**MINASIAN,
SPRUANCE, BABER,
MEITH, SOARES &
SEXTON, LLP**

ATTORNEYS
A Partnership Including Professional Corporations

1681 Bird Street
P.O. Box 1679
Oroville, CA 95965-1679

Writer's E-MAIL: msexton@minasianlaw.com

PAUL R. MINASIAN, INC.
WILLIAM H. SPRUANCE, INC.
WILLIAM H. BABER, III, INC.
JEFFREY A. MEITH
M. ANTHONY SOARES
MICHAEL V. SEXTON

LISA A. GRIGG

TELEPHONE:
(530) 533-2885

FACSIMILE:
(530) 533-0197

FACSIMILE

TO: Phil Isorena,
State Water Resources Control Board

FAX NO. (916) 341-~~5544~~ 5463

FROM: Michael V. Sexton, Esq.

DATE: February 4, 2004

ACE NO.: 9052

PAGES: 9

SUBJECT: Solano Irrigation District
Application of Aquatic Herbicides - NPDES Permit

DOCUMENTS: Notice of Determination

FAXED
February 4, 2004
[ ]

S:\Anna\Forms\FAX\Phil Isorena, SWRCB.wpd

28A

BOARD OF SUPERVISORS

William J. Carroll (Dist. 4), Chairman
(707) 421-6128
Duane Kromm (Dist. 3), Vice-Chairman
(707) 421-6136
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(707) 421-6130

County Administrator
MICHAEL D. JOHNSON
(707) 421-6100
Fax (707) 421-7975

580 Texas Street
Fairfield, California 94533-6378
http://www.co.solano.ca.us

MEMORANDUM

TO: Solano Irrigation District

DATE: 12-15-03

FROM: Solano County Board of Supervisors

SUBJECT: Return of Posted Documents

Enclosed please find original copies of the Notice of Determination that have been filed and posted in the Board of Supervisors/County Administrator's Office for at least 30 days.

FILED

OCT 2 8 2003

Michael D. Johnson, Clerk of the Board of Supervisors of the County of Solano, State of California

By J Hoffert, Deputy

Notice of Determination

To: County Clerk
County of Solano
Fairfield, California 94533

Project Title: Application of Aquatic Herbicides

State Clearinghouse Number (If submitted to State Clearinghouse): 2003092013

Contact Person: Michael J. Messina, Director of Operations and Maintenance
Solano Irrigation District
508 Elmira Road
Vacaville, California 95687
(707) 448-6847 or (800) 675-3833

Project Location: Solano County, California

Project Description:

The Solano Irrigation District (SID) provides irrigation, and domestic water throughout Solano County for over 400,000 people from water stored in Lake Berryessa. In addition SID operates and maintains Monticello Dam, Putah Diversion Dam, and the Putah South Canal for the Solano County Water Agency.

Water travels from Lake Berryessa through Monticello Dam into Putah Creek and through Lake Solano from which it is diverted at the Putah Diversion Dam into the Putah South Canal (PSC). The PSC is owned by the federal government (United States Bureau of Reclamation) and contracted by the Solano County Water Agency (SCWA). Solano Irrigation District operates and maintains the PSC under a contract with SCWA. The flows in the PSC range from about 55 cubic feet/second (CFS) in the winter to as high as 800 CFS in the summer.

The 32.3 mile long concrete lined PSC is the "central hub" of the Solano County's water distribution system. The PSC is a distribution canal that provides water to the treatment plants of five cities and a State and County prison, and many seasonal use pipelines and earthen irrigation canals. Within the SID there are nine separate irrigation systems that total 112 miles in length and there are about 186 miles of pipeline. The District also maintains about 70 miles of drainage ditches. Much of the land SID serves is located in the western part of the Sacramento Valley south of Putah Creek SID also distributes water to land in Suisun Valley and Green Valley which lie west of the Sacramento Valley north and west of Fairfield. The irrigation water is delivered to the land via pipelines and canals and tail water from irrigated fields flows into drains and ultimately into flood channels.

The Solano Irrigation District primary beneficial use of the water in the irrigation canals and pipelines is the distribution of farmland irrigation water for about 55,000 acres and landscape and field irrigation water for some rural homeowners. Crops grown with Project water include tomatoes, field corn, alfalfa, soy beans, grapes, landscaping, ornamental plants, orchard fruit and nut crops. The gross value of the agricultural production in the area irrigated is estimated to be about $148 million. This production consists of food, feed and some ornamental landscape plants. Approximately 55,000 acres of irrigated land is serviced each year. The gross area of the District contains approximately 73,000 acres.

Aquatic Herbicide History at the Solano Irrigation District

During its 50 year history the Solano Irrigation District has employed several methods to combat aquatic weeds including: dewatering of canals, mechanical cleaning of various types, and chemicals including Magnicide H. In light of recent court decisions, SID switched from Magnacide H (acrolein) to chelated copper products for submerged aquatic weed and algae control in SID irrigation canals beginning in May of 2001.

The SID uses chemicals to maintain the functionality of its distribution system. The aquatic herbicides used currently by SID Clearigate and Nautique, increased its program costs by 50% but still provide fiscal economy when compared to mechanical or manual removal of aquatic plants. These products are necessary to ensure that design flows are maintained and at the same time these chelated products are safer to the environment than Magnicide H that was previously used.

Research has shown that unchecked algae growth can actually adversely affect water quality to the point of foul odors, undesirable tastes, livestock and wildlife poisonings and declines in invertebrate and fish populations (Mastin, Rodgers and Deardorff 2001). The District believes that copper based herbicides are a satisfactory alternative to mechanical cleaning or other herbicides for several reasons:

- Copper does not accumulate in the food chain.
- Copper is not a toxic metal because it is required for all or most of life to survive and/or exist.
- Copper is heavily bound in sediment that contains organic matter and, therefore, will not become biologically available through normal means. Bound copper will generally not cause adverse affects to aquatic life. Therefore, it takes more copper than previously thought to cause adverse affects in sediments and soils. It is also true that the amount of copper causing adverse affects varies depending upon what the sediment is composed of.
- Copper has a short lived residual in its biologically available form.
- Many past laboratory test had problematic results because the procedures followed did not even vaguely resemble real life situations (i.e. pH, alkalinity, ionic strength, exposure time, water hardness, organic matter, redox potential, etc.).
- Some scientists even question the validity of grouping a large number of elements into what is called the "heavy metals." Some heavy metals have much higher atomic weights

(tin = 118.7, tungsten = 183.8, and lead = 207.19) than copper (63.5). The properties of copper do not fully coincide with many of the other heavy metals in this group.

- It is due to all of the above that researchers are starting to question the accuracy of copper being listed as a priority pollutant.

During its history, SID has never caused any fish kill or known environmental damage within its system nor has SID had any known fish kill in any of the receiving waters which are outside our irrigation canal systems.

Existing Methodology for the Successful Application of Aquatic Herbicides

In order to successfully apply aquatic herbicides in a manner that controls the growth of aquatic plants and protects the environment, SID has sought to limit to the greatest degree possible the amount of herbicide treated water that leaves the SID system and returns to the environment. During the 2002 irrigation season the District implemented its plan to keep treated water from leaving SID irrigation systems. With the full support of the SID Board of Directors, the District enlisted the help of our customers as well as our staff to implement its plan.

SID sent a treatment schedule letter to more than 900 customers. In that letter we explained that the District was attempting to minimize the discharge of herbicide treated water into the environment. We communicated the need for our customers to not shut down their irrigation without advanced notification. SID received good cooperation and support from our customers and our Board of Directors.

For 2003 SID increased its efforts to control herbicide carrying discharge. Staff fine tuned procedures by considering all possible ways that treated water can leave each of the systems. On treatment days, SID personnel who operate the irrigation canal and pipeline systems are now authorized to curtail water deliveries to customers who might cause even a small amount of water to leave District controlled systems.

SID's Participation in the NPDES General Permit CAG990003 Process

Since early 2002, SID has operated under the NPDES General Permit CAG990003. As part of the permit SID has submitted the required Notices of Intent (NOI) (for WQCB Regions 2 and 5), prepared monitoring plans, completed the required monitoring and submitted Monthly Use Reports. The Annual Report was completed for 2002.

Early on SID management, with the full support of District Counsel, joined the Aquatic Pesticide Monitoring Program (APMP) Steering Committee. SID participated in meetings in Sacramento and also attended a side meeting with other members of the Association of California Water Agencies (ACWA). The Aquatic Pesticides Monitoring Program began in 2002 and is funded by the California State Water Resources Control Board. The APMP was formed as a result of the ruling by the Ninth Circuit Court of Appeals that registration and labeling of aquatic pesticides under the federal pesticide law (Federal Insecticide, Fungicide, and Rodenticide Act, or FIFRA) does not preclude the requirement to obtain coverage under a National Pollutant Discharge Elimination System (NPDES) prior to discharging such pesticides into waters of the United States. Following the ruling, the State Water Resources Control Board (SWRCB) now issues a general permit for dischargers of aquatic pesticides.

Entities that have applied for a general permit include irrigation districts, municipal water supply districts, and mosquito vector control districts. The San Francisco Estuary Institute (SFEI) is the entity designated to implement the Aquatic Pesticide Monitoring Program. SFEI is administering the program under a contract with the State Water Resources Control Board.

The criteria of the Aquatic Pesticide Monitoring Program are to implement comprehensive monitoring and special studies to evaluate the water quality impacts associated with the application of aquatic pesticides. This will include providing funds for demonstration projects to document promising non-chemical control methods. The primary focus shall be to provide information to the SWRCB and the Regional Water Quality Control Boards (RWQCBs) to enable SWRCB and RWQCBS to choose appropriate sampling methods and develop water quality criteria for effective regulation of discharges of aquatic pesticides to surface waters.

The Solano Irrigation District has volunteered to have its facilities field tested by San Francisco Estuary Institute. Sampling sites have been selected by SFEI from throughout the state with the intention of covering sufficient geographical areas and different end uses to provide a distribution of the range of aquatic environments and different types of pesticides which are applied. Sites will generally be visited prior to and multiple times following pesticide applications. Some sites will be revisited on subsequent reapplications of pesticide to evaluate potential cumulative effects. The scope of the program currently is not sufficient to cover all aquatic pesticide use categories in all regions of the state, but the primary objective of the program is to serve as a demonstration for the development and evaluation of more comprehensive state-wide monitoring schemes and establishment of appropriate water quality criteria for aquatic pesticides. Sites will be monitored during the period from July 2002 to October 2003.

Mitigation Measures:

The application of aquatic herbicides to irrigation water may create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials however such hazards are substantially mitigated. Mitigation for the safe transport of aquatic herbicides: chemical transport vehicles are inspected regularly and a driver with a hazardous materials endorsement on his driver's license is used, as needed; Department of Transportation regulations are followed; and SID has an excellent record due to training and company wide efforts toward safety. Mitigation for the safe use of aquatic herbicides: yearly herbicide use training is conducted, only applicators holding a valid Qualified Applicator's Certificate apply the aquatic herbicides, herbicide labels are followed, applicable laws and regulations are followed, Pest Control Recommendations are used. All giving an excellent record regarding herbicide use. SID does not dispose of hazardous materials, but it does properly dispose of empty containers as per the Department of Pesticide Regulation laws and regulations.

The application of aquatic herbicides to irrigation water may create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment however such a hazard is substantially mitigated. This is because chemical transport vehicles are inspected regularly and a driver with a hazardous materials endorsement on his driver's license is used as needed;

Department of Transportation regulations are followed; SID has an excellent driving and loading record due to training and company wide efforts toward safety; yearly herbicide use training is conducted; only applicators holding a valid Qualified Applicator's Certificate apply the aquatic herbicides; herbicide labels are followed; applicable laws and regulations are followed; Pest Control Recommendations are used; and herbicides are properly stored. The District's past history of safety has been excellent in the proper storage, proper transport, and proper application.

The addition of aquatic herbicides to irrigation water will exceed the California Toxic Rule standard within the canal to which applied for a short time period; however, because SID keeps treated water within its systems and minimizes charge water releases, and because SID follows FIFRA etc, any impact will be less than significant with these mitigations, and because we operate under the Interim NPDES Permit, and because we monitor any charge water releases under our Interim NPDES Permit and because we have had independent monitoring conducted by the San Francisco Estuary Institute (SFEI) these violations are adequately mitigated. (Please see SID Monitoring Plan attached as **Tab B.**)

The canal systems themselves should not be considered "habitat" because they are either seasonally dried up or cleaned of silt on a two year schedule. Their gates and many check structures would not, of course allow normal fish movement. Vegetative growth next to canal water has always been kept at the lowest possible levels in order to keep weed seed out of the irrigated farmland. Submerged aquatic weeks have also always been kept at very low levels otherwise they would restrict flow and plug pumps and screens of different types. All this means that SID canals have never been suitable habitat.

The addition of certain aquatic herbicides to irrigation water may have the potential to degrade the quality of the environment in the channels outside SID's systems. This "potential" is mitigated by the following: deliveries are not made outside a treated canal system on its treatment day, the watertenders are notified of treatments so that they can make extra efforts to keep the treated water in their systems, structures where water can leave an SID system are locked as required, farmers are each sent a copy of SID's treatment schedule so that the affected farmers can understand why certain deliveries of water will have to be curtailed on treatment days, SID has an NPDES Permit and a Monitoring Plan for application of aquatic herbicides pursuant to which SID carefully controls all herbicide applications and monitors water quality after applications, SID has switched from using accrolein to the less acutely toxic chelated copper products (Clearigate and Nautique), and no incidents of harm have been seen in the past, herbicide label directions are strictly followed, and canal personnel are on duty seven days per week (starting at 6 a.m. and ending at 6 p.m.) and are on call 24 hours per day.

The application of aquatic herbicides will not substantially reduce the habitat of fish and wildlife species nor will they cause a fish or wildlife population to drop below self-sustaining levels, nor will they threaten to eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered plant or animal.

The application of aquatic herbicides to irrigation water could have impacts that are individually

limited, but cumulatively considerable ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects) however because of District's application protocol and monitoring plan (Please see SID Monitoring Plan attached as **Tab B**) the threat of these "cumulative effects to the environment is sufficiently mitigated.

The application of aquatic herbicides to irrigation water could have environmental effects which could cause substantial adverse effects on human beings, either directly or indirectly; however because the District notifies all local water treatment plants and follows precise treatment schedules of copper treatments the plants avoid taking treated water. SID follows all manufacturers labeling and FIFIRA requirements, the potential for such adverse effects on human beings are mitigated. In addition, due to the District's application protocol and monitoring plan (included as **Tab B**), the threat to human beings is sufficiently mitigated.

SID has had several monitoring visits by SFEI during canal treatments. SID enjoys participating in the monitoring program and enthusiastically believes that such monitoring will produce better management practices for the benefit of agriculture and the environment.

Water quality standards for receiving waters that may be affected by the application of aquatic pesticides is generally established by the California Toxics Rule (CTR). SID believes that its NPDES Monitoring Plan, which also outlines its aquatic pesticide application protocol, will result in SID meeting water quality standards for receiving waters; however, in the unlikely event that a water quality exceedence does occur, SID requests an exception to the CTR pursuant to the Surface Inland Water Plan (SIP) based upon the project analysis in this mitigated negative declaration.

This is to advise that the **SOLANO IRRIGATION DISTRICT** approved the above described project on October 20, 2003, after complying with CEQA, and has made the following determinations regarding the above described project:

1. The project ____ **WILL** X **WILL NOT**, have a significant effect on the environment.

2. ____ An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA.

X A Mitgated Negative Declaration was prepared for this project pursuant to the provisions of CEQA. The Mitigated Negative Declaration and record of project approval may be examined at:

Solano Irrigation District
Engineering Department
508 Elmira Road
Vacaville, California 95687.

3. Mitigation Measures X WERE ____ WERE NOT made a condition of the approval of the project.

4. A statement of Overriding Considerations ______ WAS X WAS NOT adopted for this project.

Date: October 20, 2003

Robert L. Isaac, Secretary-Manager
Solano Irrigation District

THIS DOCUMENT POSTED FROM
OCT 2 8 2003 TO DEC 1 5 2003
S Hoggert, Deputy
[illegible]

MINASIAN,
SPRUANCE, BABER,
MEITH, SOARES &
SEXTON, LLP

ATTORNEYS
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1681 Bird Street
P.O. Box 1679
Oroville, CA 95965-1679

Writer's E-MAIL: msexton@minasianlaw.com

November 24, 2003

Stanley M. Martinson, Chief
State Water Resources Control Board
Division of Water Quality
Regulations Unit
P.O. Box 100
Sacramento, CA 95812-0100

DWQ Received
Chief's Office
NOV 26 2003

Re: Solano Irrigation District Request for Administrative Extension of Statewide General Permit No. CAG 9900 03, Aquatic Pesticides General Permit or, Alternatively, SID Request for Individual NPDES Permit

Dear Mr. Martinson:

Solano Irrigation District ("SID" or "the District") requests that General Permit No. CAG 990003, Aquatic Pesticides General Permit, issued to SID on October 19, 2001, be administratively extended beyond its current expiration date of January 31, 2004. This request is made pursuant to Title 23 California Code of Regulations Section 2235.4 "Continuation of Expired Permits" which provides that "the terms and conditions of an expired permit are automatically continued pending issuance of a new permit if all requirements of the federal NPDES regulations on continuation of expired permits are complied with."

We understand that the State Water Resources Control Board is working on the development of a new statewide general permit for the application of aquatic pesticides. In the event that the State Water Resources Control Board is prepared to seek from districts such as SID notice of intent to comply with the terms of the new statewide permit, then SID, by this letter, gives such notice of intent.

In the event that administrative extension is not approved and a new general permit has not been issued before General Permit CAG 990003 has expired, then SID requests an individual NPDES permit to allow the continued application of aquatic pesticides. In that regard, enclosed please find the District's new Notice of Intent to comply with the terms of such permit.

Water quality standards for receiving waters that may be affected by the application of aquatic pesticides are generally established by the California Toxics Rule (CTR). SID believes that its NPDES monitoring plan, which also outlines its aquatic pesticide application protocol, will result in SID meeting water quality standards for receiving waters; however, in the unlikely event that a water quality exceedance does occur, SID requests an exception to the CTR pursuant to the Surface/Inland Waters Plan based upon the project analysis in SID's mitigated negative declaration. A copy of SID's Notice of Preparation of Negative Declaration, Mitigated Negative Declaration, Initial Study, and Notice of Determination are attached, along with the District's NPDES Monitoring Plan dated September 23, 2003.

SID has very recently received a fiscal year 2003-04 invoice for waste discharge requirement fees in the amount of $1,185 for the billing period 07/01/03 - 06/30/04. The fee invoice indicates that it is due 12/07/03 and that the facility name is Solano ID Aquatic Pesticides. We do not understand the nature of the invoice. The Notice of Intent to Comply with the Terms of Statewide General permit CAG 990003 was accompanied by the $400 annual filing fee that was adopted at that time by the SWRCB. SID is not subject to waste discharge requirements for the same facilities that it is aware of. Even if the WDR's invoice is for the aquatic pesticides Statewide General Permit, the fact that the current permit expires January 31, 2004 does not seem to make the invoice which runs through June 30, 2004, applicable. Please advise.

Very truly yours,

MINASIAN, SPRUANCE, BABER,
MEITH, SOARES & SEXTON, LLP.

By:
MICHAEL V. SEXTON

MVS:aw

Encls. Notice of Intent (Region 5)
Notice of Intent (Region 2)
Notice of Preparation of Negative Declaration
Mitigated Negative Declaration
Initial Study
NPDES Monitoring Plan
SWRCB Invoice No. 0304630

cc: Robert L. Isaac, Solano Irrigation District
Bill Hurley, Region 2 Water Quality Control Board
Emily Alejandro, Region 5 Water Quality Control Board
Bill Brown, Chief of Administrative Services

CEQA The California Environmental Quality Act

RECEIVED
SEP 18 2003
OFFICE OF CHIEF COUNSEL

Initial Study

1. ***Project Name:*** Application of Aquatic Pesticides

2. ***Lead Agency:*** Solano Irrigation District
508 Elmira Road
Vacaville, CA 95687

3. ***Contact Person:*** Michael J. Messina, Director of Operations and Maintenance
Solano Irrigation District
508 Elmira Rd.
Vacaville, Ca 95687

4. ***Project Location:*** Solano County, California

5. ***Applicants:*** Solano Irrigation District
508 Elmira Road
Vacaville, CA 95687

6. ***General Plan:*** Solano County

7. ***Zoning:*** Urban-Residential-Agricultural

8. **Project and Process Description:**

The Solano Irrigation District (SID) provides irrigation, and domestic water throughout Solano County for over 400,000 people from water stored in Lake Berryessa. In addition SID operates and maintains Monticello Dam, Putah Diversion Dam, and the Putah South Canal for the Solano County Water Agency.

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- It is due to all of the above that researchers are starting to question the accuracy of copper being listed as a priority pollutant.
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Early on SID management, with the full support of District Counsel, joined the Aquatic Pesticide Monitoring Program (APMP) Steering Committee. SID participated in meetings in Sacramento and also attended a side meeting with other members of the Association of California Water

Determination

On the basis of this initial evaluation:

No I find that the proposed project **COULD NOT** have a significant effect on the environment, and a **NEGATIVE DECLARATION** will be prepared.

Yes I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. **A MITIGATED NEGATIVE DECLARATION** will be prepared.

No I find that the proposed project **MAY** have a significant effect on the environment, and an **ENVIRONMENTAL IMPACT REPORT** is required.

No I find that the proposed project **MAY** have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An **ENVIRONMENTAL IMPACT REPORT** is required, but it must analyze only the effects that remain to be addressed.

No I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier **EIR** or **NEGATIVE DECLARATION** pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier **EIR** or **NEGATIVE DECLARATION**, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

By: ______________________ 9/3/03
Robert L. Isaac, Secretary/Manager Date
Solano Irrigation District

Evaluation of Environmental Impacts

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources the District cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a

project-specific screening analysis).

2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3) Once the District has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The District must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).

5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or Negative Declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

   a) *Earlier Analysis Used.* Identify and state where they are available for review.

   b) *Impacts Adequately Addressed.* Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

   c) *Mitigation Measures.* For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6) The District is encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8) This is only a suggested form, and the District is free to use different formats; however, the District should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9) The explanation of each issue should identify:
   a) The significance criteria or threshold, if any, used to evaluate each question; and
   b) The mitigation measure identified, if any, to reduce the impact to less than significance.

Evaluation of Environmental Factors

Issues	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
I. AESTHETICS – Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	x
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	x
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☐	x
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	x

The District's responses to the above mentioned issues:

a. The application of aquatic herbicides to irrigation water will not have any adverse impact on vistas because the irrigation water is running below the graded level of the surrounding ground.

b. The application of aquatic herbicides to irrigation water will not substantially damage scenic resources, including, trees, rock outcroppings, and historic buildings within a state scenic highway because the canal and drain banks have always been kept free of trees in order to maintain their functionality. Chemical dosages will not affect rocks and there are no historic buildings or scenic highways in the vicinity of the irrigation ditches.

c. The application of aquatic herbicides to irrigation water will not substantially degrade the existing visual character or quality of the site and its surroundings because the chemicals are transparent and the reduction of aquatic weeds will improve the clarity of the water.

d. The application of aquatic herbicides to irrigation water will not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area because these aquatic herbicides do not produce light.

II. AGRICULTURE RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, the District may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	x
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	x
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	☐	☐	☐	x

The District's responses to the above mentioned issues:

a. The application of aquatic herbicides to irrigation water will not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems.

b. The application of aquatic herbicides to irrigation water will not conflict with existing zoning for agricultural use, or a Williamson Act contract because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems.

c. The application of aquatic herbicides to irrigation water will not involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems.

III. AIR QUALITY – Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	x
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☐	x
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☐	x
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	x
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	x

The District's responses to the above mentioned issues:

a. The application of aquatic herbicides to irrigation water will not conflict with or obstruct implementation of the applicable air quality plan because aquatic herbicides are designed for use in the water and are not gaseous in nature.

b. The application of aquatic herbicides to irrigation water will not violate any air quality standard or contribute substantially to an existing or projected air quality violation because aquatic herbicides are designed for use in the water and are not gaseous in nature.

c. The application of aquatic herbicides to irrigation water will not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors) because aquatic herbicides are designed for use in the water and are not gaseous in nature.

d. The application of aquatic herbicides to irrigation water will not expose sensitive receptors to substantial pollutant concentrations because aquatic herbicides are designed for use in the water and are not gaseous in nature.

e. The application of aquatic herbicides to irrigation water will not create objectionable odors affecting a substantial number of people because aquatic herbicides are designed for use in the water and are not gaseous in nature and do not have an objectionable odor.

