U	25 U	25 U
PHENANTHRENE	10 U	10 U	10 U	10 U	10 U	10 U
PHENOL	10 U	10 U	10 U	10 U	10 U	10 U
PYRENE	10 U	10 U	10 U	10 U	10 U	10 U

Notes:

UG/L Micrograms per liter

TABLE E-22: SITE 9 SEMIVOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	MW410-1	MW410-2	MW410-2	MW410-2	MW410-2	MW410-3
Sample Code	280-S09-030	280-S09-031	280-S09-032	280-S09-033	280-S09-034	280-S09-036
Sampling Date	8/8/1995	10/18/1994	2/21/1995	6/22/1995	8/4/1995	10/18/1994
Sampling Depth (feet bgs)	-	-	-	-	-	-
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994
Analyte						
1,2,4-TRICHLOROBENZENE	10 U	10 U	10 U	10 U	10 U	10 UJ
1,2-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	5 UJ
1,3-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	5 UJ
1,4-DICHLOROBENZENE	5 U	5 U	5 U	5 U	5 U	5 UJ
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	10 U	10 U	10 UJ	10 U	10 UJ
2,4,5-TRICHLOROPHENOL	25 U	25 U	25 U	25 U	25 U	25 UJ
2,4,6-TRICHLOROPHENOL	10 U	10 U	10 U	10 U	10 U	10 UJ
2,4-DICHLOROPHENOL	10 U	10 U	10 U	10 U	10 U	10 UJ
2,4-DIMETHYLPHENOL	10 U	10 U	10 U	10 U	10 U	10 UJ
2,4-DINITROPHENOL		25 U		25 UJ	25 UJ	25 UJ
2,4-DINITROTOLUENE	10 U	10 U	10 U	10 U	10 U	10 UJ
2,6-DINITROTOLUENE	10 U	10 U	10 U	10 U	10 U	10 UJ
2-CHLORONAPHTHALENE	10 U	10 U	10 U	10 U	10 U	10 UJ
2-CHLOROPHENOL	10 U	10 U	10 U	10 U	10 U	10 UJ
2-METHYLNAPHTHALENE	10 U	10 U	10 U	10 U	10 U	10 UJ
2-METHYLPHENOL	10 U	10 U	10 U	10 U	10 U	10 UJ
2-NITROANILINE	25 U	25 U	25 U	25 U	25 U	25 UJ
2-NITROPHENOL	10 U	10 U	10 U	10 U	10 U	10 UJ
3,3'-DICHLOROBENZIDINE	10 U	10 U	10 U	10 U	10 U	10 UJ
3-NITROANILINE	25 U	25 U	25 U	25 U	25 U	25 UJ
4,6-DINITRO-2-METHYLPHENOL	25 UJ	25 U	25 UJ	25 U	25 U	25 UJ
4-BROMOPHENYL-PHENYLETHER	10 U	10 U	10 U	10 U	10 U	10 UJ
4-CHLORO-3-METHYLPHENOL	10 U	10 U	10 U	10 U	10 U	10 UJ
4-CHLOROANILINE	10 U	10 U	10 U	10 U	10 U	10 UJ
4-CHLOROPHENYL-PHENYLETHER	10 U	10 U	10 U	10 U	10 U	10 UJ
4-METHYLPHENOL	10 U	10 U	10 U	10 U	10 U	10 UJ
4-NITROANILINE	25 U	25 U	25 U	25 U	25 U	25 UJ
4-NITROPHENOL	25 U	25 U	25 U	25 U	25 UJ	25 UJ
ACENAPHTHENE	10 U	10 U	10 U	10 U	10 U	10 UJ
ACENAPHTHYLENE	10 U	10 U	10 U	10 U	10 U	10 UJ
ANTHRACENE	10 U	10 U	10 U	10 U	10 U	10 UJ
BENZO(A)ANTHRACENE	10 U	10 U	10 U	10 U	10 U	10 UJ
BENZO(A)PYRENE	10 U	10 U	10 U	10 U	10 U	10 UJ
BENZO(B)FLUORANTHENE	10 U	10 U	10 U	10 U	10 U	10 UJ
BENZO(G,H,I)PERYLENE	10 U	10 U	10 U	10 U	10 UJ	10 UJ
BENZO(K)FLUORANTHENE	10 U	10 U	10 U	10 U	10 U	10 UJ
BENZOIC ACID						
BENZYL ALCOHOL						
BIS(2-CHLOROETHOXY)METHANE	10 U	10 U	10 U	10 U	10 U	10 UJ
BIS(2-CHLOROETHYL)ETHER	10 U	10 U	10 U	10 U	10 U	10 UJ
BIS(2-ETHYLHEXYL)PHTHALATE	4 U	4 U	4 U	4 U	4 U	4 UJ
BUTYLBENZYLPHTHALATE	10 U	10 U	10 U	10 U	10 U	10 UJ
CARBAZOLE	10 U	10 U	10 U	10 U	10 U	10 UJ
CHRYSENE	10 U	10 U	10 U	10 U	10 U	10 UJ
DIBENZO(A,H)ANTHRACENE	10 U	10 U	10 U	10 U	10 UJ	10 UJ
DIBENZOFURAN	10 U	10 U	10 U	10 U	10 U	10 UJ
DIETHYLPHTHALATE	10 U	10 U	10 U	10 U	10 U	10 UJ
DIMETHYLPHTHALATE	10 U	10 U	10 U	10 U	10 U	10 UJ
DI-N-BUTYLPHTHALATE	10 U	10 U	10 U	10 U	10 U	10 UJ
DI-N-OCTYLPHTHALATE	10 U	10 U	10 U	10 U	10 U	10 UJ
FLUORANTHENE	10 U	10 U	10 U	10 U	10 U	10 UJ

TABLE E-22: SITE 9 SEMIVOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	MW410-1	MW410-2	MW410-2	MW410-2	MW410-2	MW410-3
Sample Code	280-S09-030	280-S09-031	280-S09-032	280-S09-033	280-S09-034	280-S09-036
Sampling Date	8/8/1995	10/18/1994	2/21/1995	6/22/1995	8/4/1995	10/18/1994
Sampling Depth (feet bgs)	-	-	-	-	-	-
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994
Analyte						
FLUORENE	10 U	10 U	10 U	10 U	10 U	10 UJ
HEXACHLOROBENZENE	10 U	10 U	10 U	10 U	10 U	10 UJ
HEXACHLOROBUTADIENE	10 U	10 U	10 U	10 U	10 U	10 UJ
HEXACHLOROCYCLOPENTADIENE	10 U	10 U	10 U	10 U	10 U	10 UJ
HEXACHLOROETHANE	10 U	10 U	10 U	10 U	10 U	10 UJ
INDENO(1,2,3-CD)PYRENE	10 U	10 U	10 U	10 U	10 UJ	10 UJ
ISOPHORONE	10 U	10 U	10 U	10 U	10 U	10 UJ
NAPHTHALENE	10 U	10 U	10 U	10 U	10 U	10 UJ
NITROBENZENE	10 U	10 U	10 U	10 U	10 U	10 UJ
N-NITROSO-DI-N-PROPYLAMINE	10 U	10 U	10 U	10 U	10 U	10 UJ
N-NITROSODIPHENYLAMINE	10 U	10 U	10 U	10 U	10 U	10 UJ
PENTACHLOROPHENOL	25 U	25 U	25 U	25 U	25 U	25 UJ
PHENANTHRENE	10 U	10 U	10 U	10 U	10 U	10 UJ
PHENOL	8 J	10 UJ	10 U	10 U	10 U	10 UJ
PYRENE	10 U	10 U	10 U	10 U	10 U	10 UJ

Notes:

UG/L Micrograms per liter

TABLE E-22: SITE 9 SEMIVOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	MW410-3	MW410-3	MW410-3	SHP-S09-05	SHP-S09-07	SHP-S09-08
Sample Code	280-S09-037	280-S09-038	280-S09-039	280-S09-057	280-S09-061	280-S09-063
Sampling Date	2/21/1995	6/22/1995	8/7/1995	8/24/1994	9/7/1994	9/9/1994
Sampling Depth (feet bgs)	-	-	-	7 - 10	8 - 11	11 -
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994
Analyte						
1,2,4-TRICHLOROBENZENE	10 U	10 U	10 U	10 U	250 U	40 UJ
1,2-DICHLOROBENZENE	5 U	5 U	5 U	5 U	120 U	20 UJ
1,3-DICHLOROBENZENE	5 U	5 U	5 U	5 U	120 U	20 UJ
1,4-DICHLOROBENZENE	5 U	5 U	5 U	5 U	120 U	20 UJ
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	10 UJ	0.7 J	10 U	250 U	40 UJ
2,4,5-TRICHLOROPHENOL	25 U	25 U	25 U	25 U	620 U	100 U
2,4,6-TRICHLOROPHENOL	10 U	10 U	10 U	10 U	250 U	40 U
2,4-DICHLOROPHENOL	10 U	10 U	10 U	10 U	250 U	40 U
2,4-DIMETHYLPHENOL	10 U	10 U	10 U	2 J	140 J	40 U
2,4-DINITROPHENOL		25 UJ	25 UJ	25 UJ	620 U	100 U
2,4-DINITROTOLUENE	10 U	10 U	10 U	10 U	250 U	40 UJ
2,6-DINITROTOLUENE	10 U	10 U	10 U	10 U	250 U	40 UJ
2-CHLORONAPHTHALENE	10 U	10 U	10 U	10 U	250 U	40 UJ
2-CHLOROPHENOL	10 U	10 U	10 U	10 U	250 U	40 U
2-METHYLNAPHTHALENE	10 U	10 U	10 U	10 U	250 U	20 J
2-METHYLPHENOL	10 U	10 U	10 U	10 U	41 J	40 U
2-NITROANILINE	25 U	25 U	25 U	25 U	620 U	100 U
2-NITROPHENOL	10 U	10 U	10 U	10 U	250 U	40 U
3,3'-DICHLOROBENZIDINE	10 U	10 U	10 U	10 U	250 U	40 UJ
3-NITROANILINE	25 U	25 U	25 U	25 U	620 U	100 U
4,6-DINITRO-2-METHYLPHENOL	25 J	25 U	25 UJ	25 UJ	620 U	100 U
4-BROMOPHENYL-PHENYLETHER	10 U	10 U	10 U	10 UJ	250 U	40 UJ
4-CHLORO-3-METHYLPHENOL	10 U	10 U	10 U	10 U	250 U	40 U
4-CHLOROANILINE	10 U	10 U	10 U	10 U	250 U	40 U
4-CHLOROPHENYL-PHENYLETHER	10 U	10 U	10 U	10 U	250 U	40 UJ
4-METHYLPHENOL	10 U	10 U	10 U	10 U	1200	40 U
4-NITROANILINE	25 U	25 U	25 U	25 U	620 U	100 U
4-NITROPHENOL	25 U	25 U	25 U	25 UJ	620 U	100 U
ACENAPHTHENE	10 U	10 U	10 U	10 U	250 U	40 UJ
ACENAPHTHYLENE	10 U	10 U	10 U	10 U	250 U	40 UJ
ANTHRACENE	10 U	10 U	10 U	10 U	250 U	40 UJ
BENZO(A)ANTHRACENE	10 U	10 U	10 U	0.7 J	250 U	40 UJ
BENZO(A)PYRENE	10 U	10 U	10 U	1 J	250 U	40 UJ
BENZO(B)FLUORANTHENE	10 U	10 U	10 U	2 J	250 U	40 UJ
BENZO(G,H,I)PERYLENE	10 U	10 U	10 U	1 J	250 U	40 UJ
BENZO(K)FLUORANTHENE	10 U	10 U	10 U	10 U	250 U	40 UJ
BENZOIC ACID						
BENZYL ALCOHOL						
BIS(2-CHLOROETHOXY)METHANE	10 U	10 U	10 U	10 U	250 U	40 UJ
BIS(2-CHLOROETHYL)ETHER	10 U	10 U	10 U	10 U	250 U	40 UJ
BIS(2-ETHYLHEXYL)PHTHALATE	4 UJ	4 U	4 U	4 UJ	100 U	16 UJ
BUTYLBENZYLPHTHALATE	10 U	10 U	10 U	10 U	250 U	40 UJ
CARBAZOLE	10 U	10 U	10 U	10 U	250 U	40 U
CHRYSENE	10 U	10 U	10 U	0.8 J	250 U	40 UJ
DIBENZO(A,H)ANTHRACENE	10 U	10 U	10 U	10 U	250 U	40 UJ
DIBENZOFURAN	10 U	10 U	10 U	10 U	250 U	40 U
DIETHYLPHTHALATE	10 U	10 U	10 U	10 U	250 U	40 UJ
DIMETHYLPHTHALATE	10 U	10 U	10 U	10 U	250 U	40 UJ
DI-N-BUTYLPHTHALATE	10 U	10 U	10 U	10 UJ	250 U	40 UJ
DI-N-OCTYLPHTHALATE	10 U	10 U	10 U	10 U	250 U	40 UJ
FLUORANTHENE	10 U	10 U	10 U	2 J	250 U	2 J

TABLE E-22: SITE 9 SEMIVOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	MW410-3	MW410-3	MW410-3	SHP-S09-05	SHP-S09-07	SHP-S09-08
Sample Code	280-S09-037	280-S09-038	280-S09-039	280-S09-057	280-S09-061	280-S09-063
Sampling Date	2/21/1995	6/22/1995	8/7/1995	8/24/1994	9/7/1994	9/9/1994
Sampling Depth (feet bgs)	-	-	-	7 - 10	8 - 11	11 -
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994
Analyte						
FLUORENE	10 U	10 U	10 U	10 U	250 U	40 UJ
HEXACHLOROBENZENE	10 U	10 U	10 U	10 UJ	250 U	40 UJ
HEXACHLOROBUTADIENE	10 U	10 U	10 U	10 U	250 U	40 UJ
HEXACHLOROCYCLOPENTADIENE	10 U	10 U	10 U	10 UJ	250 U	40 UJ
HEXACHLOROETHANE	10 U	10 U	10 U	10 U	250 U	40 UJ
INDENO(1,2,3-CD)PYRENE	10 U	10 U	10 U	0.9 J	250 U	40 UJ
ISOPHORONE	10 U	10 U	10 U	10 U	250 U	40 UJ
NAPHTHALENE	10 U	10 U	10 U	1 J	49 J	250 J
NITROBENZENE	10 U	10 U	10 U	10 U	250 U	40 UJ
N-NITROSO-DI-N-PROPYLAMINE	10 U	10 U	10 U	10 UJ	250 U	40 UJ
N-NITROSODIPHENYLAMINE	10 U	10 U	10 U	10 U	250 U	40 U
PENTACHLOROPHENOL	25 U	25 U	25 U	25 UJ	620 U	100 U
PHENANTHRENE	10 U	10 U	10 U	0.9 J	250 U	40 UJ
PHENOL	10 U	10 U	10 U	10 U	50 J	40 U
PYRENE	10 U	10 U	10 U	2 J	250 U	4 J

Notes:

UG/L Micrograms per liter

TABLE E-22: SITE 9 SEMIVOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	SHP-S09-09	SHP-S09-10	SHP-S09-11	SHP-S09-12	MW410-1
Sample Code	280-S09-065	280-S09-067	280-S09-093	280-S09-095	MW410-1 [08/21/90]
Sampling Date	9/8/1994	9/6/1994	8/25/1994	8/24/1994	8/21/1990
Sampling Depth (feet bgs)	8 - 11	11 -	15 -	8 -	-
Units	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	FO 1994	FO 1994	FO 1994	FO 1994	PH 1&2A 1991
Analyte					
1,2,4-TRICHLOROBENZENE	10 U	16000 U	10 U	10 U	10 U
1,2-DICHLOROBENZENE	5 U	8000 U	5 U	5 U	10 U
1,3-DICHLOROBENZENE	5 U	8000 U	5 U	5 U	10 U
1,4-DICHLOROBENZENE	5 U	8000 U	5 U	5 U	10 U
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	16000 U	10 U	10 U	
2,4,5-TRICHLOROPHENOL	25 U	40000 U	25 U	25 U	50 U
2,4,6-TRICHLOROPHENOL	10 U	16000 U	10 U	10 U	10 U
2,4-DICHLOROPHENOL	10 U	16000 UJ	10 U	10 U	10 U
2,4-DIMETHYLPHENOL	3 J	16000 U	10 U	10 U	10 U
2,4-DINITROPHENOL	25 U	40000 UJ	25 UJ	25 UJ	50 U
2,4-DINITROTOLUENE	10 U	16000 U	10 U	10 U	10 U
2,6-DINITROTOLUENE	10 U	16000 U	10 U	10 U	10 U
2-CHLORONAPHTHALENE	10 U	16000 U	10 U	10 U	10 U
2-CHLOROPHENOL	10 U	16000 U	10 U	10 U	10 U
2-METHYLNAPHTHALENE	7 J	6500 J	10 U	10 U	10 U
2-METHYLPHENOL	9 J	16000 U	10 U	10 U	10 U
2-NITROANILINE	25 U	40000 U	25 U	25 U	50 U
2-NITROPHENOL	10 U	16000 U	10 U	10 U	10 U
3,3'-DICHLOROBENZIDINE	10 U	16000 U	10 U	10 U	20 U
3-NITROANILINE	25 U	40000 U	25 U	25 U	50 U
4,6-DINITRO-2-METHYLPHENOL	25 U	40000 UJ	25 U	25 UJ	50 U
4-BROMOPHENYL-PHENYLETHER	10 U	16000 UJ	10 U	10 U	10 U
4-CHLORO-3-METHYLPHENOL	10 U	16000 U	10 U	10 U	10 U
4-CHLOROANILINE	10 U	16000 U	10 U	10 U	10 U
4-CHLOROPHENYL-PHENYLETHER	10 U	16000 U	10 U	10 U	10 U
4-METHYLPHENOL	10 U	16000 U	10 U	10 U	10 U
4-NITROANILINE	25 U	40000 U	25 U	25 U	50 U
4-NITROPHENOL	25 U	40000 UJ	25 U	25 U	50 U
ACENAPHTHENE	0.9 J	16000 U	10 U	10 U	10 U
ACENAPHTHYLENE	10 U	16000 U	10 U	10 U	
ANTHRACENE	10 U	16000 U	10 U	10 U	10 U
BENZO(A)ANTHRACENE	10 U	16000 U	1 J	10 U	10 U
BENZO(A)PYRENE	10 U	16000 U	2 J	10 U	10 U
BENZO(B)FLUORANTHENE	10 U	16000 U	2 J	10 U	10 U
BENZO(G,H,I)PERYLENE	10 U	16000 U	2 J	10 U	10 U
BENZO(K)FLUORANTHENE	10 U	16000 U	0.8 J	10 U	10 U
BENZOIC ACID					50 U
BENZYL ALCOHOL					10 U
BIS(2-CHLOROETHOXY)METHANE	10 U	16000 U	10 U	10 U	10 U
BIS(2-CHLOROETHYL)ETHER	10 U	16000 U	10 U	10 U	10 U
BIS(2-ETHYLHEXYL)PHTHALATE	4 U	6400 UJ	4 UJ	4 U	10 U
BUTYLBENZYLPHTHALATE	10 U	16000 U	10 U	10 U	10 U
CARBAZOLE	10 U	16000 U	10 U	10 U	
CHRYSENE	10 U	16000 U	1 J	10 U	10 U
DIBENZO(A,H)ANTHRACENE	10 U	16000 U	10 U	10 U	10 U
DIBENZOFURAN	10 U	16000 U	10 U	10 U	10 U
DIETHYLPHTHALATE	10 UJ	16000 U	10 U	10 U	10 U
DIMETHYLPHTHALATE	10 U	16000 U	10 U	10 U	10 U
DI-N-BUTYLPHTHALATE	10 U	16000 U	10 U	10 UJ	10 U
DI-N-OCTYLPHTHALATE	10 U	16000 U	10 U	10 U	10 U
FLUORANTHENE	10 U	16000 U	3 J	10 UJ	10 U

TABLE E-22: SITE 9 SEMIVOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	SHP-S09-09	SHP-S09-10	SHP-S09-11	SHP-S09-12	MW410-1
Sample Code	280-S09-065	280-S09-067	280-S09-093	280-S09-095	MW410-1 [08/21/90]
Sampling Date	9/8/1994	9/6/1994	8/25/1994	8/24/1994	8/21/1990
Sampling Depth (feet bgs)	8 - 11	11 -	15 -	8 -	-
Units	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	FO 1994	FO 1994	FO 1994	FO 1994	PH 1&2A 1991
Analyte					
FLUORENE	0.8 J	16000 U	10 U	10 U	10 U
HEXACHLOROBENZENE	10 U	16000 UJ	10 UJ	10 U	10 U
HEXACHLOROBUTADIENE	10 U	16000 U	10 U	10 U	10 U
HEXACHLOROCYCLOPENTADIENE	10 U	16000 UJ	10 U	10 U	10 U
HEXACHLOROETHANE	10 U	16000 U	10 U	10 U	10 U
INDENO(1,2,3-CD)PYRENE	10 U	16000 U	1 J	10 U	10 U
ISOPHORONE	10 U	16000 U	10 U	10 U	10 U
NAPHTHALENE	74	29000	0.9 J	10 U	10 U
NITROBENZENE	10 U	16000 U	10 U	10 U	10 U
N-NITROSO-DI-N-PROPYLAMINE	10 U	16000 UJ	10 U	10 U	10 U
N-NITROSODIPHENYLAMINE	10 U	16000 U	10 U	10 U	10 U
PENTACHLOROPHENOL	2 J	40000 UJ	25 UJ	25 UJ	50 U
PHENANTHRENE	10 U	1200 J	2 J	10 U	10 U
PHENOL	45	16000 U	10 U	10 U	10 U
PYRENE	10 U	16000 U	3 J	2 J	10 U

Notes:

