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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
215 Fremont Street
San Francisco, Ca. 94105

MAR 3 1987

In Reply
Refer to: T-2-4
Facility: Whittaker Corp.
Bermite Div.
EPA No: CAD064573108

Gordon Louttit
Vice President
Whittaker Corporation
10880 Wilshire Boulevard
Los Angeles, Californa 90024

Re: Consent Agreement and Final Order
Whittaker Corporation - Bermite Division
Docket No. RCRA-09-86-0006

Dear Mr. Louttit:

This letter summarizes, in part, discussions on February 17, 1987 amongst EPA, DHS, RWQCB, Whittaker Corporation representatives and counsel.

The Consent Agreement allows the facility the opportunity to demonstrate that the closure activities conducted in 1983 were adequate and complied with 40 CFR 265.228. We have reviewed the soil sampling plan and analytical results submitted on August 19, 1986 pursuant to paragraph V.C. of the Consent Agreement referenced above.

Pursuant to paragraph V.C. of the Consent Agreement, EPA has determined that the surface impoundment closure activities conducted in 1983 did not comply with 40 CFR 265.228. Although there are numerous deficiencies with the sampling plan, there is sufficient information for EPA to determine that the facility has failed to demonstrate that the 1983 surface impoundment closure activities resulted in clean closure. Hazardous waste constituents are present in the soil at levels which are higher than the levels in the designated background sampling location. As such, proper closure of the surface impoundments must now be addressed in a revised closure plan which addresses the closure requirements in 40 CFR 265 Subparts G, H, J, K, and P.

As a result of our review of the analytical data submitted to date, EPA has concluded that additional sampling and site characterization is necessary in order to determine the extent

of contamination, and to better evaluate closure options. This will require the following: soil characterization and hydrogeologic assessment of the former surface impoundment sites near buildings 317 and 342 (which will be referred to as ponds 317 and 342), and a ground-water monitoring program to determine the impact of pond 317 on the ground-water. A groundwater monitoring program may also be required at pond 342 depending on the results of the soil characterization.

Whittaker Corporation is therefore directed to submit within 30 days: 1) a plan for the additional soil characterization at ponds 317 and 342, 2) a plan for the hydrogeologic assessment at ponds 317 and 342, 3) a preliminary ground-water monitoring plan, 4) in each of the plans, a proposed implementation schedule, 5) a complete list of all hazardous wastes which were disposed into ponds 317 and 342, including the appropriate hazardous waste codes, and 6) a revised closure plan which addresses all hazardous waste management units, including ponds 317 and 342.

Copies of all submittals must also be sent to the Department of Health Services (DHS) and the Regional Water Quality Control Board (RWQCB) in Los Angeles. Once the soil characterization plan and the hydrogeologic assessment plan are approved, DHS will have the lead responsibility for review of the results as well as processing the revised closure plan.

Accomplishment of the above tasks will involve two parallel procedural tracks. One track will include the submittal of plans for soil characterization, hydrogeologic assessment, and ground-water monitoring; agency approval of the plans; and implementation of the soil characterization plan and hydrogeologic assessment. The other track will be the submittal, approval, and implementation of the revised closure plan. The revised closure plan will not only address all RCRA units on-site including the surface impoundments, but will also describe and commit the facility to an implementation schedule for the ongoing site characterization work related to the surface impoundments. The approved soil characterization, hydrogeologic assessment, and ground-water monitoring plans will be made part of the closure plan, with the understanding that the final design of the ground-water monitoring system may be modified based upon the findings of hydrogeologic assessment. This will allow the facility to begin implementation of the additional site characterization work prior to closure plan approval.

The following is guidance for preparation of the plans described above:

The soil characterization plan should describe how the facility proposes to determine the lateral and vertical extent of contamination at ponds 317 and 342. Specific guidance is

provided in Attachment A, as well as in detailed comments from EPA and DHS on deficiencies of the August 19, 1986 sampling plan (Attachments B and C). Particular attention should be paid to DHS's recommendations to use section 3.5 of the California Site Mitigation Decision Tree, "Quality Assurance/Quality Control."

The hydrogeologic assessment is designed to characterize the site's hydrogeology, to identify potential contaminant pathways, and to support the selection of the appropriate location for the groundwater monitoring well network. The hydrogeologic assessment plan should describe how the facility proposes to accomplish this. EPA's RCRA Ground-Water Monitoring Technical Enforcement Guidance Document (TEGD) should be used as guidance in the development of both the hydrogeologic assessment plan and the ground-water monitoring plan. Copies may be obtained from the Government Printing Office in Washington D.C. at (202) 275-2091. We have also included the State Water Resources Control Board's (SWRCB) outline for a Hydrogeological Assessment Report (Attachment D) which contains specific guidance on what information should be described in a hydrogeologic assessment.