IV. BIOLOGICAL RESOURCES – Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	x
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	☐	☐	☐	x
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	x
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native species or with established native resident or migratory corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	x

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	x
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	x

The District's responses to the above mentioned issues:

a. The addition of aquatic herbicides to irrigation water would not have an adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service. Irrigation canals are far from being ideal habitat for the Red Legged Frog and the Giant Garter Snake due to seasonal drying and a total lack of certain plant species such as cattails. Mark Veil, SID Pest Control Specialist, and an approved Biologist by the U. S. Fish and Wildlife Service, has not found Red Legged Frogs and Giant Garter Snakes in the irrigation canals treated by aquatic herbicides. Controlling aquatic weed growth in these nearly weed free canals is not habitat modification since it is merely sustaining current conditions and maintains them as they were designed and constructed. The time when amphibians breed is during the cool months when SID's canals are either de-watered and/or are not being treated with aquatic herbicides. The effects of copper-based herbicides on the giant garter snake are unknown; however, the EPA has approved the use of the aquatic herbicides used by SID for use in areas containing giant garter snake. The Areas of Concern for the giant garter snake and the CRLF only include a small portion of SID's canal systems and there are no known sightings in the canal systems. Further, there is "no effect" because SID follows the Draft Operations and Maintenance Manual for the Solano County Water Agency (SCWA) service area and the Interim Measures for Use of Pesticides in Solano County for the use of aquatic herbicides. This further results in mitigation to levels of less than significant.

b. The application of aquatic herbicides to irrigation water will not have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game because such riparian habitat and other sensitive natural communities do not exist in canals that are maintained by aquatic herbicides.

c. The application of aquatic herbicides to irrigation water will not have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means because aquatic herbicides are designed for use in the water and do not cause nor require the removal, filling, or hydrological interruption of any such wetland protected by Section 404.

d. The application of aquatic herbicides to irrigation water will not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native species or with established native resident or migratory corridors, or impede the use of native wildlife nursery sites because the habitat requirements of these species do not exist in these maintained and seasonally operated systems.

e. The application of aquatic herbicides to irrigation water will not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance because these biological resources or trees do not exist with these maintained canal systems.

f. The application of aquatic herbicides to irrigation water will not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan because a Habitat Conservation Plan has yet to be adopted by Solano County and other plans mentioned do not exist and if they did exist the District's careful use and monitoring plan would be in compliance.

V. CULTURAL RESOURCES – Would the Project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?	☐	☐	☐	x
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	☐	☐	☐	x
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	x
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☐	x

The District's responses to the above mentioned issues:

a. The application of aquatic herbicides to irrigation water will not cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5 because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and such systems are not a historical resource.

b. The application of aquatic herbicides to irrigation water will not cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5 because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and such systems are not considered a historical resource at this time.

c. The application of aquatic herbicides to irrigation water will not directly or indirectly destroy a unique paleontological resource or site or unique geologic feature because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and such systems are not considered a paleontological resource.

d. The application of aquatic herbicides to irrigation water will not disturb any human remains, including those interred outside of formal cemeteries because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and such systems do not contain such remains.

VI. GEOLOGY AND SOILS – Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	☐	☐	☐	x
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	x
ii) Strong seismic ground shaking?	☐	☐	☐	x
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	x
iv) Landslides?	☐	☐	☐	x
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☐	x
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as	☐	☐	☐	x

VI. GEOLOGY AND SOILS – Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a result of the project, and potentially result in on or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?				
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☐	x
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	x

The District's responses to the above mentioned issues:

a. The application of aquatic herbicides to irrigation water will not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42. Strong seismic ground shaking. Seismic-related ground failure including liquefaction addition of aquatic herbicides to irrigation water will not occur because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and such systems are already constructed and have not caused such seismic events.

b. The application of aquatic herbicides to irrigation water will not result in substantial soil erosion or the loss of topsoil because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and such systems properly maintained will not affect on erosion.

c. The application of aquatic herbicides to irrigation water will not be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on or off-site landslide, lateral spreading, subsidence, liquefaction or collapse because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and such systems properly maintained will not affect these factors.

d. The application of aquatic herbicides to irrigation water will not be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and such systems are covered under the Uniform Building Code (1994).

e. The application of aquatic herbicides to irrigation water will not have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and such systems are not located near septic tanks or alternative waste water disposal systems.

VII. HAZARDS AND HAZARDOUS MATERIALS – Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	x	☐	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	x	☐	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	x
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	x
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	x
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in	☐	☐	☐	x

VII. HAZARDS AND HAZARDOUS MATERIALS – Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
the project area?				
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	x
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	x

The District's responses to the above mentioned issues:

a. The application of aquatic herbicides to irrigation water may create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials however such hazards are substantially mitigated. Mitigation for the safe transport of aquatic herbicides: chemical transport vehicles are inspected regularly and a driver with a hazardous materials endorsement on his driver's license is used, as needed; Department of Transportation regulations are followed; and SID has an excellent record due to training and company wide efforts toward safety. Mitigation for the safe use of aquatic herbicides: yearly herbicide use training is conducted, only applicators holding a valid Qualified Applicator's Certificate apply the aquatic herbicides, herbicide labels are followed, applicable laws and regulations are followed, Pest Control Recommendations are used. All giving an excellent record regarding herbicide use. SID does not dispose of hazardous materials, but it does properly dispose of empty containers as per the Department of Pesticide Regulation laws and regulations.

b. The application of aquatic herbicides to irrigation water may create a significant to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment however such a hazard is substantially mitigated. This is because chemical transport vehicles are inspected regularly and a driver with a hazardous materials endorsement on his driver's license is used as needed; Department of Transportation regulations are followed; SID has an excellent driving and loading record due to training and company wide efforts toward safety; yearly herbicide use training is conducted; only applicators holding a valid Qualified Applicator's Certificate apply the aquatic herbicides; herbicide labels are followed; applicable laws and regulations are followed; Pest Control Recommendations are used; and herbicides are properly stored. The District's past history of safety has been excellent in the proper storage, proper transport, and proper application.

c. The application of aquatic herbicides to irrigation water will not emit hazardous emissions or will the District handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and the treatment sites utilizing hazardous materials are not within a ¼ mile of any school or proposed school.

d. The application of aquatic herbicides to irrigation water will not be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and will not create a significant hazard to the public or the environment because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and the systems treated are not near any known hazardous material sites.

e. The application of aquatic herbicides to irrigation water will not be a project located within an airport land use plan or, where such a plan has not been adopted, or within two miles of a public airport or an airport use plan, and the project would not result in a safety hazard for people residing or working in the project are not within two miles of a public airport or public use airport plan, and would not result in a safety hazard for people residing or working in the project area because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and the systems treated are not near any public airport or public use airport plan.

f. The application of aquatic herbicides to irrigation water will not be a project located within an private airstrip or, where such a plan has not been adopted, within two miles of a public airport or public use airport, and would not be a result in a safety hazard for people residing or working in the project area because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and the systems treated are not near any private airstrip.

g. The application of aquatic herbicides to irrigation water will not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and the systems treated are not part or could they interfere with any emergency evacuation or response plan.

h. The application of aquatic herbicides to irrigation water will not expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and the systems treated are the cause of wildland fires because the use of fire is not part of this project.

VIII. HYDROLOGY AND WATER QUALITY – Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**

VIII. HYDROLOGY AND WATER QUALITY – Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Violate any water quality standards or waste discharge requirements?	☐	x	☐	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	x
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on or off-site?	☐	☐	☐	x
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in the alteration course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off-site?	☐	☐	☐	x
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	x
f) Otherwise substantially degrade water quality?	☐	☐	☐	x
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	x

VIII. HYDROLOGY AND WATER QUALITY – Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	x
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	x
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	x

The District's responses to the above mentioned issues:

a. The addition of aquatic herbicides to irrigation water may exceed the California Toxic Rule standard within the canal to which applied for a short time period; however, because SID keeps treated water within its systems and minimizes charge water releases, and because SID follows the labeling instructions pursuant to FIFRA, the potential for any environmental impact from a temporary exceedence of the CTR will be mitigated to a level of less than significant. (Please see SID Monitoring Plan attached as **Tab B**.)

   1) SID applies aquatic pesticides pursuant to a NPDES Permit issued by the State Water Resources Control Board. The District monitors any charge water releases in accordance with the NPDES Permit.
   2) The District, also, has cooperated with, and allowed for independent monitoring by the San Francisco Estuary Institute (SFEI), which is working for the SWRCB to develop water quality data in connection with use of aquatic pesticides. SFEI independent monitoring has not disclosed any adverse environmental impact resulting from the District's use of aquatic pesticides in its canals.

b. The application of aquatic herbicides to irrigation water will not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level. The production rate of pre-existing nearby wells would not drop to a level which would not support existing land uses or planned uses for which permits have been granted because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems, and the water in the systems treated is almost entirely from surface storage sources, for example, Lake Berryessa. Therefore, the application of aquatic herbicides will not impact groundwater supplies.

c. The application of aquatic herbicides to irrigation water will not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on or off-site. This is because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems, and the systems treated are earthen ditches or concrete lined channels constructed below the surrounding grade, and, therefore, do not cause erosion or siltation as the treatments are designed to maintain the systems rather than alter them.

d. The application of aquatic herbicides to irrigation water will not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river. Nor will the application substantially increase the rate or amount of surface runoff in a manner which would result in the alteration course of a stream or river. The application will not substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off-site. This is because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and the systems treated are earthen ditches or concrete lined channels constructed below the surrounding grade, and, therefore, are not part of any stream or river. Aquatic pesticide application does not alter run-off and applications are done during the dry summer months, and, therefore, do not contribute to flooding.

e. The application of aquatic herbicides to irrigation water will not create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. This is because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems, and the systems treated are earthen ditches or concrete lined channels constructed below the surrounding grade, and, therefore, are not part of any stormwater drainage systems. Treated water is not allowed to run-off into stormwater drainage.

f. The application of aquatic herbicides to irrigation water will not otherwise substantially degrade water quality because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and the use of aquatic herbicides improves water quality in the ditches by eliminating odor and clarity issues.

g. The application of aquatic herbicides to irrigation water will not place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and the systems treated are earthen ditches or concrete lined channels and do not contribute to the establishment of housing either in or out of a federal Flood Hazard Boundary or Flood Insurance Rate Map.

h. The application of aquatic herbicides to irrigation water will not place within a 100-year flood hazard area structures which would impede or redirect flood flows because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and the systems treated are earthen ditches or concrete lined channels and does not contribute to the establishment of housing either in or out of a federal Flood Hazard Boundary or Flood Insurance Rate Map nor will the lack of structures inherent in this Project impede or redirect flood flows.

i. The application of aquatic herbicides to irrigation water will not expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and the systems treated are earthen ditches or concrete lined channels constructed below the surrounding grade and therefore do not expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.

j. The application of aquatic herbicides to irrigation water will not contribute to the inundation by seiche, tsunami, or mudflow because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and the systems treated are earthen ditches or concrete lined channels which could not contribute to the kinds of seismic activities that would cause tsunamis or contribute to mudflows because of the relatively level ground on which these systems exist.

IX. LAND USE AND PLANNING – Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Physically divide an established community?	☐	☐	☐	x
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	x
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	x

The District's responses to the above mentioned issues:

a. The application of aquatic herbicides to irrigation water will not physically divide an established community because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and the systems treated are earthen ditches or concrete lined channels have existed for decades and no community has or will be divided by them.

b. The application of aquatic herbicides to irrigation water will not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and the systems treated are earthen ditches or concrete lined channels have existed for decades and their continued existence will not affect the general plan, specific plan, local coastal program, or zoning ordinance.

c. The application of aquatic herbicides to irrigation water will not conflict with any applicable habitat conservation plan or natural community conservation plan because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and the proposed habitat conservation plan does not prohibit the maintenance of these systems with aquatic herbicides.

X. MINERAL RESOURCES – Would the Project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	x
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	x

The District's responses to the above mentioned issues:

a. The application of aquatic herbicides to irrigation water will not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and the systems treated are earthen ditches or concrete lined channels have existed for decades and their continued existence will not and have not affected the availability of mineral resources.

b. The application of aquatic herbicides to irrigation water will not result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and the systems treated are earthen ditches or concrete lined channels have existed for decades and their continued existence will not and have not affected the availability of mineral resources recovery site delineated on a local general plan, specific plan or other land use plan.

XI. NOISE – Would the project result in:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☐	x
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	x
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	x
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	x
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	x
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	x

The District's responses to the above mentioned issues:

a. The application of aquatic herbicides to irrigation water will not result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and the systems treated are earthen ditches or concrete lined channels located in rural areas and the introduction of these chemicals to irrigation water involves small pumps that do not violate noise standards.

b. The application of aquatic herbicides to irrigation water will not result in exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and the systems treated are earthen ditches or concrete lined channels located in rural areas and the introduction of these chemicals to irrigation water involves small pumps that do not create excessive ground borne vibration or ground borne noise levels.

c. The application of aquatic herbicides to irrigation water will not result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and the systems treated are earthen ditches or concrete lined channels located in rural areas and the introduction of these chemicals to irrigation water involves small pumps that do not violate noise standards.

d. The application of aquatic herbicides to irrigation water will not result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and the systems treated are earthen ditches or concrete lined channels located in rural areas and the introduction of these chemicals to irrigation water involves small pumps that do not violate noise standards.

e. The application of aquatic herbicides to irrigation water will not, for a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and the systems treated are earthen ditches or concrete lined channels located in rural areas and the introduction of these chemicals to irrigation water involves small pumps that do not violate noise standards.

f. The application of aquatic herbicides to irrigation water will not, for a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and the systems treated are earthen ditches or concrete lined channels located in rural areas and the introduction of these chemicals to irrigation water involves small pumps that do not violate noise standards.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XII. POPULATION AND HOUSING – Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	x
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	x
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	x

The District's responses to the above mentioned issues:

a. The application of aquatic herbicides to irrigation water will not induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure) because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and sustaining agricultural inhibits population growth in those areas.

b. The application of aquatic herbicides to irrigation water will not displace any existing housing, necessitating the construction of replacement housing elsewhere because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and the systems treated are earthen ditches or concrete lined channels have existed for decades and no community has or will be displaced because of these systems continued maintenance.

c. The application of aquatic herbicides to irrigation water will not displace people, necessitating the construction of replacement housing elsewhere because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and the systems treated are earthen ditches or concrete lined channels have existed for decades and no community has or will be displaced because of these systems continued maintenance.

XIII. PUBLIC SERVICES	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
a) Fire protection?	☐	☐	☐	x
b) Police protection?	☐	☐	☐	x
c) Schools?	☐	☐	☐	x
d) Parks?	☐	☐	☐	x
e) Other public facilities?	☐	☐	☐	x

The District's responses to the above mentioned issues:

a. The application of aquatic herbicides to irrigation water will not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for fire protection because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and the systems treated are earthen ditches or concrete lined channels have existed for decades without disruption to fire protection in fact the availability of irrigation water enhances fire protection.

b. The application of aquatic herbicides to irrigation water will not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for Police protection because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and the systems treated are earthen ditches or concrete lined channels have existed for decades without disruption to Police protection.

c. The application of aquatic herbicides to irrigation water will not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for schools because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and the systems treated are earthen ditches or concrete lined channels have existed for decades without disruption to schools.

d. The application of aquatic herbicides to irrigation water will not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for parks because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and the systems treated are earthen ditches or concrete lined channels have existed for decades without disruption to parks.

e. The application of aquatic herbicides to irrigation water will not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for other public facilities because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and the systems treated are earthen ditches or concrete lined channels have existed for decades without disruption to other public facilities.

XIV. RECREATION	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Would the project increase the use of	☐	☐	☐	x

existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?				
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	x

The District's responses to the above mentioned issues:

a. The application of aquatic herbicides to irrigation water will not result in the increased use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and the systems treated are earthen ditches or concrete lined channels have existed for decades without disruption to regional parks or other recreational facilities.

b. The application of aquatic herbicides to irrigation water does not include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and the systems treated are earthen ditches or concrete lined channels have existed for decades without the need for additional recreation facilities.

XV. TRANSPORTATION/TRAFFIC – Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	☐	☐	☐	x
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	☐	☐	☐	x

XV. TRANSPORTATION/TRAFFIC – Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	x
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	x
e) Result in inadequate emergency access?	☐	☐	☐	x
f) Result in inadequate parking capacity?	☐	☐	☐	x
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	☐	☐	☐	x

The District's responses to the above mentioned issues:

a. The application of aquatic herbicides to irrigation water will not cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections) because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and the systems treated are earthen ditches or concrete lined channels and agricultural areas have reduced populations and therefore reduced traffic.

b. The application of aquatic herbicides to irrigation water will not exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and the systems treated are earthen ditches or concrete lined channels and agricultural areas have reduced populations and therefore reduced traffic.

c. The application of aquatic herbicides to irrigation water will not result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risk because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and the systems treated are earthen ditches or concrete lined channels and such systems have never interfered with air traffic patterns.

d. The application of aquatic herbicides to irrigation water will not result in increased hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment) because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and the systems treated are earthen ditches or concrete lined channels have existed for decades without any design feature problems.

e. The application of aquatic herbicides to irrigation water will not result in inadequate emergency access because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and the systems treated are earthen ditches or concrete lined channels have existed for decades without any impedance to emergency traffic.

f. The application of aquatic herbicides to irrigation water will not result in inadequate parking capacity because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and the systems treated are earthen ditches or concrete lined channels have existed for decades without any the need for any increased parking.

g. The application of aquatic herbicides to irrigation water will not result in conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks) because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and the systems treated are earthen ditches or concrete lined channels have existed for decades without any conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks).

XVI. UTILITIES AND SERVICE SYSTEMS -- Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	x
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	x
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause	☐	☐	☐	x

XVI. UTILITIES AND SERVICE SYSTEMS – Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
significant environmental effects?				
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	x
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	x
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	x
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	x

The District's responses to the above mentioned issues:

a. The application of aquatic herbicides to irrigation water will not exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and the treated water will not be treated in a wastewater treatment facility.

b. The application of aquatic herbicides to irrigation water will not require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and the treated water will not be treated in a wastewater treatment facility

c. The application of aquatic herbicides to irrigation water will not require storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and the treated water will not be directed into a storm water drainage facility.

d. The application of aquatic herbicides to irrigation water will not change the fact that SID has sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and the systems treated are earthen ditches or concrete lined channels have existed for decades without any the need for any increased water supplies. SID has all the water it needs.

e. The application of aquatic herbicides to irrigation water will not result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and the treated water will not be treated in a wastewater treatment facility.

g. The Project will be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and the Project will generate only a small volume of empty containers that will go to the landfill.

h. The application of aquatic herbicides to irrigation water will not cause non-compliance comply with federal, state, and local statutes and regulations related to solid waste because the use of aquatic herbicides is designed to help sustain agriculture by maintaining agricultural water delivery systems and the treated water will not be considered a solid waste because it is a liquid and it will not be delivered to a landfill. The disposal of empty herbicide containers will be done in full compliance with applicable laws.

XVII. MANDATORY FINDINGS OF SIGNIFICANCE	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	x	☐	☐
b) Does the project have impacts that are	☐	x	☐	☐

XVII. MANDATORY FINDINGS OF SIGNIFICANCE	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?				
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	x	☐	☐

The District's responses to the above mentioned issues:

a. The canal systems themselves should not be considered "habitat" because they are either seasonally dried up or cleaned of silt on a two year schedule. Their gates and many check structures would not, of course allow normal fish movement. Vegetative growth next to canal water has always been kept at the lowest possible levels in order to keep weed seed out of the irrigated farmland. Submerged aquatic weeks have also always been kept at very low levels otherwise they would restrict flow and plug pumps and screens of different types. All this means that SID canals have never been suitable habitat.

The addition of certain aquatic herbicides to irrigation water may have the potential to degrade the quality of the environment in the channels outside SID's systems. This "potential" is mitigated by the following: deliveries are not made outside a treated canal system on its treatment day, the watertenders are notified of treatments so that they can make extra efforts to keep the treated water in their systems, structures where water can leave an SID system are locked as required, farmers are each sent a copy of SID's treatment schedule so that the affected farmers can understand why certain deliveries of water will have to be curtailed on treatment days, SID has an NPDES Permit and a Monitoring Plan for application of aquatic herbicides pursuant to which SID carefully controls all herbicide applications and monitors water quality after applications, SID has switched from using accrolein to the less acutely toxic chelated copper products (Clearigate and Nautique), and no incidents of harm have been seen in the past, herbicide label directions are strictly followed, and canal personnel are on duty seven days per week (starting at 6 a.m. and ending at 6 p.m.) and are on call 24 hours per day.

The application of aquatic herbicides will not substantially reduce the habitat of fish and wildlife species nor will they cause a fish or wildlife population to drop below self-sustaining levels, nor will they threaten to eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered plant or animal.

b. The application of aquatic herbicides to irrigation water could have impacts that are individually limited, but cumulatively considerable ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects) however because of District's application protocol and monitoring plan (attached as **Tab B**) the threat of these "cumulative effects to the environment is sufficiently mitigated.

c. The application of aquatic herbicides to irrigation water could have environmental effects which could cause substantial adverse effects on human beings, either directly or indirectly; however because the District notifies all local water treatment plants and follows precise treatment schedules of copper treatments the plants avoid taking treated water. SID follows all manufacturers labeling and FIFIRA requirements, the potential for such adverse effects on human beings are mitigated. In addition, due to the District's application protocol and monitoring plan (attached as **Tab B**), the threat to human beings is sufficiently mitigated.

Note: Authority cited: Sections 21083 and 21087, Public Resources Code. Reference: Sections 21080(c), 21080.1, 21080.3, 21082.1, 21083, 21083.3, 21093, 21094, 21151, Public Resources Code; Sundstrom v. County of Mendocino, 202 Cal.App.3d 296 (1988); Leonoff v. Monterey Board of Supervisors, 222 Cal.App.3d 1337 (1990).

Solano Irrigation District

NPDES Monitoring Plan

September 3, 2003
Revised October 14, 2003

Written by:
Mark Veil
Pest Control Specialist
Solano Irrigation District

Monitoring Plan

Element No. 1

Project Description

Water travels from Lake Berryessa, down Putah Creek and through Lake Solano (to a diversion dam) before it flows into the Putah South Canal (PSC) which is owned by the federal government and operated by Solano Irrigation District (SID). The flows in this canal range from about 55 cubic feet/second (CFS) in the winter to as high as 800 CFS in the summer.

The 32.3 mile long concrete lined PSC is the "central hub" of the District's water distribution system. This is because it acts as a type of feeder canal that supplies water to the treatment plants for five cities and a large prison, to some year-round use pipelines and to many seasonal use irrigation canals and pipelines. There are nine separate irrigation canals that total 112 miles in length and there are about 186 miles of pipeline. The District also maintains about 70 miles of drainage ditches. Approximately 55,000 acres of irrigated land is serviced each year. The gross area of the District contains approximately 73,000 acres.

Solano Irrigation District is located in Solano County. Much of the land the District services is located in the western part of the Sacramento Valley just south of Putah Creek and extending south of Vacaville. It also services land in Suisun Valley and Green Valley which lie west of the Sacramento Valley near Fairfield.

Most of the Project water is used on fertile, flat farmland. Some of the crops grown include tomatoes, wheat, alfalfa, corn, beans, grapes and various orchard crops.

The water distribution/recovery system in agricultural land is as follows: water is delivered to the land via pipelines and canals and tail water from irrigated fields flows into drains and ultimately into flood channels.

Beneficial Uses of Canal Water

As can be seen from the project description in Element No. 1, the primary beneficial uses of water in the Putah South Canal are 1) domestic water (for drinking and for landscape irrigation) for much of the Solano County population, numbering over 400,000 people; and 2) farmland irrigation water. The primary beneficial uses of the water in the earthen irrigation canals is farmland irrigation water for about 55,000 acres and landscape and field irrigation water for some rural homeowners. The gross value of the agricultural production in the area irrigated is estimated to be about $148 million. This production consists of food, feed and some ornamental landscape plants.

Copper Sulfate is the aquatic pesticide used by Solano Irrigation District to maintain these beneficial uses. If the water quality drops because algae and underwater rooted plants are not controlled then these beneficial uses will be negatively affected. The following will occur: meters, screens, pumps, sprinklers, pipes and farmers' irrigation siphon pipes will plug; a taste and odor problem will develop in drinking water; a mosquito problem will develop in the canals due to a lack of flow; and it will become impossible to deliver most of the water needed through any of the canals because the aquatic weeds and algae will greatly impede flow. There is more on this subject in Elements No. 5 and 6.

Aquatic Pesticides Used By Solano Irrigation District
Formulations Used (see included labels)

Copper Sulfate (bluestone) is normally the only herbicide used for algae control in the Putah South Canal (as it was in this 2003 season). In 2002, SID did also use one application of Cutrine Ultra in the PSC and it is possible that SID will, in the future, need to use either Cutrine Ultra or EarthTec in the PSC for algae. We are still researching the EarthTec product but SID was told that it will have less effect on water treatment plants than Cutrine Ultra.

Cutrine Ultra is a liquid chelated copper (9% copper) of mixed copper-ethanolamine complexes. The EarthTec product (5% copper) is not a chelated copper but it is formulated as a liquid so that the copper will stay in its more available ionic form.

In 2002 and 2003 spring and summer irrigation seasons, Clearigate was used in five unlined irrigation canals and Nautique was used in the other two (Canal 4 and Kilkenny Canal). In 2003 Nautique wasn't as good for algae control so Clearigate was used once instead of Nautique for improved overall control. Results were satisfactory but some canals did not have as much control on the four week schedule as others. Next year schedules will be adjusted (some canals will be put on a three week treatment schedule). The high cost of Clearigate may force us to switch to a mainly Nautique program with one or two intermixed Clearigate and/or copper sulfate treatments.

Nautique is a liquid and is considered a chelated copper as Copper Carbonate (9.1% copper). Clearigate is a liquid and is also considered a chelated copper as mixed Copper Ethanolamines with 0.31 lbs copper/gallon.

All of the above copper formulations are registered for aquatic and/or submerged weed control for use in California canals. SID personnel work directly with representatives from the Nautique and Clearigate manufacturers. These ongoing relationships are helping SID apply their research to come up with the best application practices. Such practices include proper application techniques, rates, sites and frequency. The goals include using the least amount of herbicide possible to obtain adequate (not complete) control of the aquatic weeds.

Copper Sulfate use on the PSC is not as exact but every time we have tried to decrease use we would end up with an increased amount of filamentous algae. This caused screen plugging which required that men clean screens through the night. We never exceed maximum label rate and often use ½ to ¾ the maximum rate of 2 lbs/cfs.