UG/L Micrograms per liter

TABLE E-22: SITE 9 SEMIVOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	MW410-2	MW410-3
Sample Code	MW410-2 [08/22/90]	MW410-3 [08/21/90]
Sampling Date	8/22/1990	8/21/1990
Sampling Depth (feet bgs)	-	-
Units	UG/L	UG/L
Investigation	PH 1&2A 1991	PH 1&2A 1991
Analyte		
1,2,4-TRICHLOROBENZENE	10 U	10 U
1,2-DICHLOROBENZENE	10 U	10 U
1,3-DICHLOROBENZENE	10 U	10 U
1,4-DICHLOROBENZENE	10 U	10 U
2,2'-OXYBIS(1-CHLOROPROPANE)		
2,4,5-TRICHLOROPHENOL	50 U	50 U
2,4,6-TRICHLOROPHENOL	10 U	10 U
2,4-DICHLOROPHENOL	10 U	10 U
2,4-DIMETHYLPHENOL	10 U	10 U
2,4-DINITROPHENOL	50 U	50 U
2,4-DINITROTOLUENE	10 U	10 U
2,6-DINITROTOLUENE	10 U	10 U
2-CHLORONAPHTHALENE	10 U	10 U
2-CHLOROPHENOL	10 U	10 U
2-METHYLNAPHTHALENE	10 U	10 U
2-METHYLPHENOL	10 U	10 U
2-NITROANILINE	50 U	50 U
2-NITROPHENOL	10 U	10 U
3,3'-DICHLOROBENZIDINE	20 U	20 U
3-NITROANILINE	50 U	50 U
4,6-DINITRO-2-METHYLPHENOL	50 U	50 U
4-BROMOPHENYL-PHENYLETHER	10 U	10 U
4-CHLORO-3-METHYLPHENOL	10 U	10 U
4-CHLOROANILINE	10 U	10 U
4-CHLOROPHENYL-PHENYLETHER	10 U	10 U
4-METHYLPHENOL	10 U	10 U
4-NITROANILINE	50 U	50 U
4-NITROPHENOL	50 U	50 U
ACENAPHTHENE	10 U	10 U
ACENAPHTHYLENE		10 U
ANTHRACENE	10 U	10 U
BENZO(A)ANTHRACENE	10 U	10 U
BENZO(A)PYRENE	10 U	10 U
BENZO(B)FLUORANTHENE	10 U	10 U
BENZO(G,H,I)PERYLENE	10 U	10 U
BENZO(K)FLUORANTHENE	10 U	10 U
BENZOIC ACID	50 U	50 U
BENZYL ALCOHOL	10 U	10 U
BIS(2-CHLOROETHOXY)METHANE	10 U	10 U
BIS(2-CHLOROETHYL)ETHER	10 U	10 U
BIS(2-ETHYLHEXYL)PHTHALATE	10 U	10 U
BUTYLBENZYLPHTHALATE	10 U	10 U
CARBAZOLE		
CHRYSENE	10 U	10 U
DIBENZO(A,H)ANTHRACENE	10 U	10 U
DIBENZOFURAN	10 U	10 U
DIETHYLPHTHALATE	10 U	10 U
DIMETHYLPHTHALATE	10 U	10 U
DI-N-BUTYLPHTHALATE	10 U	10 U
DI-N-OCTYLPHTHALATE	10 U	10 U
FLUORANTHENE	10 U	10 U

TABLE E-22: SITE 9 SEMIVOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	MW410-2	MW410-3
Sample Code	MW410-2 [08/22/90]	MW410-3 [08/21/90]
Sampling Date	8/22/1990	8/21/1990
Sampling Depth (feet bgs)	-	-
Units	UG/L	UG/L
Investigation	PH 1&2A 1991	PH 1&2A 1991
Analyte		
FLUORENE	10 U	10 U
HEXACHLOROBENZENE	10 U	10 U
HEXACHLOROBUTADIENE	10 U	10 U
HEXACHLOROCYCLOPENTADIENE	10 U	10 U
HEXACHLOROETHANE	10 U	10 U
INDENO(1,2,3-CD)PYRENE	10 U	10 U
ISOPHORONE	10 U	10 U
NAPHTHALENE	10 U	10 U
NITROBENZENE	10 U	10 U
N-NITROSO-DI-N-PROPYLAMINE	10 U	10 U
N-NITROSODIPHENYLAMINE	10 U	10 U
PENTACHLOROPHENOL	50 U	50 U
PHENANTHRENE	10 U	10 U
PHENOL	10 U	10 U
PYRENE	10 U	10 U

Notes:

UG/L Micrograms per liter

TABLE E-23: SITE 9 POLYNUCLEAR AROMATIC HYDROCARBONS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda, California

Location	3-J	D09-01	M09-06	MW410-1	MW410-2	MW410-3	MW410-3	S09-DGS-DP01	S09-DGS-DP01
Sample Code	385-S09-036	385-S09-031	385-S09-030	385-S09-025	385-S09-026	385-S09-027	385-S09-028	385-S09-001A	385-S09-002A
Sampling Date	7/20/2001	6/26/2001	6/25/2001	6/25/2001	6/25/2001	6/26/2001	6/26/2001	7/18/2001	7/18/2001
Sampling Depth (feet bgs)	0 -	-	-	-	-	-	-	8 - 10	15 - 17
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	DGS	DGS	DGS	DGS	DGS	DGS	DGS	DGS	DGS
Analyte									
ACENAPHTHENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
ACENAPHTHYLENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
ANTHRACENE	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
BENZO(A)ANTHRACENE	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 J
BENZO(A)PYRENE	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3
BENZO(B)FLUORANTHENE	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2
BENZO(G,H,I)PERYLENE	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3
BENZO(K)FLUORANTHENE	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
CHRYSENE	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
DIBENZO(A,H)ANTHRACENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.4 J
FLUORANTHENE	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.87
FLUORENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
INDENO(1,2,3-CD)PYRENE	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2
NAPHTHALENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
PHENANTHRENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
PYRENE	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 J	1.6

Notes:

UG/L Micrograms per liter

TABLE E-23: SITE 9 POLYNUCLEAR AROMATIC HYDROCARBONS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda, California

Location	S09-DGS-DP01	S09-DGS-DP02	S09-DGS-DP02	S09-DGS-DP02	S09-DGS-DP02	S09-DGS-DP02	S09-DGS-DP02	S09-DGS-DP03
Sample Code	385-S09-003A	385-S09-004A	385-S09-005A	385-S09-006A	385-S09-007A	385-S09-008A	385-S09-009A	385-S09-010A
Sampling Date	7/18/2001	7/28/2001	7/28/2001	7/28/2001	7/28/2001	7/28/2001	7/28/2001	7/26/2001
Sampling Depth (feet bgs)	30 - 32	8 -	15 -	35 -	45 -	60 -	78 -	10 -
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	DGS	DGS	DGS	DGS	DGS	DGS	DGS	DGS
Analyte								
ACENAPHTHENE	5 U	5 U	5 U	6.3 U	25 U	17 U	5 U	5 U
ACENAPHTHYLENE	2 U	2 U	2 U	2.5 U	10 U	6.7 U	2 U	2 U
ANTHRACENE	0.2 U	0.2 U	0.2 U	0.25 U	1 U	0.67 U	0.2 U	0.2 U
BENZO(A)ANTHRACENE	0.2 U	0.2 U	0.2 U	0.25 U	1 U	0.67 U	0.2 U	0.3
BENZO(A)PYRENE	0.2 U	0.1 J	0.1 J	0.25 U	1 U	0.67 U	0.2 U	0.79
BENZO(B)FLUORANTHENE	0.2 U	0.2 U	0.2 U	0.25 U	1 U	0.67 U	0.2 U	0.56
BENZO(G,H,I)PERYLENE	0.2 U	0.2 U	0.2 U	0.25 U	1 U	0.67 U	0.2 U	0.87
BENZO(K)FLUORANTHENE	0.2 U	0.2 U	0.2 U	0.25 U	1 U	0.67 U	0.2 U	0.2 J
CHRYSENE	0.2 U	0.51	0.2 U	0.25 U	1 U	0.67 U	0.2 U	0.2 J
DIBENZO(A,H)ANTHRACENE	0.5 U	0.5 U	0.5 U	0.63 U	2.5 U	1.7 U	0.5 U	1.4
FLUORANTHENE	0.2 U	0.2 U	0.2 U	0.2 J	1 U	0.67 U	0.2 U	0.88
FLUORENE	1 U	1 U	1 U	1.3 U	5 U	3.3 U	1 U	1 U
INDENO(1,2,3-CD)PYRENE	0.2 U	0.2 U	0.2 U	0.25 U	1 U	0.67 U	0.2 U	0.65
NAPHTHALENE	5 U	5 U	5 U	6.3 U	25 U	17 U	5 U	5 U
PHENANTHRENE	1 U	1 U	1 U	1.3 U	5 U	3.3 U	1 U	1 U
PYRENE	0.2 U	0.2 U	0.2 U	0.2 J	1 U	0.67 U	0.2 U	1.9

Notes:

UG/L Micrograms per liter

TABLE E-23: SITE 9 POLYNUCLEAR AROMATIC HYDROCARBONS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda, California

(Page 3 of 4)

Location	S09-DGS-DP03	S09-DGS-DP03	S09-DGS-DP03	S09-DGS-DP03	S09-DGS-DP03	S09-DGS-DP04	S09-DGS-DP04	S09-DGS-DP04
Sample Code	385-S09-011A	385-S09-012A	385-S09-013A	385-S09-014A	385-S09-015A	385-S09-022A	385-S09-023A	385-S09-024A
Sampling Date	7/26/2001	7/26/2001	7/26/2001	7/26/2001	7/26/2001	7/18/2001	7/18/2001	7/18/2001
Sampling Depth (feet bgs)	20 -	35 -	43 -	60 -	74 -	8 - 10	15 - 17	25 - 27
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	DGS	DGS	DGS	DGS	DGS	DGS	DGS	DGS
Analyte								
ACENAPHTHENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
ACENAPHTHYLENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
ANTHRACENE	0.2 U	0.1 J	0.2 U	0.2 J	0.2 U	0.2 U	0.2 J	0.2 U
BENZO(A)ANTHRACENE	0.1 J	0.52	0.2 U	0.96	0.3	0.2 U	0.2 U	0.2 U
BENZO(A)PYRENE	0.2 J	0.4	0.2 U	0.2 J	0.5	0.2 U	0.2 U	0.2 U
BENZO(B)FLUORANTHENE	0.2 U	0.2 J	0.2 U	0.2 U	0.3	0.2 U	0.2 U	0.2 U
BENZO(G,H,I)PERYLENE	0.2	0.41	0.2 U	0.2	0.5	0.2 U	0.2 U	0.2 U
BENZO(K)FLUORANTHENE	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
CHRYSENE	0.2 U	0.2 U	0.2 U	0.2 U	0.3	0.2 U	0.2 U	0.2 U
DIBENZO(A,H)ANTHRACENE	0.6	0.8	0.5 U	0.4 J	1.1	0.5 U	0.5 U	0.5 U
FLUORANTHENE	0.2 J	0.81	0.2 U	1.2	0.5	0.2 U	0.56	0.2 U
FLUORENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
INDENO(1,2,3-CD)PYRENE	0.1 J	0.3	0.2 U	0.2 U	0.3	0.2 U	0.2 U	0.2 U
NAPHTHALENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
PHENANTHRENE	1 U	0.7 J	1 U	1	1 U	1 U	1 U	1 U
PYRENE	0.57	0.81	0.2 U	1.9	0.88	0.2 J	0.73	0.2 U

Notes:

UG/L Micrograms per liter

TABLE E-23: SITE 9 POLYNUCLEAR AROMATIC HYDROCARBONS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda, California

Location	S09-DGS-DP04	S09-DGS-DP04	S09-DGS-DP04	S09-DGS-DP05	S09-DGS-DP05	S09-DGS-DP05	S09-DGS-VE01
Sample Code	385-S09-019A	385-S09-020A	385-S09-021A	385-S09-016A	385-S09-017A	385-S09-018A	385-S09-034A
Sampling Date	7/25/2001	7/25/2001	7/25/2001	8/3/2001	8/3/2001	8/3/2001	8/7/2001
Sampling Depth (feet bgs)	50 -	65 -	80 -	7 - 9	15 - 17	25 - 27	8.5 - 10
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	DGS	DGS	DGS	DGS	DGS	DGS	DGS
Analyte							
ACENAPHTHENE	5 U	5 U	5 U	5 U	5 U	5 U	5 U
ACENAPHTHYLENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U
ANTHRACENE	0.42	0.2 U	0.2 U	0.2 U	0.1 J	0.2 U	0.2 U
BENZO(A)ANTHRACENE	2.4	0.3	0.2 J	0.2 U	0.2 U	0.2 U	0.2 U
BENZO(A)PYRENE	2.5	0.67	0.3	0.2 U	0.1 J	0.2 U	0.2 U
BENZO(B)FLUORANTHENE	1.5	0.4	0.2 J	0.2 U	0.2 U	0.2 U	0.2 U
BENZO(G,H,I)PERYLENE	2.1	0.57	0.3	0.2 U	0.2 J	0.2 U	0.2 U
BENZO(K)FLUORANTHENE	0.56	0.1 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
CHRYSENE	1.4	0.42	0.2 J	0.2 U	0.7	0.2 U	0.2 U
DIBENZO(A,H)ANTHRACENE	2.1	0.6	0.3 J	0.5 U	0.5 U	0.5 U	0.5 U
FLUORANTHENE	3.3	0.72	0.41	0.2 U	0.4	0.2 U	0.2 U
FLUORENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U
INDENO(1,2,3-CD)PYRENE	1.6	0.41	0.2 J	0.2 U	0.2 U	0.2 U	0.2 U
NAPHTHALENE	5 U	5 U	5 U	64	5 U	5 U	5 U
PHENANTHRENE	2	0.5 J	1 U	1 U	0.5 J	1 U	1 U
PYRENE	5.27	1.5	0.74	0.2 U	0.69	0.2 U	0.2 U

Notes:

UG/L Micrograms per liter

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	9-1	9-1	9-1	9-1	9-2	9-2	9-2	9-2	9-3	9-3
Sample Code	9-1-10	9-1-20	9-1-30	9-1-40	9-2-10	9-2-20	9-2-30	9-2-40	9-3-20	9-3-30
Sampling Date	6/27/2002	6/27/2002	6/27/2002	6/27/2002	6/27/2002	6/27/2002	6/27/2002	6/27/2002	6/28/2002	6/28/2002
Sampling Depth (feet bgs)	8 - 12	18 - 22	28 - 32	38 - 42	8 - 10	18 - 22	28 - 32	38 - 42	18 - 22	28 - 32
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA
Analyte										
1,1,1,2-TETRACHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,1-TRICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2,2-TETRACHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2-TRICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-DICHLOROETHANE	1.8	1 U	1 U	1 U	1 U	1.2	1 U	1 U	0.63 J	88
1,1-DICHLOROETHENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1.7
1,1-DICHLOROPROPENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2,3-TRICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2,3-TRICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2,4-TRICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2,4-TRIMETHYLBENZENE	130	38	14	8.3	170	2.3	370	61	1 U	1 U
1,2-DIBROMO-3-CHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-DICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-DICHLOROETHENE (TOTAL)										
1,2-DICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,3,5-TRIMETHYLBENZENE	100	32	12	6.8	140	1.8	300	56	1 U	1 U
1,3-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,3-DICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,4-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2,2-DICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-BUTANONE	5 U	5 U	5 U	7.6	5 U	2.5 J	5 U	3.3 J	5 U	5 U
2-CHLOROTOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-HEXANONE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-CHLOROTOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
4-METHYL-2-PENTANONE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
ACETONE	5 U	4.1 JB	5 U	20 B	14 B	7.8 B	11 B	7.5 B	9.9	8.5
BENZENE	2.7	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
BROMOBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
BROMOCHLOROMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
BROMODICHLOROMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
BROMOFORM	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
BROMOMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CARBON DISULFIDE										
CARBON TETRACHLORIDE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	9-1	9-1	9-1	9-1	9-2	9-2	9-2	9-2	9-3	9-3
Sample Code	9-1-10	9-1-20	9-1-30	9-1-40	9-2-10	9-2-20	9-2-30	9-2-40	9-3-20	9-3-30
Sampling Date	6/27/2002	6/27/2002	6/27/2002	6/27/2002	6/27/2002	6/27/2002	6/27/2002	6/27/2002	6/28/2002	6/28/2002
Sampling Depth (feet bgs)	8 - 12	18 - 22	28 - 32	38 - 42	8 - 10	18 - 22	28 - 32	38 - 42	18 - 22	28 - 32
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA
Analyte										
CHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CHLOROFORM	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CHLOROMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CIS-1,2-DICHLOROETHENE	37	0.62 J	1 U	0.6 J	27	0.86 J	2.6	1.9	1 U	1 J
CIS-1,3-DICHLOROPROPENE										
DIBROMOCHLOROMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
DIBROMOMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
DICHLORODIFLUOROMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
DIISOPROPYL ETHER										
ETHYL TERT-BUTYL ETHER										
ETHYLBENZENE	6.3	1.6	0.62 J	1 U	4	1 U	6.3	0.95 J	1 U	1 U
ETHYLENE DIBROMIDE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
HEXACHLOROBUTADIENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
ISOPROPYLBENZENE	7.8	2.1	0.8 J	1 U	10	1 U	14	2.6	1 U	1 U
M,P-XYLENE	16	6.4	2.3	1.3	21	1 U	34	5.5	1 U	1 U
METHYLENE CHLORIDE	1 JB	1.1 B	1 JB	1.7 B	0.95 JB	1.1 B	1.2 B	0.94 JB	2.8 B	2.1 B
METHYL-T-BUTYL ETHER	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
NAPHTHALENE	14	3.6	1.1	1.2	30	5.7	58	14	1 U	1 U
N-BUTYLBENZENE	1 U	3.4	1.6	1.2	23	1.3	25	8.8	1 U	1 U
N-PROPYLBENZENE	17	4.4	1.8	1.1	26	1 U	29	6.2	1 U	1 U
O-XYLENE	3.4	2.3	0.75 J	1 U	15	1 U	29	4.6	1 U	1 U
P-ISOPROPYLTOLUENE	30	8.4	4	2.5	54	1 U	57	17	1 U	1 U
SEC-BUTYLBENZENE	12	3.9	1 U	1.2	26	1 U	27	8.2	1 U	1 U
STYRENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TERT-AMYL METHYL ETHER										
TERT-BUTANOL										
TERT-BUTYLBENZENE	11	3.5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TETRACHLOROETHENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TOLUENE	0.56 J	1 U	1 U	0.58 J	3.2	0.59 J	5.4	1.1	0.52 J	0.57 J
TRANS-1,2-DICHLOROETHENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TRANS-1,3-DICHLOROPROPENE										
TRICHLOROETHENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TRICHLOROFLUOROMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TRICHLOROTRIFLUOROETHANE										

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	9-1	9-1	9-1	9-1	9-2	9-2	9-2	9-2	9-3	9-3
Sample Code	9-1-10	9-1-20	9-1-30	9-1-40	9-2-10	9-2-20	9-2-30	9-2-40	9-3-20	9-3-30
Sampling Date	6/27/2002	6/27/2002	6/27/2002	6/27/2002	6/27/2002	6/27/2002	6/27/2002	6/27/2002	6/28/2002	6/28/2002
Sampling Depth (feet bgs)	8 - 12	18 - 22	28 - 32	38 - 42	8 - 10	18 - 22	28 - 32	38 - 42	18 - 22	28 - 32
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA
Analyte										
VINYL ACETATE										
VINYL CHLORIDE	280	1.4	0.64 J	1 U	1 U	1 U	1 U	1 U	1 U	1.5
XYLENE (TOTAL)										

Notes:

UG/L Micrograms per liter

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	9-3	9-3	9-3	9S-CH1	9S-CH1	9S-CH1	9S-CH2	9S-CH2	9S-CH2	9S-CH2
Sample Code	9-3-40	9-3-55	9-3-63	9S-CH1-10	9S-CH1-20	9S-CH1-30	9S-CH2-10	9S-CH2-20	9S-CH2-30	9S-CH2-40
Sampling Date	6/28/2002	7/2/2002	7/2/2002	6/27/2002	6/27/2002	6/27/2002	6/28/2002	6/28/2002	6/28/2002	6/28/2002
Sampling Depth (feet bgs)	38 - 42	53 - 57	61 - 65	8 - 12	18 - 22	28 - 32	8 - 12	18 - 22	28 - 32	38 - 42
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA
Analyte										
1,1,1,2-TETRACHLOROETHANE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U
1,1,1-TRICHLOROETHANE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U
1,1,2,2-TETRACHLOROETHANE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U
1,1,2-TRICHLOROETHANE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U
1,1-DICHLOROETHANE	1.7 J	1 U	1 U	0.57 J	1 U	1 U	1.8	1 U	1 U	2 U
1,1-DICHLOROETHENE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U
1,1-DICHLOROPROPENE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U
1,2,3-TRICHLOROBENZENE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U
1,2,3-TRICHLOROPROPANE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U
1,2,4-TRICHLOROBENZENE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U
1,2,4-TRIMETHYLBENZENE	2 U	1 U	1 U	14	1 U	0.83 J	16	94	13	63
1,2-DIBROMO-3-CHLOROPROPANE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U
1,2-DICHLOROBENZENE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U
1,2-DICHLOROETHANE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U
1,2-DICHLOROETHENE (TOTAL)										
1,2-DICHLOROPROPANE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U
1,3,5-TRIMETHYLBENZENE	2 U	1 U	1 U	10	1 U	1 U	8	71	11	47
1,3-DICHLOROBENZENE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U
1,3-DICHLOROPROPANE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U
1,4-DICHLOROBENZENE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U
2,2-DICHLOROPROPANE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U
2-BUTANONE	10 U	5 U	5 U	5 U	5 U	13	5 U	5 U	5 U	10 U
2-CHLOROTOLUENE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U
2-HEXANONE	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U
4-CHLOROTOLUENE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U
4-METHYL-2-PENTANONE	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	10 U
ACETONE	23	17	17	9.9 B	5 U	35 B	10	5 U	5 U	14
BENZENE	2 U	1 U	1 U	1.4	1 U	1 U	1.5	1 U	1 U	2 U
BROMOBENZENE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U
BROMOCHLOROMETHANE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U
BROMODICHLOROMETHANE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U
BROMOFORM	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U
BROMOMETHANE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U
CARBON DISULFIDE										
CARBON TETRACHLORIDE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	9-3	9-3	9-3	9S-CH1	9S-CH1	9S-CH1	9S-CH2	9S-CH2	9S-CH2	9S-CH2
Sample Code	9-3-40	9-3-55	9-3-63	9S-CH1-10	9S-CH1-20	9S-CH1-30	9S-CH2-10	9S-CH2-20	9S-CH2-30	9S-CH2-40
Sampling Date	6/28/2002	7/2/2002	7/2/2002	6/27/2002	6/27/2002	6/27/2002	6/28/2002	6/28/2002	6/28/2002	6/28/2002
Sampling Depth (feet bgs)	38 - 42	53 - 57	61 - 65	8 - 12	18 - 22	28 - 32	8 - 12	18 - 22	28 - 32	38 - 42
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA
Analyte										
CHLOROBENZENE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U
CHLOROETHANE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U
CHLOROFORM	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U
CHLOROMETHANE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U
CIS-1,2-DICHLOROETHENE	2 U	1 U	1 U	19	1 U	1 U	6.6	1 U	1 U	2 U
CIS-1,3-DICHLOROPROPENE										
DIBROMOCHLOROMETHANE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U
DIBROMOMETHANE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U
DICHLORODIFLUOROMETHANE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U
DIISOPROPYL ETHER										
ETHYL TERT-BUTYL ETHER										
ETHYLBENZENE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1.9	1 U	1.7 J
ETHYLENE DIBROMIDE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U
HEXACHLOROBUTADIENE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U
ISOPROPYLBENZENE	2 U	1 U	1 U	0.68 J	1 U	1 U	0.96 J	4.6	0.86 J	3.5
M,P-XYLENE	2 U	1 U	1 U	1.4	1 U	1 U	1.5	9.6	1.9	7.5
METHYLENE CHLORIDE	7.3 B	0.6 JB	0.69 JB	0.94 JB	0.82 JB	0.89 JB	1.7 B	1.6 B	1.7 B	6 B
METHYL-T-BUTYL ETHER	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U
NAPHTHALENE	2 U	1 U	1 U	2.3	1 U	1 U	8.9	17	3	9
N-BUTYLBENZENE	2 U	1 U	1 U	1.7	1 U	1 U	1 U	10	2.3	6.4
N-PROPYLBENZENE	2 U	1 U	1 U	1.5	1 U	1 U	1.7	11	2.3	6.4
O-XYLENE	2 U	1 U	1 U	1 U	1 U	1 U	0.76 J	4.2	1 U	4.2
P-ISOPROPYLTOLUENE	2 U	1 U	1 U	3.4	1 U	1 U	1.9	21	3.8	13
SEC-BUTYLBENZENE	2 U	1 U	1 U	2.6	1 U	1 U	1.3	12	2.4	7.9
STYRENE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U
TERT-AMYL METHYL ETHER										
TERT-BUTANOL										
TERT-BUTYLBENZENE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U
TETRACHLOROETHENE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U
TOLUENE	2 U	1 U	1 U	1 U	1 U	0.53 J	1 U	0.67 J	1.3	1.1 J
TRANS-1,2-DICHLOROETHENE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U
TRANS-1,3-DICHLOROPROPENE										
TRICHLOROETHENE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U
TRICHLOROFLUOROMETHANE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U
TRICHLOROTRIFLUOROETHANE										