We recognize that the ground-water monitoring plan will be preliminary in nature until the results of the hygrogeologic assessment are known. At that time, a detailed ground-water monitoring program can be designed. Since these investigations are more often an iterative process, it is appropriate to submit general information at this time on well design and development.

So that the regulatory agencies may have a clearer understanding of the constituents of interest, Whittaker Corporation must identify all known hazardous wastes which were disposed into ponds 317 and 342. This should include the appropriate EPA hazardous waste codes. It should be noted that the original Part A of November 19, 1980, the revised Part A of August 6, 1985, and the facility's letter of August 6, 1985 to Barry Cofer do not correctly identify the hazardous waste codes (e.g. solvents from the the manufacture of power charge are identified as D001 instead of F001).

During the February 17, 1987 meeting, Whittaker Corporation expressed a desire to distinguish the units in the closure plan into two groups with potentially different time lines: those units where implementation of closure could be relatively straightforward, and those units which may require additional site work. This list should be submitted to DHS. Please note however that the decision whether to process a closure plan in this manner lies with DHS.

Debbie - OK w/ you?

We understand that Whittaker Corporation is in the process of selling the property at the Saugus location. Please note that pursuant to 40 CFR 270.72(d), a new Part A must be submitted to EPA 90 days prior to the scheduled change in ownership. Although we understand that Whittaker Corporation plans to remain responsible for all RCRA requirements at the Saugus facility even after the sale, 40 CFR 270.72(d) also makes the new owner legally responsible under RCRA. As a result, EPA plans to keep the new owner informed of all communications between EPA and Whittaker Corporation. Within the next week, please provide us with the name of the new owner and the name of a person to contact.

Alan Sorsher is the staff contact at the Department of Health Services in Los Angeles and can be reached at (213) 620-2380. Questions may also be directed to Lily Wong of my staff at (415) 974-7517.

Sincerely,

Phil Bobel, Chief
Waste Programs Branch
Toxics and Waste Management Division

Enclosure

cc: Stephen Jones; Jones, Day, Reavis & Pogue
Norman Wenck; Wenck Associates, Inc.
John Hinton; DHS - LA
Alan Sorsher; DHS - LA
Robert Ghirelli; RWQCB - LA
Al Hearne; LA County Health Dept.

Attachment D

OUTLINE OF HYDROGEOLOGICAL ASSESSMENT REPORT

Text

I. IDENTIFICATION OF FACILITY AND IMPOUNDMENT

A. Name of facility

B. RCRA identification number, if applicable

C. Owner of facility

1. Corporate (or personal) name
2. Owner's mailing address

D. Operator of facility, if different from owner

1. Operator's name
2. Operator's mailing address

E. Location of facility

1. County
2. Local mailing address (street address, P. O. Box number, etc.)
3. Distance and direction from major road intersection; or if applicable, township, range, section, and location within section (e.g., NW1/4, SE1/4)

F. Specific location of impoundment within facility

G. Local identification of impoundment (e.g., Pond No. 2, West Pond)

II. PREPARATION OF REPORT

A. Name of firm preparing Hydrogeological Assessment Report (HAR)

B. Mailing address of firm preparing HAR

C. Name and title of Qualified Person responsible for preparation of the HAR

D. Professional license number (CEG, RG, or RCE) of Qualified Person responsible for preparation of the HAR

III. WASTE CHARACTERISTICS

A. Identification of individual hazardous constituents contained within the impoundment

B. Present chemical nature of the constituents contained within the impoundment [Health and Safety Code Section 25208.8(b)]. Estimate the volume and concentration of each hazardous waste constituent in the impoundment, based on representative chemical analyses of the various constituents and on 1985 deliveries. The estimate shall take into account any variances or transformations of constituents over time so as to characterize the present chemical nature of wastes in the impoundment rather than being limited to an estimate of volumes and concentrations of wastes characterized at the time of their discharge into the impoundment.

IV. PHYSICAL PLANT

A. Complete description of the surface impoundment covered by this HAR [Health and Safety Code Section 25208.8(a)]

1. Dimensions of the impoundment

2. Description of berms and embankments (inboard and outboard height, inboard and outboard slopes, normal operating range of freeboard, tangential lengths of berms and embankments, Unified Soils Classification System classification of construction materials, etc.)