SID personnel do have field monitoring kits that are used at treatment sites to verify copper dosages at infusion points. Because manpower availability it is not possible to take multiple measurements downstream to determine the dissipation of copper in real-time. We agree that such measurements would be a laudable goal for the future. In the meantime we will continue our existing monitoring and use the data that is accumulated to continue to make improvements on our aquatic pesticide application process by developing a range of target rates based on the success of our treatments. Using our current process and monitoring techniques we are able to accurately adjust the pesticide rates to our flow rates (CFS) because the flow rate in the canals are known and precisely measured.

Because copper products do not adversely effect agricultural crops it is not necessary for the Solano Irrigation District to restrict irrigation during periods when we are treating our distribution canals. It is of course necessary to restrict the distribution of water from the Putah South Canal to water treatment plants during aquatic pesticide treatments of this concrete lined facility.

Representative Application Site for Copper Sulfate Use:
Application Site Location and Description

Location

The start of the Putah South Canal (headgate).

Flows when applications are made

Peak irrigation season flows (mid May – mid Sept) = 350 to 800 CFS
Non-peak irrigation season flows (in April, part of May, part of Sept and Oct) = 100 to 349 CFS

Canal Dimensions

Location on Canal (start @ mile 0.0)	Bottom Width	Top Water Width	Normal Depth of Canal
Mile 0.0 to 6.15	12'	Approx 35'	10.28'
Mile 6.15 to 13.79	10'	Approx 30'	8.66'

The water entering the concrete lined PSC already has a significant amount of algae and aquatic plant fragments in it from Lake Solano. Since we do yearly silt removal from the bottom of this canal, our main concern has been the control of algae and not rooted aquatic weeds.

Pesticide Use

Copper Sulfate is used in the PSC for the control of algae. It also seems to hinder growth on some of the aquatic weeds present.

When Pesticide is used

The Copper Sulfate treatments are started after we get a number of warm and clear days with no rain and after the low winter flows have started to increase in the spring. This means that actual treatments usually start in April. The treatments continue until about the end of October when algae growing conditions become less optional (with cloudy days, silty water, shorter days and colder water temperatures).

Climate During Use

Rain: Almost none. Mostly sunny days with daytime highs ranging from about 80°F to 105°F. (A treatment would normally be cancelled if it was a dark cloudy day.)

Wind: N/A

Rates Used

1 to 2 lbs of Copper Sulfate per cubic feet per second (CFS) of water flow. (Note: 1 cubic foot equals 7.48 gallons and cubic feet per second equals the amount of water that passes a given point in one second.) 1½ lbs/CFS and 2 lbs/CFS are the rates most often used. The rate selected

depends mainly on the amount of algae found in the canal prior to the treatment. It also depends, to a lesser degree, on the amount of algae seen floating into the canal from Lake Solano.

Treatment Frequency
Normally once every two weeks.

Receiving Water Types

The treatment travels down the PSC and part of it goes into some irrigation canals as it is dissipating. This dissipation means that the copper is constantly being removed from the canal water in the following ways: when it is taken up by aquatic plants and algae, when it is bound up in silt and soil in the canal, and when it precipitates out.

If there were spills of this treated water, they could only occur from the ends of certain irrigation canals and laterals in the following systems: Vaughn, Weyand, Kilkenny, Canal 3 and possibly Canal 4. The possible receiving waters include the following: McCune Creek Channel, Sweeney Creek Channel, New Gibson Canyon Channel and Horse Creek Channel. The treated water more than likely would not ever reach these channels. These flood control channels are maintained by the Solano County Public Works Department.

Representative Application Site for Aquatic Glyphosate (Aqua Master or Rodeo)

Pesticide Use

Weeds on the irrigation canal waterlines can be controlled (with the possible rare exception of a few cattails, bulrush, or horsetail plants) without aquatic applications by lowering the canals; but weeds, such as cattails, in the drainage ditches can not be controlled without the use of aquatic glyphosate.

Representative Application Site Location and Description

Location
The Fry Road drain is located next to Fry Road in Solano County, east of Vacaville. It runs north of and parallel to Dally Canal Lateral 5.

Approximate flows when applications are made
0 flow to ½ CFS (equals 0 inches deep to about 8 inches deep.)
Fry Road Drain Description

The drain is 2 1/2 miles long. It averages about 5 1/2’ deep, 5’ wide at the bottom and 17 1/2’ wide at the top.

When Pesticide is Used

The date of the first aquatic glyphosate treatment is dependant when the amount of weed growth present warrants a need for control. This is normally when weed growth on the drain bottom is starting to become fairly dense but before that growth is so large that it will not disintegrate after an application. Cattail control is normally started after the first plants have matured or headed out (about June or July). So, the first treatment is normally made in June or July with a second treatment in about September.

Rates Used

This is dependant upon the weed species present, stage of plant growth and label rates. The following are the normal label rates used:

1. *Annual Weeds*
   Annual weeds less than 6" tall = 24oz/acre broadcast
   Annual weeds more than 6" tall = 40oz/acre broadcast
   (There are exceptions such as Italian ryegrass which requires 48oz/acre.)
2. *Perennial Weeds*
   For perennial weed control using hand-held equipment the *Aqua Master* label instructions are to "apply ¾ to 1 ½ percent solution to control or destroy most vigorously growing aquatic weeds." The rates for broadcast applications using a boom sprayer range from 4 to 7 ½ pints per acre.

Climate During Use

Rain: It almost never rains during the times when aquatic glyphosate is used. The District personnel will normally not use aquatic glyphosate if rain is expected within six hours after an application (so it won't wash off). There are mostly sunny days with daytime highs ranging from about 80° F to 105° F. Normally, the only spraying done during the higher temperatures is on weeds which are not drought stressed (lower control is achieved on drought stressed plants).

Wind: During the time of year when aquatic glyphosate would need to be used, the wind speeds can range from 0 mph to 25 or 30 mph. Of course, spraying can only be done when there is no danger of drift (wind speeds below 10 mph).

Receiving Water Types

The receiving water would be Old Alamo relocation, which flows into New Alamo Channel.

<u>Element No. 2</u>

An Assessment of Existing and Potential Adverse Impacts on Beneficial Uses: Copper Sulfate

Existing Adverse Impacts

None Known.

Potential Adverse Impacts

It is not possible for copper sulfate to harm the drinking water since all the water treatment plants along the PSC stop taking water when the copper sulfate treated water is moving by each of their outlets. (There is also a 1 ppm tolerance for copper in drinking water.)

If a small amount of spill occurred in the flood channels, it would probably not show an adverse impact for the following reasons: 1) there would be a low amount of copper present in the canal water through sorption and sedimentation which happened in the canal, 2) the massive amount of dilution that would occur once the spill entered the channel, 3) the moderately high alkalinity (140) of area water decreases the toxicity of copper to aquatic organisms, and 4) the amount of biologically active copper is greatly reduced in area water because the active copper ions react with carbonate and bicarbonate ions to form inactive complexes which precipitate out.

The levels used will not harm livestock or crop plants. Past research has shown no residue buildup in crop soil. Copper at very low levels is needed for plant growth and is already present in the environment.

Aquatic glyphosate (Aqua Master).

Existing Adverse Impacts
None.

Potential Adverse Impacts

Monsanto information says that "glyphosate dissipates rapidly from water by binding tightly to suspended soil particles and through deposition in bottom sediment and microbial degradation." It is no longer available for plant uptake, once it is bound to the soil particles. The microbial degradation process can take place in both aerobic and anaerobic conditions. Monsanto literature also says that when their aquatic glyphosate is applied according to the label, "there are no restrictions on water use for irrigation, recreation or domestic purposes." This is because of what was already mentioned plus it does not bioaccumulate and it has the lowest toxicity ratings possible. Downstream organisms are, thus, not affected.

If crops were irrigated with water from treated glyphosate areas, they would not be affected. Only those plants sprayed with aquatic glyphosate are affected. Submerged plants are not affected.

As seen from the above discussion, there are no potential adverse impacts on either the water in drains sprayed with aquatic glyphosate or possible receiving waters.

Element No. 3

Note: This will be modified to satisfy Region #2 (Bay Area Region) sampling requirements to monitor copper treatments in their area. Since the possible receiving waters are similar in Region #2 and Region #5, the aquatic glyphosate monitoring will be done in Region #5 only (as discussed with both Regions).

Water Quality Analyses

Aquatic glyphosate (Aqua Master)

Monitoring will be done twice per season. As described in Element No. 1, this is dependent upon when the vegetation in the Fry Road Drain needs to be treated (possibly June and September).

Sampling

1. Pre-treatment samples

On the morning of treatment day just prior to treatment, collect two water samples in the area to be treated and one water sample near the end of the drain whether or not that area will be treated. This is to insure that water has not carried glyphosate into the drain.

2. Samples taken immediately after the treatment
   Take three water samples in the treated area as near the surface as possible. As with all samples, the time each sample was taken and the location of where the sample was taken must both be recorded.
3. Take three more samples within two hours (and close to two hours) after the treatment. These samples should be taken within the front edge of the treated water which would, of course, be downstream of where the treatment was made. The location of these sampling sites can be determined by either a water flow velocity determination or through the visual aid of dye that was placed on the downstream edge of the treatment at the time of treatment. Do not take these samples right next to each other. Take one of the samples just upstream of the leading edge of the treatment. Take a second sample further upstream of the first by a distance equal to about 20% of the total length of drain sprayed. Take a third sample that same distance upstream from the second sample.
4. Sampling the day after treatment
   In the morning, take two samples at the estimated location of the treated water of the drain or near its end and take one sample at the very end of the drain where it can possibly discharge into receiving waters (delete this third sample if the other two were taken at this same site).

Discussion of Surfactants used with Aquatic Glyphosate

Aquatic glyphosate is required to be used with a non-ionic surfactant. The surfactant is needed so that the spray droplets will spread out and not bead up, thus giving better plant coverage which greatly improves herbicide leaf penetration. SID uses R-11 which is a nonionic surfactant that is registered for aquatic use. One of the reasons it was chosen is that it has the safest hazard rating possible ("caution"). It is normally used at a rate of 64 oz/100 gallons of spray solution with aquatic glyphosate.

We also use LI 700 with aquatic glyphosate. LI 700 is a non-ionic surfactant acidifier (spray solution buffer) that is registered for aquatic use with herbicides. It basically offers some protection to aquatic glyphosate when it is used in spray solutions with moderately hard to hard water (with pH of 8 or higher). It lowers the pH and thus reduces the availability of cations such as calcium, magnesium, and iron to react with glyphosate which would make whatever glyphosate that reacted with those ions less available to act as a herbicide. It will, of course, not change the pH of a water body sprayed (only the spray solution). LI 700 is extremely safe in the aquatic environment (as shown on the MSDS).

Discussions were made with Martin Lemon, a Monsanto representative (the glyphosate manufacturer); with Jeff Vipond, a Huntsman representative (the R-11 manufacturer); and with the Michael Atkinson, a Loveland Industries representative (the LI 700 manufacturer), regarding the need for surfactant sampling.

The following are items from those discussions with conclusions which were drawn from those items:

There are no analytical tests that can uniquely determine the presence of either R-11 or LI 700. Their components are common chemicals that could come from other sources.

In 1989, a study was done for the Forestry Department in Canada (from the "Proceedings of the Carnation Creek Herbicide Workshop"). They applied glyphosate with a non-ionic surfactant and applied it by air over three watersheds. In their application they used a ratio of a certain amount of glyphosate to a certain amount of surfactant. They then sampled the water for glyphosate. If any glyphosate was found, they would then calculate the probable amount of surfactant present by using the same ratio for glyphosate to surfactant that was used in the application.

Since there is no analytical method that can uniquely determine the presence of the surfactants and since glyphosate is the only true herbicidal active ingredient in the mix, SID personnel think it is best to use the above ratio method for surfactant determination (as needed).

Copper Sulfate

Monitoring will be done twice per season: once for an application made during a probable low flow period (April, part of May, part of September, or October) and once for an application made during a probable high flow period (mid-May through mid-September).

The sampling will be done relative to treatments made at the Putah South Canal headgate (see Element No. 1). Samples will be collected just downstream of the application site, midway between that site and possible receiving waters and at selected possible discharge sites into receiving waters. Since the possible receiving waters (see Element No. 1) are all similar, there will only be a need to sample at one or two of the possible spill sites that go into those receiving waters. One such site would be at the end of the Solano Irrigation District ditch just downstream of the end of Vaughn Canal Lateral 4 (next to McCune Creek Channel). Another site would be at the end of Weyand Canal Lateral 1-G, where it is next to McCune Creek Channel.

Sampling

1. Pre-treatment samples
   Two samples will be taken the afternoon just prior to the application at the probable #2 "application" sampling site (see #2) and at the possible discharge site located downstream of Vaughn Canal Lateral 4.
2. Sampling shortly after the application
   Two samples will be taken just downstream from this Putah South Canal headgate application at the first spot on the canal where the treatment has thoroughly mixed. The samples will be intentionally taken from the "slug" of copper sulfate treated canal water.
3. Midpoint Samples
   Solano Irrigation District staff will make an estimate of the water flow velocity in the canal between the treatment site (mile 0.0) and the possible discharge sites for receiving waters. Near the end of the workday, two more sets of samples will be taken at the two sites in the canals where the copper sulfate treated canal water is expected to be at. This means that one set of two samples will be taken at a site between the Putah South Canal headgate and the end of Weyand Canal Lateral 1-G, and one set of two samples will be taken at a site between the Putah South Canal headgate at the end of the Solano Irrigation District ditch located just downstream of the end of Vaughn Canal Lateral 4.
4. Samples taken at the selected possible discharge sites

Take two samples at each possible discharge site at the end of the application workday (approximately 3:00 p.m.).

5. Continued monitoring
   On the first day following the application day, one set of morning samples and one set of afternoon samples will each be taken at each of the sampling sites mentioned in #1 through #4 above.

   On the second day following the application day, one set of afternoon samples will be taken at each of the sampling sites mentioned in #1 through #4 above.
   Note: Continued monitoring will not be needed on the days after the application day for following monitoring periods if this first sampling period shows non-detects for those samples.

Element No. 4

Quality Assurance Plan (QAP)

1. QAP Objectives

The contract lab has a standard turn around time for copper samples of only 14 to 15 days. This can be shortened if needed. The Method Detection Limit (MDL) for copper is 0.78 micrograms/liter. The MDL for glyphosate is 3.3 micrograms/liter. (MDL's provided by WECK Laboratories, Inc.) Please find attached analytic methods for copper and glyphosate. EPA method 200.8 only analyzes total copper and it does not make an adjustment for canal water pH.

No other water quality parameters will be analyzed in the field. If algal buildup were ever allowed to get to serious levels then canal water deliveries would be adversely affected because flow/canal capacity would be reduced. The submerged aquatic weed/algae control program is a scheduled maintenance control program whose goal is to regularly keep growth pruned back to acceptable levels. A large amount of biomass is not killed at each treatment. It is extremely unlikely that the treatments would cause serious Dissolved Oxygen (DO) sags. North Bay Regional (NBR) Water Treatment Plant routinely does DO checks of PSC water (where we regularly treat for algae). The NBR lab has never found a DO level below 6 milligrams/liter, which is definitely safe for any aquatic life. The other consideration is that these canals should not be considered fish habitat because they are all allowed to dry out after the irrigation season (except for the PSC which is cleaned).

The primary goal of the specifications and procedures in this QAP is for the provision of standardized procedures and references which are aimed at achieving quality defensible data. Procedures are established for documenting and reviewing the sampling, sample movement (from field to lab), sample analysis and data.

All field personnel involved in sampling will be required by their supervisors to both follow this QAP and have a copy of it.

> Note: All parts of this QAP which pertain to the laboratory (such as laboratory custody procedures) are included in the attached "Quality Assurance Program

manual" from Weck Laboratories, Inc. (As Attachment C). Weck Labs is required to follow their own QAP.

2. *Field Procedures*

Sample Locations

Sample locations were selected as described in previous elements. The following was also considered: 1) closeness to our headquarters for ease of travel to the sampling sites, and 2) the proximity of the possible discharge sites to the application site. One such possible discharge site was always selected that was fairly close to the application site and another was selected that was further downstream from the site.

Note:Sampling Frequency and duration have been previously discussed.

Requirements of Field Sampling

Sampling and field equipment that contacted treated water must be decontaminated after a use in a sampling area. For the glyphosate samples "a 500 ml sampling container has been specified in the sampling procedure in order to insure collection of a representative sample. Some samples will require filtration. A 20 ml sample can be readily filtered using a syringe filter. This will provide an adequate sample for analysis." (Monsanto)

Sample Holding Times, Storage and Preservation (See Table 1)

All samples will be put into "iced" coolers very shortly after they are taken and then kept refrigerated until they are shipped. They will then be shipped in coolers with blue ice.

Sample Type	Analysis Method	Maximum Allowable Holding Times Prior to Lab Analysis	Container(s)	Preservation	Storage Temperature
Glyphosate	EPA #547	14 days	1 oz. Plastic (as recommended and provided by Monsanto)	Only needed if the water is chlorinated	4°C ± 1-2°
Copper	Copper EPA #200.7 Or 200.8	6 Months with Preservation	½ pt or 1 pt plastic	Nitric Acid to pH of below 2	Same

Documentation

Field activities must be documented in order to properly support any data interpretation and to ensure that data is defensible.

The following are some of the items that will be recorded during field sampling:

1) Name of person who took sample
2) Identification of the site sampling location
3) The time and date that each sample was collected
4) Any observations which may influence the results from the samples (such as if particles are in the water, weather conditions, conditions of the canal or drain, etc.)
5) If there were any problems that were encountered during the sampling. (A copy of the sampling data form that will probably be used is included in this plan as Attachment A.)

Identification of Samples

Samples will be labeled with the following for identification: 1) sample time and date, 2) location where sampled (tentative), 3) analytical method requested, 4) identification number of the sample.

Field Staff Training

Personnel who conduct the sampling will receive training and supervision regarding the procedures to be followed.

Quality Control Samples

One field blank (a clean sample), one field split sample (analyzed at a different lab), and one pair of matrix spikes will be taken once per year for each active ingredient sampled. The Regional Board will be given a copy of the results. (See Attachment E for definitions.)

3. ***Sample Documentation and Custody Procedures***

The possession of the samples from the time they are taken until the results are reported by the lab, must be traceable.

Documentation

A master sampling log book shall be maintained for all the samples taken. The people doing the sampling will be responsible for the following:

- Initial and date all daily entries.
- Accurately record sampling activities on both the field form and the log book.
- Only make legible entries and use ink that is waterproof. The entries should accurately document the sample collection activities.
- If there are errors or changes in the entries then a single line should be used to cross each one out. The change must be initialed and dated.
- They must legibly and accurately complete the chain of custody forms.

Chain-of-Custody Form

After the samples are collected and just prior to release or shipment, a Chain-of-Custody form is filled out. Cross checking is done between the field documentation, the sample labels and the Chain-of-Custody form to verify container type, amount of containers, sample volume and sample identification.

The following information is included in the Chain-of-Custody form:

- Date Sampled
- Time Sampled
- Sample Type
- Sample Identification
- Analysis Requested
- Release and Acceptance Signature Blocks
- Sample volume
- A Remarks Section (Can be used to record the method of shipment and courier name)
- Client Name and Information
- Special Handling Instructions
- Sample Condition

(A copy of the Chain-of-Custody form that will probably be used is included in this plan as Attachment B.) The signature blocks are, of course, signed on the Chain-of-Custody form anytime there is a change in the custody of the samples.

Sample Handling and Shipments

Sample shipments are always accompanied by a Chain-of-Custody form. A copy of the form is retained for project records. Temperature increase, bottle breakage and cross contamination can all be prevented during shipment to the lab in the following ways:

- Plastic reclosable bags are used to individually seal the sample containers.
- Some type of cushioning material (bubble wrap, etc.) between the bottles helps prevent breakage by not allowing them to touch each other.
- Coolers made of hard plastic are used to ship/transport the samples.
- The samples are packed with ice. The ice can be put into reclosable bags, but must contact the samples to about two inches deep on both the bottom and top of the cooler.
- Coolers are always sealed with Chain-of-Custody seals and taped shut.
- The sample control people at the laboratory will be notified just prior to sample shipment.
- Next day air delivery is used to assure that the samples arrive without a significant temperature increase.

5. ***Data Validation and Audit***

Technical Audits Done in the Field

Project Managers with Solano Irrigation District routinely check (through observation) to make sure that the proper sampling, sample handling and documentation procedures are followed. This is done to help ensure that this QAP is adhered to. A field audit checklist will be completed one to two times per year. A copy of this audit form is included in this plan (as Attachment D).

Data Validation (data quality audit) and Technical Systems Audit

Each quarter the California Regional Water Quality Control Board will perform a data quality audit on 1% of the generated data. This is done to verify that the analytical method was followed properly with correctly calculated and reported results. The following items will be reviewed during the validation:

- Lab procedures documentation
- The Chain-of-Custody records
- That data was accurately reduced, transcribed, and reported
- That the parameters for quality control and the method specific calibration procedures were properly adhered to
- That the recorded results are precise and accurate.

The Regional Water Quality Control Board will also do an annual check of field procedures by conducting a technical systems audit. Audit results and recommendations will be given to Solano Irrigation District.

*6. **Data Assessment Procedures***

The Method Detection Limit (MDL) for copper is 0.78 micrograms/liter. The MDL for glyphosate is 3.3 micrograms/liter. (MDL's provided by WECK Laboratories, Inc.) Please find attached analytic methods for copper and glyphosate. EPA method 200.8 only analyzes total copper and it does not make an adjustment for canal water pH.

Data will be assessed primarily through the use of the quality control samples. This will help determine if the program has met the quality assurance objectives. Data quality will be assessed and an attempt will be made to identify possible limitations on the use of data.

The laboratory is required to follow its own QAP. Any associated results from the analysis of laboratory quality control samples must be reported with sample results so the Solano Irrigation District (SID) staff can evaluate the performance of the analytical process.

SID staff must review all project data. A review is made on the results of each batch of samples that was analyzed by the lab. This must, of course, include any field and lab quality control samples that were analyzed.

The following steps will be included in the review of the project data:

- Lab and field data will be reviewed for completeness and accuracy in documentation, Chain-of-Custody procedures, compliance with acceptable holding times of samples in refrigeration (see Table 1) and that the quality control samples were taken with the required frequency.
- Evaluate quality control blank sample results in order to identify contamination.
- Reviewing all spike and split sample results to determine if a high enough degree of project accuracy and precision is being met.

(See Attachment E for definitions of quality control sample types.)

*7. **Corrective Action***

SID personnel will make sure that procedures specified in the QAP are followed (especially regarding sample collection, data documentation, sample preservation, proper shipment and data analysis).

Any field data problems that might require corrective action will be documented in either the field sampling form or data log.

Element No. 5

Combined with SID's Best Management Practices

Element No. 5 is "an evaluation of any non-toxic or less-toxic pest control methods that may provide a practicable substitute for pesticide application" (form NPDES permit).

An SID Pest Control Advisor writes Pest Control recommendations for the aquatic weed control applications. These are submitted to the Solano County Agricultural Commissioner's office. "Monthly Summary Pesticide Use Reports" with all aquatic pesticide use are also submitted to the Agricultural Commissioner's office. Inspectors from the Commissioner's office have done "Pesticide Use Monitoring Inspections" on aquatic applications and regularly do "Pest Control Records Inspections" which includes a "Headquarter and Employee Safety Inspection," a "Pesticide Storage Site Inspection," and a "Pest Control Advisor Record Inspection." SID has maintained an excellent record on all these inspections.

Currently in canals there are no "beneficial" aquatic plant species that are capable of out competing the many undesirable aquatic plant species present. These undesirables, if left unchecked, will greatly reduce the beneficial uses of water in canals.

Our irrigation district is aware of an isolated canal system in southern California which uses a non-native Asian fish (the grass carp) for aquatic weed control. SID is not allowed by the California Department of Fish and Game to use these fish due to the risk of their introduction into surrounding habitats. They are not an option for us.

The mowing of aquatic weeds to replace aquatic glyphosate use is not a viable option. The following are reasons:

1) side-tractor mowers do not have enough reach to get most of the weeds in the bottom of drains that aquatic glyphosate will be used on;
2) SID currently does not own a $120,000 side-tractor mower; and
3) the wet conditions encountered to mow aquatic weeds would probably quickly damage or ruin a mower.

There is more on the "evaluation of non-toxic or less-toxic pest control methods" under the "Alternative Control Methods" section (3C) of the following SID Best Management Practices:

Solano Irrigation District

Best Management Practices
Aquatic Pesticides

1. Licensing, pesticide labeling, and permits. Solano Irrigation District (SID) has two licensed Pest Control Advisors and the employees who make aquatic applications are each licensed with a Qualified Applicator Certificate. Last summer we switched from using Magnacide H to Clearigate, a material that does not require a permit. Our PCA who writes the very thorough Pest Control Recommendations is also very careful to only allow pesticide use which is consistent with the pesticide labels.

2. Notification requirements. Since we stopped using Magnacide H our notification requirements have greatly decreased; but we still keep the lines of communication open with our County Department of Agriculture regarding what, why, and how we use different products.

3a. Personnel at SID routinely make preliminary site evaluations. These are used to determine areas in need of a treatment, location of a treatment site (site suitability), and some of the precautions to be used for a particular type of treatment. We constantly consider the different treatment options, which is one of the reasons we switched from Magnacide H to Clearigate. Pest type and growth stage are also considered in order to help determine the treatment type. This greatly increases the likelihood of achieving a high level of control.