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	9-3	9-3	9-3	9S-CH1	9S-CH1	9S-CH1	9S-CH2	9S-CH2	9S-CH2	9S-CH2
Sample Code	9-3-40	9-3-55	9-3-63	9S-CH1-10	9S-CH1-20	9S-CH1-30	9S-CH2-10	9S-CH2-20	9S-CH2-30	9S-CH2-40
Sampling Date	6/28/2002	7/2/2002	7/2/2002	6/27/2002	6/27/2002	6/27/2002	6/28/2002	6/28/2002	6/28/2002	6/28/2002
Sampling Depth (feet bgs)	38 - 42	53 - 57	61 - 65	8 - 12	18 - 22	28 - 32	8 - 12	18 - 22	28 - 32	38 - 42
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA
Analyte										
VINYL ACETATE										
VINYL CHLORIDE	2 U	1 U	1 U	3.2	1 U	1 U	9	1 U	1 U	2 U
XYLENE (TOTAL)										

Notes:

UG/L Micrograms per liter

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	9S-CH3	9S-CH3	9S-CH3	9S-CH3	9S-CH3	9S-CH4	9S-CH4	9S-CH4	9S-CH4	P-9-IWS-01
Sample Code	9S-CH3-10	9S-CH3-10D	9S-CH3-20	9S-CH3-30	9S-CH3-40	9S-CH4-10	9S-CH4-20	9S-CH4-30	9S-CH4-40	SITE9-020
Sampling Date	6/27/2002	6/27/2002	6/27/2002	6/28/2002	6/28/2002	6/28/2002	6/28/2002	6/28/2002	6/28/2002	9/10/2002
Sampling Depth (feet bgs)	8 - 12	8 - 22	8 - 12	28 - 32	38 - 42	8 - 12	18 - 22	28 - 32	38 - 42	-
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA
Analyte										
1,1,1,2-TETRACHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,1-TRICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2,2-TETRACHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2-TRICHLOROETHANE	1 U	1 U	1 U	2.7	1 U	1 U	1 U	1 U	1 U	1 U
1,1-DICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-DICHLOROETHENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-DICHLOROPROPENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2,3-TRICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2,3-TRICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2,4-TRICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2,4-TRIMETHYLBENZENE	1 U	1 U	16	27	44	8.6	5.8	26	71	1 U
1,2-DIBROMO-3-CHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-DICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-DICHLOROETHENE (TOTAL)										
1,2-DICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,3,5-TRIMETHYLBENZENE	1 U	1 U	12	21	32	6.6	4.5	59	55	1 U
1,3-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,3-DICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,4-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2,2-DICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-BUTANONE	5 U	5 U	5 U	5 U	4.1 J	5 U	5 U	5 U	4.5 J	5 U
2-CHLOROTOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-HEXANONE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-CHLOROTOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
4-METHYL-2-PENTANONE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
ACETONE	18 B	27 B	5.6 B	10	7.8	5.8	7.1	6.6	7.4	9.6 B
BENZENE	5.4	5.4	1 U	0.64 J	0.92 J	1.2	1 U	1 U	0.58 J	2
BROMOBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
BROMOCHLOROMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
BROMODICHLOROMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
BROMOFORM	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
BROMOMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CARBON DISULFIDE										
CARBON TETRACHLORIDE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	9S-CH3	9S-CH3	9S-CH3	9S-CH3	9S-CH3	9S-CH4	9S-CH4	9S-CH4	9S-CH4	P-9-IWS-01
Sample Code	9S-CH3-10	9S-CH3-10D	9S-CH3-20	9S-CH3-30	9S-CH3-40	9S-CH4-10	9S-CH4-20	9S-CH4-30	9S-CH4-40	SITE9-020
Sampling Date	6/27/2002	6/27/2002	6/27/2002	6/28/2002	6/28/2002	6/28/2002	6/28/2002	6/28/2002	6/28/2002	9/10/2002
Sampling Depth (feet bgs)	8 - 12	8 - 22	8 - 12	28 - 32	38 - 42	8 - 12	18 - 22	28 - 32	38 - 42	-
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA
Analyte										
CHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CHLOROFORM	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CHLOROMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CIS-1,2-DICHLOROETHENE	30	39	2.1	2.3	4.1	6.5	1 U	0.75 J	1 U	1.2
CIS-1,3-DICHLOROPROPENE										
DIBROMOCHLOROMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
DIBROMOMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
DICHLORODIFLUOROMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
DIISOPROPYL ETHER										
ETHYL TERT-BUTYL ETHER										
ETHYLBENZENE	120	150	9	18	43	0.52 J	1 U	1.5	1.7	1 U
ETHYLENE DIBROMIDE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
HEXACHLOROBUTADIENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
ISOPROPYLBENZENE	93	120	15	27	53	0.79 J	1 U	3.6	3.9	12
M,P-XYLENE	1 U	1 U	2.4	4.6	7.1	1.5	1.3	7	7.8	1 U
METHYLENE CHLORIDE	0.74 JB	0.67 JB	0.72 JB	1.8 B	1.8 B	2 B	1.7 B	2 B	2 B	0.63 JB
METHYL-T-BUTYL ETHER	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
NAPHTHALENE	250	390	40	54	260	1.8	1.3	13	16	1.8
N-BUTYLBENZENE	50	51	21	25	32	1.1	1 U	8.7	7.7	5.4
N-PROPYLBENZENE	190	270	42	85	280	1.6	1 U	8.5	8.2	10
O-XYLENE	1 U	1 U	0.78 J	1.4	2.3	1 U	1 U	1 U	1 U	1 U
P-ISOPROPYLTOLUENE	57	50	23	29	41	2	1.5	18	16	3.2
SEC-BUTYLBENZENE	87	110	31	41	52	1.6	0.86 J	10	9.7	4.2
STYRENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TERT-AMYL METHYL ETHER										
TERT-BUTANOL										
TERT-BUTYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1.2
TETRACHLOROETHENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TOLUENE	0.7 J	0.61 J	1 U	2.3	1.7	1.2	1.1	1.6	1.7	1 U
TRANS-1,2-DICHLOROETHENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TRANS-1,3-DICHLOROPROPENE										
TRICHLOROETHENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TRICHLOROFLUOROMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TRICHLOROTRIFLUOROETHANE										

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	9S-CH3	9S-CH3	9S-CH3	9S-CH3	9S-CH3	9S-CH4	9S-CH4	9S-CH4	9S-CH4	P-9-IWS-01
Sample Code	9S-CH3-10	9S-CH3-10D	9S-CH3-20	9S-CH3-30	9S-CH3-40	9S-CH4-10	9S-CH4-20	9S-CH4-30	9S-CH4-40	SITE9-020
Sampling Date	6/27/2002	6/27/2002	6/27/2002	6/28/2002	6/28/2002	6/28/2002	6/28/2002	6/28/2002	6/28/2002	9/10/2002
Sampling Depth (feet bgs)	8 - 12	8 - 22	8 - 12	28 - 32	38 - 42	8 - 12	18 - 22	28 - 32	38 - 42	-
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA
Analyte										
VINYL ACETATE										
VINYL CHLORIDE	42	44	0.68 J	0.56 J	0.86 J	2.3	1 U	1 U	1 U	3
XYLENE (TOTAL)										

Notes:

UG/L Micrograms per liter

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	P-9-MWI-01	P-9-MWI-03	P-9-MWI-04	P-9-MWI-05	P-9-MWI-06	P-9-MWI-07	P-9-MWI-08	P-9-MWI-09	P-9-MWI-10	P-9-MWS-01
Sample Code	SITE9-024	SITE9-018	SITE9-010	SITE9-014	SITE9-008	SITE9-017	SITE9-013	SITE9-015	SITE9-016	SITE9-022
Sampling Date	9/11/2002	9/10/2002	9/9/2002	9/10/2002	9/9/2002	9/10/2002	9/10/2002	9/10/2002	9/10/2002	9/11/2002
Sampling Depth (feet bgs)	-	-	-	-	-	-	-	-	-	-
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA
Analyte										
1,1,1,2-TETRACHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,1-TRICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2,2-TETRACHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2-TRICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-DICHLOROETHANE	1 U	99	6.5	350		1.6	180	1200	31	1 U
1,1-DICHLOROETHENE	1 U	7.6	2.1	9.3	15	0.95 J	12	38	1 U	1 U
1,1-DICHLOROPROPENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2,3-TRICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2,3-TRICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2,4-TRICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2,4-TRIMETHYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	3.4
1,2-DIBROMO-3-CHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-DICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-DICHLOROETHENE (TOTAL)										
1,2-DICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,3,5-TRIMETHYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2
1,3-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,3-DICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,4-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2,2-DICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-BUTANONE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	33	5 U
2-CHLOROTOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-HEXANONE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-CHLOROTOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
4-METHYL-2-PENTANONE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
ACETONE	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	14	5 U
BENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1.7
BROMOBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
BROMOCHLOROMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
BROMODICHLOROMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
BROMOFORM	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
BROMOMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CARBON DISULFIDE										
CARBON TETRACHLORIDE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	P-9-MWI-01	P-9-MWI-03	P-9-MWI-04	P-9-MWI-05	P-9-MWI-06	P-9-MWI-07	P-9-MWI-08	P-9-MWI-09	P-9-MWI-10	P-9-MWS-01
Sample Code	SITE9-024	SITE9-018	SITE9-010	SITE9-014	SITE9-008	SITE9-017	SITE9-013	SITE9-015	SITE9-016	SITE9-022
Sampling Date	9/11/2002	9/10/2002	9/9/2002	9/10/2002	9/9/2002	9/10/2002	9/10/2002	9/10/2002	9/10/2002	9/11/2002
Sampling Depth (feet bgs)	-	-	-	-	-	-	-	-	-	-
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA
Analyte										
CHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CHLOROFORM	1 U	0 84 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CHLOROMETHANE	4 6	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CIS-1,2-DICHLOROETHENE	1 U	1 U	1 U	0 93 J	0 9 J	1 U	1 U	1.7	1 U	1.4
CIS-1,3-DICHLOROPROPENE										
DIBROMOCHLOROMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
DIBROMOMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
DICHLORODIFLUOROMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
DIISOPROPYL ETHER										
ETHYL TERT-BUTYL ETHER										
ETHYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1.2
ETHYLENE DIBROMIDE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
HEXACHLOROBUTADIENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
ISOPROPYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	18
M,P-XYLENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1.6
METHYLENE CHLORIDE	1 U	0.78 JB	0.72 JB	0.72 JB	0.64 JB	0.69 JB	0.84 JB	0.79 JB	1 JB	1 U
METHYL-T-BUTYL ETHER	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
NAPHTHALENE	1.9	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5.4
N-BUTYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	9.3
N-PROPYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	27
O-XYLENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1
P-ISOPROPYLTOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
SEC-BUTYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	22
STYRENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TERT-AMYL METHYL ETHER										
TERT-BUTANOL										
TERT-BUTYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	3.4
TETRACHLOROETHENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TRANS-1,2-DICHLOROETHENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TRANS-1,3-DICHLOROPROPENE										
TRICHLOROETHENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TRICHLOROFLUOROMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TRICHLOROTRIFLUOROETHANE										

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	P-9-MWI-01	P-9-MWI-03	P-9-MWI-04	P-9-MWI-05	P-9-MWI-06	P-9-MWI-07	P-9-MWI-08	P-9-MWI-09	P-9-MWI-10	P-9-MWS-01
Sample Code	SITE9-024	SITE9-018	SITE9-010	SITE9-014	SITE9-008	SITE9-017	SITE9-013	SITE9-015	SITE9-016	SITE9-022
Sampling Date	9/11/2002	9/10/2002	9/9/2002	9/10/2002	9/9/2002	9/10/2002	9/10/2002	9/10/2002	9/10/2002	9/11/2002
Sampling Depth (feet bgs)	-	-	-	-	-	-	-	-	-	-
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA
Analyte										
VINYL ACETATE										
VINYL CHLORIDE	1 U	2.1	1 U	14	6.5	1 U	2.3	36	0.59 J	2.5
XYLENE (TOTAL)										

Notes:

UG/L Micrograms per liter

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	P-9-MWS-02	P-9-MWS-03	P-9-MWS-04	3-J	D09-01	M09-06	MW410-1	MW410-2	MW410-3
Sample Code	SITE9-025	SITE9-019	SITE9-023	385-S09-036	385-S09-031	385-S09-030	385-S09-025	385-S09-026	385-S09-027
Sampling Date	9/11/2002	9/10/2002	9/11/2002	7/20/2001	6/26/2001	6/25/2001	6/25/2001	6/25/2001	6/26/2001
Sampling Depth (feet bgs)	-	-	-	0 -	-	-	-	-	-
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	CHEMOX RA	CHEMOX RA	CHEMOX RA	DGS	DGS	DGS	DGS	DGS	DGS
Analyte									
1,1,1,2-TETRACHLOROETHANE	1 U	1 U	1 U						
1,1,1-TRICHLOROETHANE	1 U	1 U	1 U	0.7 J	2 U	2 U	2 U	2 U	2 U
1,1,2,2-TETRACHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2-TRICHLOROETHANE	1 U	1 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U
1,1-DICHLOROETHANE	1 U	1 U	0.59 J	0.8	0.5 U	0.5 U	0.5 U	2	0.5 U
1,1-DICHLOROETHENE	1 U	1 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U
1,1-DICHLOROPROPENE	1 U	1 U	1 U						
1,2,3-TRICHLOROBENZENE	1 U	1 U	1 U						
1,2,3-TRICHLOROPROPANE	1 U	1 U	1 U						
1,2,4-TRICHLOROBENZENE	1 U	1 U	1 U						
1,2,4-TRIMETHYLBENZENE	1 U	1 U	130						
1,2-DIBROMO-3-CHLOROPROPANE	1 U	1 U	1 U						
1,2-DICHLOROBENZENE	1 U	1 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U
1,2-DICHLOROETHANE	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-DICHLOROETHENE (TOTAL)				3	2 U	2 U	2 U	21	2 U
1,2-DICHLOROPROPANE	1 U	1 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U
1,3,5-TRIMETHYLBENZENE	1 U	1 U	69						
1,3-DICHLOROBENZENE	1 U	1 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U
1,3-DICHLOROPROPANE	1 U	1 U	1 U						
1,4-DICHLOROBENZENE	1 U	1 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U
2,2-DICHLOROPROPANE	1 U	1 U	1 U						
2-BUTANONE	5 U	5 U	5 U	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ
2-CHLOROTOLUENE	1 U	1 U	1 U						
2-HEXANONE	5 U	5 U	5 U	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ
4-CHLOROTOLUENE	1 U	1 U	1 U						
4-METHYL-2-PENTANONE	5 U	5 U	5 U	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ
ACETONE	5 U	4.4 JB	5 U	4 UJ	3 UJ	3 UJ	3 UJ	3 UJ	3 UJ
BENZENE	1 U	1 J	5.6	0.5 U	0.5 U	0.5 U	0.5 U	0.9	0.5 U
BROMOBENZENE	1 U	1 U	1 U						
BROMOCHLOROMETHANE	1 U	1 U	1 U						
BROMODICHLOROMETHANE	1 U	1 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U
BROMOFORM	1 U	1 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U
BROMOMETHANE	1 U	1 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U
CARBON DISULFIDE				2 UJ	2 U	2 U	2 U	2 U	2 U
CARBON TETRACHLORIDE	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	P-9-MWS-02	P-9-MWS-03	P-9-MWS-04	3-J	D09-01	M09-06	MW410-1	MW410-2	MW410-3
Sample Code	SITE9-025	SITE9-019	SITE9-023	385-S09-036	385-S09-031	385-S09-030	385-S09-025	385-S09-026	385-S09-027
Sampling Date	9/11/2002	9/10/2002	9/11/2002	7/20/2001	6/26/2001	6/25/2001	6/25/2001	6/25/2001	6/26/2001
Sampling Depth (feet bgs)	-	-	-	0 -	-	-	-	-	-
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	CHEMOX RA	CHEMOX RA	CHEMOX RA	DGS	DGS	DGS	DGS	DGS	DGS
Analyte									
CHLOROBENZENE	1 U	1 U	1 U	0.6 J	2 U	2 U	2 U	0.4 J	2 U
CHLOROETHANE	1 U	1 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U
CHLOROFORM	1 U	1 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U
CHLOROMETHANE	1 U	1 U	1.3	2 U	2 U	2 U	2 U	2 U	2 U
CIS-1,2-DICHLOROETHENE	1.2	3.8	13						
CIS-1,3-DICHLOROPROPENE				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
DIBROMOCHLOROMETHANE	1 U	1 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U
DIBROMOMETHANE	1 U	1 U	1 U						
DICHLORODIFLUOROMETHANE	1 U	1 U	1 U						
DIISOPROPYL ETHER									
ETHYL TERT-BUTYL ETHER									
ETHYLBENZENE	1 U	1 U	90	2 U	2 U	2 U	2 U	0.3 J	2 U
ETHYLENE DIBROMIDE	1 U	1 U	1 U						
HEXACHLOROBUTADIENE	1 U	1 U	1 U						
ISOPROPYLBENZENE	1 U	5.4	51						
M,P-XYLENE	1 U	1 U	8.2						
METHYLENE CHLORIDE	0.58 JB	0.65 JB	1 U	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ
METHYL-T-BUTYL ETHER	1 U	1 U	1 U	5 U	5 U	5 U	5 U	20	5 U
NAPHTHALENE	1 U	2.8	58						
N-BUTYLBENZENE	1 U	4.5	55						
N-PROPYLBENZENE	1 U	3.4	56						
O-XYLENE	1 U	1 U	0.8 J						
P-ISOPROPYLTOLUENE	1.4	1.7	55						
SEC-BUTYLBENZENE	1 U	3	19						
STYRENE	1 U	1 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U
TERT-AMYL METHYL ETHER									
TERT-BUTANOL									
TERT-BUTYLBENZENE	1 U	1 U	1 U						
TETRACHLOROETHENE	1 U	1 U	1 U	2 U	2 U	2 U	2 U	2 U	3
TOLUENE	1 U	1 U	1 U	2 U	2 U	2 U	2 U	2 U	2 U
TRANS-1,2-DICHLOROETHENE	1 U	1 U	1 U						
TRANS-1,3-DICHLOROPROPENE				0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TRICHLOROETHENE	1 U	1 U	1 U	0.7 J	2 U	2 U	2 U	2 U	0.8 J
TRICHLOROFLUOROMETHANE	1 U	1 U	1 U						
TRICHLOROTRIFLUOROETHANE									

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	P-9-MWS-02	P-9-MWS-03	P-9-MWS-04	3-J	D09-01	M09-06	MW410-1	MW410-2	MW410-3
Sample Code	SITE9-025	SITE9-019	SITE9-023	385-S09-036	385-S09-031	385-S09-030	385-S09-025	385-S09-026	385-S09-027
Sampling Date	9/11/2002	9/10/2002	9/11/2002	7/20/2001	6/26/2001	6/25/2001	6/25/2001	6/25/2001	6/26/2001
Sampling Depth (feet bgs)	-	-	-	0 -	-	-	-	-	-
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	CHEMOX RA	CHEMOX RA	CHEMOX RA	DGS	DGS	DGS	DGS	DGS	DGS
Analyte									
VINYL ACETATE									
VINYL CHLORIDE	1 U	2.2	99	0.5 J	0.5 U	0.5 U	0.5 U	10	0.5 U
XYLENE (TOTAL)				2 U	2 U	2 U	2 U	2 U	2 U

Notes:

UG/L Micrograms per liter

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	MW410-3	S09-DGS-DP01	S09-DGS-DP01	S09-DGS-DP01	S09-DGS-DP02	S09-DGS-DP02	S09-DGS-DP02	S09-DGS-DP02
Sample Code	385-S09-028	385-S09-001	385-S09-002	385-S09-003	385-S09-004	385-S09-005	385-S09-006	385-S09-007
Sampling Date	6/26/2001	7/18/2001	7/18/2001	7/18/2001	7/28/2001	7/28/2001	7/28/2001	7/28/2001
Sampling Depth (feet bgs)	-	8 - 10	15 - 17	30 - 32	8 - 10	15 -	35 -	45 -
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	DGS	DGS	DGS	DGS	DGS	DGS	DGS	DGS
Analyte								
1,1,1,2-TETRACHLOROETHANE		1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,1-TRICHLOROETHANE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2,2-TETRACHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2-TRICHLOROETHANE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-DICHLOROETHANE	0.5 U	1.2	1 U	1 U	2.1	0.5 J	1200	520
1,1-DICHLOROETHENE	2 U	1 U	1 U	1 U	1 U	1 U	23	5.4
1,1-DICHLOROPROPENE								
1,2,3-TRICHLOROBENZENE								
1,2,3-TRICHLOROPROPANE								
1,2,4-TRICHLOROBENZENE								
1,2,4-TRIMETHYLBENZENE								
1,2-DIBROMO-3-CHLOROPROPANE								
1,2-DICHLOROBENZENE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-DICHLOROETHANE	0.5 U	1 U	1 U	0.7 J	1 U	1 U	1 U	1 U
1,2-DICHLOROETHENE (TOTAL)	2 U							
1,2-DICHLOROPROPANE	2 U							
1,3,5-TRIMETHYLBENZENE								
1,3-DICHLOROBENZENE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,3-DICHLOROPROPANE								
1,4-DICHLOROBENZENE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2,2-DICHLOROPROPANE								
2-BUTANONE	2 UJ							
2-CHLOROTOLUENE								
2-HEXANONE	2 UJ							
4-CHLOROTOLUENE								
4-METHYL-2-PENTANONE	2 UJ							
ACETONE	3 UJ							
BENZENE	0.5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
BROMOBENZENE								
BROMOCHLOROMETHANE								
BROMODICHLOROMETHANE	2 U							
BROMOFORM	2 U							
BROMOMETHANE	2 U							
CARBON DISULFIDE	2 U							
CARBON TETRACHLORIDE	0.5 U							