3. Description of cut slopes, if any (height, slopes, lengths, etc.)

4. Design specifications of impoundment as originally constructed (accompanied by "As-built" engineering drawings and plans)

5. Date that surface impoundment was originally placed in operation

6. Subsequent dates, if any, that modifications were made to impoundment

7. Details of any modifications noted in IV.A.6 (accompanied by "As-built" engineering drawings and plans as appropriate)

8. Spatial relationship to adjoining hazardous-waste and nonhazardous-waste surface impoundments

B. Characteristics of liner(s) [Health and Safety Code Section 25208.8(a)]

1. Type(s) of liner(s) (clay, flexible membrane, geocloth, etc.)

2. Manufacturer(s) of liner(s)

3. Generic or trade name(s) of liner(s)

4. Design and manufacturing specifications of liner(s)

5. Thickness(es) of liner(s)

6. Date(s) of emplacement of liner(s)

7. Discussion of liner construction and emplacement Quality Assurance/Quality Control (QA/QC) procedures, if any

8. For artificial (membrane) liners, method(s) of joining adjacent liner panels (thermal weld, solvent weld, etc.)

9. For natural (clay) liners, American Society for Testing and Materials test number, relative compaction at time of placement, and all supporting test data

10. Compatibility of liner relative to wastes contained in the impoundment

11. Date of most-recent liner inspection, condition of liner and seams at time of inspection, and name of person responsible for inspection

12. History of leaks and repairs

C. Characteristics of underlying leachate collection and removal system (LCRS), if any. If there is no LCRS, so state.

V. CLIMATOLOGY

A. Mean annual long-term precipitation for the region within ten miles surrounding the impoundment [Health and Safety Code Section 25208.8(h)(1)]

1. Data and their sources

2. Discussion of derivation of isohyets shown on attached map

B. Estimated 100-year, 24-hour precipitation and Probable Maximum 24-hour Precipitation at the impoundment [Health and Safety Code Section 25208.8(h)(2)]

1. Identification and description of off-site precipitation station(s) used to prepare estimate and precipitation data from station(s) identified

2. Comparison of off-site precipitation conditions with estimated on-site conditions

3. Procedures used to extrapolate data to impoundment area

4. Discussion of 100-year, 24-hour and Probable Maximum 24-hour Precipitation at the impoundment

C. Estimated maximum and minimum annual precipitation at impoundment [Health and Safety Code Section 25208.8(h)(2)]

1. Maximum and minimum recorded annual precipitation at a nearby climatologically equivalent station

a. Identification and description of climatological station, distance from surface impoundment, and period of record

b. Presentation of data

2. Estimated maximum 100-year annual precipitation and Probable Maximum Annual Precipitation for station identified

3. Discussion of extrapolation of data, including rationale, from station to surface impoundment

D. Evaporation

1. Mean annual and mean monthly evaporation at a nearby climatologically equivalent station

a. Identification annd description of climatological station

b. Mean annual evaporation, including period of record

c. Mean monthly evaporation, including period of record

2. On-site direct measurement of evaporation

a. Description of equipment (gauges, pans, etc.)

b. Discussion of measurement methods

c. Discussion of analytical methods

d. Discussion of relationship of on-site evaporation and that at nearby climatologically equivalent station (as identified and discussed in V.D.1., above)

3. Discussion of estimated annual precipitation (from V.A., above) vs. evaporation-infiltration at the waste management facility

VI. SURFACE WATER

A. Natural water bodies (streams, rivers, lakes, ponds, marshes, etc.), artifical water bodies (reservoirs, stockponds, lagoons, etc.), and springs and seeps within the facility and also within one mile of the facility's perimeter [Health and Safety Code Sections 25208.8(c) and 25208.8(d)]

1. Location of natural water bodies, artificial water bodies, springs, and seeps

2. Seasonal changes in level (of lake, marsh, etc.) or flow (of river, stream, etc.)

3. Chemical characterization of water in each natural water body, artificial water body, spring, and seep, including seasonal variations, if any. Analyses shall include constituents characteristic of the waste streams or indicators of the waste

B. Estimate of 100-year streamflow [Health and Safety Code Section 25208.8(h)(3)]

1. Runoff pattern of 100-year flood for all streams which could affect the impoundment

a. Sources of data

b. Analytical methods

c. Discussion of runoff pattern

2. Estimated volume of 100-year flood which could affect impoundment

a. Sources of data

b. Analytical methods

c. Discussion of 100-year flood

3. Estimated peak discharges during 100-year flood which could affect impoundment

a. Sources of data

b. Analytical methods

c. Discussion of peak discharges

VII. WELLS

A. Wells within the facility and also within one mile of the facility's perimeter [Health and Safety Code Section 25208.8(e)]

1. Location of wells

2. Types of wells (water, oil, gas, geothermal, exploratory, injection, cathodic protection, abandoned, etc.)

3. If water well(s), present use of water (domestic, stock, industrial, unused, etc.)

4. If water well(s), construction details (method of drilling, casing diameter, depth and size of perforations, etc.) for all wells within the facility and, to the extent that this information is available, for all wells within one mile of the facility's perimeter

5. For all abandoned wells within the facility, the method of abandonment; for abandoned wells within one mile of the facility's perimeter, the method of abandonment to the extent this information is available.