3b. Secondary site evaluations and pre-treatment monitoring are routinely made. Some of the factors considered are weed species present, growth stage, weed location, and weed density. These are used to help determine such things as the appropriate mechanical control measure or herbicide to use, herbicide rate, and may also help in determining the number of treatment sites needed.

3c. Alternative Control Measures. As an alternative to Clearigate use, we have evaluated the mechanical removal of aquatic weeds with a huge chain, two tractors, one excavator, a dump truck, and at least four to six men. Besides the extreme canal-bank erosion damage and the silt water quality problem, the estimated cost of six to ten times the chemical cost makes this mechanical procedure cost prohibitive on a large scale. Even if it were decided to do this mechanical control, it would not be able to adequately maintain the required beneficial uses (see Element #1).

On a couple of our low use laterals we dry them out in order to control the aquatic weeds. This is only possible on a very limited scale because the majority of the canals and laterals have a moderate to high water demand. Crops would either greatly suffer or die from lack of water if these higher use canals were allowed to go through a long dry out period during the growing season.

Clearigate and Magnacide H both have the ability to control both rooted aquatic weeds and algae. Copper Sulfate controls algae and has only very limited control on the rooted aquatic weeds (in our water). One of our canals, the Putah South Canal, is concrete lined and so far we have been able to clean the silt out of it well enough to keep most rooted aquatic weeds from growing (they need the silt to root in). We still must use Copper Sulfate in order to keep the filamentous algae from becoming a huge problem. There is no alternative to using some type of copper-based product in this particular canal. Problems would be immense if we tried to do without it. Without adequate filamentous algae control, water deliveries to several cities would be greatly hindered (with huge repercussions). Water deliveries for farmland irrigation would also be partly curtailed due to restricted flow and there would be a high level of screen and pump plugging from a large amount of algae. This option of canal cleaning for silt removal is, of course, not a consideration for all of our unlined (earthen) irrigation canals.

On the concrete lined Putah South Canal we have promoted the growth of grass on its banks. This decreases total herbicide use and improves erosion control, thus decreasing the total amount of silt that would go into the canal.

Glyphosate controls most grasses and broadleaf weeds and is very effective because it controls all or much of each of their root systems. Alternative products have some of the following problems: a higher handling hazard, they do not control the weeds we want controlled, they have use restrictions, they are not legal for our use, they are not translocated and are thus not nearly as effective as Glyphosate, and/or they are more sensitive to crops and the environment.

As an alternative to aquatic glyphosate use (Rodeo or Aqua Master) we have considered the possibility of doing more excavator work. This would slowly and surely enlarge the size of our canals and drains beyond what is acceptable and still would not give adequate weed control. Cattails, for example, would inundate canals and drains and would greatly impede the flow of water.

We do some burning of dry weed growth. Burning has only limited effectiveness because it only gets the top growth and it does not help us adequately keep weed seed out of farmers' fields. Burning is also a slow, dangerous process that does not work as well on green foliage. In recent years the two local Air Pollution Control Boards have said "no" to many of our requests to burn (while, of course, saying the same to others). This has greatly discouraged us from doing much of the burning we would like to do.

We have already adopted a program which promotes the growth of grass on the inside banks of some of our larger drains. Since the grass is not in the canals, it has not hindered water delivery; but has decreased the total overall herbicide usage with improved erosion control.

3d. BMP's done prior to and during a treatment. If the wind is high enough or becomes high enough to cause significant drift at the start of or during a glyphosate application, then that application will either not be made or will be terminated. If conditions will be dusty immediately after a glyphosate treatment, then we will delay the treatment (since dust hinders control). Low pressures and special nozzles are used to help control drift.

If it is raining or rain is expected very shortly after a glyphosate application then that application will not be made. If the water level in the canal or drain is much higher than normal then the aquatic glyphosate application will not be made.

SID personnel follow all applicable laws and regulations for the application of pesticides.

Each herbicide label has many specific BMP's for that herbicide. So, we always read and follow the product labels.

All Solano Irrigation District applicators go through yearly training. It covers such topics as safe application techniques, proper use of application equipment, applicable laws and regulations, and has specifics about the use of the different aquatic and non-aquatic herbicides that are used.

If it is an extremely cloudy or dark day, we would cancel an aquatic copper application. If the canal water is extremely turbid with almost no flow after some rain, we would cancel a copper sulfate application.

S.I.D. subscribes to a daily Solano County weather forecast. This forecast is checked constantly by one of our Pest Control Advisors. The weather information helps him make the above decisions and schedule future applications.

If water is being delivered outside our system to, for example, another irrigation district then we will either delay the copper treatment until water is no longer being delivered outside our system or we will curtail water delivery to the outside system.

We do not allow irrigators to turn their water off at night during canal treatment days (for the submerged aquatic weed treatments in the irrigation canals). If we allowed these night shutoffs then the water that had been going onto their fields would spill into potential receiving waters. This way we keep this spill from occuring.

Water temperature and pH are considered for copper applications, and application water pH is usually adjusted for glyphosate use (to improve efficacy).

So overall, we consider site conditions, water use, and weather conditions in the decision to continue with a treatment or not.

3e. Post-treatment assessment. This evaluation of efficacy is routine and normally starts at about one week after application and continues for the rest of the irrigation season. If a treatment is deemed hazardous or ineffective then we either make corrective changes, eliminate that treatment type from a given area, or totally eliminate a certain type of treatment from our program. If the control level is at a higher level than we consider necessary, we decrease the treatment rate and/or eliminate the treatment site (as with copper sulfate).

Element No. 6

"Evaluation of the effectiveness of representative BMPs to eliminate or reduce the discharge of pollutants and minimize the areal extent and duration of impacts caused by the discharge of pollutants" (from NPDES permit).

At this time we do not have quantitative data (from analyzed samples, etc.) that could evaluate the effectiveness of our BMPs in this way. We can, on the other hand, evaluate the BMPs on the basis of the goals of good Standard Operating Procedures (SOPs) (such as labels and laws followed and precautions taken).

Many millions of dollars are spent on research for safety issues for each pesticide label. SID follows the herbicide labels in order to make safe applications both for applicators and for the environment.

SID personnel also follow all applicable laws and regulations for the application of pesticides. Many of these laws and regulations are written to prevent misapplication, one purpose of which is to protect the environment.

Drift prevention and the standard operating procedure of not applying aquatic glyphosate right before a rain both help keep some of it from going into the water. SID's BMP of not applying aquatic glyphosate when the water levels are higher than normal will also keep some glyphosate out of the water.

The training SID gives employees is significant because it helps ensure that the laws, labels and other BMPs are followed. The training also help applicators make effective applications to adequately control undesirable weed species which would otherwise harm the beneficial uses of the canal water (see Element No. 1).

Our BMPs also address the goal of keeping the applied herbicides out of receiving waters as much as possible (see "BMPs done prior to and during a treatment").

SID has taken a pro-active approach to both the development of the BMPs and the development of an integrated pest management program for vegetation management. For example, the grass that we promote on the banks above the concrete lined Putah South Canal effectively helps us in several ways. The grass aids us by helping to keep out undesirable rank weed growth through competition and allelopathy. It has also allowed for a decrease in total pesticide use with improved erosion control (over previous bare-ground spraying). This improved erosion control has helped in aquatic weed control by giving the rooted aquatic weeds less silt to root in. Some silt is still carried into the Putah South Canal with the canal water. It is removed mechanically. It is through this silt prevention and removal program that SID is able to maintain control of the rooted aquatic weeds in this canal.

SID feels strongly that by following our BMPs, we effectively protect the associated area's possible receiving waters from any adverse impacts.

Attachment A

Data Sampling Form

Attachment B

Chain-of-Custody Form

Attachment C

"Quality Assurance Program Manual"
from Weck Laboratories, Inc.

and

"Environmental Laboratory Certification"
for Weck Laboratories, Inc.

Attachment D

Field Audit Checklist

Date(s) Completed:

Person Performing the Audit:

Plan	**Check here if Plan was Properly Followed**	**Check here if Corrections were made and Explain Below**
Proper Sampling Procedures Followed:		
Timing of Sampling		
Location of Sample Sites		
Frequency of Sampling		
Proper Sample Handling Procedures Followed:		
Refrigeration		
Protection from Contamination		
Speed of shipment to Lab		
Proper Packing for Shipment to Lab		
Proper Documentation:		
Field Sampling Forms		
Sample labels		
Master Sampling Logbook		
Chain-of-Custody Forms		

Explanation of Corrections Made:

Attachment E

Glossary of Certain Quality Control Terms♦

"Equipment Rinsate or Blank – A sample of analyte-free media which has been used to rinse the sampling equipment. It is collected after completion of decontamination and prior to sampling. This blank is useful in documenting adequate decontamination of sampling equipment."

"Field Blank – An aliquot of reagent water or other reference matrix that is placed in a sample container in the laboratory or the field, and treated as a sample in all respects, including exposure to sampling site conditions, storage, preservation and all analytical procedures. The purpose of the field blank is to determine if the field or sample transporting procedures and environments have contaminated the sample. This aliquot is a combined field/equipment blank if it is also used to rinse the sampling equipment."

"Field Duplicates – Independent samples that are collected as close as possible to the same point in space and time. They are two separate samples taken from the same source, stored in separate containers, and analyzed independently. These duplicates are useful in documenting the precision of the sampling process."

"Field Split Samples – One sample is taken in one container and split into two containers: one sent to the normal lab and one sent to another lab. If both labs turn in the same exact results then the proficiency of the lab normally used is proven."

"Matrix Spike – An aliquot of sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix."

♦Quoted items are from the Delaware River Basin Commission.

End of Solano Irrigation District Interim NPDES Monitoring Plan

Attachment F

Mitigation Measures of Potential Adverse Effects

Measures:

The application of aquatic herbicides to irrigation water may create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials however such hazards are substantially mitigated. Mitigation for the safe transport of aquatic herbicides: chemical transport vehicles are inspected regularly and a driver with a hazardous materials endorsement on his driver's license is used, as needed; Department of Transportation regulations are followed; and SID has an excellent record due to training and company wide efforts toward safety. Mitigation for the safe use of aquatic herbicides: yearly herbicide use training is conducted, only applicators holding a valid Qualified Applicator's Certificate apply the aquatic herbicides, herbicide labels are followed, applicable laws and regulations are followed, Pest Control Recommendations are used. All giving an excellent record regarding herbicide use. SID does not dispose of hazardous materials, but it does properly dispose of empty containers as per the Department of Pesticide Regulation laws and regulations.

The application of aquatic herbicides to irrigation water may create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment however such a hazard is substantially mitigated. This is because chemical transport vehicles are inspected regularly and a driver with a hazardous materials endorsement on his driver's license is used as needed; Department of Transportation regulations are followed; SID has an excellent driving and loading record due to training and company wide efforts toward safety; yearly herbicide use training is conducted; only applicators holding a valid Qualified Applicator's Certificate apply the aquatic herbicides; herbicide labels are followed; applicable laws and regulations are followed; Pest Control Recommendations are used; and herbicides are properly stored. The District's past history of safety has been excellent in the proper storage, proper transport, and proper application.

The addition of aquatic herbicides to irrigation water will exceed the California Toxic Rule standard within the canal to which applied for a short time period; however, because SID keeps treated water within its systems and minimizes charge water releases, and because SID follows FIFRA etc, any impact will be less than significant with these mitigations, and because we operate under the Interim NPDES Permit, and because we monitor any charge water releases under our Interim NPDES Permit and because we have had independent monitoring conducted by the San Francisco Estuary Institute (SFEI) these violations are adequately mitigated. (Please see SID Monitoring Plan attached as **Tab B**)

The application of aquatic herbicides to irrigation water could have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory however because of District's application protocol and monitoring plan (Please see SID Monitoring Plan attached as **Tab B**) the threat to these species is sufficiently mitigated.

The application of aquatic herbicides to irrigation water could have impacts that are individually limited, but cumulatively considerable ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects) however because of District's application protocol and monitoring plan (Please see SID Monitoring Plan attached as **Tab B**) the threat of these "cumulative effects to the environment is sufficiently mitigated.

The application of aquatic herbicides to irrigation water could have environmental effects which could cause substantial adverse effects on human beings, either directly or indirectly; however because the District notifies all local water treatment plants and follows precise treatment schedules of copper treatments the plants avoid taking treated water. SID follows all manufacturers labeling and FIFIRA requirements, the potential for such adverse effects on human beings are mitigated. In addition, due to the District's application protocol and monitoring plan (included as attached as **Tab B**), the threat to human beings is sufficiently mitigated.

FIELD SAMPLING FORM

Site ID: ______________________

Site Description: Fill out as completely as possible.

Waterway depth, width, flow velocity, % vegetation coverage, lined or unlined, etc. For example - Aquamaster application within waterway, at edge of waterway, 10 feet up bank, etc.

Sample Description:

Date	Time	Sample ID	Rep (1,2,3)	Sampler Initials	Filtration Required (Y/N)	Sample Location – Edge, Middle, Distance from Application

Site Diagram: *Include each sample location and application area*

Signature: ______________________ Date: ________

Attachment B

Chain-of-Custody Form

Weck Laboratories, Inc.
Analytical & Environmental Services
14859 East Clark Avenue • Industry, CA 91745
Tel 626-336-2139 • Fax 626-336-2634 • www.wecklabs.com

CHAIN OF CUSTODY RECORD

Page_______ Of_______

CLIENT NAME:

PROJECT:

ADDRESS:

PHONE #:

FAX #:

PROJECT MANAGER

SAMPLER

P.O. #

SPECIAL HANDLING
- ☐ Same Day Rush 100%
- ☐ 24 Hour Rush 75%
- ☐ 48 - 72 Hour Rush 60%
- ☐ 4 - 5 Day Rush 30%
- ☐ Rush Extraction 50%
- ☐ 10 - 15 Business Days
- ☐ QA/QC Package

Reporting Agency ______________

Method of Shipment ______________

ID# (For lab Use Only)	DATE SAMPLED	TIME SAMPLED	SMPL TYPE	SAMPLE IDENTIFICATION/SITE LOCATION	# OF CONT.	ANALYSIS REQUESTED										REMARKS

RELINQUISHED BY	DATE / TIME	RECEIVED BY	DATE / TIME
RELINQUISHED BY	DATE / TIME	RECEIVED BY	DATE / TIME
RELINQUISHED BY	DATE / TIME	RECEIVED BY	DATE / TIME

SAMPLE CONDITION:
Actual Temperature:

Received On Ice	Y / N
Preserved	Y / N
Evidence Seals Intact	Y / N
Container Attacked	Y / N
Preserved at Lab	Y / N

SAMPLE TYPE CODE:
AQ= Aqueous
NA= Non Aqueous
SL = Sludge
DW = Drinking Water
WW = Waste Water
RW = Rain Water
GW = Ground Water
SO = Soil
SW = Solid Waste
OL = Oil
OT = Other Matrix

RUSH TURN AROUND TIME MAY REQUIRE SURCHARGE
TERMS AND CONDITIONS: SEE BACK OF THIS FORM

SPECIAL REQUIREMENTS / BILLING INFORMATION

DISTRIBUTION: WHITE & CANARY - For Laboratory PINK - For Client

Attachment C

"Quality Assurance Program Manual"

from Weck Laboratories, Inc.

and

"Environmental Laboratory Certification"

for Weck Laboratories, Inc.

W L

Weck Laboratories, Inc.
Environmental and Analytical Services - Since 1964

Quality Assurance Program Manual

Facility Name: Weck Laboratories, Inc.
Location: 14859 E. Clark Ave., Industry, CA 91745
Telephone: 626-336-2139

Revision 12
EFFECTIVE DATE: December 1, 2000
DATE OF SUBMITTAL: October 15, 2000

Approved by:

Jayna Kostura
Jayna Kostura
QA Officer
11/15/00
Date
626 336 2139 x 116

Alfredo Pierri
President/Laboratory Director
11/15/00
Date
626-336-2139 x 115
Telephone

Truyet Mai
Truyet Mai
QA Officer designee
11/20/00
Date
626-336-2139
Telephone

Alan Ching
Technical Director – Organic Section
11/16/00
Date
626-336-2139 x 125
Telephone

Joe Chau
Joe Chau
Technical Director - Inorganic Section
11/16/00
Date
626-336-2139 x 123
Telephone

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Table of Contents

Table of Contents-continued

Table of Contents-continued

1 INTRODUCTION

Weck Laboratories is an independent testing laboratory specialized in environmental analytical services. The company was founded in 1964 and it is organized as a California corporation.

The purpose of the Weck Laboratories Quality Assurance Program is to operate under standardized QA procedures, to provide guidance to all personnel and it is designed to continually monitor the reliability of test results, ensuring that they fall within acceptable limits, and provide guidelines for the implementation of corrective action when necessary.

This Quality Assurance Manual is a summary document that outlines the policies and operational procedures associated with the facility of Weck Laboratories, Inc. in the City of Industry, California. It is intended to ensure the high quality of analytical services that the Laboratory is committed to provide to its clients. This Manual contains references to other supporting documents also related to the Quality Assurance Program, such as SOPs, QC acceptance limits, MDL studies, Performance Evaluation Results and Policy documents.

The QA Manual and its supporting documents are reviewed annually to ensure that they reflect current laboratory practices and are in agreement with current regulations.

All policies and procedures have been structured in accordance with the NELAC standards and applicable requirements, regulations, guidance, and technical standards from the USEPA and State regulatory agencies. This manual has been prepared in accordance with the guidance documents listed in section 19.

This Quality Manual, SOPs and related documentation describe the quality system for Weck Laboratories, Inc.

1.1 Mission Statement

Weck Laboratories provides qualitative and quantitative data for use in critical decisions relating to the protection of the public and the environment. The data used for such purposes must be scientifically valid, defensible and of known and documented quality in accordance with standards developed by the National Environmental Laboratory Accreditation Conference (NELAC) and any applicable State or EPA regulations or requirements.
It is our goal to provide our clients with the best possible services, in terms of quality of laboratory work, honesty in our procedures and reporting, efficiency in our turnaround time and reasonable prices for our services.
Top management of the laboratory is totally committed to the attainment of the best possible quality of data and instructs and educates the staff on this company policy.
All the necessary resources and materials shall be provided to the management of the laboratory in order to meet and/or improve the quality requirements of NELAC, of the analytical methods performed at the lab and any special requirements from clients.

1.2 Services provided

The services provided by this facility are the following:

- Organic chemical analyses
- Inorganic chemical analyses

- Trace metal analyses
- Microbiological analysis limited to total coliform, fecal coliform and standard plate count.
- Physical analyses

The technical and service requirements for all requests to provide analyses are thoroughly evaluated before commitments are made to accept the work. This includes a review of facilities and instrumentation, staffing, and any special QC or reporting requirements to ensure that analyses can be performed within the expected schedule. All measurements are made using published reference methods or methods developed by Weck Laboratories. Competence with all methods is demonstrated according to the procedure described in Appendix 9 prior to use.

1.3 Proficiency Testing

Weck Laboratories, Inc. analyzes Proficiency Testing samples two times per year from an approved PT provider that meets the requirements specified in chapter 2 of the current NELAC standard. The specific analytes and matrices analyzed are based on the current scope of the laboratory services and are documented in a laboratory SOP on PT samples analyses.

The goal for PT results is obtaining 100% of all analytes within acceptable limits. When there are results out of the acceptance range, corrective action is initiated to prevent the error from reoccurring. A report with the documentation of the corrective action is also filed.

1.4 Ethics policy

Weck Laboratories, Inc. has developed a proactive program for prevention and detection of improper, unethical or illegal actions. A main component of this program is the periodic training and communications that the employees receive from management about the ethics policy and the utmost importance of an honest and ethical behavior in all activities performed at the laboratory.

Proper ethical conduct in the laboratory is strictly enforced. The Company's Code of Ethics (Appendix 2) is presented to current and prospective employees in both the QA manual and the Employee Handbook. Both documents contain provisions to acknowledge receipt and understanding by signing an attached form. The Laboratory Ethics seminar that is presented as a refresher to current employees and as part of the hiring process for new employees include elements describing examples of improper and illegal actions, as well as training in identifying appropriate and inappropriate laboratory and instrument manipulation practices.

Punishment for improper, illegal or unethical activities range from suspension to termination, depending on the degree and nature of the unethical activity.

Employees are required and encouraged to bring up to management any improper activities they detect or are suspicious of. Any incident reported is immediately investigated by the management and the person or persons involved are subject to disciplinary actions.

The Management shall also monitor the program for detecting improper, unethical or illegal action by performing internal proficiency testing (single or double blind), reviewing of analytical data post-analysis, performing electronic data audits and providing a rewards program for employees vigilance and co-monitoring.

In order to assist the laboratory technical personnel in performing their duties without detrimental influences, it is the policy of the Company that all laboratory personnel are free from any commercial,

financial or other undue pressures that could adversely affect their normal performance having an impact on the quality of the work they produce. By this policy all laboratory personnel dedicated to technical activities should not be influenced by, or involved in any financial or commercial matter while performing laboratory work. If any employee feels that he or she might be under any kind of pressure as described above, the Laboratory Director must be notified immediately.

2 QUALITY POLICY

2.1 QA objectives for measuring data

The objective of the Quality Assurance Program is to monitor the reliability of the analytical data produced by the Laboratory and to implement effectively the quality control procedures and operations defined for each analysis. The purposes of this program are:

- Provide data that is scientifically valid, defensible, and of known and documented quality in accordance with standards developed by the National Environmental Laboratory Accreditation Conference (NELAC) and any applicable state or EPA regulations or requirements.
- Ensure that analytical results fall between acceptable control limits.
- Provide mechanisms for corrective action when necessary.
- Establish standardized practices to provide consistency in the generation of data.
- Define the quality of each analytical system in terms of accuracy, precision and sensitivity.
- Identify in the early stages possible problems that may affect data quality.

2.2 Resources

The resources of Weck Laboratories are instrumental in implementing this policy. Highly trained personnel, including chemists and related scientists continue their education by attending seminars and technical meetings; instrumentation that is continuously upgraded to maintain the state-of-the-art in analytical instruments; and a facility consisting of 9500 sq. ft. of laboratory area distributed in a manner that minimizes laboratory contamination.

3 DESCRIPTION OF THE QAP MANUAL

3.1 Terminology

ASTM	American Society of Testing and Materials
Audit	A documented investigative evaluation used to determine the degree of compliance with established procedures and guidelines, applied to specific analytical processes.

CAL	Calibration standard, a solution prepared from the dilution of stock standard solutions. The CAL solutions are used to calibrate the instrument response with respect to analyte concentration.
CARB	California Air Resources Board
COC	Chain of custody
Corrective Action	The measures taken to correct a situation that is out of the control limits set by QC procedures
Dissolved analyte	The concentration of analyte in an aqueous sample that will pass through a 0.45 µm membrane filter assembly prior to sample acidification.
DLR	Detection Limit for Reporting purposes, established by the California Department of Health Services for potable water analysis.
DQIs	Data Quality Indicators
DQOs	Data Quality Objectives
ELAP	Environmental Laboratory Accreditation Program. A program managed by the State of California, Department of Health Services for accreditation of environmental testing laboratories.
EPA	United States Environmental Protection Agency
IPC	Instrument Performance Check Solution - A solution of the method analyte, used to evaluate the performance of the instrument system with respect to a defined set of method criteria.
LD1 and LD2	Laboratory Duplicates - Two aliquots of the same sample taken in the laboratory and analyzed separately with identical procedures. Analyses of LD1 and LD2 indicate precision associated with laboratory procedures, but not with sample collection, preservation, or storage procedures.
LDR	Linear Dynamic Range - The concentration range over which the instrument response to an analyte is linear.
LFB	Laboratory Fortified Blank - An aliquot of LRB to which known quantities of the method analytes are added in the laboratory. The LFB is analyzed exactly like a sample, and its purpose is to determine whether the methodology is in control and whether the laboratory is capable of making accurate and precise measurements.
LFM	Laboratory Fortified Sample Matrix (LFM) – Also known as Matrix Spike. An aliquot of an environmental sample to which a known quantity of the method analyte is added in the laboratory. The LFM is analyzed exactly like a sample, and its purpose is to determine whether the sample matrix contributes bias to the

	analytical results. The background concentration of the analyte in the sample matrix must be determined in a separate aliquot and the measured value in the LFM corrected for background concentration.
LOQ	Limit of Quantitation
LRB	Laboratory Reagent Blank - An aliquot of reagent water or other blank matrices that are treated exactly as a sample including exposure to all glassware, equipment, solvents, reagents, and internal standards that are used with other samples. The LRB is used to determine if the method analyte or other interferences are present in the laboratory environment, reagents, or apparatus.
MDL	Method Detection Limit - The minimum concentration of an analyte that can be identified, measured, and reported with 99% confidence that the analyte concentration is greater than zero.
MS	Matrix spike
MSD	Matrix spike duplicate
NELAC	National Environmental Laboratory Accreditation Conference
NIOSH	National Institute for Occupational Safety and Health
NIST	National Institute for Standards and Technology
PT	Proficiency Testing
PQL	Practical Quantitation Limit
QA	Quality Assurance
QAP	Quality Assurance Program
QAPjP	Quality Assurance Project Plan
QC	Quality Control
QCS	Quality Control Sample - A solution of the method analyte of known concentration, which is used to fortify an aliquot of LRB or sample matrix. The QCS is obtained from a source external to the laboratory and different from the source of the calibration standards. It is used to check either laboratory or instrument performance.
RPD	Relative percent difference
RSD	Relative standard deviation
SCAQMD	South Coast Air Quality Management District

SOP	Standard Operating Procedure
WP	Water Pollution Performance Evaluation Samples
WS	Water Supply Performance Evaluation Samples

Other terminology commonly used can be found in the glossary section of the NELAC standards.