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	MW410-3	S09-DGS-DP01	S09-DGS-DP01	S09-DGS-DP01	S09-DGS-DP02	S09-DGS-DP02	S09-DGS-DP02	S09-DGS-DP02
Sample Code	385-S09-028	385-S09-001	385-S09-002	385-S09-003	385-S09-004	385-S09-005	385-S09-006	385-S09-007
Sampling Date	6/26/2001	7/18/2001	7/18/2001	7/18/2001	7/28/2001	7/28/2001	7/28/2001	7/28/2001
Sampling Depth (feet bgs)	-	8 - 10	15 - 17	30 - 32	8 - 10	15 -	35 -	45 -
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	DGS	DGS	DGS	DGS	DGS	DGS	DGS	DGS
Analyte								
CHLOROBENZENE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CHLOROETHANE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CHLOROFORM	2 U							
CHLOROMETHANE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CIS-1,2-DICHLOROETHENE		15	1 U	1 U	1 U	1 U	1 U	1 U
CIS-1,3-DICHLOROPROPENE	0.5 U							
DIBROMOCHLOROMETHANE	2 U							
DIBROMOMETHANE								
DICHLORODIFLUOROMETHANE								
DIISOPROPYL ETHER								
ETHYL TERT-BUTYL ETHER								
ETHYLBENZENE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
ETHYLENE DIBROMIDE								
HEXACHLOROBUTADIENE								
ISOPROPYLBENZENE								
M,P-XYLENE		1 U	1 U	1 U	1 U	1 U	1 U	1 U
METHYLENE CHLORIDE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
METHYL-T-BUTYL ETHER	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
NAPHTHALENE		1 U	1 U	1 U	1 U	1 U	1 U	1 U
N-BUTYLBENZENE								
N-PROPYLBENZENE								
O-XYLENE		1 U	1 U	1 U	1 U	1 U	1 U	1 U
P-ISOPROPYLTOLUENE								
SEC-BUTYLBENZENE								
STYRENE	2 U							
TERT-AMYL METHYL ETHER								
TERT-BUTANOL								
TERT-BUTYLBENZENE								
TETRACHLOROETHENE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TOLUENE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TRANS-1,2-DICHLOROETHENE		1 U	1 U	1 U	1 U	1 U	1 U	1 U
TRANS-1,3-DICHLOROPROPENE	0.5 U							
TRICHLOROETHENE	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TRICHLOROFLUOROMETHANE								
TRICHLOROTRIFLUOROETHANE								

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	MW410-3	S09-DGS-DP01	S09-DGS-DP01	S09-DGS-DP01	S09-DGS-DP02	S09-DGS-DP02	S09-DGS-DP02	S09-DGS-DP02
Sample Code	385-S09-028	385-S09-001	385-S09-002	385-S09-003	385-S09-004	385-S09-005	385-S09-006	385-S09-007
Sampling Date	6/26/2001	7/18/2001	7/18/2001	7/18/2001	7/28/2001	7/28/2001	7/28/2001	7/28/2001
Sampling Depth (feet bgs)	-	8 - 10	15 - 17	30 - 32	8 - 10	15 -	35 -	45 -
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	DGS	DGS	DGS	DGS	DGS	DGS	DGS	DGS
Analyte								
VINYL ACETATE								
VINYL CHLORIDE	0.5 U	3.5	1 U	1 U	1 U	1 U	11	4.6
XYLENE (TOTAL)	2 U							

Notes:

UG/L Micrograms per liter

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	S09-DGS-DP02	S09-DGS-DP02	S09-DGS-DP03	S09-DGS-DP03	S09-DGS-DP03	S09-DGS-DP03	S09-DGS-DP03	S09-DGS-DP03
Sample Code	385-S09-008	385-S09-009	385-S09-010	385-S09-011	385-S09-012	385-S09-013	385-S09-014	385-S09-015
Sampling Date	7/28/2001	7/28/2001	7/26/2001	7/26/2001	7/26/2001	7/26/2001	7/26/2001	7/26/2001
Sampling Depth (feet bgs)	60 -	78 -	10 -	20 -	35 -	43 -	60 -	74 -
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	DGS	DGS	DGS	DGS	DGS	DGS	DGS	DGS
Analyte								
1,1,1,2-TETRACHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,1-TRICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2,2-TETRACHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2-TRICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-DICHLOROETHANE	100	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-DICHLOROETHENE	1.2	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-DICHLOROPROPENE								
1,2,3-TRICHLOROBENZENE								
1,2,3-TRICHLOROPROPANE								
1,2,4-TRICHLOROBENZENE								
1,2,4-TRIMETHYLBENZENE								
1,2-DIBROMO-3-CHLOROPROPANE								
1,2-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-DICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-DICHLOROETHENE (TOTAL)								
1,2-DICHLOROPROPANE								
1,3,5-TRIMETHYLBENZENE								
1,3-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,3-DICHLOROPROPANE								
1,4-DICHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2,2-DICHLOROPROPANE								
2-BUTANONE								
2-CHLOROTOLUENE								
2-HEXANONE								
4-CHLOROTOLUENE								
4-METHYL-2-PENTANONE								
ACETONE								
BENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
BROMOBENZENE								
BROMOCHLOROMETHANE								
BROMODICHLOROMETHANE								
BROMOFORM								
BROMOMETHANE								
CARBON DISULFIDE								
CARBON TETRACHLORIDE								

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	S09-DGS-DP02	S09-DGS-DP02	S09-DGS-DP03	S09-DGS-DP03	S09-DGS-DP03	S09-DGS-DP03	S09-DGS-DP03	S09-DGS-DP03
Sample Code	385-S09-008	385-S09-009	385-S09-010	385-S09-011	385-S09-012	385-S09-013	385-S09-014	385-S09-015
Sampling Date	7/28/2001	7/28/2001	7/26/2001	7/26/2001	7/26/2001	7/26/2001	7/26/2001	7/26/2001
Sampling Depth (feet bgs)	60 -	78 -	10 -	20 -	35 -	43 -	60 -	74 -
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	DGS	DGS	DGS	DGS	DGS	DGS	DGS	DGS
Analyte								
CHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CHLOROFORM								
CHLOROMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CIS-1,2-DICHLOROETHENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CIS-1,3-DICHLOROPROPENE								
DIBROMOCHLOROMETHANE								
DIBROMOMETHANE								
DICHLORODIFLUOROMETHANE								
DIISOPROPYL ETHER								
ETHYL TERT-BUTYL ETHER								
ETHYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
ETHYLENE DIBROMIDE								
HEXACHLOROBUTADIENE								
ISOPROPYLBENZENE								
M,P-XYLENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
METHYLENE CHLORIDE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
METHYL-T-BUTYL ETHER	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
NAPHTHALENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
N-BUTYLBENZENE								
N-PROPYLBENZENE								
O-XYLENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
P-ISOPROPYLTOLUENE								
SEC-BUTYLBENZENE								
STYRENE								
TERT-AMYL METHYL ETHER								
TERT-BUTANOL								
TERT-BUTYLBENZENE								
TETRACHLOROETHENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TRANS-1,2-DICHLOROETHENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TRANS-1,3-DICHLOROPROPENE								
TRICHLOROETHENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TRICHLOROFLUOROMETHANE								
TRICHLOROTRIFLUOROETHANE								

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	S09-DGS-DP02	S09-DGS-DP02	S09-DGS-DP03	S09-DGS-DP03	S09-DGS-DP03	S09-DGS-DP03	S09-DGS-DP03	S09-DGS-DP03
Sample Code	385-S09-008	385-S09-009	385-S09-010	385-S09-011	385-S09-012	385-S09-013	385-S09-014	385-S09-015
Sampling Date	7/28/2001	7/28/2001	7/26/2001	7/26/2001	7/26/2001	7/26/2001	7/26/2001	7/26/2001
Sampling Depth (feet bgs)	60 -	78 -	10 -	20 -	35 -	43 -	60 -	74 -
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	DGS	DGS	DGS	DGS	DGS	DGS	DGS	DGS
Analyte								
VINYL ACETATE								
VINYL CHLORIDE	1.1	1 U	1 U	1 U	1 U	1 U	1 U	1 U
XYLENE (TOTAL)								

Notes:

UG/L Micrograms per liter

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	S09-DGS-DP04	S09-DGS-DP04	S09-DGS-DP04	S09-DGS-DP04	S09-DGS-DP04	S09-DGS-DP04	S09-DGS-DP04	S09-DGS-DP05
Sample Code	385-S09-022	385-S09-023	385-S09-024	385-S09-019	385-S09-019A	385-S09-020	385-S09-021	385-S09-016
Sampling Date	7/18/2001	7/18/2001	7/18/2001	7/25/2001	7/25/2001	7/25/2001	7/25/2001	8/3/2001
Sampling Depth (feet bgs)	8 - 10	15 - 17	25 - 27	50 -	50 -	65 -	80 -	7 - 9
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	DGS	DGS	DGS	DGS	DGS	DGS	DGS	DGS
Analyte								
1,1,1,2-TETRACHLOROETHANE	1 U	1 U	1 U	1 U		1 U	1 U	1 U
1,1,1-TRICHLOROETHANE	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U
1,1,2,2-TETRACHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2-TRICHLOROETHANE	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U
1,1-DICHLOROETHANE	1 5	1	1 U	1 U	0.5 U	1 U	1 U	6.2
1,1-DICHLOROETHENE	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U
1,1-DICHLOROPROPENE								
1,2,3-TRICHLOROBENZENE								
1,2,3-TRICHLOROPROPANE								
1,2,4-TRICHLOROBENZENE								
1,2,4-TRIMETHYLBENZENE								
1,2-DIBROMO-3-CHLOROPROPANE								
1,2-DICHLOROBENZENE	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U
1,2-DICHLOROETHANE	1 U	1 U	1 U	1 U	0.5 U	1 U	1 U	1 U
1,2-DICHLOROETHENE (TOTAL)					2 U			
1,2-DICHLOROPROPANE					2 U			
1,3,5-TRIMETHYLBENZENE								
1,3-DICHLOROBENZENE	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U
1,3-DICHLOROPROPANE								
1,4-DICHLOROBENZENE	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U
2,2-DICHLOROPROPANE								
2-BUTANONE					2 UJ			
2-CHLOROTOLUENE								
2-HEXANONE					2 UJ			
4-CHLOROTOLUENE								
4-METHYL-2-PENTANONE					2 UJ			
ACETONE					5 UJ			
BENZENE	1 U	1.7	1 U	1 U	0.5 U	1 U	1 U	1
BROMOBENZENE								
BROMOCHLOROMETHANE								
BROMODICHLOROMETHANE					2 U			
BROMOFORM					2 U			
BROMOMETHANE					2 U			
CARBON DISULFIDE					2 U			
CARBON TETRACHLORIDE					0.5 U			

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	S09-DGS-DP04	S09-DGS-DP04	S09-DGS-DP04	S09-DGS-DP04	S09-DGS-DP04	S09-DGS-DP04	S09-DGS-DP04	S09-DGS-DP05
Sample Code	385-S09-022	385-S09-023	385-S09-024	385-S09-019	385-S09-019A	385-S09-020	385-S09-021	385-S09-016
Sampling Date	7/18/2001	7/18/2001	7/18/2001	7/25/2001	7/25/2001	7/25/2001	7/25/2001	8/3/2001
Sampling Depth (feet bgs)	8 - 10	15 - 17	25 - 27	50 -	50 -	65 -	80 -	7 - 9
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	DGS	DGS	DGS	DGS	DGS	DGS	DGS	DGS
Analyte								
CHLOROBENZENE	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U
CHLOROETHANE	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U
CHLOROFORM					2 U			
CHLOROMETHANE	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U
CIS-1,2-DICHLOROETHENE	9 6	3 8	1 U	1 U		1 U	1 U	24
CIS-1,3-DICHLOROPROPENE					0.5 U			
DIBROMOCHLOROMETHANE					2 U			
DIBROMOMETHANE								
DICHLORODIFLUOROMETHANE								
DIISOPROPYL ETHER								
ETHYL TERT-BUTYL ETHER								
ETHYLBENZENE	1 U	1 U	1 U	1 U	2 U	1 U	1 U	55
ETHYLENE DIBROMIDE								
HEXACHLOROBUTADIENE								
ISOPROPYLBENZENE								
M,P-XYLENE	1 U	1 U	1 U	1 U		1 U	1 U	210
METHYLENE CHLORIDE	1 U	1 U	1 U	1 U	2 UJ	1 U	1 U	1 U
METHYL-T-BUTYL ETHER	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U
NAPHTHALENE	1 U	1 U	1 U	1 U		1 U	1 U	140
N-BUTYLBENZENE								
N-PROPYLBENZENE								
O-XYLENE	1 U	1 U	1 U	1 U		1 U	1 U	83
P-ISOPROPYLTOLUENE								
SEC-BUTYLBENZENE								
STYRENE					2 U			
TERT-AMYL METHYL ETHER								
TERT-BUTANOL								
TERT-BUTYLBENZENE								
TETRACHLOROETHENE	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U
TOLUENE	1 U	1 U	1 U	1 U	2 U	1 U	1 U	20
TRANS-1,2-DICHLOROETHENE	1 U	1 U	1 U	1 U		1 U	1 U	1 U
TRANS-1,3-DICHLOROPROPENE					0.5 U			
TRICHLOROETHENE	1 U	1 U	1 UJ	1 U	2 U	1 U	1 U	1 U
TRICHLOROFLUOROMETHANE								
TRICHLOROTRIFLUOROETHANE								

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	S09-DGS-DP04	S09-DGS-DP04	S09-DGS-DP04	S09-DGS-DP04	S09-DGS-DP04	S09-DGS-DP04	S09-DGS-DP04	S09-DGS-DP05
Sample Code	385-S09-022	385-S09-023	385-S09-024	385-S09-019	385-S09-019A	385-S09-020	385-S09-021	385-S09-016
Sampling Date	7/18/2001	7/18/2001	7/18/2001	7/25/2001	7/25/2001	7/25/2001	7/25/2001	8/3/2001
Sampling Depth (feet bgs)	8 - 10	15 - 17	25 - 27	50 -	50 -	65 -	80 -	7 - 9
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	DGS	DGS	DGS	DGS	DGS	DGS	DGS	DGS
Analyte								
VINYL ACETATE								
VINYL CHLORIDE	1	1 U	1 U	1 U	0.5 U	1 U	1 U	3.7
XYLENE (TOTAL)					2 U			

Notes:

UG/L Micrograms per liter

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	S09-DGS-DP05	S09-DGS-DP05	S09-DGS-DP05	S09-DGS-DP07	S09-DGS-DP07	S09-DGS-DP08	S09-DGS-DP08	S09-DGS-DP08
Sample Code	385-S09-017	385-S09-017A	385-S09-018	385-S09-043	385-S09-044	385-S09-045	385-S09-046	385-S09-047
Sampling Date	8/3/2001	8/3/2001	8/3/2001	8/9/2001	8/9/2001	8/15/2001	8/15/2001	8/15/2001
Sampling Depth (feet bgs)	15 - 17	15 - 17	25 - 27	7 -	15 -	7 -	15 -	30 -
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	DGS	DGS	DGS	DGS	DGS	DGS	DGS	DGS
Analyte								
1,1,1,2-TETRACHLOROETHANE	1 U		1 U	1 U	1 U	1 U	1 U	1 U
1,1,1-TRICHLOROETHANE	1 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2,2-TETRACHLOROETHANE	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2-TRICHLOROETHANE	1 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-DICHLOROETHANE	1 U	0.5 U	1 U	1 U	1 U	1 U	1 U	2.6
1,1-DICHLOROETHENE	1 U	2 U	1 U	1 U	1 U	1 U	1 U	1.6
1,1-DICHLOROPROPENE								
1,2,3-TRICHLOROBENZENE								
1,2,3-TRICHLOROPROPANE								
1,2,4-TRICHLOROBENZENE								
1,2,4-TRIMETHYLBENZENE								
1,2-DIBROMO-3-CHLOROPROPANE								
1,2-DICHLOROBENZENE	1 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-DICHLOROETHANE	1 U	0.5 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-DICHLOROETHENE (TOTAL)		2 U						
1,2-DICHLOROPROPANE		2 U						
1,3,5-TRIMETHYLBENZENE								
1,3-DICHLOROBENZENE	1 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U
1,3-DICHLOROPROPANE								
1,4-DICHLOROBENZENE	1 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U
2,2-DICHLOROPROPANE								
2-BUTANONE		2 UJ						
2-CHLOROTOLUENE								
2-HEXANONE		2 UJ						
4-CHLOROTOLUENE								
4-METHYL-2-PENTANONE		2 UJ						
ACETONE		3 UJ						
BENZENE	1.6	2	1 U	1 U	0.9 J	1 U	1 U	1 U
BROMOBENZENE								
BROMOCHLOROMETHANE								
BROMODICHLOROMETHANE		2 U						
BROMOFORM		2 U						
BROMOMETHANE		2 U						
CARBON DISULFIDE		0.3 J						
CARBON TETRACHLORIDE		0.5 U						

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	S09-DGS-DP05	S09-DGS-DP05	S09-DGS-DP05	S09-DGS-DP07	S09-DGS-DP07	S09-DGS-DP08	S09-DGS-DP08	S09-DGS-DP08
Sample Code	385-S09-017	385-S09-017A	385-S09-018	385-S09-043	385-S09-044	385-S09-045	385-S09-046	385-S09-047
Sampling Date	8/3/2001	8/3/2001	8/3/2001	8/9/2001	8/9/2001	8/15/2001	8/15/2001	8/15/2001
Sampling Depth (feet bgs)	15 - 17	15 - 17	25 - 27	7 -	15 -	7 -	15 -	30 -
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	DGS	DGS	DGS	DGS	DGS	DGS	DGS	DGS
Analyte								
CHLOROBENZENE	1 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U
CHLOROETHANE	2.7	5	1 U	1 U	1 U	1 U	1 U	1 U
CHLOROFORM		2 U						
CHLOROMETHANE	1 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U
CIS-1,2-DICHLOROETHENE	1		1 U	1 U	1.7	1 U	1 U	1 U
CIS-1,3-DICHLOROPROPENE		0.5 U						
DIBROMOCHLOROMETHANE		2 U						
DIBROMOMETHANE								
DICHLORODIFLUOROMETHANE								
DIISOPROPYL ETHER								
ETHYL TERT-BUTYL ETHER								
ETHYLBENZENE	1 U	0.7 J	1 U	1 U	1 U	1 U	1 U	1 U
ETHYLENE DIBROMIDE								
HEXACHLOROBUTADIENE								
ISOPROPYLBENZENE								
M,P-XYLENE	2		4	1 U	1 U	1 U	1 U	1 U
METHYLENE CHLORIDE	1 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U
METHYL-T-BUTYL ETHER	1 U	5 U	1 U	1 U	1 U	6.8	40	1 U
NAPHTHALENE	3.5		1 U	1 U	1 U	1 U	1 U	1 U
N-BUTYLBENZENE								
N-PROPYLBENZENE								
O-XYLENE	1 U		1.4	1 U	1 U	1 U	1 U	1 U
P-ISOPROPYLTOLUENE								
SEC-BUTYLBENZENE								
STYRENE		2 U						
TERT-AMYL METHYL ETHER								
TERT-BUTANOL								
TERT-BUTYLBENZENE								
TETRACHLOROETHENE	1 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U
TOLUENE	3.1	5	4.8	1 U	1	1 U	1 U	1 U
TRANS-1,2-DICHLOROETHENE	1 U		1 U	1 U	1 U	1 U	1 U	1 U
TRANS-1,3-DICHLOROPROPENE		0.5 U						
TRICHLOROETHENE	1 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U
TRICHLOROFLUOROMETHANE								
TRICHLOROTRIFLUOROETHANE								

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	S09-DGS-DP05	S09-DGS-DP05	S09-DGS-DP05	S09-DGS-DP07	S09-DGS-DP07	S09-DGS-DP08	S09-DGS-DP08	S09-DGS-DP08
Sample Code	385-S09-017	385-S09-017A	385-S09-018	385-S09-043	385-S09-044	385-S09-045	385-S09-046	385-S09-047
Sampling Date	8/3/2001	8/3/2001	8/3/2001	8/9/2001	8/9/2001	8/15/2001	8/15/2001	8/15/2001
Sampling Depth (feet bgs)	15 - 17	15 - 17	25 - 27	7 -	15 -	7 -	15 -	30 -
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	DGS	DGS	DGS	DGS	DGS	DGS	DGS	DGS
Analyte								
VINYL ACETATE								
VINYL CHLORIDE	1 U	0.5 U	1 U	1 U	1 U	1 U	1 U	1 U
XYLENE (TOTAL)		2						

Notes:

UG/L Micrograms per liter

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	S09-DGS-DP08	S09-DGS-DP09	S09-DGS-DP09	S09-DGS-DP09	S09-DGS-DP09	S09-DGS-DP09	S09-DGS-DP09	S09-DGS-DP10
Sample Code	385-S09-048	385-S09-049	385-S09-050	385-S09-050A	385-S09-051	385-S09-052	385-S09-057	385-S09-054
Sampling Date	8/15/2001	8/17/2001	8/17/2001	8/17/2001	8/17/2001	8/17/2001	8/22/2001	8/22/2001
Sampling Depth (feet bgs)	45 -	7 -	15 -	15 -	30 -	45 -	59 -	30 -
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	DGS	DGS	DGS	DGS	DGS	DGS	DGS	DGS
Analyte								
1,1,1,2-TETRACHLOROETHANE	1 U	1 U	1 U		1 U	1 U		1 U
1,1,1-TRICHLOROETHANE	1 U	1 U	1 U	2 U	1 U	1 U	1 U	1 U
1,1,2,2-TETRACHLOROETHANE	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U
1,1,2-TRICHLOROETHANE	1 U	1 U	1 U	2 U	1 U	1 U	1 U	1 U
1,1-DICHLOROETHANE	1 U	1 U	1 U	0 5 U	25	87	1 U	15
1,1-DICHLOROETHENE	1 U	1 U	1 2	1 J	2 2	4.9	1 U	4.3
1,1-DICHLOROPROPENE								
1,2,3-TRICHLOROBENZENE								
1,2,3-TRICHLOROPROPANE								
1,2,4-TRICHLOROBENZENE								
1,2,4-TRIMETHYLBENZENE								
1,2-DIBROMO-3-CHLOROPROPANE								
1,2-DICHLOROBENZENE	1 U	1 U	1 U	2 U	1 U	1 U	1 U	1 U
1,2-DICHLOROETHANE	1 U	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U
1,2-DICHLOROETHENE (TOTAL)				2 U				
1,2-DICHLOROPROPANE				2 U				
1,3,5-TRIMETHYLBENZENE								
1,3-DICHLOROBENZENE	1 U	1 U	1 U	2 U	1 U	1 U	1 U	1 U
1,3-DICHLOROPROPANE								
1,4-DICHLOROBENZENE	1 U	1 U	1 U	2 U	1 U	1 U	1 U	1 U
2,2-DICHLOROPROPANE								
2-BUTANONE				2 UJ				
2-CHLOROTOLUENE								
2-HEXANONE				2 UJ				
4-CHLOROTOLUENE								
4-METHYL-2-PENTANONE				2 UJ				
ACETONE				3 UJ				
BENZENE	1 U	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U
BROMOBENZENE								
BROMOCHLOROMETHANE								
BROMODICHLOROMETHANE				2 U				
BROMOFORM				2 U				
BROMOMETHANE				2 U				
CARBON DISULFIDE				0.4 J				
CARBON TETRACHLORIDE				0.5 U				