B. Seasonal fluctuations of water level in well(s), if data are available or if well is measurable

C. Chemical characterization of water in all sampleable water wells within the facility or within one mile of the facility's perimeter

VIII. GROUND WATER

A. Perched, unconfined, and confined ground water bodies

1. Identification of each ground water body which could be affected by fluids emanating from the impoundment [Health and Safety Code Section 25208.8(f)]

2. Hydrogeologic and ground water analysis of each identified ground water body [Health and Safety Code Section 25208.8(f)]. The analysis shall include, at a minimum:

a. Vertical and lateral geometry of each ground water body including a discussion of the homogeneity of each water-bearing zone

b. Contours and slope(s) of the potentiometric surface(s) and their respective flow lines

c. Measured depth, from ground surface to the potentiometric surface or top of confined aquifer, for each identified ground water body [Health and Safety Code Section 25208.8(g)]

d. Estimate of the direction of ground water movement in each identified ground water body [Health and Safety Code Section 25208.8(f)(2)]

e. Sources of data

(1) Description of stations where measurements are made

(2) Description of procedures used to obtain measurements

(3) Data showing elevation of potentiometric surfaces

3. Estimate of the rate of movement of ground water in each identified ground water body [Health and Safety Code Section 25208.8(f)(4)]

   a. Analytical methods and data and rationale used to determine rate of movement

   b. Discussion of rate of ground water movement

4. Estimate of transmissivity of each identified ground water body [Health and Safety Code Section 25208.8(f)(3)]

   a. Analytical methods, data, and rationale used to determine transmissivity

   b. Discussion of transmissivity

5. Estimate of storage coefficient (and where applicable, specific yield) of each identified ground water body [Health and Safety Code Section 25208.8(f)(3)]

   a. Analytical methods, data, and rationale used to determine storage coefficient (and specific yield, if applicable)

   b. Discussion of storage coefficient (and specific yield, if applicable)

6. Nature and characteristics of hydraulic interconnection between identified ground water bodies and between those bodies and nearby regional groundwater bodies [Health and Safety Code Section 25208.8(g)]

7. Discussion of any anisotropic conditions that may be present in any identified ground water body or water-bearing zones

8. Determination of background water quality for each identified ground water body which is under or adjacent to the facility [Health and Safety Code Section 25208.8(f)(5)]

   a. Identification of upgradient or other location(s) where samples are obtained

   b. Rationale for using chosen upgradient or other location as background station(s)

   c. Discussion of background water quality (supported by adequate data)

IX. VADOSE ZONE

A. Composition of the vadose zone under the impoundment [Health and Safety Code Section 25208.8(i)]

1. Hydrogeologic characterization of soil and unconsolidated materials, if present

   a. Type of materials (clay, silt, etc.) including discussion of grain size, bedding, stratification, soil classification, soil horizons, porosity, etc.

   b. Method of soil classification (Unified Soil Classification System, American Society for Testing and Materials Test Method D-2487, etc.)

2. Hydrogeologic characterization of consolidated materials (rock, etc.), if present

   a. Type of rock (marine shale, tuff-breccia, basalt, etc.), including discussion of mineral composition, grain size, texture, degree and type of cementation or lithification, primary and secondary porosity, stratification, jointing and fracturing, attitudes of bedding and joint systems, etc.

   b. Geologic formational names, if known

   c. Regional relationships of beds, members, formations, and rock bodies, if known

3. Chemical characterization of the unconsolidated materials, if any

   a. Method of sampling, sample locations, and rationale

   b. Analytical methods, including rationale

   c. Discussion of characterization, including presence of those constituents discharged into the surface impoundment or any other pollutants

4. Chemical characterization of the consolidated materials, if any

   a. Method of sampling, sample locations, and rationale

   b. Analytical methods, including rationale

   c. Discussion of characterization, including presence of those constituents discharged into the surface impoundment or any other pollutants

B. Soil moisture around the perimeter of the impoundment and at the maximum depth of the impoundment [Health and Safety Code Section 25208.8(i)]. Samples should be obtained during both the wet and dry seasons of the year.