3.2 Scope

The purpose of the Quality Assurance Program (QAP) described in this manual is to ensure the integrity of the data produced by the laboratory. The QAP encompasses all aspects of the analytical process. The management of Weck Laboratories, Inc. is committed to provide analytical and environmental services of the highest possible quality in order to satisfy the requirements of the regulatory agencies and to meet or exceed our clients' expectations.

This commitment is transmitted to all levels of our organization. Employees and associates are encouraged to constantly improve the quality of their work.

3.3 Fields of Testing

The analytical activities that will be described in this manual are divided into the following main groups:

- Environmental testing involving analysis of drinking water, wastewater, soil and hazardous waste. The analysis of environmental samples follows primarily the methodology approved by the California Department of Health Services under the Environmental Laboratory Accreditation Program and other regulatory agencies.
- Industrial Hygiene analysis of metals and organics in air filters and sorbent tubes following primarily NIOSH published methods.
- Analysis of air samples follows the methodology of the California Air Resources Board, the SCAQMD and other agencies.

3.4 Management Of The QAP Manual

The Quality Assurance Program is constantly monitored, reviewed and evaluated. The Quality Assurance Officer is the primary person in charge of updating, revising and distributing this QAP Manual. The Laboratory Director and Technical Directors also have input in the upgrade of the Manual. The revision process takes place when needed if there is a change in some of the processes described, and it is also reviewed and re-approved yearly, if no changes are needed. After the revision is completed, the manual is approved for release by the QA Officer and by the Management. After it is submitted, some time is allowed for training of the personnel in the changes introduced if any. The Dates of submittal and the effective date are in the cover page of the document.

4 DESCRIPTION OF THE LABORATORY

4.1 Identification

Dr. Friedrich J. Weck founded Weck Laboratories, Inc. in 1964 as a consulting and contract laboratory dedicated to independent analytical testing and research activities. Over the years the Laboratory's primary activity shifted to environmental analytical chemistry.

The company is a California Corporation established in 1981. The address of the Laboratory facility is 14859 East Clark Avenue, City of Industry, California, 91745, located north of the 60 Freeway, Seventh Avenue exit.

4.2 Fields of Activity

Weck Laboratories offers a full range of environmental testing, including drinking water, wastewater, groundwater, soil, hazardous waste, ambient air and industrial hygiene testing. The types of analyses performed include organic, inorganic, physical and bacteriological tests, distributed between two buildings located at the facility.

4.3 Organizational Structure

The different positions within the laboratory have job descriptions that are maintained in the Human Resources department. The organization chart of Weck Laboratories, Inc., can be found in Appendix 3.

5 STAFF

5.1 Management Personnel

The following are the responsibilities and activities within the QAP in which the key and management personnel are engaged:

<u>Laboratory Director</u>

- Defining the minimal level of experience and skills necessary for all positions in the laboratory.
- Ensuring that all technical laboratory personnel have demonstrated initial and ongoing proficiency in the activities for which they are responsible.
- Ensuring that the training of its personnel is kept up-to-date.
- Documenting all analytical and operational activities.
- Supervising all personnel
- Ensuring that all sample acceptance criteria are verified and that samples are logged into the sample tracking system and properly labeled and stored.
- Performing with the other management staff an annual Management System Review.
- Documenting the quality of all data reported by the laboratory
- Ensuring that the laboratory has the appropriate resources and facilities to perform requested work
- Ensuring that corrective actions relating to findings from the internal audit are completed; and
- Nominating deputies when the Technical Directors or QA Officer are absent.

- Developing a proactive program for prevention and detection of improper, unethical or illegal actions.
- Ensuring that only those outside support services and supplies that are of adequate quality to sustain confidence in the laboratory's tests are used.

QA Officer

The QA Officer is responsible for the Quality System of the laboratory and its implementation. He or she has direct access to the highest level of management (President/Laboratory Director) and to the Technical Directors to resolve any dispute involving data quality.

The specific functions and characteristics of the QA Officer are the following:

- Serve as the focal point for QA/QC and be responsible for the oversight and/or review of quality control data.
- Have functions independent from laboratory day-to-day operations for which he or she has quality assurance oversight.
- Be able to evaluate data objectively and perform assessments without any outside influence.
- Have documented training and/or experience in QA/QC procedures and be knowledgeable in the quality system as defined under NELAC.
- Have a general knowledge of the analytical tests methods for which data review is performed.
- Arrange for or conduct internal audits on the entire technical operation annually
- Notify laboratory management of deficiencies and non-compliance items in the quality system and monitor corrective action.
- The QA Officer has sufficient authority to stop work as deemed necessary in the event of serious QA/QC issues.

Technical Directors

The individuals who have overall responsibility for the technical operation of the laboratory. There are two technical directors: for Organic Analysis and for Inorganic and microbiological analysis.
The Technical Directors report to the Laboratory Director, their activities and responsibilities are the following:

- Certifying that personnel with appropriate educational and/or technical background perform all tests for which the laboratory is accredited
- Monitoring standards of performance in quality control and quality assurance.
- Monitoring the validity of the analyses performed and data generated in the laboratory to assure reliable data
- Ensuring that sufficient number of qualified personnel are employed to supervise and perform the work of the laboratory, and
- Providing educational direction to laboratory staff

The Technical Directors of Weck Laboratories meet the requirements specified in Section 4.1.1.1 of the NELAC Standards.

Resumes of management personnel are in Appendix 1

5.2 Personnel Qualifications

The technical staff is responsible for sample analysis and identification of corrective actions. The staff reports directly to the Laboratory Director. All personnel are responsible for complying with all quality assurance/quality control (QA/QC) requirements that pertain to their organizational/technical function. As documented in the employee records, each employee has the experience and education to adequately demonstrate knowledge for their particular function and the general knowledge of laboratory operations, analytical test methods, QA/QC procedures and records management.

5.3 Personnel Training

Each employee is required to read, understand, and to use the current versions of the established Standard Operating Procedures and Analytical Method Protocols, which relates to his/her job responsibilities. The Training records show evidence of the revisions of the SOPs the employees have reviewed. Each employee demonstrates initial proficiency by following the procedure described in Appendix 9 of this manual, and demonstrates continued proficiency on a yearly basis by acceptable performance on Laboratory Control Samples (LCS), successful analysis of blind samples or by analyzing in parallel a sample analyzed by a trained or re-trained analyst. The training records of the analysts are organized by analyst and kept with personnel files. They include initial and continuing training, continuing education, participation in technical conferences or seminars and internal training activities. Initial training for new employees is performed by the section group leaders, laboratory supervisors or experienced chemists with the guidance of the lab supervisor and includes the observation of the QC procedures described in this manual.

The company has a policy that encourages all technical personnel to participate in technical seminars and meetings involving innovative analytical technologies, new instrumentation and software applied to environmental testing. Records of this participation are maintained in the personnel files.

6 LABORATORY CAPABILITIES AND ACCREDITATIONS

Weck Laboratories, Inc. analyzes water, soil, hazardous waste and air samples. The following are the type of analysis performed:

- Drinking Water and Groundwater

  - Sampling: production wells and monitoring wells
  - Inorganic: trace metals, wet chemistry
  - Organic: volatile, semi-volatile, pesticides, herbicides
  - Bacteriological: Total and fecal coliforms, Heterotrophic Plate Count

- Waste Water

  - Sampling: composite samplers, grabs.
  - Inorganic: metals, physical parameters, wet chemistry
  - Organic: volatile, semi-volatile, pesticides, herbicides
  - Bacteriological: Total and fecal coliforms, Heterotrophic Plate Count

- Hazardous Waste and Soil

- Characteristics: physical properties, leaching tests
- Organic: volatile, semi-volatile, pesticides, herbicides
- Inorganic: metals, wet chemistry

- Industrial Hygiene

  - Indoor Air Analysis: air filters (metals)
  - Sorbent tubes (organics)

The different analytical techniques and methods performed at the laboratory are described in the laboratory specific SOPs.

The Laboratory is accredited by various regulatory agencies to perform environmental testing. Current accreditations are listed in appendix 11.

The instrumental analytical capabilities of Weck Laboratories, Inc. include the following:

- **Sampling and field equipment**

  24 hours composite samplers for water.
  Flow measurement instruments
  Water quality kits
  Encore samplers for soil
  Immunoassay determinations

- **Inorganic analysis:**

  ICP-AES
  ICP-MS
  ICP-MS Flow Injection Analysis (hydride generation)
  Flame Atomic Absorption
  Cold Vapor Atomic Absorption
  Hydride AA
  UV-visible spectrometry
  Ion Chromatography

- **Organic Analysis**

  Purge and Trap equipment for direct purging of soils
  Purge and trap for water
  GC/MS for volatile organics
  GC/MS for semi volatile organics
  GC/MS/MS (tandem Mass spectrometry)
  GC/MS with Chemical Ionization positive ion
  GC with FID,NPD,ECD,PID,ELCD, TCD
  HPLC with post-column derivatization and UV-Visible and Fluorescence detectors.
  TOX
  TOC

Infrared analysis

A complete list of laboratory instrumentation is in Appendix 4.

7. QUALITY ASSURANCE OBJECTIVES

The overall QA objective of Weck Laboratories, Inc. is to develop and implement procedures for laboratory analysis, chain-of-custody, and reporting that will provide results, which are of known and documented quality. Data Quality Indicators (DQIs) are used as qualitative and quantitative descriptors in interpreting the degree of acceptability or utility of data. The principal DQIs are precision, bias (accuracy), representativeness, comparability, completeness and detection limits. The DQIs are used as quantitative goals for the quality of data generated in the analytical measurement process. This section summarizes how specific QA objectives are achieved. The specific application of these various activities are contained in the method SOPs.

7.1 Precision

Precision is a measure of the degree to which two or more measurements are in agreement.

Precision is assessed through the calculation of relative percent differences (RPD) and relative standard deviations (RSD) for replicate samples. For analyses that have detectable levels of analytes (for example inorganic analyses), laboratory precision is usually assessed through the analysis of a sample/sample duplicate pair and field duplicate pairs. For analyses that frequently show no detectable levels of analytes (e.g., organic analyses), the precision is usually determined through the analysis of matrix spike/matrix spike duplicates (MS/MSD) and field duplicate samples.

7.2 Accuracy

Accuracy is the degree of agreement between an observed value and an accepted reference or true value.

Accuracy is assessed by the analysis of blanks and through the adherence to all sample handling, preservation and holding times. Laboratory accuracy is further assessed through the analysis of MS/MSD, external quality control check samples, laboratory control samples (LCS and LCSD) and surrogate compounds spikes.

7.3 Representativeness

Representativeness expresses the degree to which data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point process condition, or an environmental condition within a defined spatial and/or temporal boundary.

Representativeness is ensured by using the proper sampling techniques, proper analytical procedures, appropriate methods; meeting sample holding times and analyzing field duplicate samples.

7.4 Completeness

Completeness is a measure of the amount of valid data obtained from a measurement system compared to the amount that was expected to be obtained under normal conditions.

Laboratory completeness is a measure of the amount of valid measurement obtained from all the measurement taken in the project. The laboratory completeness objective is that the generation of valid data for all samples be greater than 95 percent.

7.5 Comparability

Comparability is an expression of the confidence with which one data can be compared to another.

Comparability is achieved by the use of routine analytical methods, achieving holding times, reporting results in common units, use of consistent detection levels, and consistent rules for reporting data.

7.6 Detection Limits

Method Detection Limits (MDLs) are determined for all analytes as specified in the NELAC standards. From these, Reporting Limits (RL) are obtained. See section 12.2 for more detailed information.

8. SAMPLING

Most samples processed at the laboratory are collected by clients or their representatives. When required, Weck Laboratories can provide technical assistance for sample collection and handling and can prepare appropriate sample containers with preservatives.
Weck Laboratories field personnel conduct sampling of wastewater and potable water for projects that require this. Our personnel do not perform industrial hygiene sampling.

In order to assure the quality of the entire analytical process, Weck Laboratories works closely with field personnel employed by the client to meet general QA criteria and if available specific criteria as per the QAPjP.

For all sampling conducted by Weck Laboratories, NELAC standards will be followed, when they become available. This will also be done in field and sampling activities that are performed by clients but in which Weck Laboratories, Inc. has some participation.

9. SAMPLE HANDLING

This section summarizes policies and practices for sample handling. Further details are contained in the corresponding SOPs.

9.1 Sample Tracking

Weck Laboratories, Inc. uniquely identifies each sample to be tested, to ensure that there can be no confusion regarding identity. The sample identification system includes identification for all samples, sub-samples and subsequent extracts and/or digestates. A unique identification (ID) code is placed on each sample container.

9.2 Sample Acceptance Policy

Weck Laboratories, Inc. has a written sample acceptance policy that outlines the circumstances under which samples will be accepted. Data from any samples, which do not meet the policy, are noted in the laboratory report defining the nature and substance of the variation. The policy requires or establishes:

- Proper, full, and complete documentation, including the sample identification, the location, date and time of collection, collector's name, preservation type, sample type and any special remarks concerning the sample. This information must be fully documented in the chain of custody record. Appendix 5
- Unique identification of samples using durable labels completed in indelible ink on all sample containers.
- Use of appropriate sample containers and preservatives as per table in Appendix 6.
- All samples have adequate holding time to be analyzed (Appendix 6).
- Adequate sample size for all analysis requested.
- Special instructions and additional information required to perform the analysis properly (i.e., time, flow rate, etc.).
- Procedures that are used when samples show signs of damage or contamination.
- Samples received at the required temperature (usually 4°C ± 2 °C) or with evidence of chilling process started (received "on ice").

If any of the above requirements are not met, the client is notified immediately, and the irregularity is documented:

- If the client acknowledges the irregularity and instructs the laboratory to continue with analysis this is documented and samples accepted.
- If the client does not acknowledge the irregularity the samples are rejected.
- If the irregularity is noted in samples submitted for bacteriological analysis, the samples are rejected without exception.

When a request for a new project is received involving multiple samples or tests that have a short holding time the Lab Manager and/or Technical Directors are notified. The Lab Manager with the assistance of the Technical Directors evaluates the project and calculates the resources needed to complete it within the turn around time required and the holding times, taking into consideration the volume of work in house and/or expected.

If it is determined that the new project will not affect the proper completion of jobs already in house and that the laboratory has the resources (personnel, equipment and facilities) necessary to accommodate the new project, this is accepted.

If the Lab Manager or any of the supervisors thinks that the new job will create problems in terms of reduced quality of work, completion out of specified or required time, or any other detrimental situation, the new project is not accepted and the client notified.

If there are alternatives, such as postponement or modification of sampling schedules in order to accommodate the project, this is proposed to the client.

9.3 Sample Receipt Protocol

Upon receipt, the condition of the sample, including any abnormalities or departures from standard condition is recorded. All samples, which require thermal preservation, are considered acceptable if the arrival temperature is either within +/- 2 °C of the required temperature or the method specific range. Samples that are hand delivered to the laboratory immediately after collection may not meet these criteria. In these cases, the samples will be considered acceptable if there is evidence that the chilling

process has begun, such as arrival on ice. The temperature at which the samples are received is measured and reported in the COC record.

Where applicable, Weck Laboratories, Inc. verifies chemical preservation using readily available techniques, such as pH or free chlorine, prior to or during sample preparation or analysis. The results of all checks are recorded.
When there is any doubt as to the sample's suitability for testing or if the sample does not meet any of the above criteria or if irregularities are noted, the client is notified immediately, and the irregularity is documented. If the client acknowledges the irregularity and instructs the laboratory to continue with analysis this is also documented. If the client does not acknowledge the irregularity the samples are rejected. If the irregularity is noted in samples submitted for bacteriological analysis for compliance purposes, the samples are rejected without exception.

The sample identification number is affixed to all sample containers and worksheets are prepared for the different types of analyses requested. When there are different containers or sub-samples belonging to one sample for multiple tests, the fraction name is indicated on the sample bottle and the worksheet. For example if sample "XXX" requires EPA 8081 and 8270, and two containers were received, then each bottle is also labeled with the required test and/or test method. Alternatively, pre-labeled bottles containing the required tests are also provided.

9.4 Storage conditions

Samples that require thermal preservation are stored under refrigeration, which is +/- 2 °C of the specified preservation temperature. When this temperature is 4 °C, a storage temperature of just above the freezing temperature to 6 °C is considered acceptable. Samples are stored in a manner that prevents cross contamination, normally they are separated based on matrix, analysis and level of known contamination. Other samples are kept in specific areas while they are being tested. Evidence samples are stored in secured and controlled access areas.

9.5 Custody of Samples and Documentation

The Chain-of-Custody procedures begin when the sample is collected. At that time, a COC form is prepared, containing all the information about the sample (project name, sample identification, date and time of collection, name of person performing the sampling, matrix type, tests requested, number of containers, field measurements, and all other pertinent information).

The person who does the sampling must sign the COC record. The relinquishing and receiving parties must also sign the COC, indicating the date and time this operation was performed.
If the client submits the sample to the laboratory, a copy of the COC form is given to the client as evidence of receipt, while the other two copies are kept at the laboratory.

For samples received in sealed ice chests by commercial freight companies (UPS, FedEx), copies of shipping papers are attached to the COC form for future reference. The person receiving the sample also makes a notation of the type of shipment on the COC.

Access to all samples and sub-samples is controlled. The laboratory area is maintained secured and is restricted to authorized personnel only.

When full Legal/Evidentiary Chain Of Custody protocols are required, COC records are used to establish an intact, continuous record of the physical possession, storage and disposal of sample containers, collected samples, sample aliquots, and sample extracts or digestates, The COC records account for all time periods associated with the samples. The COC records identify all individuals who physically handled individual samples. The COC forms remain with the samples during transport or shipment. If shipping containers and/or individual sample containers are submitted with sample custody seals, and any seals are not intact, the lab shall note this on the chain of custody. Other documents pertaining to the transport of the samples, such as receipts from common carriers are kept as part of the documentation. When evidentiary samples, subsamples, digestates or extracts are transferred to another party they are subject to the requirements of legal chain of custody. These samples are kept in a locked area or refrigerator with the key in possession of the designated sample custodian.

9.6 Sample disposal

Samples are retained for thirty days from report date unless otherwise instructed by the client or if the samples are part of litigation or have been received under legal/evidentiary requirements, in which case the disposal of the physical sample is accomplished with the concurrence of the affected legal authority. After the retention period samples are either returned to the client or properly disposed of according to federal and state laws and regulations.

10. CALIBRATION PROCEDURES AND FREQUENCY

10.1 Traceability of Calibration

Whenever applicable, calibration of analytical support equipment and instruments is traceable to national standards of measurement.

10.2 Reference Standards

Reference standards of measurement (such as Class S or equivalent weights or traceable thermometers) are used for calibration only. Reference standards are subjected to in-service checks between calibrations and verifications.
Reference materials that require re-certification are submitted promptly to a qualified certification body.

10.3 General Requirements

Each calibration is dated and labeled with or traceable to the method, instrument, analysis date, and each analyte name, concentration and response (or response factor). Sufficient information is recorded to permit reconstruction of the calibration. Acceptance criteria for calibrations comply with method requirements or are established and documented.

10.4 Analytical Support Equipment

Analytical support equipment includes: balances, ovens, refrigerators, freezers, incubators, water baths, temperature measuring devices and volumetric dispensing devices if quantitative results are dependent on their accuracy, as in standard preparation and dispensing or dilution into a specified volume. All such support equipment is:

- Maintained in proper working order. The records of all activities including service calls are kept.

- Calibrated (annually for balances and certified thermometer, quarterly for mechanical pipettes), using NIST traceable references when available, over the entire range of use. The results of such calibration must be within the specifications required in the application for which the equipment is used, if not, the equipment is either removed from service until repaired or a correction factor is applied to it, if applicable.

Prior to use on each working day, balances, ovens, refrigerators, freezers, incubators, water baths and mechanical pipettes are verified for the expected use range. The acceptability for use or continued use is according to the needs of the analysis or application for which the equipment is being used.

10.4.1 Balances and reference weights

Laboratory balances and Class S reference weights are serviced and calibrated once a year by a third party specialist, Watson Bros. Weck Laboratories has a contract with Watson Bros., by which they automatically come for balance and weights inspection and calibration every year. The calibration or service is performed more frequently if a problem is suspected or observed by visual inspection.

10.4.2 Thermometers

All thermometers are checked annually against a NIST traceable reference thermometer, which is submitted for certification on annual basis.

10.4.3 Monitoring of Temperature

All refrigerators and freezers used for storage of samples and standards or reagents are monitored for temperature daily. The incubators used for bacteriological analysis are monitored twice a day for temperatures and the incubator for BOD is monitored daily. The temperatures are entered in charts posted on each unit that also include the initials of the person performing the checks and the acceptance ranges. When a temperature is out of compliance in any refrigerator, freezer or incubator, immediate action is taken to correct the problem.

10.5 Instrument Calibration

All instruments are calibrated in accordance with the respective SOPs and/or method of analysis. The typical calibration procedure consists of an initial calibration, performed by running a series of standards and calculating the response by using either the response factors or by linear or polynomial regression analysis. This is followed by a calibration verification when an initial instrument calibration is not performed on the day of analysis. All calibration procedures are thoroughly documented. The frequency, acceptance criteria and the conditions that will require recalibration are described in the corresponding SOPs. In all cases, the initial calibration is verified using an independently prepared calibration verification solution. For all chemical determinations in which standards are involved for calibration, it is the policy of the company to use a secondary reference material obtained from a different source, such as another supplier (preferred) or a different lot number, or prepared in house. This secondary reference can be an LCS or other standard run to verify the integrity of the primary standard.

Specific analyses' calibrations are checked more frequently. Some instruments (TOC and TOX analyzers) have built-in calibration features. The internal calibration of these instruments is monitored daily for accuracy.

All results are calculated based on the response curve from the initial calibration and are bracketed by calibration standards or reported as having a lower confidence level by either flagging them with defined qualifiers or explaining in the case narrative.

The following is the criteria used for the acceptance of an initial calibration, unless specified differently in the analytical methods:

- Use the average response factor (RF) if the percent relative standard deviation (%RSD) of the points is less than 20%. In this case, linearity through the origin is assumed.
- If the %RSD is greater than 20%, linearity through the origin cannot be assumed and a linear regression, a weighed linear regression or a non-linear regression can be used. The acceptance criteria for linear regression is a coefficient of correlation (r) equal or greater than 0.99 and for non-linear regression the coefficient of determination (COD) must be equal or greater than 0.98. In both cases, the curve is not to be forced through the origin nor the origin is used as another point. The sample results must be within the first and last standards.
- The number of data points to construct the initial calibration curve shall be obtained from the analytical method employed. If no criteria is specified, the laboratory shall construct initial calibration curves using a minimum of two data points without counting the blank and zero standard.
- The lowest standard shall be at or near the reporting limit for the method and at or below the regulatory limit/decision level if known by the laboratory.

If the initial calibration fails, the analysis procedure is stopped and evaluated. For example, a second standard may be analyzed and evaluated or a new initial calibration curve may be established and verified. In all cases, the initial calibration must be acceptable before analyzing samples.

When an initial calibration is not performed on the day of the analysis, a calibration verification check standard is analyzed at the beginning and at the end of each batch. An exception to this policy is for internal standard methods (e.g. most organic methods). For these analyses, the calibration check is only analyzed at the beginning of the analytical sequence. The concentration of this calibration check is specified in each method SOP.

If a calibration check standard fails, and routine corrective action procedures fail to produce a second consecutive calibration check within acceptance criteria, a new initial calibration curve is constructed. If the continuing calibration acceptance criteria are exceeded high (i.e. high bias), and there are non-detects for the corresponding analyte in all environmental samples associated with the continuing calibration check, then those non-detects may be reported, otherwise the samples affected by the unacceptable check are reanalyzed after a new calibration has been established, evaluated and accepted. If the continuing calibration acceptance criteria are below the low limit, results may be reported if sample results indicate a concentration above an action level and accurate values are not required by the customer. Otherwise, additional sample analysis does not occur until a new calibration curve is established and verified.

11. TEST METHODS AND STANDARD OPERATING PROCEDURES

The analytical procedures currently in use in the laboratory are based on the methodology approved by the EPA, the California Department of Health Services, the AIHA, and other regulatory agencies.

In some cases, Weck Laboratories can perform analyses that are not specifically described in the guidelines cited above. In these cases, the following approach is taken:

- Review other sources of test methods such as AOAC, ASTM, Pesticide Manual, etc., to find a suitable method for the matrix and analyte in question.
- Produce a modification of a standard test procedure for similar parameter or matrix
- Develop a special method in house suitable for the particular problem

For these special situations the analytical procedure is discussed with the client and performed upon the client's approval. Whenever possible, the same QA/QC guidelines as for standard methods are used, but the laboratory may deviate from these guidelines if necessary.

SOPs are maintained for the operations and procedures employed in the laboratory. The SOPs provide all information needed to perform the different analytical tasks in accordance with regulatory requirements and in a consistent and controlled manner following the guidelines described in this QAP manual. They are subject to continuous review and update. Copies of all SOPs are accessible to all personnel. Each SOP has an alphanumeric code that indicates the section it belongs, the number that identifies it, the revision number, the effective date and the signature of the QA Officer, Technical Director or Laboratory Director.

A current list of the Standard Operating Procedures in use is in Appendix 7.