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	S09-DGS-DP08	S09-DGS-DP09	S09-DGS-DP09	S09-DGS-DP09	S09-DGS-DP09	S09-DGS-DP09	S09-DGS-DP09	S09-DGS-DP10
Sample Code	385-S09-048	385-S09-049	385-S09-050	385-S09-050A	385-S09-051	385-S09-052	385-S09-057	385-S09-054
Sampling Date	8/15/2001	8/17/2001	8/17/2001	8/17/2001	8/17/2001	8/17/2001	8/22/2001	8/22/2001
Sampling Depth (feet bgs)	45 -	7 -	15 -	15 -	30 -	45 -	59 -	30 -
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	DGS	DGS	DGS	DGS	DGS	DGS	DGS	DGS
Analyte								
CHLOROBENZENE	1 U	1 U	1 U	2 U	1 U	1 U	1 U	1 U
CHLOROETHANE	1 U	1 U	1 U	2 UJ	1 U	1 U	1 U	1 U
CHLOROFORM				2 U				
CHLOROMETHANE	1 U	1 U	1 U	2 U	1 U	1 U	1 U	1 U
CIS-1,2-DICHLOROETHENE	1 U	1 U	1 U		1 U	1 U	1 U	1 U
CIS-1,3-DICHLOROPROPENE				0 5 U				
DIBROMOCHLOROMETHANE				2 U				
DIBROMOMETHANE								
DICHLORODIFLUOROMETHANE								
DIISOPROPYL ETHER								
ETHYL TERT-BUTYL ETHER								
ETHYLBENZENE	1 U	1 U	1 U	2 U	1 U	1 U	1 U	1 U
ETHYLENE DIBROMIDE								
HEXACHLOROBUTADIENE								
ISOPROPYLBENZENE								
M,P-XYLENE	1 U	1 U	1 U		1 U	1 U	1 U	1 U
METHYLENE CHLORIDE	1 U	1 U	1 U	2 UJ	1 U	1 U	1 U	1 U
METHYL-T-BUTYL ETHER	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U
NAPHTHALENE	1 U	1 U	1 U		1 U	1 U	1 U	1 U
N-BUTYLBENZENE								
N-PROPYLBENZENE								
O-XYLENE	1 U	1 U	1 U		1 U	1 U	1 U	1 U
P-ISOPROPYLTOLUENE								
SEC-BUTYLBENZENE								
STYRENE				2 U				
TERT-AMYL METHYL ETHER								
TERT-BUTANOL								
TERT-BUTYLBENZENE								
TETRACHLOROETHENE	1 U	1 U	1 U	2 U	1 U	1 U	1 U	1 U
TOLUENE	1 U	1 U	1 U	2 U	1 U	1 U	1 U	1 U
TRANS-1,2-DICHLOROETHENE	1 U	1 U	1 U		1 U	1 U	1 U	1 U
TRANS-1,3-DICHLOROPROPENE				0.5 U				
TRICHLOROETHENE	1 U	1 U	1 U	2 U	1 U	1 U	1 U	1 U
TRICHLOROFLUOROMETHANE								
TRICHLOROTRIFLUOROETHANE								

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	S09-DGS-DP08	S09-DGS-DP09	S09-DGS-DP09	S09-DGS-DP09	S09-DGS-DP09	S09-DGS-DP09	S09-DGS-DP09	S09-DGS-DP10
Sample Code	385-S09-048	385-S09-049	385-S09-050	385-S09-050A	385-S09-051	385-S09-052	385-S09-057	385-S09-054
Sampling Date	8/15/2001	8/17/2001	8/17/2001	8/17/2001	8/17/2001	8/17/2001	8/22/2001	8/22/2001
Sampling Depth (feet bgs)	45 -	7 -	15 -	15 -	30 -	45 -	59 -	30 -
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	DGS	DGS	DGS	DGS	DGS	DGS	DGS	DGS
Analyte								
VINYL ACETATE								
VINYL CHLORIDE	1 U	1 U	1 U	0.5 U	0.6 J	1	1 U	1 U
XYLENE (TOTAL)				2 U				

Notes:

UG/L Micrograms per liter

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	S09-DGS-DP10	S09-DGS-DP10	S09-DGS-DP10	S09-DGS-DP11	S09-DGS-DP12	S09-DGS-VE01	D09-01	D09-01
Sample Code	385-S09-055	385-S09-055A	385-S09-056	385-S09-058	385-S09-059	385-S09-034	280-S09-100	280-S09-107
Sampling Date	8/22/2001	8/22/2001	8/22/2001	8/30/2001	9/12/2001	8/7/2001	12/20/1994	2/21/1995
Sampling Depth (feet bgs)	45 -	45 -	58 -	30 - 32	30 - 32	8.5 - 10	-	-
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	DGS	DGS	DGS	DGS	DGS	DGS	FO 1994	FO 1994
Analyte								
1,1,1,2-TETRACHLOROETHANE	1 U		1 U	1 U	5 U	1 U		
1,1,1-TRICHLOROETHANE	1 U	2 U	1 U	1 U	5 U	1 U	1 U	1 U
1,1,2,2-TETRACHLOROETHANE	1 U	1 U	1 U	1 U	5 U	1 U	1 UJ	1 U
1,1,2-TRICHLOROETHANE	1 U	2 U	1 U	1 U	5 U	1 U	1 U	1 U
1,1-DICHLOROETHANE	1 U	0.5 U	1 U	16	16	1 U	1 U	1 U
1,1-DICHLOROETHENE	1 U	2 U	1 U	3.5	5 U	1 U	1 UJ	1 U
1,1-DICHLOROPROPENE					5 U			
1,2,3-TRICHLOROBENZENE					5 UJ			
1,2,3-TRICHLOROPROPANE					5 U			
1,2,4-TRICHLOROBENZENE					5 UJ			
1,2,4-TRIMETHYLBENZENE					5 UJ			
1,2-DIBROMO-3-CHLOROPROPANE					5 U			
1,2-DICHLOROBENZENE	1 U	2 U	1 U	1 U	5 U	1 U		
1,2-DICHLOROETHANE	1 U	0.5 U	1 U	1 U	5 U	1 U	0.5 U	0.5 U
1,2-DICHLOROETHENE (TOTAL)		2 U					1 U	1 U
1,2-DICHLOROPROPANE		2 U			5 U		1 U	1 U
1,3,5-TRIMETHYLBENZENE					5 UJ			
1,3-DICHLOROBENZENE	1 U	2 U	1 U	1 U	5 U	1 U		
1,3-DICHLOROPROPANE					5 U			
1,4-DICHLOROBENZENE	1 U	2 U	1 U	1 U	5 U	1 U		
2,2-DICHLOROPROPANE					5 UJ			
2-BUTANONE		2 UJ			10 U			
2-CHLOROTOLUENE					5 U			
2-HEXANONE		2 UJ			10 U		2 UJ	2 U
4-CHLOROTOLUENE					5 U			
4-METHYL-2-PENTANONE		2 UJ			10 U		2 U	2 U
ACETONE		3 UJ			20 UJ			
BENZENE	1 U	0.5 U	1 U	1 U	5 U	1 U	1 U	1 UJ
BROMOBENZENE					5 U			
BROMOCHLOROMETHANE					10 U			
BROMODICHLOROMETHANE		2 U			5 U		1 U	1 U
BROMOFORM		2 U			5 U		1 UJ	1 U
BROMOMETHANE		2 U			10 U		2 U	2 U
CARBON DISULFIDE		2 UJ			5 U		1 UJ	1 U
CARBON TETRACHLORIDE		0.5 U			5 U		0.5 U	0.5 U

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	S09-DGS-DP10	S09-DGS-DP10	S09-DGS-DP10	S09-DGS-DP11	S09-DGS-DP12	S09-DGS-VE01	D09-01	D09-01
Sample Code	385-S09-055	385-S09-055A	385-S09-056	385-S09-058	385-S09-059	385-S09-034	280-S09-100	280-S09-107
Sampling Date	8/22/2001	8/22/2001	8/22/2001	8/30/2001	9/12/2001	8/7/2001	12/20/1994	2/21/1995
Sampling Depth (feet bgs)	45 -	45 -	58 -	30 - 32	30 - 32	8.5 - 10	-	-
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	DGS	DGS	DGS	DGS	DGS	DGS	FO 1994	FO 1994
Analyte								
CHLOROBENZENE	1 U	2 U	1 U	1 U	5 U	1 U	1 U	1 U
CHLOROETHANE	1 U	2 UJ	1 U	1 U	10 U	1 U	2 UJ	2 U
CHLOROFORM		2 U			5 U		1 U	1
CHLOROMETHANE	1 U	2 U	1 U	1 U	10 U	1 U	2 U	2 U
CIS-1,2-DICHLOROETHENE	1 U		1 U	1 U	5 U	1 U		
CIS-1,3-DICHLOROPROPENE		0.5 U			5 U		0.5 U	0.5 U
DIBROMOCHLOROMETHANE		2 U			5 U		1 UJ	1 U
DIBROMOMETHANE					5 U			
DICHLORODIFLUOROMETHANE					10 U			
DIISOPROPYL ETHER								
ETHYL TERT-BUTYL ETHER								
ETHYLBENZENE	1 U	2 U	1 U	1 U	5 U	1 U	1 U	1 U
ETHYLENE DIBROMIDE					5 U			
HEXACHLOROBUTADIENE					5 U			
ISOPROPYLBENZENE					5 U			
M,P-XYLENE	1 U		1 U	1 U	5 U	1		
METHYLENE CHLORIDE	1 U	2 UJ	1 U	1 U	20 U	1 U	1 U	1 U
METHYL-T-BUTYL ETHER	1 U	5 U	1 U	1 U	5 U	1 U		
NAPHTHALENE	1 U		1 U	1 U	5 UJ	1 U		
N-BUTYLBENZENE					5 UJ			
N-PROPYLBENZENE					5 U			
O-XYLENE	1 U		1 U	1 U	5 U	1 U		
P-ISOPROPYLTOLUENE					5 U			
SEC-BUTYLBENZENE					5 U			
STYRENE		2 U			5 U		1 U	1 U
TERT-AMYL METHYL ETHER								
TERT-BUTANOL								
TERT-BUTYLBENZENE					5 U			
TETRACHLOROETHENE	1 U	2 U	1 U	1 U	5 U	1 U	1 U	1 U
TOLUENE	1 U	2 U	1 U	1 U	5 U	1 U	1 U	1 U
TRANS-1,2-DICHLOROETHENE	1 U		1 U	1 U	5 U	1 U		
TRANS-1,3-DICHLOROPROPENE		0.5 U			5 U		0.5 UJ	0.5 U
TRICHLOROETHENE	1 U	2 U	1 U	1 U	5 U	1 U	1 U	1 U
TRICHLOROFLUOROMETHANE					5 U			
TRICHLOROTRIFLUOROETHANE					5 U			

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	S09-DGS-DP10	S09-DGS-DP10	S09-DGS-DP10	S09-DGS-DP11	S09-DGS-DP12	S09-DGS-VE01	D09-01	D09-01
Sample Code	385-S09-055	385-S09-055A	385-S09-056	385-S09-058	385-S09-059	385-S09-034	280-S09-100	280-S09-107
Sampling Date	8/22/2001	8/22/2001	8/22/2001	8/30/2001	9/12/2001	8/7/2001	12/20/1994	2/21/1995
Sampling Depth (feet bgs)	45 -	45 -	58 -	30 - 32	30 - 32	8.5 - 10	-	-
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	DGS	DGS	DGS	DGS	DGS	DGS	FO 1994	FO 1994
Analyte								
VINYL ACETATE					50 UJ			
VINYL CHLORIDE	1 U	0.5 U	1 U	1 U	10 U	1 U	0.5 UJ	0.5 U
XYLENE (TOTAL)		2 U					1 U	1 U

Notes:

UG/L Micrograms per liter

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	D09-01	D09-01	DHP-S09-01	DHP-S09-02	DHP-S09-03	DHP-S09-05	DHP-S09-06	DHP-S09-07	DHP-S09-08
Sample Code	280-S09-108	280-S09-109	280-S09-053	280-S09-054	280-S09-055	280-S09-058	280-S09-059	280-S09-062	280-S09-064
Sampling Date	6/22/1995	9/14/1995	7/28/1994	7/28/1994	7/29/1994	8/23/1994	9/8/1994	9/7/1994	9/6/1994
Sampling Depth (feet bgs)	-	-	25.8 -	30 -	24 -	23 - 26	8 - 11	21 - 24	24 -
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994
Analyte									
1,1,1,2-TETRACHLOROETHANE									
1,1,1-TRICHLOROETHANE	3	1 U	1 UJ	1 UJ	1 U	2 U	10 U	1 U	1 U
1,1,2,2-TETRACHLOROETHANE	1 U	1 U	1 U	1 U	1 U	2 U	10 U	1 U	1 U
1,1,2-TRICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	2 U	10 U	1 U	1 U
1,1-DICHLOROETHANE	1 U	1 U	1 U	29	1 U	2 U	10 U	1 U	2
1,1-DICHLOROETHENE	1 U	1 U	1 U	1 U	1 U	2 U	10 U	1 U	1 U
1,1-DICHLOROPROPENE									
1,2,3-TRICHLOROBENZENE									
1,2,3-TRICHLOROPROPANE									
1,2,4-TRICHLOROBENZENE									
1,2,4-TRIMETHYLBENZENE									
1,2-DIBROMO-3-CHLOROPROPANE									
1,2-DICHLOROBENZENE									
1,2-DICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 UJ	5 U	2 UJ	1 UJ
1,2-DICHLOROETHENE (TOTAL)	1 U	1 U	1 U	1	1 U	2 U	400	1 U	1 U
1,2-DICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	2 U	10 U	1 U	1 U
1,3,5-TRIMETHYLBENZENE									
1,3-DICHLOROBENZENE									
1,3-DICHLOROPROPANE									
1,4-DICHLOROBENZENE									
2,2-DICHLOROPROPANE									
2-BUTANONE									13 UJ
2-CHLOROTOLUENE									
2-HEXANONE	2 U	2 U	2 U	2 U	2 U	2 U		2 UJ	2 UJ
4-CHLOROTOLUENE									
4-METHYL-2-PENTANONE	2 U	2 U	2 U	2 U	2 U	2 U	20 U	2 UJ	2 U
ACETONE					5 UJ				8 UJ
BENZENE	0.5 U	0.5 U	1 U	1 U	1 U	0.5 U	10 U	1 U	0.9 J
BROMOBENZENE									
BROMOCHLOROMETHANE									
BROMODICHLOROMETHANE	1 U	1 U	1 U	1 U	1 U	2 U	10 U	1 U	1 U
BROMOFORM	1 U	1 U	1 U	1 U	1 U	2 U	10 U	1 U	1 U
BROMOMETHANE	1 U	1 U	2 U	2 U	2 U	1 U	20 U	2 U	2 U
CARBON DISULFIDE	1 U	1 U	1 U	1 U	1 U	2 UJ	10 U	1 U	1 U
CARBON TETRACHLORIDE	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 U	5 U	0.5 U	0.5 U

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	D09-01	D09-01	DHP-S09-01	DHP-S09-02	DHP-S09-03	DHP-S09-05	DHP-S09-06	DHP-S09-07	DHP-S09-08
Sample Code	280-S09-108	280-S09-109	280-S09-053	280-S09-054	280-S09-055	280-S09-058	280-S09-059	280-S09-062	280-S09-064
Sampling Date	6/22/1995	9/14/1995	7/28/1994	7/28/1994	7/29/1994	8/23/1994	9/8/1994	9/7/1994	9/6/1994
Sampling Depth (feet bgs)	-	-	25.8 -	30 -	24 -	23 - 26	8 - 11	21 - 24	24 -
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994
Analyte									
CHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	2 U	10 U	1 U	1 U
CHLOROETHANE	2 U	2 U	2 U	2 U	2 U	2 U	20 U	2 U	2 U
CHLOROFORM	0.7 J	1 U	1 U	1 U	1 U	2 U	10 U	1 U	1 U
CHLOROMETHANE	2 U	2 UJ	2 UJ	2 UJ	2 UJ	2 U	20 U	2 U	2 UJ
CIS-1,2-DICHLOROETHENE									
CIS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U
DIBROMOCHLOROMETHANE	1 U	1 U	1 U	1 U	1 U	2 U	10 U	1 U	1 U
DIBROMOMETHANE									
DICHLORODIFLUOROMETHANE									
DIISOPROPYL ETHER									
ETHYL TERT-BUTYL ETHER									
ETHYLBENZENE	1 U	1 U	1 U	1 U	1 U	2 U	86	1 U	1 U
ETHYLENE DIBROMIDE									
HEXACHLOROBUTADIENE									
ISOPROPYLBENZENE									
M,P-XYLENE									
METHYLENE CHLORIDE	1 U	1 U	1 U	1 U	1 U	2 UJ	10 U	1 U	1 UJ
METHYL-T-BUTYL ETHER									
NAPHTHALENE									
N-BUTYLBENZENE									
N-PROPYLBENZENE									
O-XYLENE									
P-ISOPROPYLTOLUENE									
SEC-BUTYLBENZENE									
STYRENE	1 U	1 U	1 U	1 U	1 U	2 U	10 U	1 U	1 U
TERT-AMYL METHYL ETHER									
TERT-BUTANOL									
TERT-BUTYLBENZENE									
TETRACHLOROETHENE	1 U	1 U	1 U	1 U	1 U	2 U	10 U	1 U	1 U
TOLUENE	1 U	1 U	1 U	1 U	1 U	2 U	230	1 U	1 U
TRANS-1,2-DICHLOROETHENE									
TRANS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U
TRICHLOROETHENE	1 U	1 U	1 U	1 U	1 U	2 U	10 U	1 U	1 U
TRICHLOROFLUOROMETHANE									
TRICHLOROTRIFLUOROETHANE									

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	D09-01	D09-01	DHP-S09-01	DHP-S09-02	DHP-S09-03	DHP-S09-05	DHP-S09-06	DHP-S09-07	DHP-S09-08
Sample Code	280-S09-108	280-S09-109	280-S09-053	280-S09-054	280-S09-055	280-S09-058	280-S09-059	280-S09-062	280-S09-064
Sampling Date	6/22/1995	9/14/1995	7/28/1994	7/28/1994	7/29/1994	8/23/1994	9/8/1994	9/7/1994	9/6/1994
Sampling Depth (feet bgs)	-	-	25.8 -	30 -	24 -	23 - 26	8 - 11	21 - 24	24 -
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994
Analyte									
VINYL ACETATE									
VINYL CHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	220	0.5 U	0.5 U
XYLENE (TOTAL)	1 U	1 U	1 U	1 U	1 U	2 U	340	1 U	1 U

Notes:

UG/L Micrograms per liter

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	DHP-S09-09	DHP-S09-10	DHP-S09-11	DHP-S09-12	M09-06	M09-06	M09-06	M09-06	MW410-1
Sample Code	280-S09-066	280-S09-068	280-S09-094	280-S09-096	280-S09-049	280-S09-050	280-S09-051	280-S09-052	280-S09-026
Sampling Date	9/12/1994	9/9/1994	8/25/1994	8/25/1994	11/30/1994	2/21/1995	6/22/1995	8/8/1995	10/18/1994
Sampling Depth (feet bgs)	22 - 25	27 - 30	20 - 24	22.5 - 26	-	-	-	-	-
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994
Analyte									
1,1,1,2-TETRACHLOROETHANE									
1,1,1-TRICHLOROETHANE	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U
1,1,2,2-TETRACHLOROETHANE	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U
1,1,2-TRICHLOROETHANE	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U
1,1-DICHLOROETHANE	1 U	2	2 U	2 U	1 U	1 U	1 U	1 U	1 U
1,1-DICHLOROETHENE	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U
1,1-DICHLOROPROPENE									
1,2,3-TRICHLOROBENZENE									
1,2,3-TRICHLOROPROPANE									
1,2,4-TRICHLOROBENZENE									
1,2,4-TRIMETHYLBENZENE									
1,2-DIBROMO-3-CHLOROPROPANE									
1,2-DICHLOROBENZENE									
1,2-DICHLOROETHANE	0.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.7 UJ
1,2-DICHLOROETHENE (TOTAL)	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U
1,2-DICHLOROPROPANE	2	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U
1,3,5-TRIMETHYLBENZENE									
1,3-DICHLOROBENZENE									
1,3-DICHLOROPROPANE									
1,4-DICHLOROBENZENE									
2,2-DICHLOROPROPANE									
2-BUTANONE	9 UJ	16 UJ		12 UJ					
2-CHLOROTOLUENE									
2-HEXANONE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
4-CHLOROTOLUENE									
4-METHYL-2-PENTANONE	2 U	2 U	0.7 J	2 U	2 U	2 U	2 U	2 U	2 U
ACETONE		4 UJ							5 UJ
BENZENE	1 U	1 U	0.5 U	0.5 U	1 U	1 UJ	0.5 U	0.5 U	1 U
BROMOBENZENE									
BROMOCHLOROMETHANE									
BROMODICHLOROMETHANE	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U
BROMOFORM	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U
BROMOMETHANE	2 U	2 U	1 U	1 U	2 U	2 U	1 U	1 U	2 U
CARBON DISULFIDE	1 U	1 U	0.8 J	0.5 J	1 UJ	1 U	1 U	1 U	1 U
CARBON TETRACHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	DHP-S09-09	DHP-S09-10	DHP-S09-11	DHP-S09-12	M09-06	M09-06	M09-06	M09-06	MW410-1
Sample Code	280-S09-066	280-S09-068	280-S09-094	280-S09-096	280-S09-049	280-S09-050	280-S09-051	280-S09-052	280-S09-026
Sampling Date	9/12/1994	9/9/1994	8/25/1994	8/25/1994	11/30/1994	2/21/1995	6/22/1995	8/8/1995	10/18/1994
Sampling Depth (feet bgs)	22 - 25	27 - 30	20 - 24	22.5 - 26	-	-	-	-	-
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994
Analyte									
CHLOROBENZENE	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U
CHLOROETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 UJ	2 U
CHLOROFORM	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U
CHLOROMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CIS-1,2-DICHLOROETHENE									
CIS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
DIBROMOCHLOROMETHANE	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U
DIBROMOMETHANE									
DICHLORODIFLUOROMETHANE									
DIISOPROPYL ETHER									
ETHYL TERT-BUTYL ETHER									
ETHYLBENZENE	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U
ETHYLENE DIBROMIDE									
HEXACHLOROBUTADIENE									
ISOPROPYLBENZENE									
M,P-XYLENE									
METHYLENE CHLORIDE	1 U	1 U	2 UJ	2 UJ	2 UJ	1 U	1 U	1 U	1 U
METHYL-T-BUTYL ETHER									
NAPHTHALENE									
N-BUTYLBENZENE									
N-PROPYLBENZENE									
O-XYLENE									
P-ISOPROPYLTOLUENE									
SEC-BUTYLBENZENE									
STYRENE	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U
TERT-AMYL METHYL ETHER									
TERT-BUTANOL									
TERT-BUTYLBENZENE									
TETRACHLOROETHENE	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U
TOLUENE	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U
TRANS-1,2-DICHLOROETHENE									
TRANS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TRICHLOROETHENE	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U
TRICHLOROFLUOROMETHANE									
TRICHLOROTRIFLUOROETHANE									