1. Method of sampling, sample locations, dates of sampling, and rationale

2. Methods and rationale for determining soil moisture

3. Discussion of soil moisture

C. Background soil chemistry in an upgradient area that has not been affected by any seepage from the surface impoundment and which is in an area that is hydrogeologically similar to that underlying the surface impoundment [Health and Safety Code Setion 25208.8(j)]

1. Method of sampling, sample locations, dates of sampling, and rationale

2. Identification of any upgradient soil sampling locations that have been affected by seepage from the impoundment

3. Relationship of the hydrogeologic environment at the upgradient sampling location with that underlying the impoundment

4. Discussion of background soil chemistry including presence of those constituents discharged into the surface impoundment or any other pollutants.

X. EXISTING MONITORING SYSTEMS

A. Existing ground water and vadose zone monitoring systems being operated to detect leachate and fluids emanating from the impoundment [Health and Safety Code Section 25208.8(k)]

1. Locations of all monitoring facilities with respect to the impoundment

2. Design data and specifications (including all applicable logs and drawings) for all monitoring installations

3. Rationale for selecting the particular type of monitoring facility in use

4. Method of installation of monitoring facilities

5. Method of development (including length of time of development) of each ground water monitoring installation

6. Method and frequency of sampling of each vadose zone and ground water monitoring facility

7. Analytical methods used to determine specific constituents contained in ground water and vadose zone samples and rationale as to why a particular analytical method was selected

8. Chemical constituents contained in samples from ground water and vadose zone monitoring facilities

   a. Identification of constituents which are related to, or may be related to waste constituents contained in the impoundment

   b. Detection limit for any constituent reported to be "non-detectable"

9. Description of Quality Assurance/Quality Control (QA/QC) and chain of custody programs implemented to assure accuracy and reliability of results

B. Documentation that existing ground water and vadose zone monitoring systems will detect any seepage from the impoundment before any hazardous waste constituent can enter the waters of the State [Health and Safety Code Section 25208.8(1)]

1. Documentation that monitoring wells are sufficiently close to the impoundment to identify any vertical or lateral migration of constituents from the impoundment

2. Documentation that monitoring wells are not located within the area of influence of any puming well which could impair their effectiveness

3. Documentation that monitoring wells are perforated (screened) only in the aquifer or water-bearing zone to be monitored

4. Documentation that the casing material of each monitoring well does not interfere or react with contaminants of major concern contained in the impoundment

5. Demonstration that the casing diameter of each ground water monitoring well is appropriate for the hydrogeologic conditions, including allowance for complete development of the monitoring well and allowance for an adequate amount of water to be removed during sampling

6. Documentation that the annular seal in each ground water monitoring facility prevents downward movement of pollutants from the impoundment, from the ground surface, or from an upper zone to the zone being monitored

7. Documentation that at least five (5) well volumes were removed prior to ground water sampling, and that samples are transported and handled in accordance with federal guidance documents concerning the collection and analysis of ground water samples for selected unstable constituents (e.g., U. S. EPA/600/4-84/075: "Characterization of Hazardous Waste Sites - A Methods Manual, Volume II - Available Sampling Methods, Second Edition")

8. Rationale used for the determination of a frequency of monitoring that will give timely warning of any fluids emanating from the impoundment so that appropriate remedial action can be taken prior to any adverse changes in the quality of adjacent ground water

9. Documentation that the specific hazardous waste constituents selected for analysis are specific to the facility, taking into account the chemical composition of hazardous wastes previously discharged to the impoundment

XI. CERTIFICATION

A. Statement as to whether any hazardous waste constituents have migrated from the surface impoundment into any body of surface water, into the vadose zone, or into any perched water or water bearing strata, and any evidence supporting that statement [Health and Safety Code Section 25208.8(1)(10)]

B. Statement as to whether any hazardous waste constituents are likely or not likely to migrate from the surface impoundment into any body of surface water, into the vadose zone, or into any body of ground water within the ensuing five years, and any evidence supporting that statement [Health and Safety Code Section 25208.8(1)(11)]

C. Statement on completeness and accuracy of HAR [Health and Safety Code Section 25208.8]

D. Identification of qualified person preparing XI.A., XI.B., and XI.C.

1. Name

2. Signature

3. License number (California Registered Geologist, California Certified Engineering Geologist, or California Registered Civil Engineer)

4. Expiration date of license

5. Official stamp of qualified person

Maps and Cross-Sections

1. Regional location of facility and detailed location, within the facility, showing the impoundment for which the HAR is prepared and all relevant features related to the impoundment

2. Mean annual long-term precipitation, delineated by contours of equal rainfall (isohyetal contours) for the surrounding region within ten miles of the impoundment [Health and Safety Code Section 25208.8(h)(1)]