11.1 Test Methods

The methods in use at the laboratory are described in the following publications:

- Tests Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, current edition,
- Methods for Chemical Analysis of Water and Wastewater, EPA-600/4-79-020.
- Standard Methods for the Examination of Water and Wastewater, current edition, APHA, AWWA, WPCF.
- Criteria for Identification of Hazardous and Extremely Hazardous Wastes, California Code of Regulations Title 22.
- Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater EPA-600/4-82-057.
- Recommended Methods of Analysis for the Organic components required for AB1803, 5th Edition Revised April 1986.
- Draft Method for Total Petroleum Hydrocarbons and Total Organic Lead, LUFT Methods, California Department of Health Services.
- Methods for the Determination of Organic Compounds in Finished Drinking Water and Raw Source Water - EPA 500 series.
- NIOSH Manual of Analytical Methods, US Department of Health and Human Services.
- Laboratory Methods of Analysis for Enforcement samples, SCAQMD, 1986.
- Stationary Source Test Methods, Air Resources Board, 1990.
- OSHA Analytical Methods Manual, 2nd Ed., U.S. Dept. of Labor, 1990.

Reference methods for all analytical procedures are kept in the Laboratory Office. Copies of specific methods are also in the corresponding sectors where the analyses are performed.

11.2 SOPs for Sample Management

These SOPs describe the receipt, handling, scheduling, and storage of samples

Sample receipt and handling – These procedures describe the precautions to be used in opening sample shipment containers and how to verify that chain of custody has been maintained, examine samples for damage, check for proper preservatives and temperatures, and log samples into the laboratory sample streams.

Sample scheduling – These procedures describe the sample scheduling in the laboratory and includes procedures used to ensure that holding time requirements are met.

Sample storage – These procedures describe the storage conditions for all samples, verification and documentation of daily storage condition, and how to ensure that custody of the samples is maintained while in the laboratory.

11.3 SOPs for Reagent/Standard Preparation

These SOPs describe how to prepare standards and reagents. Information concerning specific grades of materials used in reagent and standard preparation, appropriate glassware and containers for preparation and storage, and labeling and record keeping for stocks and dilutions is included.

11.4 SOPs for General Laboratory Techniques

These SOPs describe all essentials of laboratory operations that are not addressed elsewhere. These techniques include glassware cleaning procedures, operation of analytical balances, pipetting techniques, and use of volumetric glassware, among others.

Procedures for test methods describing how the analyses are actually performed in the laboratory are specified in method SOPs. These SOPs for sample preparation, cleanup and analysis are based on publications listed in Section 11.1 above or on internally developed methods validated according to EPA's Performance-Based Measurement System.

The elements included or referenced in the SOPs, when applicable are the following:

11.4.1 Identification of the test method
11.4.2 Applicable matrix or matrices
11.4.3 Method detection limit
11.4.4 Scope and application, including components to be analyzed
11.4.5 Summary of the method
11.4.6 Definitions
11.4.7 Interferences
11.4.8 Safety
11.4.9 Equipment and supplies
11.4.10 Reagents and standards
11.4.11 Sample collection, preservation and handling
11.4.12 Quality control
11.4.13 Calibration and Standardization
11.4.14 Procedure

11.4.15 Calculations
11.4.16 Method Performance
11.4.17 Pollution prevention
11.4.18 Data assessment and acceptance criteria for quality control measures
11.4.19 Corrective actions for out-of-control data
11.4.20 Contingencies for handling out-of-control or unacceptable data
11.4.21 Waste management
11.4.22 References
11.4.23 Tables, Diagrams, flowcharts and validation data.

11.5 SOPs for Equipment Calibration and Maintenance

These SOPs describe how to ensure that laboratory equipment and instrumentation are in working order. These procedures include calibration procedures and schedules, maintenance procedures and schedules, maintenance logs, services agreements for all equipment, and spare parts available in-house. Calibration and maintenance of laboratory equipment and instrumentation are in accordance with manufacturers' specifications or applicable test specifications.

12. QUALITY CONTROL DETERMINATIONS

12.1 QC determinations

The data acquired from QC determinations are used to estimate the quality of analytical data, to determine the need for corrective action in response to deficiencies, and to interpret results after corrective action procedures are implemented. Each method SOP includes a QC section, which addresses the minimum QC requirements for the procedure. The internal QC checks may differ slightly for each individual procedure but in general are described below. The acceptance limits and corrective actions for these QC checks are described in Section 15 and 16 of this manual.

12.1.1 Blanks – Negative Controls

Method Blanks or LRB are performed at a frequency of one per batch of samples per matrix type per sample extraction or preparation method. The result of this analysis is one of the QC measures to be used to assess batch acceptance.

Blanks and negative controls are used in microbiological analysis on regular basis. They consist of blanks, sterility checks and known negative cultures. The detailed description is contained in the corresponding SOP.

Blanks are prepared and analyzed in the following situations, or whenever there is a need to obtain further information:

- A blank is extracted for every batch and type of matrix for analysis of semi-volatile organics by GC, GC/MS or HPLC.
- A blank is carried through all the digestion procedures for analysis of metals by AA, ICP or ICP-MS for every batch of samples and type of matrix for each instrument used.
- A blank is carried through the leaching procedures (TCLP, EP TOX, and WET) using the same extraction fluid, bottles and agitators as the samples.

- System/Reagent blanks are analyzed at the beginning of the day prior to calibration, after a high level standard, after changing matrix and after samples that are known or suspected to be very concentrated.
- Reagent blanks are analyzed for all wet chemistry determinations involving titrations or colorimetry and their value is subtracted from the reading of the samples, if appropriate.
- Blanks for mobility procedures (TCLP, ZHE, EP TOX, and WET) are analyzed by the appropriate method.
- Additional field and trip blanks are prepared and analyzed where required or whenever requested by the client

Sometimes the blanks may show detectable limits of target analytes. In these cases the source of the contamination must be investigated and measures taken to correct, minimize or eliminate the problem if:

- The blank contamination exceeds a concentration greater than 1/10 of the measured concentration of any sample in the associated sample batch or
- The blank contamination exceeds the concentration present in the samples and is greater than 1/10 of the specified regulatory limit.
- The blank contamination is over the reporting limit for that analyte

Any sample associated with the contaminated blank shall be reprocessed for analysis or the results reported with appropriate data qualifying codes.

12.1.2 Reproducibility and Recovery Determinations – Positive Controls

For the determination of accuracy and precision of the analytical methods, the techniques of fortified blanks, matrix spike/ matrix spike duplicate, sample duplicates and surrogate spiking are used on a regular basis. The frequency is dictated by each analytical method or Standard Operating Procedure (minimum 1 per batch of 20 samples). The results obtained are compared with current acceptance limits (Appendix 8) and recorded in the LIMS. For methods that do not specify the acceptance criterion, this is statistically obtained from data generated at the lab; for some EPA 500's series methods they are also recorded in summary sheets for each batch.

For microbiological determination of total and fecal coliforms positive checks are included with each batch analyzed. A more detailed description is included in the corresponding SOP.

12.1.2.1 Duplicates

The determination of the precision of a method is accomplished by analyzing duplicate samples. Duplicate analysis is also performed when unusual or suspicious results are obtained. The relative percent difference is calculated, compared with the acceptance criteria (Appendix 8) and recorded win the LIMS. The evaluation of precision for most methods, however, is accomplished by comparing the results obtained for matrix spike and matrix spike duplicate determinations (MS/MSD), rather than analysis of duplicate samples. This is preferred since in many cases samples with frequent "not detected" results yield no useful information for statistical determinations of precision.
Poor performance in the duplicates generally indicates a problem with the sample composition and is reported to the client whose sample was used for the duplicate to assist in data assessment.
If Laboratory duplicates are employed, the selected sample(s), as much as possible, are rotated among client samples so that various matrix problems may be noted and/or addressed. Samples that are labeled field blank, equipment blank or trip blank are not selected for duplicate analysis.

The frequency of duplicates or MSDs is as mandated by the analytical method or SOP and at a minimum 1 every 20 samples or 1 per batch.

12.1.2.2 Laboratory Control Sample (LCS)

Laboratory Control Sample (LCS) or QC Check Samples are analyzed at a frequency established in each analytical method or SOP, minimum of 1 per batch of 20 or less samples per matrix type per sample extraction or preparation method. The exception is for analytes for which spiking solutions are not available such as total suspended solids, total dissolved solids, total volatile solids, total solids, pH, color, odor, temperature, dissolved oxygen or turbidity. The results of these samples are used to determine batch acceptance.

Laboratory Control Samples are also known as LFB and are defined as a sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes from a source independent of the calibration standards or a material containing known and verified amounts of analytes. It is generally used to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system.

The matrices used to prepare the LCS are Ottawa sand for soil and solid samples and reagent water for aqueous samples.

If the mandated or requested test method does not specify the spiking components, all reportable components to be reported are spiked, with the following exceptions:

- Where the components interfere with accurate assessment (such as simultaneously spiking chlordane, toxaphene and PCBs in Method 608),
- When the test method has an extremely long list of components or components are incompatible. In this case a representative number (at a minimum 10%) of the listed components are used to control the test method. The selected components of each spiking mix are chosen in order to represent all chemistries, elution patterns and masses, permit specified analytes and other client requested components.

However, in the cases that a few parameters are used for spiking, all reported components are used in the spike mixture within a two-year time period.

12.1.2.3 Matrix Spikes

The matrix spike consists of adding a known amount of a specified number of target analytes defined in the analytical method or SOP to the sample matrix (usually on the samples in the batch). The frequency of MS/MSD determinations is established in the analytical method or SOP and it is at a minimum, one per batch of 20 samples or less, per matrix type per sample extraction or preparation method. Matrix spikes are not performed for analytes for which spiking solutions are not available such as, solids determinations (total suspended, total dissolved, total volatile), pH, color, odor, temperature, dissolved oxygen, BOD, COD or turbidity. The selected sample(s) for spiking are be rotated among client samples, as much as possible, so that various matrix problems may be noted and/or addressed. The spiked samples are then analyzed as the other samples in the batch and the recoveries calculated and compared with acceptance limits. Results are recorded in the LIMS. For industrial hygiene samples, unused sample collection media is used for spiking. The samples selected for spiking are rotated among received samples so that various matrix problems may be noted and/or addressed. Samples that are labeled equipment blanks, field blanks or trip blanks must no be used for matrix spiking.

All efforts shall be made to obtain additional sample aliquots for matrix spiking; when bottles are prepared in house additional containers are provided for matrix spikes. If the sample containers are prepared by the client or provided by a third party, a good communication should be established with all

parties involved in order to obtain enough sample aliquots to perform matrix spiking for all test methods required. If, in spite of all efforts made, there are no extra samples received for matrix spiking, a pair of LCS/ LCS duplicate is analyzed for assessing accuracy and precision.

Poor performance in a matrix spike generally indicates a problem with the sample composition, and not the laboratory analysis, and is reported to the client whose sample was used for the spike with the appropriate data qualifiers or in the case narrative to assist in data assessment.

In general, all reportable components are in the spike mixes. However, in cases where the components interfere with accurate assessment (such as simultaneously spiking chlordane, toxaphene and PCBs in method 608), the test method has an extremely long list of components (such as Methods 8270 or 6010) or components are incompatible, a representative number (10%) of the listed components are used. The selected components of each spiking mix represent all chemistries, elution patterns and masses and include permit specified analytes and other client requested components.

However, in the cases that a few parameters are used for spiking, all reported components are used in the spike mixture within a two-year time period.

12.1.2.4 Surrogates

For GC and GC/MS analysis, surrogate standards are added to all samples, blanks and QC samples. Surrogates are compounds that are very similar in their chemical and chromatographic characteristics as the target compounds but are not present in environmental samples, or at least they are not part of the target compounds list. Results from recoveries of surrogate standards are compared with acceptance values and recorded in each worksheet containing the results of the samples and in the LIMS. Poor surrogate recovery generally indicates a problem with the sample composition and is reported to the client whose sample produced the poor recovery in order to assist in data assessment.

12.1.2.5 Equations used for calculations

The following equations are used in the calculation of recovery and RPD:

From duplicate sample:

$$RPD = \frac{S_a - S_b}{((S_a + S_b) \div 2)} x100\%$$

Where: S_a = First sub-sample analyzed
S_b = Second sub-sample analyzed

From MS/MSD analysis:

$$RPD = \frac{R_a - R_b}{((R_a + R_b) \div 2)} x100\%$$

Where: R_a = Amount of analyte found in Matrix Spike.
R_b = Amount of analyte found in Matrix Spike Duplicate

Recovery of matrix spikes:

$$Recovery = \frac{SSR - SR}{CA} x100\%$$

Where:
SSR= Results of spiked sample
SR = Results of sample (unspiked)
CA = Concentration of spike added

Surrogate recoveries:

$$\% Recovery = \frac{ConcentrationFound}{ConcentrationAdded} x100\%$$

Where:
Concentration found = Result obtained after analysis
Concentration added = Amount of surrogate spiked

12.1.2.6 Quality Control Charts

Quality Control charts are generated from data stored in the LIMS for recoveries of matrix spikes, LCSs, surrogates and RPD. Control limits are determined with a minimum of 20 data point population. Upper and lower warning limits are established at 2 standard deviations from the mean of the population and acceptance limits are established at 3 standard deviations from the mean unless the method has published acceptance limits. The graphical record is updated quarterly.

12.1.3 External References and Control Samples

External Reference Samples or QCS are obtained from various sources are analyzed on a regular basis, minimum quarterly. Reference samples simulating matrix and analytes of interest are purchased from Environmental Resource Associates, Inc. or other NIST approved vendors, and analyzed for drinking water, wastewater, hazardous waste and priority pollutants.
Interlaboratory comparisons are run whenever possible, as well as intralaboratory comparisons by analyzing an analyte by different analytical methods.

12.2 Method Detection Limit and Reporting Limits

The MDL is defined as the minimum concentration of an analyte that can be measured and reported with 99% confidence that the analyte concentration is greater than zero.

For analytes for which spiking is a viable option, detection limits are determined by a Method Detection Limit (MDL) study for each common matrix by the procedure described in 40CFR Part 136, Appendix B. This procedure consists of spiking seven or more aliquots of the matrix (preferably free of the analytes) with each compound of interest, at a concentration between 3 and 5 times the estimated MDL. These spiked samples are subject to the entire analytical process and analyzed. The MDL is calculated as follows:

MDL = S x t

Where
S = Standard deviation of the seven replicates.

t = Student's "t" value for 99% confidence for the corresponding number of degrees of freedom. For 7 replicates this number is 3.14.

An MDL study is not performed for any component for which spiking solutions are not available, such as total suspended solids, total dissolved solids, total volatile solids, total solids, pH, color, odor, temperature, dissolved oxygen or turbidity. For these types of analytes, the detection limit is based on a signal to noise ratio from the analysis of a QC check sample or calibration standard.

The method detection limit is initially determined for the compounds of interest in each method and in each matrix (aqueous or soil/solid). Laboratory pure reagent water and Ottawa sand are used as matrices for aqueous and soil/solid matrix respectively.

The detection limit is initially determined for the compounds of interest in each test method in a matrix in which there are neither target analytes nor interferences at a concentration that would impact the results..

Detection limits are repeated each time there is a significant change in the test method or instrument type, or at a frequency specified by the analytical method.

When determining the MDL, all sample processing steps of the analytical method are included in the determination of the detection limit.

The MDL studies are documented in spreadsheets created for that purpose. The documentation includes the matrix type, date of analysis, analyst name or initials, instrument used, values obtained and calculations. The raw data and supporting documents are retained, either attached to the spreadsheet used for calculation or filed by date with the general raw data.

The Reporting Limit is normally set at 10 times the standard deviation. This is equivalent to multiply the MDL (obtained for 7 replicates) by 3.18 and rounding to the nearest 1, 2 or 5. In other cases, for certain methods the reporting limit is obtained by multiplying the MDL by another factor (between 1 and 10). The reporting limit for each analyte in each method is referenced in the corresponding SOP.

The Reporting Level is often referenced as Practical Quantitation Limit or PQL. Certain projects require reporting all detected analytes, even below the reporting limit; in this case, when an analyte is detected but it is below the PQL, it is reported with a "J" flag indicating that the concentration is only estimated.

In some cases project-specific reporting limits are used, when the DQOs mandate a different reporting limit than the RLs used routinely by Weck Laboratories.

For potable water analysis, the Detection Limit for Reporting purposes (DLRs) is used instead of the actual MDLs or RLs. For this matrix the calculated MDL must be not greater than the DLR. DLRs are verified on regular basis by including the lowest calibration point at or below the DLR.

12.3 Selectivity

Absolute and relative retention times aid in the identification of components in chromatographic analyses and help evaluate the effectiveness of a column to separate constituents. Acceptance criteria for retention time windows are documented in each method SOP.

A confirmation is performed to verify a compound identification when positive results are detected on a sample from a location that has not been previously tested. Such confirmations are performed on organic

tests except when the analysis involves the use of a mass spectrometer. To accomplish the confirmation, a secondary column (different phase than the analytical columns) or a mass spectrometer are used.

Acceptance criteria for mass spectral tuning are contained in the corresponding SOPs.

12.4 Demonstration of Method Capability

Prior to acceptance and use of any method, satisfactory initial demonstration of method performance is required. The initial demonstration of capability (IDC) is also performed by each technical staff member and it is repeated each time there is a significant change in instrument type, personnel, work cell composition or test method. The process is described in Appendix 9. A Certification Statement is completed for each analyst documenting that this activity has been performed (Appendix 9). The associated records supporting the activity are also retained at the laboratory and they are available to reproduce the analytical results summarized in the Certification Statement.
The demonstration of method capability consists of performing the analysis on a clean matrix, which has been spiked with the compounds of interest or purchased from a certified vendor.
For analysis that require the use of a specialized "work cell" (a group consisting of analysts with specifically defined tasks that together perform the test method), the group as a unit performs the IDC. The supporting documentation is also kept at the laboratory.
When a work cell is employed, and the members of the cell change, the new employee works with experienced analysts in the specialty area and this new work cell demonstrates acceptable performance through acceptable continuing performance checks, such as laboratory control samples. This continued performance check is documented and the four preparation batches following the change in personnel is monitored to ensure that none of the batches result in the failure of any batch acceptance criteria (method blank and laboratory control sample). If there is a failure, the demonstration of capability is repeated. When the entire work cell is changed or replaced, the new work cell repeats the demonstration of capability (Appendix 9).
When a work cell(s) is employed the performance of the group (work cell) is linked to the training records of the individual members of the work cell.

12.5 Performance and Proficiency Testing Programs

The following are the proficiency testing programs in which the laboratory currently participates on regular basis.

12.5.1 Drinking water analysis: WS Studies

12.5.2 Wastewater analysis: WP studies

12.5.3 Hazardous waste and soil

12.5.4 Bacteriological Performance Evaluation Study.

The Proficiency Testing samples are purchased from NIST approved vendors.

The laboratory participates in other special PT programs managed by government agencies or private entities.

12.6 Additional Quality Control Checks

Whenever possible, additional QC checks are performed such as running a sample using different techniques and different standards (EPA Method 602 & EPA Method 624), correlations between COD, BOD and TOC; TDS & Specific Conductivity, balance between cations and anions on water analysis, etc.

13. DATA REDUCTION, VALIDATION AND REPORTING

13.1 Laboratory worksheets - Raw data documentation

Upon acceptable receipt of samples by the laboratory, sample worksheets are generated for the required testing. These worksheets are distributed to the respective laboratory departments.

The data that is being obtained, such as weights, extraction volumes, calculations, etc. are recorded in the worksheet. Raw data being produced is also entered in sheets called "run logs" that summarize the final results for a certain batch of samples. These run logs are used for entering the results in the LIMS.

After raw data is entered in the corresponding worksheets and run logs, it is initialed by the analyst and saved chronologically for future review. All electronic raw data is stored in magnetic tapes or CDs.

13.2 Data Reduction and Validation

Some instruments have a computerized data reduction and calculation, such as GC/MS, HPLC, GC and ICP. The protocols to perform these tasks are described in the corresponding SOPs and the computer programs used for data reduction are validated before use and checked periodically by manual calculations. The results obtained from computer data reduction are double checked by the analyst and entered in the worksheet, and the software-generated hardcopy is attached to the worksheet.
A supervisor or second analyst performs a secondary review of the raw data (e.g. chromatograms and reports summary) for proper integration of peaks, identification of compounds, QC, etc. If a discrepancy is noted, the worksheet is returned to the primary analyst for corrective action. For analyses that do not have automatic data reduction, the analyst performs the necessary calculations to obtain the final result, and then the results are reviewed by the supervisor or second analyst.

All information used in the calculations (e.g. raw data, calibration files, tuning records, results of standard additions, interference check results, sample response, and blank or background correction protocols) as well as sample preparation information (e.g. weight or volume of sample used, percent dry weight for solids, extract volume, dilution factor used) are recorded in order to enable reconstruction of the final result.

As described in Section 16, the results of the quality control sample analysis are reviewed, and evaluated before data are reported.

After the results are entered into the LIMS they are verified for completeness and correctness and if no discrepancies are encountered they are released for reporting.

13.3 Report Format and Contents

After the data is entered in the LIMS and approved, a report or "Certificate of Analysis" is generated from the information contained in the LIMS database. The certificate of analysis, containing the results of each test, or series of tests, is then submitted with all supporting documentation to the person who signs it. The signatory personnel include the Lab Director, The QA Officer, the QA Officer designee, and the Technical Directors.

The analytical report contains the following information, at a minimum:

- Header with complete laboratory information.
- Client's information (Company name, address, contact person, etc.)
- Project name or number
- Lab ID number assigned to the sample (unique identification number).
- Description and unambiguous identification of the sample(s) including the client identification code.
- Sample login information (date, time and initials of person that received the sample)
- Sampling information (date, time, name of sampler)
- If the laboratory collected the sample, reference to sampling procedure.
- Analysis performed.
- Results obtained
- Date of preparation and analysis
- Time of preparation and/or analysis for tests with holding times of less than 48 hours when required to demonstrate that the test was performed within holding times (the time of preparation/analysis is entered in the case narrative of the report).
- Name of method used for preparation and analysis
- Minimum Reporting Level or PQL
- Signature of authorized person (Lab Manager, Lab Director, etc.)
- Any additional information that is important to be reported.
- Any deviations from, additions to or exclusion from SOPs, and any conditions that may have affected the quality of results, and including the use and definitions of data qualifiers (appendix 12).
- Measurements, examinations and derived results, supported by tables, graphs, sketches and photographs as appropriate, and any failures identified; identification of whether data are calculated on dry weight basis; identification of the reporting units such as ug/l or mg/kg
- Clear identification of all test data provided by outside sources, such as subcontracted laboratories, clients, etc.
- Clear identification of numerical results with values below the RL (J qualifier).

Exceptions to this standard approach for reporting are allowed with the approval of the Technical Director and are documented.

Any result not obtained in accordance with the approved method and the lab QA Plan by use of proper lab technique, must be documented as such in the case narrative section of the Certificate of Analysis.

Material amendments to a test report after issue are made only in the form of a further document, or data transfer including the statement "Supplement to Certificate of Analysis, identification number".

Clients are notified promptly, in writing, of any event such as the identification of defective measuring or test equipment that cast doubt on the validity of results given in any test report or amendment to a report.

Test results are certified to meet all requirements of the NELAC standards, or reasons are provided if they do not.

After signed, the Certificates of Analysis are sent to the client by mail. In some cases the report is submitted by fax prior to be sent by US Mail.

13.4 Records

Records provide the direct evidence and support for the necessary technical interpretations, judgments, and discussions concerning laboratory results. These records, particularly those that are anticipated to be used as evidentiary data, provide the historical evidence needed for later reviews and analyses. Records should be legible, identifiable, and retrievable, and protected against damage, deterioration or loss. All records referenced in this section are retained for a minimum of five years.

Laboratory records generally consist of bound notebooks with pre-numbered pages, official laboratory worksheets, personnel qualifications and training forms, equipment maintenance and calibration forms, chain-of-custody forms, sample analysis request forms, and analytical change request forms. All records are recorded in indelible ink and retained for a minimum of five years. Records that are stored or generated by computers have hard copy or write protected backup copies.

Any documentation errors are corrected by drawing a single line through the error so that it remains legible and is initialed by the responsible individual, along with the date of change. The correction is written adjacent to the error. Strip-chart recorder printouts are signed by the person who performed the instrumental analysis. If corrections need to be made in computerized data, a system parallel to the corrections for handwritten data is used.
In the event the Laboratory is sold, all past records shall be transferred to the custody of the new legal owner or operator of the Laboratory.
This management however shall maintain responsibility and accountability for laboratory work performed prior to the transfer. A written statement to this effect shall be provided.
The new owner/operator shall be accountable and liable for all work performed after the transfer date and he/she shall provide a written statement to that effect.
In the case the laboratory goes out of business, the present management shall maintain custody of all records and make them available to clients for a period of at least five years.

Laboratory records include the following:

13.4.1 Standard Operating Procedures

SOPs are controlled documents. They are reviewed on regular basis and if there are any revisions, these are distributed to all affected individuals to ensure implementation of changes.

13.4.2 Equipment Maintenance Documentation

Documents detailing the receipt and specification of analytical equipment are retained. A history of the maintenance record of each system serves as an indication of the adequacy of maintenance schedules and parts inventory. As appropriate, the maintenance guidelines of the equipment manufacturer are followed. When maintenance is necessary, it is documented in either standard forms or in logbooks.

13.4.3 Calibration Records and Traceability of Standards/Reagents

The frequency, conditions, standards, and records reflecting the calibration history of a measurement system are recorded.