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	DHP-S09-09	DHP-S09-10	DHP-S09-11	DHP-S09-12	M09-06	M09-06	M09-06	M09-06	MW410-1
Sample Code	280-S09-066	280-S09-068	280-S09-094	280-S09-096	280-S09-049	280-S09-050	280-S09-051	280-S09-052	280-S09-026
Sampling Date	9/12/1994	9/9/1994	8/25/1994	8/25/1994	11/30/1994	2/21/1995	6/22/1995	8/8/1995	10/18/1994
Sampling Depth (feet bgs)	22 - 25	27 - 30	20 - 24	22.5 - 26	-	-	-	-	-
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994
Analyte									
VINYL ACETATE				2 U					
VINYL CHLORIDE	0 5 U	0 5 U	2 U	0 5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
XYLENE (TOTAL)	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U

Notes:

UG/L Micrograms per liter

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	MW410-1	MW410-1	MW410-2	MW410-2	MW410-2	MW410-2	MW410-3	MW410-3	MW410-3
Sample Code	280-S09-028	280-S09-030	280-S09-031	280-S09-032	280-S09-033	280-S09-034	280-S09-036	280-S09-037	280-S09-038
Sampling Date	6/23/1995	8/8/1995	10/18/1994	2/21/1995	6/22/1995	8/4/1995	10/18/1994	2/21/1995	6/22/1995
Sampling Depth (feet bgs)	-	-	-	-	-	-	-	-	-
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994
Analyte									
1,1,1,2-TETRACHLOROETHANE									
1,1,1-TRICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2,2-TETRACHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1,2-TRICHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-DICHLOROETHANE	1 U	1 U	1 U	1 U	1	1	1 U	1 U	1 U
1,1-DICHLOROETHENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-DICHLOROPROPENE									
1,2,3-TRICHLOROBENZENE									
1,2,3-TRICHLOROPROPANE									
1,2,4-TRICHLOROBENZENE									
1,2,4-TRIMETHYLBENZENE									
1,2-DIBROMO-3-CHLOROPROPANE									
1,2-DICHLOROBENZENE									
1,2-DICHLOROETHANE	0.5 U	0.5 U	0.7 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-DICHLOROETHENE (TOTAL)	1 U	1 U	4	5	11	20	1 U	1 U	1 U
1,2-DICHLOROPROPANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,3,5-TRIMETHYLBENZENE									
1,3-DICHLOROBENZENE									
1,3-DICHLOROPROPANE									
1,4-DICHLOROBENZENE									
2,2-DICHLOROPROPANE									
2-BUTANONE									
2-CHLOROTOLUENE									
2-HEXANONE	2 UJ	2 U	2 U	2 U	2 UJ	2 UJ	2 U	2 U	2 U
4-CHLOROTOLUENE									
4-METHYL-2-PENTANONE	2 UJ	2 U	2 U	2 U	2 UJ	2 UJ	2 U	2 U	2 U
ACETONE									2 UJ
BENZENE	0.5 U	0.5 U	1 U	1 UJ	0.5 U	0.5 U	1 U	1 UJ	0.5 U
BROMOBENZENE									
BROMOCHLOROMETHANE									
BROMODICHLOROMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
BROMOFORM	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U
BROMOMETHANE	1 U	1 U	2 U	2 U	1 U	1 U	2 U	2 U	1 U
CARBON DISULFIDE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CARBON TETRACHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	MW410-1	MW410-1	MW410-2	MW410-2	MW410-2	MW410-2	MW410-3	MW410-3	MW410-3
Sample Code	280-S09-028	280-S09-030	280-S09-031	280-S09-032	280-S09-033	280-S09-034	280-S09-036	280-S09-037	280-S09-038
Sampling Date	6/23/1995	8/8/1995	10/18/1994	2/21/1995	6/22/1995	8/4/1995	10/18/1994	2/21/1995	6/22/1995
Sampling Depth (feet bgs)	-	-	-	-	-	-	-	-	-
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994
Analyte									
CHLOROBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CHLOROETHANE	2 U	2 UJ	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CHLOROFORM	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CHLOROMETHANE	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
CIS-1,2-DICHLOROETHENE									
CIS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
DIBROMOCHLOROMETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
DIBROMOMETHANE									
DICHLORODIFLUOROMETHANE									
DIISOPROPYL ETHER									
ETHYL TERT-BUTYL ETHER									
ETHYLBENZENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
ETHYLENE DIBROMIDE									
HEXACHLOROBUTADIENE									
ISOPROPYLBENZENE									
M,P-XYLENE									
METHYLENE CHLORIDE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
METHYL-T-BUTYL ETHER									
NAPHTHALENE									
N-BUTYLBENZENE									
N-PROPYLBENZENE									
O-XYLENE									
P-ISOPROPYLTOLUENE									
SEC-BUTYLBENZENE									
STYRENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TERT-AMYL METHYL ETHER									
TERT-BUTANOL									
TERT-BUTYLBENZENE									
TETRACHLOROETHENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.7 J
TOLUENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TRANS-1,2-DICHLOROETHENE									
TRANS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U
TRICHLOROETHENE	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TRICHLOROFLUOROMETHANE									
TRICHLOROTRIFLUOROETHANE									

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	MW410-1	MW410-1	MW410-2	MW410-2	MW410-2	MW410-2	MW410-3	MW410-3	MW410-3
Sample Code	280-S09-028	280-S09-030	280-S09-031	280-S09-032	280-S09-033	280-S09-034	280-S09-036	280-S09-037	280-S09-038
Sampling Date	6/23/1995	8/8/1995	10/18/1994	2/21/1995	6/22/1995	8/4/1995	10/18/1994	2/21/1995	6/22/1995
Sampling Depth (feet bgs)	-	-	-	-	-	-	-	-	-
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994
Analyte									
VINYL ACETATE									
VINYL CHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
XYLENE (TOTAL)	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U

Notes:

UG/L Micrograms per liter

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	MW410-3	SHP-S09-05	SHP-S09-07	SHP-S09-08	SHP-S09-09	SHP-S09-10	SHP-S09-11	SHP-S09-12	D09-01
Sample Code	280-S09-039	280-S09-057	280-S09-061	280-S09-063	280-S09-065	280-S09-067	280-S09-093	280-S09-095	108-S09-003
Sampling Date	8/7/1995	8/24/1994	9/7/1994	9/9/1994	9/8/1994	9/6/1994	8/25/1994	8/24/1994	11/11/1997
Sampling Depth (feet bgs)	-	7 - 10	8 - 11	11 -	8 - 11	11 -	15 -	8 -	-
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1998
Analyte									
1,1,1,2-TETRACHLOROETHANE									
1,1,1-TRICHLOROETHANE	1 U	2 U	1 U	1 U	10 U	100 U	2 U	2 U	1 UJ
1,1,2,2-TETRACHLOROETHANE	1 U	2 U	1 U	1 U	10 U	100 U	2 U	2 U	1 UJ
1,1,2-TRICHLOROETHANE	1 U	2 U	1 U	1 U	10 U	100 U	2 U	2 U	1 UJ
1,1-DICHLOROETHANE	1 U	2 U	5	0.7 J	110	100 U	2 U	1 J	1 UJ
1,1-DICHLOROETHENE	1 U	2 U	1 U	1 U	10 U	100 U	2 U	2 U	1 UJ
1,1-DICHLOROPROPENE									
1,2,3-TRICHLOROBENZENE									
1,2,3-TRICHLOROPROPANE									
1,2,4-TRICHLOROBENZENE									1 UJ
1,2,4-TRIMETHYLBENZENE									
1,2-DIBROMO-3-CHLOROPROPANE									1 UJ
1,2-DICHLOROBENZENE									1 UJ
1,2-DICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5	5 U	50 U	0.5 U	0.5 U	0.5 UJ
1,2-DICHLOROETHENE (TOTAL)	1 U	2 U	3	1	59	2400	2 U	9 U	
1,2-DICHLOROPROPANE	1 U	2 U	1 U	1 U	10 U	100 U	2 U	2 U	1 UJ
1,3,5-TRIMETHYLBENZENE									
1,3-DICHLOROBENZENE									1 UJ
1,3-DICHLOROPROPANE									
1,4-DICHLOROBENZENE									1 UJ
2,2-DICHLOROPROPANE									
2-BUTANONE		59 J	18 UJ	63 J			28 UJ		5 UJ
2-CHLOROTOLUENE									
2-HEXANONE	2 U	2 U	2 UJ	2 U		200 U		2 U	5 UJ
4-CHLOROTOLUENE									
4-METHYL-2-PENTANONE	2 U	2 U	5 J	2 U	20 U	200 U	2 UJ	2 U	5 UJ
ACETONE			150 J				3 UJ		
BENZENE	0.5 U	0.5 U	1	0.9 J	10 U	100 U	0.5 U	0.6 U	0.5 UJ
BROMOBENZENE									
BROMOCHLOROMETHANE									1 UJ
BROMODICHLOROMETHANE	1 U	2 U	1 U	1 U	10 U	100 U	2 U	2 U	1 UJ
BROMOFORM	1 U	2 U	1 U	1 U	10 U	100 U	2 U	2 U	1 UJ
BROMOMETHANE	1 U	1 U	2 U	2 U	20 U	200 U	1 U	1 U	1 UJ
CARBON DISULFIDE	1 U	4 J	1 U	1 U	10 U	100 U	20 J	9 J	1 UJ
CARBON TETRACHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	5 U	50 U	0.5 U	0.5 U	0.5 UJ

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	MW410-3	SHP-S09-05	SHP-S09-07	SHP-S09-08	SHP-S09-09	SHP-S09-10	SHP-S09-11	SHP-S09-12	D09-01
Sample Code	280-S09-039	280-S09-057	280-S09-061	280-S09-063	280-S09-065	280-S09-067	280-S09-093	280-S09-095	108-S09-003
Sampling Date	8/7/1995	8/24/1994	9/7/1994	9/9/1994	9/8/1994	9/6/1994	8/25/1994	8/24/1994	11/11/1997
Sampling Depth (feet bgs)	-	7 - 10	8 - 11	11 -	8 - 11	11 -	15 -	8 -	-
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1998
Analyte									
CHLOROBENZENE	1 U	2 U	1 U	1 U	11	100 U	2 U	2 U	1 UJ
CHLOROETHANE	2 UJ	2 U	2 U	2 U	20 U	200 U	2 U	2 U	1 UJ
CHLOROFORM	1 U	2 U	1 U	1 U	10 U	100 U	2 U	2 U	1 UJ
CHLOROMETHANE	2 U	2 U	2 U	2 U	20 U	200 UJ	2 U	2 U	1 UJ
CIS-1,2-DICHLOROETHENE									1 UJ
CIS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	5 U	50 U	0.5 U	0.5 U	0.5 UJ
DIBROMOCHLOROMETHANE	1 U	2 U	1 U	1 U	10 U	100 U	2 U	2 U	1 UJ
DIBROMOMETHANE									
DICHLORODIFLUOROMETHANE									
DIISOPROPYL ETHER									
ETHYL TERT-BUTYL ETHER									
ETHYLBENZENE	1 U	4 J	7	23	11	120	2 U	2 U	1 UJ
ETHYLENE DIBROMIDE									1 UJ
HEXACHLOROBUTADIENE									
ISOPROPYLBENZENE									
M,P-XYLENE									
METHYLENE CHLORIDE	1 UJ	1 UJ	1 U	1 U	10 U	100 U	2 UJ	2 UJ	2 UJ
METHYL-T-BUTYL ETHER									
NAPHTHALENE									
N-BUTYLBENZENE									
N-PROPYLBENZENE									
O-XYLENE									
P-ISOPROPYLTOLUENE									
SEC-BUTYLBENZENE									
STYRENE	1 U	2 U	1 U	1 U	10 U	100 U	2 U	2 U	1 UJ
TERT-AMYL METHYL ETHER									
TERT-BUTANOL									
TERT-BUTYLBENZENE									
TETRACHLOROETHENE	1 U	2 U	1 U	1 U	10 U	100 U	2 U	2 U	1 UJ
TOLUENE	1 U	0.3 J	7	3	34	220	0.2 J	2 U	1 UJ
TRANS-1,2-DICHLOROETHENE									1 UJ
TRANS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	5 U	50 U	0.5 U	0.5 U	0.5 UJ
TRICHLOROETHENE	1 U	2 U	1 U	1 U	22	100 U	2 U	2 U	1 UJ
TRICHLOROFLUOROMETHANE									
TRICHLOROTRIFLUOROETHANE									

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	MW410-3	SHP-S09-05	SHP-S09-07	SHP-S09-08	SHP-S09-09	SHP-S09-10	SHP-S09-11	SHP-S09-12	D09-01
Sample Code	280-S09-039	280-S09-057	280-S09-061	280-S09-063	280-S09-065	280-S09-067	280-S09-093	280-S09-095	108-S09-003
Sampling Date	8/7/1995	8/24/1994	9/7/1994	9/9/1994	9/8/1994	9/6/1994	8/25/1994	8/24/1994	11/11/1997
Sampling Depth (feet bgs)	-	7 - 10	8 - 11	11 -	8 - 11	11 -	15 -	8 -	-
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1998
Analyte									
VINYL ACETATE		2 U							
VINYL CHLORIDE	0 5 U	0 5 U	18	0.5 U	5 U	50 UJ	2 U	2 U	0.5 UJ
XYLENE (TOTAL)	1 U	6 J	41	56	150	1200	2 U	2 U	1 UJ

Notes:

UG/L Micrograms per liter

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	D09-01	D09-01	D09-01	M09-06	M09-06	M09-06	M09-06	D09-01	D09-01
Sample Code	108-S09-004	108-S09-007	108-S09-010	108-S09-001	108-S09-005	108-S09-009	108-S09-012	D09-01-A1637	D09-01-A1992
Sampling Date	2/4/1998	5/13/1998	8/6/1998	11/5/1997	2/5/1998	5/12/1998	8/7/1998	12/16/2002	4/10/2003
Sampling Depth (feet bgs)	-	-	-	-	-	-	-	-	-
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	FO 1998	FO 1998	FO 1998	FO 1998	FO 1998	FO 1998	FO 1998	GWM 2003	GWM 2003
Analyte									
1,1,1,2-TETRACHLOROETHANE								0.5 U	0.5 U
1,1,1-TRICHLOROETHANE	1 U	1 U	1 UJ	1 U	1 U	1 U	1 UJ	0.5 U	0.5 U
1,1,2,2-TETRACHLOROETHANE	1 U	1 U	1 UJ	1 U	1 U	1 U	1 UJ	0.5 U	0.5 U
1,1,2-TRICHLOROETHANE	1 U	1 U	1 UJ	1 U	1 U	1 U	1 UJ	0.5 U	0.5 U
1,1-DICHLOROETHANE	1 U	1 U	1 UJ	1 U	1 U	1 U	1 UJ	0.5 U	0.5 U
1,1-DICHLOROETHENE	1 U	1 U	1 UJ	1 U	1 U	1 U	1 UJ	0.5 U	0.5 U
1,1-DICHLOROPROPENE								0.5 U	0.5 U
1,2,3-TRICHLOROBENZENE								0.5 U	0.5 UJ
1,2,3-TRICHLOROPROPANE								0.5 U	0.5 U
1,2,4-TRICHLOROBENZENE	1 U	1 U	1 UJ	1 U	1 U	1 U	1 UJ	0.5 U	0.5 UJ
1,2,4-TRIMETHYLBENZENE								0.5 U	0.5 U
1,2-DIBROMO-3-CHLOROPROPANE	1 U	1 U	1 UJ	1 U	1 U	1 U	1 UJ	0.5 U	0.5 U
1,2-DICHLOROBENZENE	1 U	1 U	1 UJ	1 U	1 U	1 U	1 UJ	0.5 U	0.5 U
1,2-DICHLOROETHANE	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
1,2-DICHLOROETHENE (TOTAL)									
1,2-DICHLOROPROPANE	1 U	1 U	1 UJ	1 U	1 U	1 U	1 UJ	0.5 U	0.5 U
1,3,5-TRIMETHYLBENZENE								0.5 U	0.5 U
1,3-DICHLOROBENZENE	1 U	1 U	1 UJ	1 U	1 U	1 U	1 UJ	0.5 U	0.5 U
1,3-DICHLOROPROPANE								0.5 U	0.5 U
1,4-DICHLOROBENZENE	1 U	1 U	1 UJ	1 U	1 U	1 U	1 UJ	0.5 U	0.5 U
2,2-DICHLOROPROPANE								0.5 U	0.5 U
2-BUTANONE								10 UJ	10 U
2-CHLOROTOLUENE								0.5 U	0.5 U
2-HEXANONE	5 U	5 U		5 U	5 U	5 U		10 U	10 U
4-CHLOROTOLUENE								0.5 U	0.5 U
4-METHYL-2-PENTANONE	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	10 U	10 U
ACETONE								0.6 UJ	10 U
BENZENE	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
BROMOBENZENE								0.5 U	0.5 U
BROMOCHLOROMETHANE	1 U	1 U	1 UJ	1 U	1 U	1 U	1 UJ	0.5 U	0.5 U
BROMODICHLOROMETHANE	1 U	1 U	1 UJ	1 U	1 U	1 U	1 UJ	0.5 U	0.5 U
BROMOFORM	1 U	1 U	1 UJ	1 U	1 U	1 U	1 UJ	1 U	1 U
BROMOMETHANE	1 UJ	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ	1 U	1 U
CARBON DISULFIDE	1 U	1 U	1 UJ	1 U	1 U	1 U	1 UJ	0.5 U	0.5 U
CARBON TETRACHLORIDE	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	D09-01	D09-01	D09-01	M09-06	M09-06	M09-06	M09-06	D09-01	D09-01
Sample Code	108-S09-004	108-S09-007	108-S09-010	108-S09-001	108-S09-005	108-S09-009	108-S09-012	D09-01-A1637	D09-01-A1992
Sampling Date	2/4/1998	5/13/1998	8/6/1998	11/5/1997	2/5/1998	5/12/1998	8/7/1998	12/16/2002	4/10/2003
Sampling Depth (feet bgs)	-	-	-	-	-	-	-	-	-
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	FO 1998	FO 1998	FO 1998	FO 1998	FO 1998	FO 1998	FO 1998	GWM 2003	GWM 2003
Analyte									
CHLOROBENZENE	1 U	1 U	1 UJ	1 U	1 U	1 U	1 UJ	0.5 U	0.5 U
CHLOROETHANE	1 U	1 U	1 UJ	1 U	1 U	1 U	1 UJ	1 U	1 U
CHLOROFORM	1 U	1 U	2 J	1 U	1 U	1 U	1 UJ	0.5 U	0.5 U
CHLOROMETHANE	1 UJ	1 U	1 UJ	1 U	1 U	1 U	1 UJ	1 U	1 U
CIS-1,2-DICHLOROETHENE	1 U	1 U	1 UJ	1 U	1 U	1 U	1 UJ	0.5 U	0.5 U
CIS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ		
DIBROMOCHLOROMETHANE	1 U	1 U	1 UJ	1 U	1 U	1 U	1 UJ	0.5 U	0.5 U
DIBROMOMETHANE								0.5 U	0.5 U
DICHLORODIFLUOROMETHANE								1 U	1 UJ
DIISOPROPYL ETHER								0.5 U	0.5 U
ETHYL TERT-BUTYL ETHER								0.5 U	0.5 U
ETHYLBENZENE	1 U	1 U	1 UJ	1 U	1 U	1 U	1 UJ	0.5 U	0.5 U
ETHYLENE DIBROMIDE	1 U	1 U	1 UJ	1 U	1 U	1 U	1 UJ	0.5 U	0.5 U
HEXACHLOROBUTADIENE								0.5 UJ	0.5 U
ISOPROPYLBENZENE								0.5 U	0.5 U
M,P-XYLENE								0.5 U	0.5 U
METHYLENE CHLORIDE	2 U	2 U	2 UJ	2 U	2 U	2 U	2 UJ	5 UJ	5 U
METHYL-T-BUTYL ETHER								0.5 U	0.5 U
NAPHTHALENE								2 U	2 UJ
N-BUTYLBENZENE								0.5 U	0.5 U
N-PROPYLBENZENE								0.5 U	0.5 U
O-XYLENE								0.5 U	0.5 U
P-ISOPROPYLTOLUENE								0.5 U	0.5 U
SEC-BUTYLBENZENE								0.5 U	0.5 U
STYRENE	1 U	1 U	1 UJ	1 U	1 U	1 U	1 UJ	0.5 U	0.5 U
TERT-AMYL METHYL ETHER								0.5 U	0.5 U
TERT-BUTANOL								10 U	10 U
TERT-BUTYLBENZENE								0.5 U	0.5 U
TETRACHLOROETHENE	1 U	1 U	1 UJ	1 U	1 U	1 U	1 UJ	0.5 UJ	0.5 U
TOLUENE	1 U	1 U	1 UJ	1 U	1 U	1 U	1 UJ	0.5 U	0.5 U
TRANS-1,2-DICHLOROETHENE	1 U	1 U	1 UJ	1 U	1 U	1 U	1 UJ	0.5 U	0.5 U
TRANS-1,3-DICHLOROPROPENE	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ		
TRICHLOROETHENE	1 U	1 U	1 UJ	1 U	1 U	1 U	1 UJ	0.5 U	0.5 U
TRICHLOROFLUOROMETHANE								1 U	1 U
TRICHLOROTRIFLUOROETHANE									