3. Areal geology of impoundment and its surrounding area. Geologic formations and units should be identified using standard and easily recognizable symbols and designations (U. S. Geological Survey or California Division of Mines and Geology). Where appropriate, structural symbols (dips, strikes, etc.) shall also be placed on the map. The map shall indicate the locations of all faults and shear zones, the locations of all geologic cross-sections included with the HAR, and the source of any geologic data obtained from a published or unpublished document

4. Geologic cross-sections through the impoundment showing the direction of ground water flow [Health and Safety Code Section 25208.8(f)(2)]. The cross-sections also shall depict the subsurface geologic conditions under and adjacent to the impoundment using the same geologic symbols and designations as on the areal geology map

5. Map depicting the various naturally occurring soil types in the general vicinity of the impoundment. Soil types should be identified using appropriate and easily recognizable symbols and designations. The locations of all soil sampling stations (see IX.A.3., IX.A.4., IX.B., and IX.C.) should be identified on this map

6. Lines of equal elevation of the potentiometric surface of perched ground water [Health and Safety Code Section 25208.8(f)(1)]

7. Lines of equal elevation of the potentiometric surface of unconfined ground water (i.e., of the water table) [Health and Safety Code Section 25208.8(f)(1)]

8. Lines of equal elevation of the potentiometric surface of confined ground water [Health and Safety Code Section 25208.8(f)(1)]

9. Location, showing distances from the closest portion of the impoundment, of all natural surface water bodies (streams, rivers, lakes, ponds, marshes, etc.), all artificial water bodies (reservoirs, stock ponds, lagoons, etc.), and all springs and seeps both within the facility and within one mile of the facility's perimeter [Health and Safety Code Section 25208.8(c)]

10. Location, showing distances from the closest portion of the impoundment, of all wells (water, oil, gas, exploration, abandoned, etc.) both within the facility and within one mile of the facility's perimeter [Health and Safety Code Section 25208.8(e)]

11. Location, showing distances from the closest portion of the impoundment, of all ground water and vadose zone monitoring facilities [Health and Safety Code Section 25208.8(k)]

12. Location, on a topographic base map, of the areal extent of the 100-year flood on existing streams, and those streams that would be formed as a result of 100-year flood conditions

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NOTES:

a. Features shown for the various maps and cross-sections may be combined onto a lesser number of gaphic presentations, as appropriate.

b. Due to site-specific conditions, it may be necessary to increase the number and variety of graphic presentations from that shown above.

Tables

1. Identification of individual hazardous waste constituents delivered to the impoundment, showing at a minimum:

   a. Name of constituent

   b. EPA number of constituent (if applicable)

   c. Description of constituent's significant components

   d. Physical state of constituent at time of delivery (liquid hazardous waste, hazardous waste containing liquid, sludge, etc.)

   e. Generating process

   f. Frequency of receipt (continuously, periodically, one-time, etc.)

   g. Date of first delivery

   h. Date of most-recent delivery

2. Data for each surface water body (stream, lake, reservoir, etc.) and all seeps and springs within the facility and within one mile of the facility's perimeter, showing at a minimum:

   a. Description or identification of water body, seep, or spring

   b. Shortest distance from water body, seep, or spring to impoundment

   c. For lakes, reservoirs, etc.: Seasonal (maximum and minimum) elevations of water surface, showing dates of measurements

d. For rivers, streams, etc.: Seasonal (maximum and minimum) flows showing dates of measurements

e. Chemical (mineral) and physical analyses of water for each water body, seep, or spring showing, at a minimum, the following:

(1) Calcium (Ca^{++}), in milligrams per liter (mg/l)
(2) Magnesium (Mg^{++}), in mg/l
(3) Sodium (Na^{+}), in mg/l
(4) Carbonate (CO_3^{--}), in mg/l
(5) Bicarbonate (HCO_3^{-}), in mg/l
(6) Sulfate (SO_4^{--}), in mg/l
(7) Chloride (Cl^{-}), in mg/l
(8) Nitrate (as NO_3^{-}), in mg/l
(9) Boron (B), in mg/l
(10) Temperature, as ^{o}F or ^{o}C
(11) pH
(12) Total dissolved solids (TDS), in mg/l
(13) Date(s) of sample(s)
(14) Any significant seasonal variation
(15) Balance of major cations versus major anions, in equivalents per million

Depending on the wastes contained in the impoundment, the State Board or Regional Board may request analyses for additional or substitute constituents [Health and Safety Code Section 25208.8(d)]

3. Data for each well (water, oil, gas, exploratory, monitoring, abandoned, etc.) within the facility or within one mile of the facility's perimeter, showing at a minimum:

a. Name and address of owner

b. Owner's well number or other designation, if known

c. Distance from closest point of the impoundment

d. Present use of well (water extraction, oil or gas extraction, exploratory, monitoring, unused, abandoned, etc.)