13.4.4 Sample Management

A record of all procedures to which a sample is subjected while in the possession of the laboratory is maintained. These include records pertaining to:

- Sample preservation including appropriateness of sample container and compliance with holding time requirements.
- Sample identification, receipt, acceptance or rejection and log-in
- Sample storage and tracking including shipping receipts, transmittal forms, and internal routing and assignment records.
- Disposal of hazardous samples including the date of sample or sub-sample disposal and name of responsible person.
- Automated sample handling systems

13.4.5 Original Data

The raw data and calculated results for all samples is maintained in laboratory notebooks, logs, bench sheets, files or other sample tracking or data entry forms. Instrumental output is stored in a computer file and/or a hard copy report. These records include:

- Laboratory sample ID code
- Date of analysis
- Instrumentation identification and instrument operating conditions/parameters
- Analysis type and sample preparation information, including sample aliquots processed, cleanup, and separation protocols.
- All manual, automated, or statistical calculations
- Confirmatory analysis data, when required to be performed
- Review history of sample data
- Analyst's or operator's initials/signature

13.4.6 QC Data

The raw data and calculated results for all QC samples and standards are maintained in the manner described in 13.4.5. Documentation allows correlation of sample results with associated QC data. Documentation also includes the source and lot numbers of standards for traceability. QC samples include, but are not limited to, control samples, method blanks, matrix spikes and matrix spike duplicates.

13.4.7 Correspondence

Correspondence pertinent to a project is kept and placed in the project files.

13.4.8 Deviations

When a deviation from a documented policy occurs, including SOPs, analytical methods, QA/QC criteria, etc., the laboratory notifies this to the client in the Certificate of Analysis under the case narrative section or on a supplemental report indicating the deviation and the reasons for it. All deviations from SOPs are reviewed and approved by the QA Officer or Technical Director

13.4.9 Final Reports

Copies of final reports are kept in each client's file, along with supporting documentation

13.4.10 Administrative Records

The following are maintained:

- Personnel qualifications, experience and training records
- Initial and continuing demonstration of proficiency for each analyst
- A log of names, initials and signatures for all individuals who are responsible for signing or initialing any laboratory record.

13.5 Document Control System

A document control system is used to ensure that all personnel have access to current policies and procedures at all times. Documents, which are managed by this system, include this Quality Manual and all SOPs. The system consists of a document review, revision and approval system, and document control and distribution.

All quality documents (this manual, SOPs, policies, etc.) are reviewed and approved by the QA Officer, the Technical Director and the Laboratory Director. Such documents are revised whenever the activity described changes significantly. All documents are reviewed annually or more often if it is needed.

All QA/QC documents are controlled by the QA Officer. Controlled copies are provided to individuals in the laboratory who need copies. The QA Officer maintains a distribution list for controlled copies and ensures that any revisions are distributed appropriately.

13.6 Confidentiality

All analytical reports and results are kept in confidence to the customer who requested the analyses and only released to third parties with written permission from a properly authorized representative of the client. This information includes, but is not limited to COCs, Certificates of Analysis, raw data, bench sheets, electronic information and sample results.
In addition no information pertaining to clients is posted in public areas where the access is not restricted.
Access to laboratory records and LIMS data is limited to authorized laboratory personnel except with the permission of the QA Officer or Laboratory Director. NELAP-related records are made available to authorized accrediting authority personnel.

14 PERFORMANCE AND SYSTEM AUDITS AND FREQUENCY

14.1 Internal Laboratory Audits

Annual internal audits are performed to verify that laboratory operations continue to comply with the requirements of the quality system. The quality assurance officer plans and organizes internal audits as required by a predetermined schedule and requested by management. Such audits are performed by the

Quality Assurance Officer or personnel designated by the QA officer, who are by trained and qualified and wherever resources permit, independent of the activity to be audited. Technical personnel are not allowed to audit their own activities unless it can be thoroughly demonstrated that an effective audit will be carried out.

Where the audit findings cast doubt on the correctness or validity of the laboratory's results, an immediate corrective action is initiated and any client whose work may have been affected is notified.

The internal system audits include an examination of laboratory documentation on sample receiving, sample log-in, sample storage, chain-of-custody procedures, sample preparation and analysis, instrument operating records, etc.

14.2 Management Review

At least once per year, laboratory management conducts a review of the quality system to ensure its continuing suitability and effectiveness and to introduce any necessary changes or improvements in the quality system and laboratory operations. The review takes account of reports from managerial and supervisory personnel, the outcome of recent internal audits, assessment by external bodies, the results of proficiency tests, any changes in the volume and type of work undertaken, feedback from clients, corrective actions and other relevant factors.

The managerial review is performed according to specified procedures detailed in the corresponding SOP and the records of review findings and actions are kept at the laboratory.

15 FACILITIES, EQUIPMENT AND REAGENTS

15.1 Facilities

The Laboratory is divided into two separate buildings. One is dedicated to organic analysis (GC, GC/MS, TOC, TOX and HPLC) and the other houses the offices, inorganic analysis and sample extraction for organics. This separation prevents contamination of low levels of common laboratory solvents in the volatile organics analyses.

It is the policy of the company to assure that the facilities housing the laboratory are adequate to perform the analyses for which it is accredited. This includes physical space, workbenches, ventilation, utilities and other services. The company shall procure to improve the condition of the facilities whenever possible and make plans for future expansions or improvements.

15.2 Equipment Maintenance

Records are maintained for all major equipment, including documentation of all routine and non-routine maintenance activities.

The records include:

- The name of the equipment
- The manufacturer's name, type identification, and serial number or other unique identification.
- Date received and date placed in service (if available)
- Current location, where appropriate.
- If available, condition when received (e.g. new, used, reconditioned)
- Dates and results of calibrations, if appropriate
- Details of maintenance carried out to date and planned for the future

- History of any damage, malfunction, modification or repair

When purchasing new laboratory equipment and accessories, only reputable brands will be considered and always the instruments that have the best quality shall be considered, regardless of the difference in price with a similar instrument, considered of an inferior quality.

Instruments and equipment are maintained in optimum condition. Frequent inspections, routine preventative maintenance, prompt service, etc. ensure optimal performance.

It is the policy of the company to provide analytical instruments and software adequate to meet the method requirements and the quality control operations specified in both NELAC and the individual methods. Older instruments shall be replaced with newer ones as technology improves and efforts shall be made to provide a greater degree of automation and security in analytical instruments. A list of major instruments and reference materials is in Appendix 4.

Service contracts with the manufacturer or instrument Maintenance Company are maintained for the following instruments:

- ICP instruments for metal analysis
- GC/MS units for volatile organics
- Purge and Trap systems and autosamplers
- GC/MS units for semi-volatile organics

The analyst in charge of each particular instrument performs preventive maintenance for all other analytical instruments.

All maintenance and repairs are thoroughly documented in logbooks, with information pertaining to the description of the problem or routine maintenance, date of occurrence and name of person that performed the maintenance operation.

A routine preventive maintenance program is used to minimize the occurrence of instrument failure and other system malfunctions. Designated employees regularly perform routine scheduled maintenance and repair of instruments. All laboratory instruments are maintained according with manufacturer's specifications.

Glassware is cleaned to meet the sensitivity of the method. Any cleaning and storage procedures that are not specified by the method are documented in laboratory records or SOPs.

15.3 Reagents and Chemicals

The reagents and chemicals used in the laboratory are obtained from reputable suppliers that have proven consistency over the years. Purity specifications are chosen based on the analysis and this is always verified by the analysis of solvent blanks and check standards. The following are some of the reagents used:

- Solvents used for Gas Chromatography and GC/MS are "organic residue analysis" grade.
- Methanol used for volatile organics by GC or GC/MS is "Purge and Trap" grade.
- All inorganic chemicals are "reagent grade" or better, depending of the requirement.
- Nitric acid used for preparation of standards for ICP/MS analysis is "trace metals".

The quality of reagent water sources is monitored and documented to meet method specific requirements.

15.4 Analytical Standards and Reference Materials

Most of the standards used are purchased as certified solutions from qualified vendors. These stock standards are traceable to NIST, the corresponding documentation, including certificate of analysis or purity, date of receipt, recommended storage conditions, expiration date, etc., is maintained in laboratory files.

The original containers provided by the vendor are labeled with an expiration date.

All chemical reagents and analytical standards received at the laboratory are inspected for appearance and expiration date, if any. They are then entered into a bound logbook and a unique identification number is assigned to each chemical or standard, which is written on the label. The entry in the logbook consists of the supplier, name of the chemical or standard, date received, lot number and expiration date, if any. This identification number is referenced when a dilution of the stock is made or when a reagent solution is prepared.

Analytical standards prepared in the laboratory are prepared from certified stock solutions or pure product. Quality Control Standards (QCS) are prepared or obtained from a separate source other than the working standards.

The management does not reject any request from technical personnel to obtain a reference material or any type of instrument or chemical that he or she considers essential for the normal operation of the laboratory.

15.5 Computers and Electronic Data Related Requirements

Where computers or automated equipment are used for the capture, processing, manipulation, recording, reporting storage or retrieval of test data:

- Section 8.1 through 8.11 of the EPA Document "2185 – Good Automated Laboratory Practices" (1995), is used as the standard.
- Computer software is documented to be adequate for use.
- Procedures are established and implemented to protect the integrity of data.
- Computer and automated equipment are maintained to ensure proper functioning
- Appropriate procedures are used for the maintenance of security of data including the prevention of unauthorized access to, and the unauthorized amendment of, computer records.

16 SPECIFIC ROUTINE PROCEDURES USED TO EVALUATE DATA QUALITY

Quality control acceptance criteria are used to determine the validity of the data based on the analysis of internal quality control check (QC) samples (see section 11). The specific QC samples and acceptance criteria are found in the laboratory SOPs. Typically, acceptance criteria are taken from published EPA methods. Where no EPA criteria exist, laboratory generated acceptance criteria are established. Acceptance criteria for bias are based on historical mean recovery plus minus three standard deviation units, and acceptance criteria for precision range from zero (no difference between duplicate control samples) to the historical mean relative percent difference plus three standard deviation units.

Analytical data generated with QC samples that fall within prescribed acceptance criteria indicate the laboratory was in control. Data generated with QC samples that fall outside the established acceptance criteria indicate the laboratory was "out of control" for the failing tests. These data are considered suspect and the corresponding samples are reanalyzed or reported with qualifiers.

Many published EPA methods do not contain recommended acceptance criteria for QC sample results. In these situations, Weck Laboratories, Inc. uses 70 – 130 % as interim acceptance criteria for recoveries of spiked analytes, until in-house limits are developed. In-house limits are based on a 95% confidence interval and must include a minimum of 20 data points.

16.1 Laboratory Control Samples

A Laboratory Control Sample is analyzed with each batch of samples to verify that the accuracy of the analytical process is within the expected performance of the method.
The results of the LCS are compared to acceptance criteria to determine usability of the data. Data generated with LCS samples that fall outside the established acceptance criteria are judged to be out-of-control. These data are considered suspect and the corresponding samples are reanalyzed or reported with qualifiers.
LCS samples are prepared in each corresponding matrix (reagent water for aqueous and Ottawa sand for soil/solid), which must be free of the target analytes to be analyzed.

16.2 Matrix Spikes/Matrix Spike Duplicates

Results from MS/MSD analyses are primarily designed to assess data quality in a given matrix, and not laboratory performance. In general, if the LCS results are within acceptance criteria, performance problems with MS/MSD results may either be related to the specific sample matrix or to an inappropriate choice of extraction, cleanup, or determinative methods. If any individual percent recovery in the matrix spike (or matrix spike duplicate) falls outside the designated acceptance criteria, Weck Laboratories, Inc. will determine if the poor recovery is related to a matrix effect or a laboratory performance problem. A matrix effect is indicated if the LCS data are within acceptance criteria but the matrix spike data exceed the acceptance criteria.

16.3 Surrogates Recoveries

Surrogates are exclusively used in organic analysis. Surrogate recovery data from individual samples are compared to surrogate recovery acceptance criteria in the methods. As for MS/MSD results, surrogate recoveries are used primarily to evaluate data quality and not laboratory performance.

16.4 Method Blanks

Method blank analyses are used to assess acceptance of sample results. The source of contamination is investigated and measures taken to correct, minimize or eliminate the problem if:

- The blank contamination exceeds a concentration greater than 1/10 of the measured concentration of any sample in the associated sample batch or
- The blank contamination exceeds the concentration present in the samples and is greater than 1/10 of the specified regulatory limit.
- The blank contamination is over the reporting limit for that analyte

Each sample in the affected batch is assessed against the above criteria to determine if the sample results are acceptable. Any sample associated with the contaminated blank is reprocessed for analysis or the results reported with appropriate qualifying codes.

17 CORRECTIVE ACTION

Corrective action is the process of identifying, recommending, approving and implementing measures to counter unacceptable procedures or out of control QC performance that can affect data quality. To the extent possible, samples are reported only if all quality control measures are acceptable. If a quality control measure is found to be out of control, and the data is to be reported, all samples associated with the failed quality control measure are reported with the appropriate data qualifier(s). Sample results may also be qualified when holding times are not met, improper sample containers and/or preservatives are used or when other deviations from laboratory standard practices and procedures occur.

Corrective action in the laboratory may occur prior to, during and after initial analyses. A number of conditions such as broken sample containers, multiple phases, low or high pH readings, and potentially high concentration samples may be identified during sample login or just prior to analysis. The SOPs specify conditions during and after analysis that may automatically trigger corrective action or optional procedures. These conditions may include dilution of samples, additional sample extract cleanup, and automatic reinjection/reanalysis when certain QC criteria are not met.

Any QC sample result outside of acceptance limits requires corrective action. Once the problem has been identified and addressed, corrective action may include the reanalysis of samples, or appropriately qualifying the results.

The analyst will identify the need for corrective action. The Technical Director will approve the required corrective action to be implemented by the laboratory staff. The QA Officer will ensure implementation and documentation of the corrective action.

Corrective actions are performed prior to release of the data from the laboratory. The corrective action will be documented in both a corrective action log (Appendix 10), signed by the personnel involved, and the narrative in data report.

Where a complaint, or any other circumstance, raises doubt concerning the laboratory's compliance with the laboratory's policies or procedures, or with the quality of the laboratory's tests, the laboratory shall ensure that those areas of activity and responsibility involved are promptly audited in accordance with internal audit procedures established under this QA Manual. All complaints received at the laboratory from clients or other parties shall be treated according to the corresponding standard operating procedure for its resolution. Records of the compliant and subsequent actions are maintained for future review.

There are some cases in which the QC checks do not fail but the analyst or supervisor discovers that an unexpected or contradictory result has been obtained. These situations are considered also as "Out-Of-Control" and an investigation is carried out.

The investigations/corrective action procedures includes but is not limited to:

- Investigate the probable cause of irregularity.

- Review the sample's documented history.
- Review the documentation for errors.
- Scrutinize the sample preparation (digestion, extraction, dilutions, cleanup, etc.)
- Verify standards with reference materials.
- Re-analyze the sample if possible.
- Investigate alternate methodologies.
- If the event is determined to be matrix dependent the data is reported with a qualifier.

18 SUBCONTRACTING AND SUPPORT SERVICES AND SUPPLIES

18.1 Subcontracted Laboratory Services

A subcontracted laboratory will be used only if Weck Laboratories does not have the capability of performing the requested test or if the client specifically requests a particular analysis to be subcontracted.

Weck Laboratories advises the client in writing of its intention to subcontract any portion of the testing to another party.

When subcontracting any part of the testing covered under NELAP, this work is placed with a laboratory accredited under NELAP for the tests to be performed.

The corresponding records demonstrating that the above requirements are met are retained (e.g. copies of the subcontracted lab certifications, communications with the client, etc.)

When subcontracted laboratories are used, this is indicated in the Certificate of Analysis and the original report from the subcontracted lab is sent to the client, keeping a copy for our files.

18.2 Outside Support Services and Supplies

Weck Laboratories, Inc. only uses those outside support services and supplies that are of adequate quality to sustain confidence in the laboratory's tests. Records of all suppliers for support services or supplies required for tests are maintained.

19 REFERENCES

19.1 NELAC Standards, July 1, 1999 Revision 11
19.2 Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans,
19.3 QAMS-005/80, December 29, 1980, Office of Monitoring Systems and Quality Assurance, ORD, USEPA, Washington, DC 20460
19.4 RCRA QAPP Instructions, USEPA Region 5, Revision: April 1998
19.5 ASTM D-5283-92. Generation of Environmental Data Related to Waste Management Activities: Quality Assurance and Quality Control Planning and Implementation.
19.6 American National Standards Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs (ANSI/ASQC E-4), 1994.
19.7 EPA 2185 – Good Automated Laboratory Practices, 1995
19.8 ISO/IEC Guide 25: 1990. General Requirements For The Competence Of Calibration And Testing Laboratories.
19.9 QA/R-2: EPA Requirements for Quality Management Plans, August 1994.

19.10 QA/G-4: Guidance for the Data Quality Objectives Process EPA/600/R-96/055, September 1994.

19.11 A/R-5: EPA Requirements for Quality Assurance Project Plans Draft – November 1997

19.12 QA/G-5: Guidance on Quality Assurance Project Plans EPA/600/R-98/018, February 1998.

19.13 A/G-6: Guidance for the Preparation of Standard Operating Procedures for Quality Related Operations EPA/600/R-96/027, November 1995.

19.14 A/G-9: Guidance for the Data Quality Assessment: Practical Methods for Data Analysis EPA/600/R-96/084, January 1998.

19.15 Manual for the Certification of Laboratories Analyzing Drinking Water EPA/570/9-90/008.

Appendix

APPENDIX 1
RESUMES OF KEY PERSONNEL

Name	Position
Alfredo Pierri	Laboratory Director
Jayna Kostura	QA Officer
Leung (Alan) Ching	Technical Director Organic Analyses
Thanh (Joe) Chau	Technical Director Inorganic Analyses
Truyet Mai	QA Officer Designee

ALFREDO E. PIERRI, R.E.A.

Title

President, Laboratory Technical Director

Education

M.S. (equiv.) - University of Buenos Aires, Argentina, 1978. Chemistry

- University of California, Los Angeles
Certificate in Hazardous Materials Control and Management,
1991 - 1993

Affiliations

American Chemical Society
American Society of Mass Spectrometry
American Water Works Association
National Association of Environmental Professionals
Water Environment Federation

Professional Experience

01/87 to Present	Weck Laboratories, Inc. Industry, California	President Laboratory Director
09/84 to 12/86	SCS Engineers Analytical Laboratory Long Beach, California	Laboratory Manager
07/79 to 09/84	Argentina Atomic Energy Energy Commission Chemistry Department Buenos Aires, Argentina	Analytical Chemist

Mr. Pierri has extensive experience in analytical chemistry. Most of his work in this field has been in the application and development of instrumental methods of analysis for organic analytes using GC, GC/MS, HPLC, IR and UV-Visible spectrometry. He has also worked in Atomic Absorption Spectrometry with flame and graphite furnace and Inductively Coupled Plasma (ICP) spectrometry. In the last 9 years he has been working exclusively in the environmental field obtaining in 1993 the certification as Registered Environmental Assessor (REA-04975) from the California Environmental Protection Agency.

As Laboratory Director, Mr. Pierri is responsible for all laboratory operations including the supervision of the overall performance of the laboratory, revision of analytical reports and Quality Assurance Program and provision of technical assistance and direction to laboratory personnel.

Mr. Pierri is well acquainted in all aspects of environmental regulations at Federal and State level, providing consulting services and guidance to clients in regulatory compliance and chemical treatment issues as well as understanding and interpreting analytical data.

Other relevant experience and projects in which Mr. Pierri has participated are as follows:

- Characterization of wastes to be classified as hazardous as per State of California and Federal Regulations.
- Determination of contamination in soil and groundwater due to leaking underground storage tanks.
- Design and implementation of a Quality Assurance Program in Environmental Monitoring, writing of the QA manual and training of laboratory personnel.
- Interpretation of analytical data and compliance with regulations for drinking water for different potable water purveyors in Southern California.
- Compliance for wastewater discharges with local regulatory agencies and NPDES permits.
- Consulting services to industrial clients on pre-treatment of effluents in order to minimize organic matter and solids and reduce costs in taxes imposed by POTWs.
- Identification of unknown materials by chemical and physical methods.
- Implementation of a LIMS and use of personal computers for data acquisition, handling, and reporting.
- Teaching of Analytical Organic Chemistry at University Level for MS program.

JAYNA K. KOSTURA

Title:

QA Officer

Education

B.S. - University of California, Davis, 1977
Biological Sciences

- University of California, Riverside
Certificate in Hazardous Materials Management, 1994

Professional Experience

09/00 to Present	Weck Laboratories, Inc. Industry, California	QA Officer
10/90 to 09/00	Weck Laboratories, Inc. Industry, California	Laboratory Manager
01/79 to 09/90	Chemical Consultants Industry, California	Laboratory Director
05/78 to 01/79	Chemical Consultants Industry, California	Analyst

Ms. Kostura has extensive experience in the environmental monitoring field. As QA Officer she is responsible for supervising and auditing the QA plan and investigating irregularities. She also has responsibilities in reviewing the QA Program Manual and Standard Operating Procedures.

As Chemical Hygiene Officer Ms. Kostura is responsible for development and implementation of the Chemical Hygiene Plan as well as the Injury and Illness Prevention Program.

Ms. Kostura is also very well versed in compliance regulations and treatment of industrial wastes, providing technical support to clients and consultants, as well as interpretation of analytical data.

Ms. Kostura has hands-on experience in analytical determinations by Atomic Absorption spectrometry, Plasma Spectrometry, wet chemistry and microbiology, as well as studies in chemical treatment of wastewater for the electroplating and other industries.

Ms. Kostura's relevant experience is as follows:

- Reviewing QA/QC procedures and data for environmental testing.
- Interpretation of analytical data and interaction with regulatory agencies at federal, state and local levels.
- Writing of SOPs for different test methods.
- Evaluation and reviewing analytical data for inorganic analysis by AA, ICP, wet chemistry methods and organic analyses.

ALAN CHING

Title:

Technical Director Organic Analyses

Education

B.S. - Chu Hai College, Hong Kong, 1985
Chemistry

- Shangai University of Technology, China
Analytical Chemistry Courses 1978 - 1981

M.S - California Polytechnic University, Pomona
Analytical Chemistry, 1997

Professional Experience

09/00 – Pres.	Weck Laboratories, Inc.	Technical Director Organic Analyses
08/97 - 09/00	Weck Laboratories, Inc.	Organic Section Group Leader
04/96 - 07/97	Weck Laboratories, Inc.	QC Officer
02/95 - 03/96	Weck Laboratories, Inc.	Senior Chemist - GC
10/90 - 02/95	Weck Laboratories, Inc.	Senior chemist AA/ICP
04/89 - 06/89	Dinippon Ink and Chemical Hong Kong	Sales & Customer Technical Service
09/86 - 03/89	DIC - Sheng Zheng Company Shengzheng, China	Production Management and Quality Control
01/85 - 08/86	Dinippon Ink and Chemical	Lab Technician

Project Experience

- Supervision and training of personnel in the organic section.
- Technical advisor for organic analysis and troubleshooting.
- Signing of organic analysis reports (in absence of Lab Manager or Lab Director).
- Reviewing and maintaining the QA manual and QA/QC documentation.

- Analysis of environmental samples for metals, and other elements by atomic absorption and ICP spectrometry using flame, hydride generation, cold vapor and graphite furnace.
- Preparation and set-up of leaching tests for hazardous waste characterization.
- Maintenance of atomic absorption and ICP instrumentation.
- Development and application of microwave digestion methods for metal analysis in environmental samples.
- Analysis of water in solvents, paints, inks and petroleum products by Karl-Fisher titration.
- Separation and detection of four different arsenic compounds using ion exchange chromatography and UV detection. (Master's degree project)
    - Analysis of environmental samples by GC and GC/MS including pesticides, herbicides, hydrocarbons, volatile organics, etc.

JOE CHAU

Title

Technical Director for Inorganic and Microbiology

Education

B.S. - California Polytechnic University, Pomona, CA, 1988
Electrical Engineering

B.S - California Polytechnic University, Pomona, CA. 1993
Chemistry, Industrial Option

Professional Experience

09/00 – Pres. Inorganic Microbiology	Weck Laboratories, Inc. Industry, California	Technical Director for Analysis and
01/96 – 09/00	Weck Laboratories, Inc. Industry, California	Inorganic Section Supervisor
09/89 – 01/96.	Weck Laboratories, Inc. Industry, California	Senior chemist Spectroscopy (AA, ICP, ICP-MS)
09/88 - 09/89	Lights of America, Inc. Walnut, California	Electronic Technician

Project Experience

- Supervising and training of personnel in the wet chemistry, metals and microbiology groups.
- Technical advisor and troubleshooting for ICP-AES, ICP/MS and AA analyses.
- Signing of inorganic analysis reports (in absence of Lab Manager or Lab Director).
- Development of analytical procedures for the determination of environmental samples by ICP-MS
- ICP-MS operation and maintenance
- Analysis of water, wastewater, soil and hazardous waste samples by flame Atomic Absorption Spectrometry (AAS) and Inductively Coupled Plasma Emission Spectrometry (ICP-AES).
- Analysis of air filters for lead and other metals following NIOSH procedures.
- Operation and programming of ICP-AES spectrometer for analysis of metals.

- Maintenance and troubleshooting of AA and ICP instrumentation.
- Digestion methods and sample preparation for metal analysis including hot plate digestion and microwave digestion.
  - Leaching procedures for hazardous waste classification TCLP, WET and EP TOX.

Special Qualifications

Seminars:

Participation of seminars about AA, ICP and sample preparation given by Thermo Jarrell Ash, Varian and Perkin-Elmer, 1990 to 1992.

Continuing Education

Certificate Program for Hazardous Waste Management, University of California, Irvine, 1991

Perkin Elmer, ICP-MS training course. San Jose, CA 1996

TRUYET T. MAI

Title:

QA Officer Designee

Education

Ph.D. - University of Besancon, France, 1973
Structural Organic Chemistry.