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	D09-01	D09-01	D09-01	M09-06	M09-06	M09-06	M09-06	D09-01	D09-01
Sample Code	108-S09-004	108-S09-007	108-S09-010	108-S09-001	108-S09-005	108-S09-009	108-S09-012	D09-01-A1637	D09-01-A1992
Sampling Date	2/4/1998	5/13/1998	8/6/1998	11/5/1997	2/5/1998	5/12/1998	8/7/1998	12/16/2002	4/10/2003
Sampling Depth (feet bgs)	-	-	-	-	-	-	-	-	-
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	FO 1998	FO 1998	FO 1998	FO 1998	FO 1998	FO 1998	FO 1998	GWM 2003	GWM 2003
Analyte									
VINYL ACETATE									
VINYL CHLORIDE	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U
XYLENE (TOTAL)	1 U	1 U	1 UJ	1 U	1 U	1 U	1 UJ		

Notes:

UG/L Micrograms per liter

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	D09-01	D09-01	MW410-1	MW410-1	MW410-1	MW410-1	MW410-2
Sample Code	D09-01-A1136	D09-01-A1338	MW410-1-A1650	MW410-1-A1996	MW410-1-A1149	MW410-1-A1343	MW410-2-A1651
Sampling Date	6/28/2002	9/5/2002	12/16/2002	4/9/2003	6/18/2002	9/4/2002	12/16/2002
Sampling Depth (feet bgs)	-	-	-	-	-	-	-
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	GWM 2003	GWM 2003	GWM 2003	GWM 2003	GWM 2003	GWM 2003	GWM 2003
Analyte							
1,1,1,2-TETRACHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-TRICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-TETRACHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
1,1,2-TRICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5.4
1,1-DICHLOROETHENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-TRICHLOROBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-TRICHLOROPROPANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-TRICHLOROBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-TRIMETHYLBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.3 J
1,2-DIBROMO-3-CHLOROPROPANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
1,2-DICHLOROBENZENE	0.5 U	0.3 J	0.5 U	0.5 U	0.5 U	0.5 J	0.5 U
1,2-DICHLOROETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-DICHLOROETHENE (TOTAL)							
1,2-DICHLOROPROPANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3,5-TRIMETHYLBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.3 J
1,3-DICHLOROBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-DICHLOROPROPANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.9
1,4-DICHLOROBENZENE	0.5 U	0.1 J	0.5 U	0.5 U	0.5 U	0.2 J	0.5 U
2,2-DICHLOROPROPANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U
2-BUTANONE	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
2-CHLOROTOLUENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-HEXANONE	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
4-CHLOROTOLUENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-METHYL-2-PENTANONE	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U
ACETONE	10 U	2 U	10 UJ	0.5 U	1.3 J	10 U	10 UJ
BENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.4
BROMOBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOCHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMODICHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BROMOFORM	1 U	1 U	1 U	1 U	1 U	1 U	1 U
BROMOMETHANE	1 U	1 U	1 UJ	1 UJ	1 U	1 U	1 UJ
CARBON DISULFIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CARBON TETRACHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	D09-01	D09-01	MW410-1	MW410-1	MW410-1	MW410-1	MW410-2
Sample Code	D09-01-A1136	D09-01-A1338	MW410-1-A1650	MW410-1-A1996	MW410-1-A1149	MW410-1-A1343	MW410-2-A1651
Sampling Date	6/28/2002	9/5/2002	12/16/2002	4/9/2003	6/18/2002	9/4/2002	12/16/2002
Sampling Depth (feet bgs)	-	-	-	-	-	-	-
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	GWM 2003	GWM 2003	GWM 2003	GWM 2003	GWM 2003	GWM 2003	GWM 2003
Analyte							
CHLOROBENZENE	0.5 U	0.5 U	0.7	0.2 J	0.5 U	0.1 J	1.8
CHLOROETHANE	1 U	1 U	1 U	1 U	1 U	1 U	1 U
CHLOROFORM	0.5 U	0.5 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U
CHLOROMETHANE	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U
CIS-1,2-DICHLOROETHENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	7.4
CIS-1,3-DICHLOROPROPENE							
DIBROMOCHLOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
DIBROMOMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
DICHLORODIFLUOROMETHANE	1 U	1 U	1 UJ	1 UJ	1 UJ	1 U	1 UJ
DIISOPROPYL ETHER	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	1.8
ETHYL TERT-BUTYL ETHER	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ETHYLBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	4.7
ETHYLENE DIBROMIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
HEXACHLOROBUTADIENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ISOPROPYLBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.8
M,P-XYLENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.3
METHYLENE CHLORIDE	5 U	0.1 U	5 U	5 U	5 UJ	0.2 U	5 U
METHYL-T-BUTYL ETHER	0.5 U	0.1 U	0.5 U	0.5 U	0.5 UJ	0.5 U	8.3
NAPHTHALENE	2 U	2 U	2 U	2 U	2 U	2 U	2 U
N-BUTYLBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
N-PROPYLBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.4
O-XYLENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.5
P-ISOPROPYLTOLUENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
SEC-BUTYLBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.9
STYRENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TERT-AMYL METHYL ETHER	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TERT-BUTANOL	20 U	20 U	10 U	10 U	20 UJ	20 U	22
TERT-BUTYLBENZENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.9
TETRACHLOROETHENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TOLUENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.6
TRANS-1,2-DICHLOROETHENE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.9
TRANS-1,3-DICHLOROPROPENE							
TRICHLOROETHENE	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U
TRICHLOROFLUOROMETHANE	1 U	1 U	1 UJ	1 U	1 U	1 U	1 UJ
TRICHLOROTRIFLUOROETHANE							

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	D09-01	D09-01	MW410-1	MW410-1	MW410-1	MW410-1	MW410-2
Sample Code	D09-01-A1136	D09-01-A1338	MW410-1-A1650	MW410-1-A1996	MW410-1-A1149	MW410-1-A1343	MW410-2-A1651
Sampling Date	6/28/2002	9/5/2002	12/16/2002	4/9/2003	6/18/2002	9/4/2002	12/16/2002
Sampling Depth (feet bgs)	-	-	-	-	-	-	-
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	GWM 2003	GWM 2003	GWM 2003	GWM 2003	GWM 2003	GWM 2003	GWM 2003
Analyte							
VINYL ACETATE							
VINYL CHLORIDE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	12
XYLENE (TOTAL)							

Notes:

UG/L Micrograms per liter

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	MW410-2	MW410-2	MW410-2	MW410-1	MW410-2	MW410-3
Sample Code	MW410-2-A1997	MW410-2-A1150	MW410-2-A1344	MW410-1 [08/21/90]	MW410-2 [08/22/90]	MW410-3 [08/21/90]
Sampling Date	4/9/2003	6/18/2002	9/5/2002	8/21/1990	8/22/1990	8/21/1990
Sampling Depth (feet bgs)	-	-	-	-	-	-
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	GWM 2003	GWM 2003	GWM 2003	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991
Analyte						
1,1,1,2-TETRACHLOROETHANE	0.5 U	0.5 U	0.5 U			
1,1,1-TRICHLOROETHANE	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U
1,1,2,2-TETRACHLOROETHANE	0.5 U	0.5 UJ	0.5 U	5 U	5 U	5 U
1,1,2-TRICHLOROETHANE	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U
1,1-DICHLOROETHANE	2.5	2.5	3.8	5 U	5 U	5 U
1,1-DICHLOROETHENE	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U
1,1-DICHLOROPROPENE	0.5 U	0.5 U	0.5 U			
1,2,3-TRICHLOROBENZENE	0.5 U	0.5 U	0.5 U			
1,2,3-TRICHLOROPROPANE	0.5 U	0.5 U	0.3 J			
1,2,4-TRICHLOROBENZENE	0.5 U	0.5 U	0.5 U			
1,2,4-TRIMETHYLBENZENE	0.5 U	0.5 U	0.3 J			
1,2-DIBROMO-3-CHLOROPROPANE	0.5 U	0.5 UJ	0.5 U			
1,2-DICHLOROBENZENE	0.5 U	0.5 U	0.5 U			
1,2-DICHLOROETHANE	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U
1,2-DICHLOROETHENE (TOTAL)				5 U	5 U	5 U
1,2-DICHLOROPROPANE	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U
1,3,5-TRIMETHYLBENZENE	0.5 U	0.5 U	0.4 J			
1,3-DICHLOROBENZENE	0.5 U	0.5 U	0.5 U			
1,3-DICHLOROPROPANE	0.6	0.4 J	0.7			
1,4-DICHLOROBENZENE	0.5 U	0.5 U	0.5 U			
2,2-DICHLOROPROPANE	0.5 U	0.5 UJ	0.5 U			
2-BUTANONE	10 U	10 UJ	10 U	10 U	10 U	10 U
2-CHLOROTOLUENE	0.5 U	0.5 U	0.1 J			
2-HEXANONE	10 U	10 UJ	10 U	10 U	10 U	10 U
4-CHLOROTOLUENE	0.5 U	0.5 U	0.5 U			
4-METHYL-2-PENTANONE	10 U	10 UJ	10 U	10 U	10 U	10 U
ACETONE	1.4 U	1.9 J	2.5 U	10 U	10 U	10 U
BENZENE	0.9	0.9	1.2	5 U	5 U	5 U
BROMOBENZENE	0.5 U	0.5 U	0.5 U			
BROMOCHLOROMETHANE	0.5 U	0.5 U	0.5 U			
BROMODICHLOROMETHANE	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U
BROMOFORM	1 U	1 U	1 U	5 U	5 U	5 U
BROMOMETHANE	1 UJ	1 U	1 U	10 U	10 U	10 U
CARBON DISULFIDE	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U
CARBON TETRACHLORIDE	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	MW410-2	MW410-2	MW410-2	MW410-1	MW410-2	MW410-3
Sample Code	MW410-2-A1997	MW410-2-A1150	MW410-2-A1344	MW410-1 [08/21/90]	MW410-2 [08/22/90]	MW410-3 [08/21/90]
Sampling Date	4/9/2003	6/18/2002	9/5/2002	8/21/1990	8/22/1990	8/21/1990
Sampling Depth (feet bgs)	-	-	-	-	-	-
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	GWM 2003	GWM 2003	GWM 2003	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991
Analyte						
CHLOROBENZENE	1.5	0.9	1.5	5 U	5 U	5 U
CHLOROETHANE	1 U	1 U	0.5 J	10 U	10 U	10 U
CHLOROFORM	0.2 U	0.5 U	0.5 U	5 U	5 U	5 U
CHLOROMETHANE	1 U	1 UJ	1 U	10 U	10 U	10 U
CIS-1,2-DICHLOROETHENE	7.8	8.5 J	9.9			
CIS-1,3-DICHLOROPROPENE				5 U	5 U	5 U
DIBROMOCHLOROMETHANE	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U
DIBROMOMETHANE	0.5 U	0.5 U	0.5 U			
DICHLORODIFLUOROMETHANE	1 UJ	1 UJ	1 U			
DIISOPROPYL ETHER	1.6	0.8 J	0.9			
ETHYL TERT-BUTYL ETHER	0.5 U	0.5 U	0.5 U			
ETHYLBENZENE	0.8	0.5 J	9.6	5 U	5 U	5 U
ETHYLENE DIBROMIDE	0.5 U	0.5 U	0.5 U			
HEXACHLOROBUTADIENE	0.5 U	0.5 U	0.5 U			
ISOPROPYLBENZENE	0.9	0.3 J	0.5 U			
M,P-XYLENE	0.3 J	0.5 U	30			
METHYLENE CHLORIDE	0.2 U	5 UJ	0.4 U	11 UJ	10 UJ	11 UJ
METHYL-T-BUTYL ETHER	4.2	11 J	14			
NAPHTHALENE	0.3 J	0.5 J	1.5 J			
N-BUTYLBENZENE	0.5 U	0.5 U	0.5 U			
N-PROPYLBENZENE	0.5	0.5 U	0.5 J			
O-XYLENE	0.5 J	0.5 U	12			
P-ISOPROPYLTOLUENE	0.5 U	0.5 U	0.5 U			
SEC-BUTYLBENZENE	1.1	0.5 J	0.5 U			
STYRENE	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U
TERT-AMYL METHYL ETHER	0.5 U	0.5 U	0.5 U			
TERT-BUTANOL	25	20 UJ	15 J			
TERT-BUTYLBENZENE	0.8	0.4 J	0.4 J			
TETRACHLOROETHENE	0.5 U	0.5 U	0.5 U	5 U	5 U	5 U
TOLUENE	0.2 J	0.5 U	0.4 J	5 U	5 U	5 U
TRANS-1,2-DICHLOROETHENE	0.5	0.7	0.8			
TRANS-1,3-DICHLOROPROPENE				5 U	5 U	5 U
TRICHLOROETHENE	0.5 UJ	0.5 U	0.1 J	5 U	5 U	5 U
TRICHLOROFLUOROMETHANE	1 U	1 U	1 U			
TRICHLOROTRIFLUOROETHANE						

TABLE E-24: SITE 9 VOLATILE ORGANIC COMPOUNDS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	MW410-2	MW410-2	MW410-2	MW410-1	MW410-2	MW410-3
Sample Code	MW410-2-A1997	MW410-2-A1150	MW410-2-A1344	MW410-1 [08/21/90]	MW410-2 [08/22/90]	MW410-3 [08/21/90]
Sampling Date	4/9/2003	6/18/2002	9/5/2002	8/21/1990	8/22/1990	8/21/1990
Sampling Depth (feet bgs)	-	-	-	-	-	-
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	GWM 2003	GWM 2003	GWM 2003	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991
Analyte						
VINYL ACETATE				5 U	5 U	5 U
VINYL CHLORIDE	20	9.9	9.6	10 U	10 U	10 U
XYLENE (TOTAL)				5 U	5 U	5 U

Notes:

UG/L Micrograms per liter

TABLE E-25: SITE 9 METALS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

(Page 1 of 2)

Location	P-9-IWS-01	P-9-MWI-01	P-9-MWI-03	P-9-MWI-04	P-9-MWI-05	P-9-MWI-06	P-9-MWI-07	P-9-MWI-08	P-9-MWI-09	P-9-MWI-10
Sample Code	SITE9-020	SITE9-024	SITE9-018	SITE9-010	SITE9-014	SITE9-008	SITE9-017	SITE9-013	SITE9-015	SITE9-016
Sampling Date	9/10/2002	9/11/2002	9/10/2002	9/9/2002	9/10/2002	9/9/2002	9/10/2002	9/10/2002	9/10/2002	9/10/2002
Sampling Depth (feet bgs)	-	-	-	-	-	-	-	-	-	-
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA
Analyte										
ALUMINUM	465 N	128 B	4440 N	2640	501 N	855	453 N	905 N	438 N	778 BN
ANTIMONY	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	200 U
ARSENIC	36.2	20 U	7 B	8.2 B	11.3 B	7.1 B	20 U	4.8 B	3.7 B	200 U
BARIUM	126	234	148	26.5	22.3	51.8	12.5	93.8	52.1	137
BERYLLIUM	0.2 B	0.19 B	0.27 B	2 U	0.17 B	2 U	2 U	0.18 B	0.16 B	1.7 B
CADMIUM	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U	60 U
CALCIUM	41200	39900	37700	3440	4160	34700	4070	91300	88300	1590000
CHROMIUM	3.5 B	5 U	19.4	11.5	2.2 B	4.3 B	3.9 B	3.6 B	1.7 B	50 U
COBALT	1.6 B	3.5 B	5.6	4.2 B	2.4 B	1.5 B	0.74 B	3.5 B	2.1 B	12.4 B
COPPER	2.4 B	1.2 B	6.3 B	4.2 B	2.9 B	2.7 B	2.2 B	1.5 B	3.9 B	100 U
IRON	2900	150 U	6690	3760	672	1210	520	1020	330	1330 B
LEAD	2.8 B	10 U	3 B	2.2 B	10 U	10 U	10 U	1.9 B	2.8 B	100 U
MAGNESIUM	32600	65300	50600	3220	4470	43400	2730	118000	132000	1810000
MANGANESE	1300	917	387	67.1	46.2	305	26.9	981	1180	18600
MERCURY	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
MOLYBDENUM	5.6	3.7 B	5.8	6.7	12.4	3 B	3.2 B	4.9 B	5.7	50 U
NICKEL	17.7	45.9	49	31.8	23.7	20.5	6.5 B	33	106	29.8 B
POTASSIUM	22900	30800	11200	6290	14300	11000	11000	17100	37700	22500
SELENIUM	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	200 U
SILVER	3 U	3 U	3 U	3 U	3 U	10	3 U	3 U	3 U	30 U
SODIUM	353000	1680000	725000	235000	398000	668000	278000	1160000	1670000	5170000
THALLIUM	30 U	30 U	30 U	30 U	30 U	30 U	30 U	30 U	30 U	300 U
VANADIUM	2.3 B	4.4 B	16.9	15.4	4.3 B	3.5 B	2.4 B	5 B	2 B	100 U
ZINC	22.7	7.3 B	98.4	27.8	19.1 B	99.9	28.1	155	107	200 U

Notes:

UG/L Micrograms per liter

TABLE E-25: SITE 9 METALS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

(Page 2 of 2)

Location	P-9-MWS-01	P-9-MWS-02	P-9-MWS-03	P-9-MWS-04	MW410-1	MW410-3	D09-01	M09-06
Sample Code	SITE9-022	SITE9-025	SITE9-019	SITE9-023	280-S09-028	280-S09-038	108-S09-010	108-S09-012
Sampling Date	9/11/2002	9/11/2002	9/10/2002	9/11/2002	6/23/1995	6/23/1995	8/6/1998	8/7/1998
Sampling Depth (feet bgs)	-	-	-	-	-	-	-	-
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	FO 1994	FO 1994	FO 1998	FO 1998
Analyte								
ALUMINUM	115 B	337	131 BN	192 B	195 J	41.2 UJ	57.9 UJ	7.4 U
ANTIMONY	20 U	20 U	20 U	20 U	6.4 U	6.4 U	3.4 UJ	1.8 U
ARSENIC	16 B	21.5	17.4 B	16 B	7.4 J	4 U	2.1 U	2.1 U
BARIUM	192	33 5	23 5	29.1	47.6 J	110 J	23.6 J	86.4 J
BERYLLIUM	0 23 B	0.14 B	0 16 B	0 19 B	0 7 U	0.7 U	0.2 U	0.2 U
CADMIUM	6 U	6 U	6 U	6 U	0 3 U	0 43 UJ	13.7	0.3 UJ
CALCIUM	38800	23200	53700	27900	24900	41400	442000	40900
CHROMIUM	1 9 B	2 1 B	1 8 B	3 2 B	4 UJ	0.7 U	0.8 U	1.8 J
COBALT	2 3 B	0 6 B	2 2 B	3 4 B	4 6 U	4.6 U	6.2 J	2.5 UJ
COPPER	1 7 B	2 5 B	2 2 B	1 6 B	6 8 UJ	4.2 U	2.8 UJ	2.9 UJ
IRON	3960	414	227	1450	128	122 UJ	12.5 U	12.5 U
LEAD	2 B	2 B	2.8 B	2.2 B	1.3 U	1.3 U	1.7 U	1.7 U
MAGNESIUM	42400	19800	39400	38100	11300	19200	504000	9340
MANGANESE	457	167	525	527	14.3 J	173	2800	9 J
MERCURY	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 U	0.1 U
MOLYBDENUM	3.4 B	6.1	5.5	1.6 B	9.8 U	9.8 U	1 U	1 U
NICKEL	14.6	9.5 B	10.3	21.2	9.3 U	15.2 UJ	5.7 UJ	4.3 UJ
POTASSIUM	38100	19900	19900	41700	14800	21200	18200	4820 J
SELENIUM	20 U	20 U	20 U	20 U	2.6 U	2.6 U	2.2 UJ	2.2 UJ
SILVER	3 U	3 U	0.83 B	3 U	0.9 U	0.9 U	0.7 U	0.7 U
SODIUM	406000	446000	274000	881000	147000	55200	1570000	18100
THALLIUM	30 U	30 U	30 U	30 U	2.9 U	2.9 U	1.4 U	1.1 U
VANADIUM	2.4 B	5.2 B	1.9 B	4.8 B	4.2 U	7.2 U	0.6 U	2.4 J
ZINC	4.1 B	9.5 B	8.9 B	8.3 B	13.2 J	5.3 U	40	11.4 J

Notes:

UG/L Micrograms per liter

TABLE E-26: SITE 9 TOTAL PETROLEUM HYDROCARBONS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	D09-01	M09-06	MW410-1	MW410-2	MW410-3	MW410-3	S09-DGS-VE01	154-006-024	154-SN-007
Sample Code	385-S09-031	385-S09-030	385-S09-025	385-S09-026	385-S09-027	385-S09-028	385-S09-034	154-0038	154S-015
Sampling Date	6/26/2001	6/25/2001	6/25/2001	6/25/2001	6/26/2001	6/26/2001	8/7/2001	10/30/1995	10/30/1995
Sampling Depth (feet bgs)	-	-	-	-	-	-	8.5 - 10	7.5 - 8.5	9 - 9
Units	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	UG/L	UG/L	UG/L
Investigation	DGS	DGS	DGS	DGS	DGS	DGS	DGS	EBS PHASE 2B	EBS PHASE 2B
Analyte									
DIESEL RANGE ORGANICS	0.1 U	0.1 U	0.1 U	0.83 D	0.1 U	0.1 U	200 U	100 U	1700 dYJ
GASOLINE RANGE ORGANICS	0.05 UJ	0.04 J	0.06 J	0.09 J	0.05 UJ	0.05 UJ	50 U	50 UJ	50 UJ
JP5 RANGE ORGANICS	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U			
MOTOR OIL RANGE ORGANICS	0.1 U	0.1 U	0.1 M	0.1 U	0.1 U	0.1 U	200 U	200 U	2800 dYJ

Notes:

UG/L Micrograms per liter

MG/L Milligrams per liter

TABLE E-26: SITE 9 TOTAL PETROLEUM HYDROCARBONS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	154-SN-008	154-SN-009	D09-01	D09-01	M09-06	M09-06	M09-06	M09-06	MW410-1
Sample Code	154S-018	154S-021	280-S09-100	280-S09-107	280-S09-049	280-S09-050	280-S09-051	280-S09-052	280-S09-026
Sampling Date	10/30/1995	10/30/1995	12/20/1994	2/21/1995	11/30/1994	2/21/1995	6/22/1995	8/8/1995	10/18/1994
Sampling Depth (feet bgs)	8 - 9	9 - 9	-	-	-	-	-	-	-
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	EBS PHASE 2B	EBS PHASE 2B	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994
Analyte									
DIESEL RANGE ORGANICS	100 U	100 U	100 U	100 U	100 U	130 J	100 U	110 J	190 J
GASOLINE RANGE ORGANICS	50 UJ	50 UJ	50 U		50 U	50 U	50 U	50 U	50 U
JP5 RANGE ORGANICS			100 U	100 U	100 U	100 U	100 U	100 U	100 U
MOTOR OIL RANGE ORGANICS	200 U	200 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U