e. Present use of water (domestic, stock, irrigation, industrial, on-site non-drinking, etc.)

f. Total depth of well, if known

g. Diameter of well casing at ground surface

h. Construction details of well, if known, such as:

(1) Diameter of well bore
(2) Depth to top and bottom of each perforated interval
(3) Size and type of perforations
(4) Depth of sanitary seal, if known; if not known, so state
(5) Grain size distribution of filter pack, if known
(6) Type of drilling rig (cable tool, mud rotary, mudless reverse rotary, hollow-stem auger, etc.)
(7) Date drilled, if known
(8) Name and address of drilling contractor, if known
(9) Driller's (lithologic) log, if available

i. Seasonal (maximum and minimum) elevations of water levels in well, if data are available

j. Chemical (mineral) and physical analyses of water from well showing, at a minimum, the following constituents:

(1) Calcium (Ca^{++}), in milligrams per liter (mg/l)
(2) Magnesium (Mg^{++}), in mg/l
(3) Sodium (Na^{+}), in mg/l
(4) Carbonate (CO_3^{--}), in mg/l
(5) Bicarbonate (HCO_3^{-}), in mg/l
(6) Sulfate (SO_4^{--}), in mg/l
(7) Chloride (Cl^{-}), in mg/l
(8) Nitrate (as NO_3^{-}), in mg/l
(9) Boron (B), in mg/l
(10) Temperature, as ^{o}F or ^{o}C
(11) pH
(12) Total dissolved solids (TDS), in mg/l
(13) Date of sample
(14) Balance of major cations versus major anions, in equivalents per million

Depending on the wastes contained in the impoundment, the State Board or Regional Board may request analyses for additional or substitute constituents [Health and Safety Code Section 25208.8(e)].

4. Composition of the vadose zone showing, at a minimum, the following parameters for each vadose zone monitoring facility around the perimeter of the impoundment.

a. Identification and location of the vadose zone monitoring installation

b. Type of installation (suction lysimeter, tensiometer, etc.)

c. Soil moisture readings

d. Analysis of constituents present

e. Identification of constituents derived from impoundment [Health and Safety Code Section 25208.8(i)]

ATTACHMENT A

Additional soil characterization

Additional soil characterization must be done to determine the horizontal and vertical extent of the contamination. The soil characterization program must be consistent with the procedures outlined in Test Methods for Evaluating Solid Waste, SW-846, 3rd Edition and include:

a. A Quality Assurance/Quality Control (QA/QC) program

b. Identification of the methodology and rationale for determining the lateral extent of the contamination.

c. Identification of:
   - the proposed parameters and the rationale for selection
   - all sampling and analytical procedures (provide the test method number from SW-846)
   - sampling location based on random selection (described in detail in DHS's letter of February 4, 1987)
   - the sampling depths at each location to provide a vertical profile
   - the proposed maximum sampling depth and rationale

d. The list of parameters to be analyzed should be based on the constituents disposed of in each impoundment. Possible parameters include: pH, total metals, organics of interest, etc.

ATTACHMENT B

EPA Comments on the August 19, 1986 soil characterization plan and analytical data

Sampling methods, sample preparation, analytical methods

1. An insufficient volume of soil sample was taken. Only one 40 ml vial of soil was taken. In order to properly conduct the analyses, SW-846 recommends that at least 200 g of soil should be taken for metals analyses and two 40 ml vials should be taken for volatile organics.

2. There is no indication that the proper steps were taken to ensure that volatile organics were not lost in sampling, and to ensure proper preparation of the sample for volatile organics analysis (i.e. purge and trap, etc).

3. An incorrect method (Method 1310) was used for metals analyses, which provided soluble metal concentrations. The correct method (Method 3050 and 7002) should have been used which would have analyzed for total metals.

Sampling depth, sampling location

4. Only one sample was taken at a depth of 10/12 ft. at each sampling location. Multiple samples should have been taken at regular intervals (12-18 inches) to provide a profile at each location.

5. The selection of the sampling should have been based on a random selection whereby each location would be equally likely to provide a representative sample.

Quality assurance, quality control

6. There was no QA/QC program which is essential in demonstrating the validity of the data.

Attachment

STATE OF CALIFORNIA—HEALTH AND WELFARE AGENCY

GEORGE DEUKMEJIAN, Governor

DEPARTMENT OF HEALTH SERVICES
107 SOUTH BROADWAY, ROOM B-48 7011
LOS ANGELES, CA 90012
(213) 620-2380

February 4, 1987

Ms. Lily Wong
Toxics and Waste Management Division
U.S. Environmental Protection Agency
Region IX
215 Fremont Street
San Francisco, CA 94105

Dear Ms. Wong:

SOIL SAMPLING AND ANALYSIS FOR WHITTAKER-BERMITE'S "317 SURFACE IMPOUNDMENT"

We have reviewed the soil characterization report and additional information regarding the sampling program in the vicinity of the former surface impoundment near building 317 at Whittaker-Bermite's Saugus facility. We find the previously submitted sampling plan and the analytical results generated from this program to be totally inadequate.