Notes:

UG/L Micrograms per liter

MG/L Milligrams per liter

TABLE E-26: SITE 9 TOTAL PETROLEUM HYDROCARBONS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	MW410-1	MW410-1	MW410-2	MW410-2	MW410-2	MW410-2	MW410-3	MW410-3	MW410-3
Sample Code	280-S09-028	280-S09-030	280-S09-031	280-S09-032	280-S09-033	280-S09-034	280-S09-036	280-S09-037	280-S09-038
Sampling Date	6/23/1995	8/8/1995	10/18/1994	2/21/1995	6/22/1995	8/4/1995	10/18/1994	2/21/1995	6/22/1995
Sampling Depth (feet bgs)	-	-	-	-	-	-	-	-	-
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994
Analyte									
DIESEL RANGE ORGANICS	240 J	250 J	100 U	100 U	100 U	100 U	100 U	100 U	100 U
GASOLINE RANGE ORGANICS	50 U	50 U	60 J	50 U	50 U	50 U	50 U	50 U	50 U
JP5 RANGE ORGANICS	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
MOTOR OIL RANGE ORGANICS	500 U	500 U	570 J	600 J	500 U	500 U	890 J	500 U	500 U

Notes:

UG/L Micrograms per liter

MG/L Milligrams per liter

TABLE E-26: SITE 9 TOTAL PETROLEUM HYDROCARBONS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	MW410-3	D09-01	D09-01	D09-01	D09-01	MW410-1	MW410-1	MW410-1
Sample Code	280-S09-039	D09-01-A1637	D09-01-A1992	D09-01-A1136	D09-01-A1338	MW410-1-A1650	MW410-1-A1996	MW410-1-A1149
Sampling Date	8/7/1995	12/16/2002	4/10/2003	6/28/2002	9/5/2002	12/16/2002	4/9/2003	6/18/2002
Sampling Depth (feet bgs)	-	-	-	-	-	-	-	-
Units	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	FO 1994	GWM 2003	GWM 2003	GWM 2003	GWM 2003	GWM 2003	GWM 2003	GWM 2003
Analyte								
DIESEL RANGE ORGANICS	100 U	50 U	50 U	50 UJ	50 U	50 U	50 U	50 U
GASOLINE RANGE ORGANICS	50 U	50 U	23 U	37 U	50 U	50 U	21 U	50 U
JP5 RANGE ORGANICS	100 U	50 UJ	50 U	50 UJ	50 U	50 U	50 U	50 U
MOTOR OIL RANGE ORGANICS	200 U	300 U	300 U	300 UJ	300 U	300 U	300 U	300 U

Notes:

UG/L Micrograms per liter

MG/L Milligrams per liter

TABLE E-26: SITE 9 TOTAL PETROLEUM HYDROCARBONS IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	MW410-1	MW410-2	MW410-2	MW410-2	MW410-2
Sample Code	MW410-1-A1343	MW410-2-A1651	MW410-2-A1997	MW410-2-A1150	MW410-2-A1344
Sampling Date	9/4/2002	12/16/2002	4/9/2003	6/18/2002	9/5/2002
Sampling Depth (feet bgs)	-	-	-	-	-
Units	UG/L	UG/L	UG/L	UG/L	UG/L
Investigation	GWM 2003	GWM 2003	GWM 2003	GWM 2003	GWM 2003
Analyte					
DIESEL RANGE ORGANICS	50 U	130 y	50 U	50 U	50 U
GASOLINE RANGE ORGANICS	50 U	110 y	97 y	90	160
JP5 RANGE ORGANICS	50 U	95 y	50 U	50 U	50 U
MOTOR OIL RANGE ORGANICS	300 U	300 U	300 U	300 U	300 U

Notes:

UG/L Micrograms per liter

MG/L Milligrams per liter

TABLE E-27: SITE 9 DISSOLVED GASES IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	D09-01	D09-01	MW410-1	MW410-1	MW410-2	MW410-2
Sample Code	D09-01-A1637	D09-01-A1136	MW410-1-A1650	MW410-1-A1149	MW410-2-A1651	MW410-2-A1150
Sampling Date	12/16/2002	6/28/2002	12/16/2002	6/18/2002	12/16/2002	6/18/2002
Sampling Depth (feet bgs)	-	-	-	-	-	-
Units	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
Investigation	GWM 2003	GWM 2003	GWM 2003	GWM 2003	GWM 2003	GWM 2003
Analyte						
ETHANE	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
ETHENE	0.01 U	0.01 U	0.01 U	0.01 U	0.032	0.017
METHANE	0.024	0.025	0.095	0.016	5.1	4.4

Notes:

MG/L Milligrams per liter

TABLE E-28: SITE 9 GENERAL CHEMISTRY IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	P-9-IWS-01	P-9-MWI-01	P-9-MWI-03	P-9-MWI-04	P-9-MWI-05	P-9-MWI-06	P-9-MWI-07	P-9-MWI-08	P-9-MWI-09
Sample Code	SITE9-020	SITE9-024	SITE9-018	SITE9-010	SITE9-014	SITE9-008	SITE9-017	SITE9-013	SITE9-015
Sampling Date	9/10/2002	9/11/2002	9/10/2002	9/9/2002	9/10/2002	9/9/2002	9/10/2002	9/10/2002	9/10/2002
Sampling Depth (feet bgs)	-	-	-	-	-	-	-	-	-
Units*	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
Investigation	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA
Analyte									
ACIDITY									
BICARBONATE									
BICARBONATE ALKALINITY									
BROMIDE									
CARBONATE									
CARBONATE ALKALINITY									
CHLORIDE									
COD (TOTAL)									
CONDUCTANCE, UMHOS/CM									
DISSOLVED OXYGEN									
FLUORIDE									
HARDNESS									
HYDROXIDE ALKALINITY									
NITRATE									
NITRATE/NITRITE (AS N)									
NITRITE									
PH, UNITS									
PHOSPHATE									
SULFATE									
SULFIDE									
SURFACTANTS (MBAS)									
TDS									
TOTAL ALKALINITY									
TOTAL ORGANIC CARBON, MEQ/HG	17	4.4	1.6	4.08	5.4	1 U	8.3	6.6	11

Notes:

*	Unless otherwise specified
MEQ/HG	Milliequivalents per hundred grams
MG/L	Milligrams per liter
UMHOS/CM	Micromhos per centimeter

TABLE E-28: SITE 9 GENERAL CHEMISTRY IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	P-9-MWI-10	P-9-MWS-01	P-9-MWS-02	P-9-MWS-03	P-9-MWS-04	D09-01	D09-01	D09-01	D09-01
Sample Code	SITE9-016	SITE9-022	SITE9-025	SITE9-019	SITE9-023	280-S09-100	280-S09-107	280-S09-108	280-S09-109
Sampling Date	9/10/2002	9/11/2002	9/11/2002	9/10/2002	9/11/2002	12/20/1994	2/21/1995	6/22/1995	9/14/1995
Sampling Depth (feet bgs)	-	-	-	-	-	-	-	-	-
Units*	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
Investigation	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	CHEMOX RA	FO 1994	FO 1994	FO 1994	FO 1994
Analyte									
ACIDITY						10 U	10 U	10 U	10 U
BICARBONATE									
BICARBONATE ALKALINITY									
BROMIDE									
CARBONATE									
CARBONATE ALKALINITY									
CHLORIDE						15800	14900	14300	14700
COD (TOTAL)						2000	2000	1980	1860
CONDUCTANCE, UMHOS/CM						37000			
DISSOLVED OXYGEN									
FLUORIDE						0.1 U	0.1 U	0.1 U	0.1 UJ
HARDNESS						11000	12000	11400	6050
HYDROXIDE ALKALINITY									
NITRATE									0.25 U
NITRATE/NITRITE (AS N)						0.13	0.88	0.35	0.05 U
NITRITE									50 U
PH, UNITS						6.9	6.8	7	7
PHOSPHATE									
SULFATE						1870	2000	1930	2010
SULFIDE									
SURFACTANTS (MBAS)									
TDS						28000	27000 J	33500	40800 J
TOTAL ALKALINITY						226	174	236	219
TOTAL ORGANIC CARBON, MEQ/HG	1.3	20	9.3	17	31	2 J	4	1 U	1 U

Notes:

*	Unless otherwise specified
MEQ/HG	Milliequivalents per hundred grams
MG/L	Milligrams per liter
UMHOS/CM	Micromhos per centimeter

TABLE E-28: SITE 9 GENERAL CHEMISTRY IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	DHP-S09-01	DHP-S09-02	DHP-S09-03	DHP-S09-05	DHP-S09-06	DHP-S09-07	DHP-S09-08	DHP-S09-09	DHP-S09-10
Sample Code	280-S09-053	280-S09-054	280-S09-055	280-S09-058	280-S09-059	280-S09-062	280-S09-064	280-S09-066	280-S09-068
Sampling Date	7/28/1994	7/28/1994	7/29/1994	8/23/1994	9/8/1994	9/7/1994	9/6/1994	9/12/1994	9/9/1994
Sampling Depth (feet bgs)	25.8 -	30 -	24 -	23 - 26	8 - 11	21 - 24	24 -	22 - 25	27 - 30
Units*	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
Investigation	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994
Analyte									
ACIDITY	10 U	10 U	10 U		10 U	10 U	10 U	10 U	10 U
BICARBONATE									
BICARBONATE ALKALINITY									
BROMIDE									
CARBONATE									
CARBONATE ALKALINITY									
CHLORIDE	3070	96 3	163		1090	130 J	108 J	132	77.8
COD (TOTAL)	68 1	45 5	29.9	42.4 J	156	22.1	43.5	37.6	44.6
CONDUCTANCE, UMHOS/CM	10400	1710	1890		4860	2130	1710	2020	2070
DISSOLVED OXYGEN									
FLUORIDE	0.26 J	0.25 J	3 J		0.35 J	0.95	0.36	0.67	2.5
HARDNESS	626	65	75	310	520	30	490		40
HYDROXIDE ALKALINITY									
NITRATE									
NITRATE/NITRITE (AS N)	0.05 U	0.36	0.05 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
NITRITE									
PH, UNITS	7	7.5	8.4 J		7	8.4	7.6	7.5	8.2
PHOSPHATE									
SULFATE	373	25.9	44.4		4.4	123	10	4	3.9
SULFIDE			10 U						
SURFACTANTS (MBAS)									
TDS	6020	1140	1170		2550	1200	1080	1210	1240
TOTAL ALKALINITY	1110	928	727		1190	844	2000	1190	1050
TOTAL ORGANIC CARBON, MEQ/HG	4.1 J	6.5 J	5.7 J	3.7	19.8 J	4.9	7.8	10.1	11.9

Notes:

*	Unless otherwise specified
MEQ/HG	Milliequivalents per hundred grams
MG/L	Milligrams per liter
UMHOS/CM	Micromhos per centimeter

TABLE E-28: SITE 9 GENERAL CHEMISTRY IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	DHP-S09-11	DHP-S09-12	M09-06	M09-06	M09-06	M09-06	MW410-1	MW410-1	MW410-1
Sample Code	280-S09-094	280-S09-096	280-S09-049	280-S09-050	280-S09-051	280-S09-052	280-S09-026	280-S09-028	280-S09-030
Sampling Date	8/25/1994	8/25/1994	11/30/1994	2/21/1995	6/22/1995	8/8/1995	10/18/1994	6/23/1995	8/8/1995
Sampling Depth (feet bgs)	20 - 24	22.5 - 26	-	-	-	-	-	-	-
Units*	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
Investigation	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994
Analyte									
ACIDITY	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BICARBONATE									
BICARBONATE ALKALINITY									
BROMIDE									
CARBONATE									
CARBONATE ALKALINITY									
CHLORIDE	1430	198	9.9	8.2	7.6	8.1	215	121	67
COD (TOTAL)			5 U	5 U	5 U	12	15.9	21.4	8
CONDUCTANCE, UMHOS/CM	6100	2500	360				1060		
DISSOLVED OXYGEN									
FLUORIDE	0.23	0.62	0.1 U	0.1 U	0.1 U	0.1 U	0.46	0.11	0.43
HARDNESS	190	50	120	110	148	110	68	104	170
HYDROXIDE ALKALINITY									
NITRATE						1.1			1.2
NITRATE/NITRITE (AS N)	0.5 U	0.5 U	0.05 U	1.4	1.2	1.1	0.5 U	1.4	1.2
NITRITE						0.05 U			0.5 U
PH, UNITS	8	8.4	7.8	8	7.9	7.9	8	7.9	7.8
PHOSPHATE									
SULFATE	193	96.8	19.3	13.2	11.7	14.3	13.9 J	32.1	56.6
SULFIDE								10 U	25.1
SURFACTANTS (MBAS)									
TDS	3490	1610	210	200 J	197	192	466	558	646
TOTAL ALKALINITY	1260	1210	162	147	449	143	176	262	273
TOTAL ORGANIC CARBON, MEQ/HG	7	6.4	4 J	3	1.8	1.7	1.1	7.8	14.6

Notes:

*	Unless otherwise specified
MEQ/HG	Milliequivalents per hundred grams
MG/L	Milligrams per liter
UMHOS/CM	Micromhos per centimeter

TABLE E-28: SITE 9 GENERAL CHEMISTRY IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	MW410-2	MW410-2	MW410-2	MW410-2	MW410-3	MW410-3	MW410-3	MW410-3	SHP-S09-05
Sample Code	280-S09-031	280-S09-032	280-S09-033	280-S09-034	280-S09-036	280-S09-037	280-S09-038	280-S09-039	280-S09-057
Sampling Date	10/18/1994	2/21/1995	6/22/1995	8/4/1995	10/18/1994	2/21/1995	6/22/1995	8/7/1995	8/24/1994
Sampling Depth (feet bgs)	-	-	-	-	-	-	-	-	7 - 10
Units*	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
Investigation	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994
Analyte									
ACIDITY	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BICARBONATE									
BICARBONATE ALKALINITY									
BROMIDE									
CARBONATE									
CARBONATE ALKALINITY									
CHLORIDE	26.2	10.9	22.8	28.7	19.4	13	12.8	17.3	2350
COD (TOTAL)	31.7	27	20.2	16.1	27.8	12	6.6	5 U	
CONDUCTANCE, UMHOS/CM	1320				809				10100
DISSOLVED OXYGEN									
FLUORIDE	0.24	0.1 U	0.1 U	0.29	0.16	0.1 U	0.1 U	0.17	0.88
HARDNESS	470	410	337	361	210	210	212	200	910
HYDROXIDE ALKALINITY									
NITRATE				5.9				1.4	
NITRATE/NITRITE (AS N)	2.7	0.8	1.9		1.3	1.3	1.4	1.6	0.5 U
NITRITE				0.25 U				0.05 U	
PH, UNITS	7.5	7.2	7.2	7.2	7.7	7.5	7.5	7.5	7.7
PHOSPHATE									
SULFATE	71.8 J	68.2	61.9	68.5	62.9 J	38.1	37.7	43.3	846
SULFIDE									
SURFACTANTS (MBAS)									
TDS	750	670 J	630	772	354	430 J	377	398	6400
TOTAL ALKALINITY	584	518	538	510	298	257	314	279	2090
TOTAL ORGANIC CARBON, MEQ/HG	5.1	15	8.2	7.8	4.7	5	3.6	3	12.4

Notes:

*	Unless otherwise specified
MEQ/HG	Milliequivalents per hundred grams
MG/L	Milligrams per liter
UMHOS/CM	Micromhos per centimeter

TABLE E-28: SITE 9 GENERAL CHEMISTRY IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	SHP-S09-07	SHP-S09-08	SHP-S09-09	SHP-S09-10	SHP-S09-11	SHP-S09-12	D09-01	D09-01	D09-01
Sample Code	280-S09-061	280-S09-063	280-S09-065	280-S09-067	280-S09-093	280-S09-095	108-S09-003	108-S09-004	108-S09-007
Sampling Date	9/7/1994	9/9/1994	9/8/1994	9/6/1994	8/25/1994	8/24/1994	11/11/1997	2/4/1998	5/13/1998
Sampling Depth (feet bgs)	8 - 11	11 -	8 - 11	11 -	15 -	8 -	-	-	-
Units*	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
Investigation	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1994	FO 1998	FO 1998	FO 1998
Analyte									
ACIDITY	10 U	10 U	10 U		10 U	10 U			
BICARBONATE							211	61.2	58.6
BICARBONATE ALKALINITY									
BROMIDE							65.2	7.2 J	6.2
CARBONATE							10 U	10 U	10 U
CARBONATE ALKALINITY									
CHLORIDE	296 J	6.5	23.9		3190	55.4	15200	1920	2170
COD (TOTAL)	672	97	80.3						
CONDUCTANCE, UMHOS/CM	3230	796	1250		10800	960			
DISSOLVED OXYGEN									
FLUORIDE	1.2	0.39	0.45 J		1	0.91	5 U	0.1 U	1 U
HARDNESS	380	340	400		990	80			
HYDROXIDE ALKALINITY							10 U	10 U	10 U
NITRATE							1 U	1.5	1.4
NITRATE/NITRITE (AS N)	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U			
NITRITE							20 U	2 U	3 U
PH, UNITS	7.6	6.9	7.1		7.9	8.3			
PHOSPHATE							1 U	0.1 U	0.1 U
SULFATE	2.2	0.2 U	1.1		722	94.9	2080	244	286 J
SULFIDE							1 U	1 U	1 U
SURFACTANTS (MBAS)									
TDS	2550	504	688		6930	612	24000	4400 J	5800
TOTAL ALKALINITY	1810	665	1040		2010	1260	211	61.2	58.6
TOTAL ORGANIC CARBON, MEQ/HG	145	14.7	18.8 J	42.7 J	7	14.1	1 U		

Notes:

*	Unless otherwise specified
MEQ/HG	Milliequivalents per hundred grams
MG/L	Milligrams per liter
UMHOS/CM	Micromhos per centimeter

TABLE E-28: SITE 9 GENERAL CHEMISTRY IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	D09-01	M09-06	M09-06	M09-06	M09-06	D09-01	D09-01	MW410-1
Sample Code	108-S09-010	108-S09-001	108-S09-005	108-S09-009	108-S09-012	D09-01-A1637	D09-01-A1136	MW410-1-A1650
Sampling Date	8/6/1998	11/5/1997	2/5/1998	5/12/1998	8/7/1998	12/16/2002	6/28/2002	12/16/2002
Sampling Depth (feet bgs)	-	-	-	-	-	-	-	-
Units*	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
Investigation	FO 1998	FO 1998	FO 1998	FO 1998	FO 1998	GWM 2003	GWM 2003	GWM 2003
Analyte								
ACIDITY								
BICARBONATE	118	183	205	203	216			
BICARBONATE ALKALINITY						240	210	320
BROMIDE	18.1	0.14	0.18		0.5 UJ			
CARBONATE	10 U	10 U	10 U	10 U	10 U			
CARBONATE ALKALINITY						1 U	1 U	1 U
CHLORIDE	4260	13.6	16.6	11.8	8.3	15000	15000	300
COD (TOTAL)								
CONDUCTANCE, UMHOS/CM								
DISSOLVED OXYGEN								
FLUORIDE	2.5 U	0.1 U	0.1 U	0.13 J	0.5 U			
HARDNESS								
HYDROXIDE ALKALINITY	10 U	10 U	10 U	10 U	10 U	1 U	1 U	1 U
NITRATE	1.1	1.1	2	1.3	0.99	0.5 U	0.5 U	0.21
NITRATE/NITRITE (AS N)								
NITRITE	5 U	0.1 U	0.1 U	0.1 U	0.5 U	0.5 U	0.5 U	0.05 U
PH, UNITS								
PHOSPHATE	0.5 U	0.1 U	0.1 U	0.1 UJ	0.5 U			
SULFATE	624	20.7	36.8 J	23.8	15.9	2100	2000	27
SULFIDE	1 U	1 U	1 U	1 U	1 U	0.04 U	0.06	0.04 U
SURFACTANTS (MBAS)								
TDS	12000	180 J	740	520	310			
TOTAL ALKALINITY	118	183	205	203	216	240	210	320
TOTAL ORGANIC CARBON, MEQ/HG		2 UJ						

Notes:

*	Unless otherwise specified
MEQ/HG	Milliequivalents per hundred grams
MG/L	Milligrams per liter
UMHOS/CM	Micromhos per centimeter

Continue

TABLE E-28: SITE 9 GENERAL CHEMISTRY IN GROUNDWATER

Remedial Investigation Report for OU-2A, Alameda Point, Alameda, California

Location	MW410-1	MW410-2	MW410-2	MW410-1	MW410-2	MW410-3
Sample Code	MW410-1-A1149	MW410-2-A1651	MW410-2-A1150	MW410-1 [08/21/90]	MW410-2 [08/22/90]	MW410-3 [08/21/90]
Sampling Date	6/18/2002	12/16/2002	6/18/2002	8/21/1990	8/22/1990	8/21/1990
Sampling Depth (feet bgs)	-	-	-	-	-	-
Units*	MG/L	MG/L	MG/L	MG/L	UMHOS	MG/L
Investigation	GWM 2003	GWM 2003	GWM 2003	PH 1&2A 1991	PH 1&2A 1991	PH 1&2A 1991
Analyte						
ACIDITY						
BICARBONATE						
BICARBONATE ALKALINITY	**240**	**710**	**640**	220		450
BROMIDE						
CARBONATE						
CARBONATE ALKALINITY	**1 U**	**1 U**	**1 U**	5 U		5 U
CHLORIDE	**250**	**87**	**62**	382		42
COD (TOTAL)						
CONDUCTANCE, UMHOS/CM				1560	1020	1070
DISSOLVED OXYGEN				4.3	4.2	3.8
FLUORIDE						
HARDNESS				244	290	475
HYDROXIDE ALKALINITY	1 U	1 U	1 U	5 U		5 U
NITRATE	0.6	0.33	1.5			
NITRATE/NITRITE (AS N)						
NITRITE	0.05 U	0.05 U	0.05 U			
PH, UNITS				7.8	7.7	7.4
PHOSPHATE						
SULFATE	28	5.6	20	15		140
SULFIDE	0.04 U	0.04 U	0.04 U			
SURFACTANTS (MBAS)				0.1 U		0.1 U
TDS				990		846
TOTAL ALKALINITY	240	710	640	220		450
TOTAL ORGANIC CARBON, MEQ/HG				4.7	12	7.2

Notes:

*	Unless otherwise specified
MEQ/HG	Milliequivalents per hundred grams
MG/L	Milligrams per liter
UMHOS/CM	Micromhos per centimeter