Per Mr. Phil Bobel's December 16, 1986 letter to Dave Willis, in order for Whittaker to close "clean," they would have to remove all contaminated subsoils down to non-detectable or established background levels for all Appendix VIII constituents of concern and demonstrate that the ground water beneath the unit has not been contaminated with any of these constituents. Based upon the superficial results submitted, it would appear that hazardous constituents are present in the samples taken from the impoundment area which are not present in the single background sample.

It would be in the facility's interest to prepare a scientifically credible sampling plan in accordance with Chapter 1 of SW-846 and section 3.5.2 of the California Site Mitigation Decision Tree, "Development of an Integrated Site-Specific Quality Assurance/Quality Control Plan for Sampling and Analysis." Such a sampling plan should statistically compare sample groups from the background and impoundment areas and confirm with a 95% probability that there is no significant difference between the two sample groups.

We have been informed by Whittaker's consultant that the tanks and concrete pad which replaced the impoundment have already been removed. Therefore the soil beneath the pad is now more accessible for sampling. However, the removal of the tanks and pad was done without an approved closure plan.

Attached is a list of specific comments and questions relating to the impoundment area sampling.

If you have any questions, please contact Alan Sorsher at the above telephone number.

Sincerely,

John A. Hinton, P.E., Chief
Facility Permitting Unit
Southern California Section
Toxic Substances Control Division

JAH:AS:as

cc: Athar Kahn, RWQCB
Ray Seid, EPA
Al Storm, DHS, HQ
Hossein Nasseri, DHS, LA
Tony Catanese, DHS, LA

enclosure

REVIEW COMMENTS

CONFIRMATION SOIL SAMPLING
WHITTAKER-BERMITE "317 SURFACE IMPOUNDMENT"

1. In order to evaluate soil sampling for the purpose of determining "clean" closure, the actual closure plan that was implemented should be supplied. In addition, the history of the unit should be described including:

   a. the date the unit was installed
   b. the original materials of construction and as-built drawings
   c. any record or recollection of repairs and releases
   d. any record or recollection of the original PVC liner, its repairs or replacement

2. The topographical map submitted does not clearly show details of the local topography.

3. The report claims that large boulders and cobbles made drilling very difficult and a backhoe had to be used for digging. No drilling or trench log was furnished to support this statement. All drilling or trenching should be logged under the direction of a registered geologist. The local stratigraphy of the site should be furnished so that the migration potential of any leakage can be considered. Other more recent sampling on the Whittaker site has been done with a hollow stem auger which would allow for deeper sampling.

4. The Consent Agreement mentions a <u>minimum</u> number of samples. A sufficient number of samples, including background should be taken to prove that the background population is not significantly different than the population in the impoundment area.

5. No details were given as to how the samples were obtained. Samples which will be analyzed for volatile compounds must be taken in a manner which will minimize the loss of such compounds. No mention of a split-spoon sampler or other such device can be found.

6. The lab reports give the dates the lab received the samples and the dates of analysis. Since the dates of the actual sampling are omitted, we cannot confirm that the samples were analyzed quickly enough to be accurate.

7. The lab report states that some of the samples analyzed for metals were delivered in paper cartons. This is an improper container for the storage and preservation of samples. In addition, the lab report states that method 1310 was used to extract the samples for metal analysis. All samples should be digested and analyzed for <u>total concentration</u>, not <u>soluble concentration</u>, since we are

trying to detect contamination, not determine how much might be soluble.

No explanation is given for the delay in providing the sample from pit 3. (Also a sample of "floor dirt" was analyzed but not reported. This may help us in evaluating the closure plan for the other units).

8. The consultant's "California Clean-up Standards to Protect Groundwater" listed in the Table 1 of the report are incorrect, meaningless and inapplicable. Per Phil Bobel's letter of 12/16/86, they must clean up to background if they wish to close clean.

9. The letter from Mr. Bohanan of Whittaker-Bermite to Harry Sneh dated November 20, 1985 describes the surface impoundment removal activities in March 1983. He mentions digging with a backhoe 10 -11 feet "down to the first moist soil." However, the October 6, 1986 letter to EPA from Mr. Wenck states there is no known groundwater in this portion of the facility. Was the moisture noted in 1983 from groundwater or leakage from the impoundment?