Professional Experience

09/00 - Pres.	Weck Laboratories, Inc. Industry, CA	QA Officer designee
	BKK Inc. West Covina, CA	Lab Manager and Leachate Treatment Plant Manager
1997 - 09/00	Weck Laboratories, Inc. Industry, CA	QA Officer
	BKK Inc. West Covina, CA	Lab Manager and Leachate Treatment Plant Manager
1995 - 1997	Greenfield Environmental Chula Vista, CA	Lab Manager
1989 - 1994	Chemical Waste Management Kettleman City, CA	Lab Manager
1987 - 1989	University of Minnesota Medical School, MN	Research Associate

Prior to 1986, Dean, Associate Professor and Lecturer in Chemistry for Universities in France and Viet Nam.

Project Experience

- Managing QA Programs for environmental labs.
- Several years United States, European and Asian experience as an Analytical & Environmental Laboratory Manger in the toxic waste industry.
- Extensive experience in the acceptance, approval, and treatment of US EPA, Title 22, and OSHA regulations for solid waste, wastewater and air monitoring program.
- Recognized for ability to work with diversified professionals from different cultures and dealing confidently with sensitive situations.

- Specialized in troubleshooting and preparing of most lab equipment.

APPENDIX 2

CODE OF ETHICS

Weck Laboratories, Inc. is committed to ensuring the integrity of our data and meeting the quality needs of our clients. We pledge to manage our business according to the following principals:

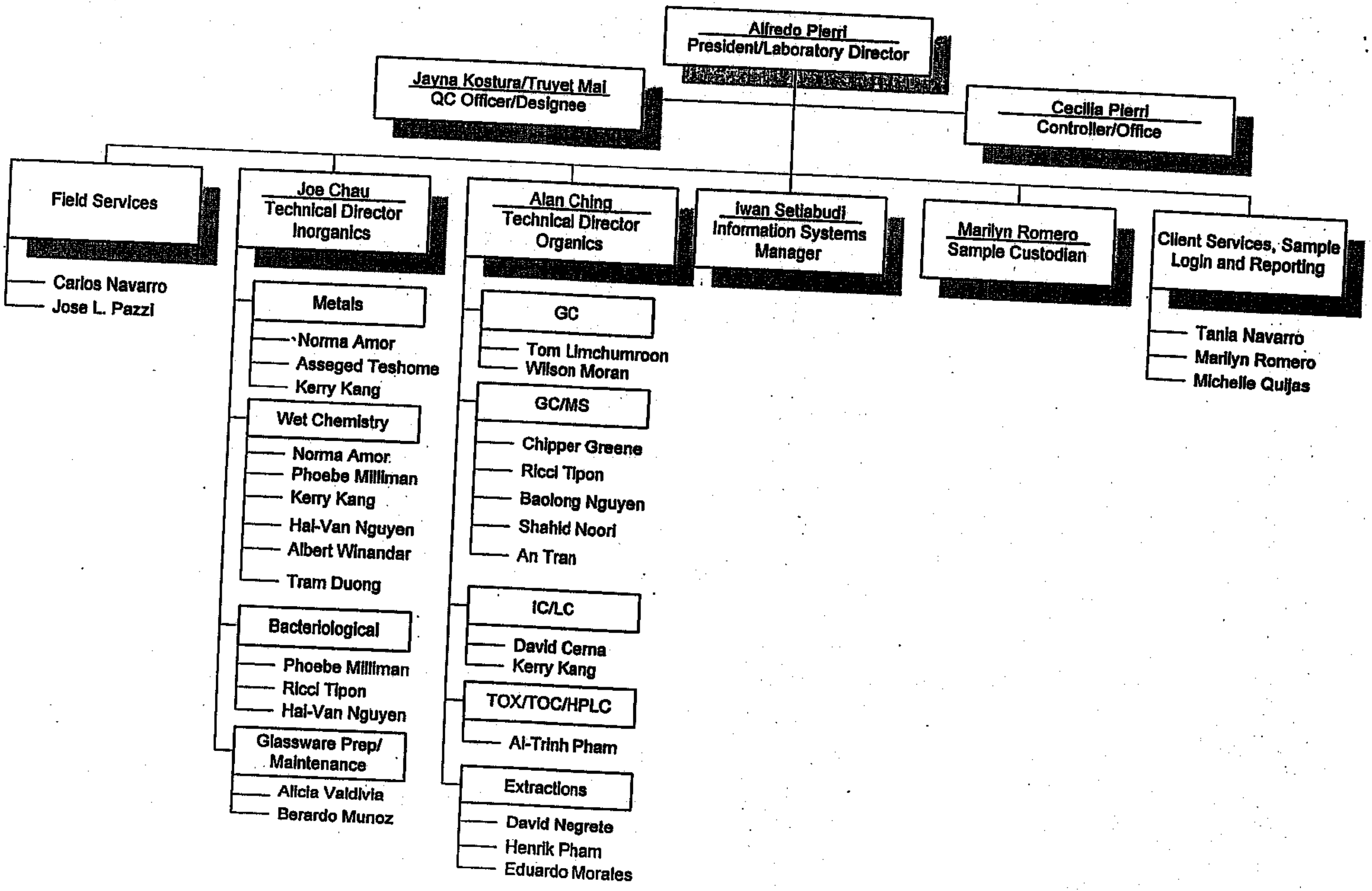
- To produce results that are technically sound and legally defensible;
- To assert competency only for work for which adequate equipment and personnel are available;
- To present services in a confidential, honest, and forthright manner;
- To have a clear understanding with the client as to the extent and kind of services to be rendered;
- To provide employees with guidelines and an understanding of the ethical and quality standards required in this industry;
- To operate facilities in a manner that protects the environment and the health and safety of employees and the public;
- To obey all pertinent federal, state, and local laws and regulations;
- To continually improve product and service quality;
- To treat employees equitably, acknowledge their scientific contributions, and provide them with opportunities for professional growth and development;
- To recognize and respond to community concerns; and
- To deal openly, honestly, and fairly in all business and financial matters with employees, clients and the public.

APPENDIX 3

WECK LABORATORIES, INC.

Company Organization Chart

October 2000



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APPENDIX 4

List of Major Equipment as October 2000

Inorganic analysis:

1	ICP/MS Perkin Elmer, model ELAN 6000, with autosampler
1	ICP Perkin Elmer, Model Optima 3200 XL DV with autosampler
1	Mercury analyzer CETAC model M6000 A with autosampler
2	Atomic Absorption Spectrometers Thermo Jarrell Ash models Video 11E and S-H 11.
1	Hydride generation system Thermo-Jarrell Ash model AVA-440.
1	Ion chromatograph Dionex model DX-120 with autosampler.
1	Ion chromatograph Dionex Model DX-500 with gradient pump and conductivity detector.
1	UV-Visible Spectrophotometer Milton Roy Genesis 5.

Organic analysis:

1	GC/MS Varian Saturn 2000 with autosampler and chemical ionization with ECD detector
1	GC/MS system, Agilent model 6890/5973N turbo pump with CI and autosampler
1	GC/MS system, Hewlett-Packard 6890/5973
1	GC/MS system, Hewlett-Packard 5890 series II/5972 MSD
2	GC/MS systems, Hewlett-Packard 5890/5970 MSD, upgraded operating under DOS Chemstation, latest software revision (1996)
4	Gas chromatographs Hewlett Packard model 5890A with 3 FIDs, 2 ECDs, 1 NPD, 1 TCD, and 1 PIDs .
1	Gas chromatograph Agilent model 6890+ with dual ECD
5	Automatic liquid samplers Hewlett Packard model 7673A.
1	Purge and Trap Tekmar Model 3100
2	Purge and trap Tekmar Model 3000.
2	Purge and trap autosampler Archon Model 5100A.
1	Purge and trap with autosampler Dynatech model Dynasoil.
2	Purge and trap Tekmar model 2000.
2	Purge and trap discrete autosampler Tekmar model 2016.
1	Purge and trap autosampler Aquatek 70.
1	HPLC System Dionex with GPM gradient pump, post-column reaction system, and UV-VIS.
2	IC/HPLC system Dionex DX-500 with conductivity, and UV and Fluorescence detectors and Dionex 3500 autosampler
1	Total organic carbon (TOC) O-I Analytical model 700.
1	Total organic halides (TOX) Mitsubishi TOX-10 E
1	Infrared analyzer fixed wavelength Buck Scientific model 404

A102376 (1-2)

METROPOLITAN WATER DISTRICT
La Verne Water Quality Laboratory
LOGIN CHAIN OF CUSTODY REPORT (1n01)

Account: 107 Weck Laboratories Inc
Address: 14859 East Clark Avenue
City : Industry State: CA Zipcode: 91745-1396
Phone : (626) 336-2139 Fax: (626) 336-2634

Project: INORGANIC COMPLIANCE POC: Suzanne Teague (909)392-5072
PO #: 74176
MWD Contact Name:
MWD Contact Phone:

Laboratory Sample ID	Site	Collect Date	Collect Time	Receive Date	Receive Time	Recd By	Matrix		Analysis	Hold Date	Due Date	Number of Bottles
✓ M16783-3	JPPBFF	02-APR-01	10:35	02-APR-01	14:28	U05442	Water	S	CYANIDE (WECK)	02-MAY-01		1
✓ M16783-4	JPPBFF	02-APR-01	10:35	02-APR-01	14:28	U05442	Water	S	MBAS (WECK)	04-APR-01		1
✓ 16783-8	JPPINF	02-APR-01	10:40	02-APR-01	14:29	U05442	Water	S	CYANIDE (WECK)	02-MAY-01		1
16783-9	JPPINF	02-APR-01	10:40	02-APR-01	14:29	U05442	Water	S	MBAS (WECK)	04-APR-01		1
(57) ~~*M16783-1[illegible]~~	~~JPPOWRUP~~	~~02-APR-01~~					~~Water~~	~~S~~	~~RADON-222 (WECK)~~			1
~~*M16783-1[illegible]~~	~~JPPOWRUP~~	~~04-APR-01~~					~~Water~~	~~S~~	~~URANIUM (WECK)~~			1

CYANIDE IN 0.05N NaOH

SAMPLER: SYLVIA VASILIU

5°C

Page 1

Relinquished by: Date: 4-3-01 Recd by: Date: 4/3/01
Relinquished by: Date: 04/3/01 Recd by: Date: 4/3/01 3:05P
* Account/Project differ for this sample.

Software and computers:

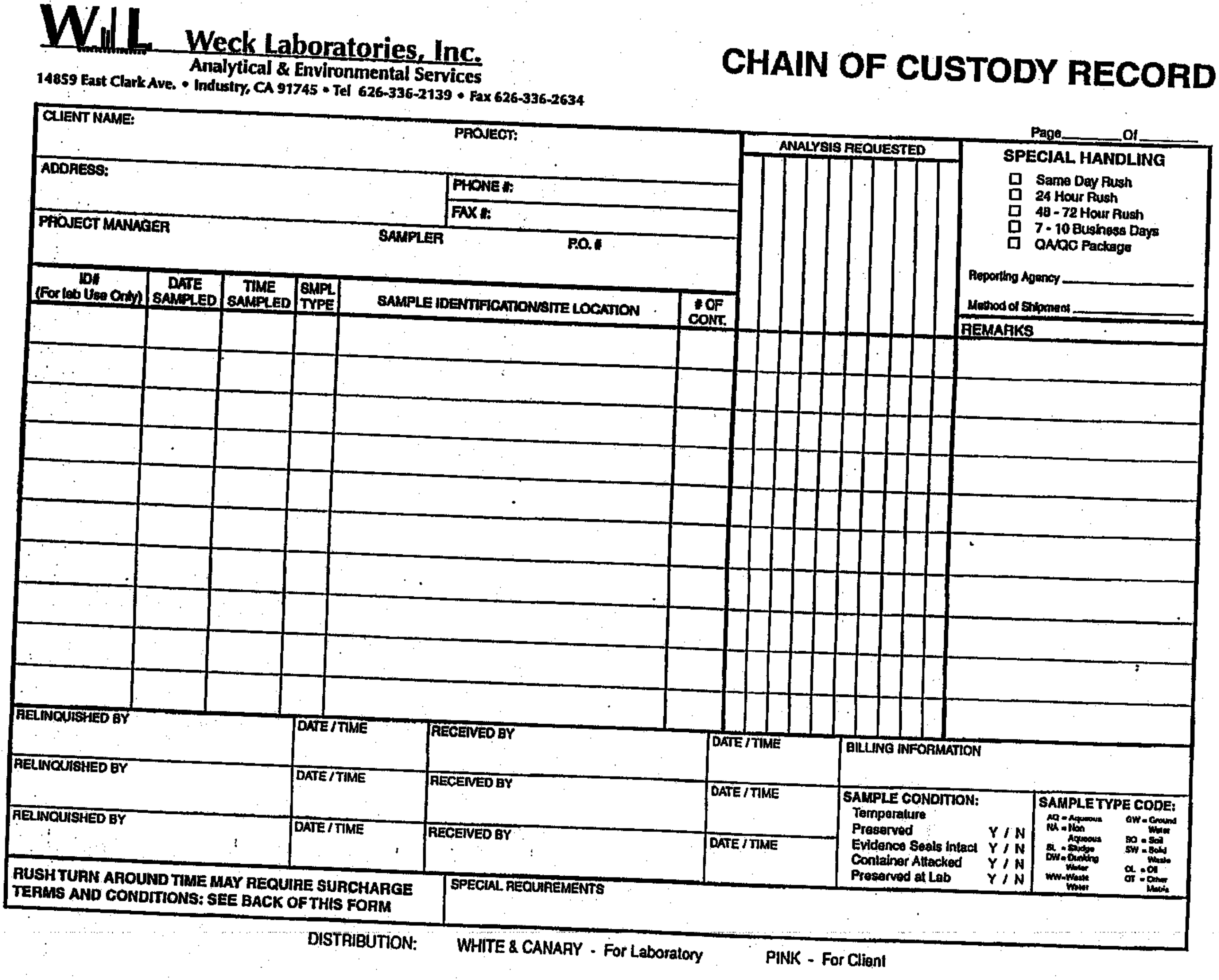
1	DIONEX chromatographic software Peak Net, version 5.2 based on Windows NT platform for operation and data acquisition of HPLC and IC equipment
1	Hewlett-Packard chromatographic software "Chemstation" capable of operating 4 HP5890 Gas Chromatographs simultaneously based on Windows 3.11
1	GC/MS Chemstation software for HP GC/MS systems
1	GC/MS software for Varian instrument
1	Software for ICP and ICP-MS Perkin Elmer
1	Software for data acquisition from pH meters and Ion Selective meters
27	Personal computer workstations connected in a computer network throughout the laboratories.
1	Laboratory Information Management System (LIMS) "Aspen" from Telecations, Inc. running on Novell Computer Network.

Analytical Support Equipment:

1	Sonic disrupter Sonic & Materials model VC600-2.
2	Continuous Liquid-liquid extraction apparatus Organomation Inc., model Corning accelerated extraction concentration – 8 positions
1	Leaching equipment for TCLP including ZHE extractors, agitators and filtration units Associated Design, Inc.
1	Leaching equipment for TCLP with agitators, Environmental Express.
1	Digital analytical balance Sartorius model 1712 MP8
1	Digital analytical balance Sartorius model Analytic A120S
1	Laboratory balance top loader Mettler model PC440 delta range
1	Laboratory balance top loader Sartorius model 1212MP
1	Nanopure Water system Barntead Type D 4700.
1	Millipore Milli-Q water purification system.
1	RO + Milli Q with UV lamp water purification for ultralow organics

APPENDIX 5

Chain of Custody Form



WL Weck Laboratories, Inc.

Analytical & Environmental Services

14859 East Clark Ave. • Industry, CA 91745 • Tel 626-336-2139 • Fax 626-336-2634

CHAIN OF CUSTODY RECORD

CLIENT NAME:

PROJECT:

ADDRESS:

PHONE #:

FAX #:

PROJECT MANAGER

SAMPLER

P.O. #

Page_____ Of_____

ID# (For lab Use Only)	DATE SAMPLED	TIME SAMPLED	SMPL TYPE	SAMPLE IDENTIFICATION/SITE LOCATION	# OF CONT.	ANALYSIS REQUESTED

SPECIAL HANDLING

- ☐ Same Day Rush
- ☐ 24 Hour Rush
- ☐ 48 - 72 Hour Rush
- ☐ 7 - 10 Business Days
- ☐ QA/QC Package

Reporting Agency __________

Method of Shipment __________

REMARKS

RELINQUISHED BY	DATE / TIME	RECEIVED BY	DATE / TIME
RELINQUISHED BY	DATE / TIME	RECEIVED BY	DATE / TIME
RELINQUISHED BY	DATE / TIME	RECEIVED BY	DATE / TIME

BILLING INFORMATION

SAMPLE CONDITION:

Temperature

Preserved Y / N

Evidence Seals Intact Y / N

Container Attacked Y / N

Preserved at Lab Y / N

SAMPLE TYPE CODE:

AQ = Aqueous	GW = Ground Water
NA = Non Aqueous	SO = Soil
SL = Sludge	SW = Solid Waste
DW = Drinking Water	OL = Oil
WW-Waste Water	OT = Other Matrix

RUSH TURN AROUND TIME MAY REQUIRE SURCHARGE
TERMS AND CONDITIONS: SEE BACK OF THIS FORM

SPECIAL REQUIREMENTS

DISTRIBUTION: WHITE & CANARY - For Laboratory PINK - For Client

APPENDIX 6

Sample Collection and Holding Times

Analysis	Container Type	Size	Preservative	Holding Time
Microbiology:				
Coliform/Plate Count	P/G(1)	125mL	$Na_2S_2O_3$, R	6 hours
Organic Chemistry:				
Oil & Grease	G	1 Liter	H_2SO_4 to pH<2	28 Days
VOC's in Water	G, TFE Septum	2X 40 mL	$Na_2S_2O_3$(2), R, NH, HCl ph <2	14 days
VOC's in Soil	G, Jar	4 oz.	NH, R	14 Days
Semi-Volatiles in Water	G, TFE lined Cap	1 Liter	None(3), R	7 Days
Semi-Volatiles in Soil	G, Jar	4 oz	None, R	7 Days
Total Organic Carbon	G, A	100mL	H_2SO_4 to pH<2, R	14 Days
Total Organic Halides	G, A	250mL	None(3), R	14 Days
Inorganic Chemistry:				
General Metals	P/G	500mL	HNO_3 to pH<2	6 months
Chromium (VI)	P/G	250mL	None, R	24 Hours
Mercury	P/G	500mL	HNO_3 to pH<2	28 Days
Cyanide	P/G	500mL	NaOH to pH>12, R, $Na_2S_2O_3$	14 Days
Nitrate-nitrogen	P/G	100mL	None, R	48 Hours
Nitrite-nitrogen	P/G	100mL	None, R	48 Hours
TKN	P/G	500mL	H_2SO_4 to pH<2, R	28 Days
Phenolics	G,.A	500mL	H_2SO_4 to pH<2, R	28 Days
Total Phosphorus	P	100mL	H_2SO_4 to pH<2, R	28 Days
o-Phosphate	P	100mL	Filter, R	48 Hours
Sulfide	P/G	250mL	NaOH pH>9/ZnOAc	7 Days
Silica	P	100mL	R	28 Days
Anions(F^-,Cl^-,$SO4^=$,Br^-)	P	250mL	None, R	28 Days
Ammonia Nitrogen	P/G	250mL	H_2SO_4 to pH<2, R	28 Days

Analysis	Container Type	Size	Preservative	Holding Time
General Chemistry:				
Alkalinity/Acidity	P/G	100mL	NH,R	14 Days
BOD$_5$	P/G	1 L	None.R	48 Hours
COD	P/G	100mL	H_2SO_4 to pH<2, R	28 Days
Residual Chlorine	P/G	250mL	None	run immediately
pH	P/G	50 mL	None	run immediately
TDS	P	500mL	None, R	7 Days
TSS	P	500mL	None, R	7 Days
Settleable Solids	P	1 Liter	None, R	48 Hours
Turbidity	P/G	100mL	None, R	48 Hours
MBAS - Foaming agents	P/G	250mL	None, R	48 Hours
Drinking Water:				
General Physical except odor	G	1 Liter	None, R	48 Hours
Odor	G	1 Liter	None, R	24 hours
Cations, Hardness	P	500mL	HNO_3 to pH<2	6 months
Conductivity	P	100mL	R	28 days
Organochlorine Pesticides - EPA 508.1	G, TFE-lined Cap	1 Liter	R, Na_2SO_3, HCl pH<2	14 Days
PCBs - EPA 508A	G, TFE-lined Cap	1 Liter	R	7 Days
Chlorinated Herbicides -EPA 515.2	G,A TFE-lined Cap	1 Liter	R(3), HCl pH<2	14 Days
Volatile Organics	G, TFE-lined Septa	3X40 mL	R(3), HCl pH<2	14 Days
Total THMs	G, TFE-lined Septa	2X40 mL	25mg Ascorbic Acid	14 Days
Maximum Potential THMs	G, A TFE-lined Septa	2X250 mL	None	Incubate ASAP
EDB/DBCP - EPA 504.1	G, TFE-lined Septa	2X40 mL	R(3)	14 Days
Triazine Pesticides EPA 507	G, TFE-lined Cap	1 Liter	R(3)	7 Days
Carbamate Pesticides EPA 531.1	G, TFE-lined Cap or septum	125mL	R(3), ClAcOH pH<3	28 Days
Glyphosate EPA 547	G, A,TFE-lined Cap	125mL	R(3)	14 Days
Endothall - EPA 548.1	G, A,TFE-lined Cap	125mL	R(3)(5)	7 Days
Diquat - EPA 549.1	P, A	500mL	R(3)(6)	7 Days
Chlorinated hydrocarbons-EPA 551	G, A, TFE-lined Cap	40 ml	R(4)	14 Days
2,3,7,8-TCDD EPA 1613(5)	G, A,TFE-lined Cap	1 L	R(3), Dark	7 Days
Synthetic Organic Chemicals-EPA 525.2	G, TFE-lined Cap	1 L	R, Na_2SO_3, HCl pH<2	14 Days

Analysis	Container Type	Size	Preservative	Holding Time
UST/LUFT:				
TRPH	G	1 Liter	NH, R	14 Days
Total Petroleum Hydrocarbons	G, TFE-lined Septa	2X40 mL	NH, R	14 Days
BTEX EPA 8020	G, TFE-lined Septa	2X40 mL	NH, R, HCl ph<2	14 Days
TPH and BTEX	G, TFE-lined Septa	3X40 mL	NH,R, HCl pH <2	14 Days
Total Lead	P/G	100 mL	HNO_3 to pH<2	6 Months
Hazardous Waste:				
Corrosivity (aqueous)	G/P	50 mL	R	7 Days
Corrosivity (nonaqueous)	G/P	10 g	R	7 Days
Flash Point	G	50 g	R	7 Days
Reactivity (acid/base)	G/P	50 g	R	7 Days
Reactivity (cyanide)	P/G	50 g	NH, R	Analyze ASAP
Reactive Sulfide	P/G	50 g	NH, R	Analyze ASAP

Additional information about sample collection and holding times can be found in Understanding Environmental Analytical Methods, Version 2.2, Genium Publishing Corporation.

Notes:

For soil samples: If sampling brass tubes are not available, use 4 oz. wide mouth jars, no headspace, hold at 4 °C

P: Plastic, polyethylene or equivalent
R: Refrigerate at 4 °C
G: Glass
NH: No Headspace
A: Amber Glass

(1): Sterile Container
(2): For Chlorinated Systems
(3): If residual chlorine is present add $Na_2S_2O_3$ or ascorbic acid
(4): Add dechlorinating agent ($Na_2S_2O_3$ or ascorbic acid) depending on analytes to be measured. See method.
(5): Add HCl to pH 1.5-2 if high biological activity.
(6): Add H_2SO_4 to pH <2 if biological activity.

APPENDIX 7

List of SOPs as October 2000

Inorganic Department - Metals SOPs

File Name	Rev. No	Revision Date	Section	Title
Met001R5	5	Apr-00	Inorganic	Toxicity Characteristic Leaching Procedure (TCLP)
Met002R1	1	Jun-92	Inorganic	Analysis of Lead & Copper for drinking water (lead & copper rule)
Met003R1	1	Jan-94	Inorganic	Analysis of Mercury in solid sorbent by cold vapor technique (NIOSH 6009)
Met004R1	1	Nov-92	Inorganic	Analysis of Total Lead in air filter by NIOSH 7082
Met005R4	4	Apr-00	Inorganic	Acid digestion of Aqueous samples & extracts for Total Metals for analysis by FLAA or ICP Spectroscopy EPA 3010 modified
Met006R4	4	Aug-96	Inorganic	Graphite Furnace Atomic Absorption - EPA method 200.9
Met007R3	3	Apr-00	Inorganic	Acid digestion of sediments, sludges & soils (EPA 3050B)
Met008R2	2	Apr-00	Inorganic	Flame Atomic Absorption Spectrometry - EPA 7000
Met009R1	1	Jan-94	Inorganic	Acid digestion of sediments, sludges, soils & wipes (EPA 3050 M)
Met010R5	5	Apr-00	Inorganic	Analysis of Hg in sediment by manual cold vapor technique, EPA 7471A
Met011R3	3	Apr-00	Inorganic	Analysis of Hg in water by manual cold vapor technique EPA method 245.1
Met012R2	2	Apr-00	Inorganic	Selenium (Atomic Absorption, Gaseous Hydride) EPA 7741/270.3
Met013R1	1	Jan-94	Inorganic	Arsenic (Atomic Absorption, Gaseous Hydride) EPA 7061/ 206.3
Met014R2	2	Mar-94	Inorganic	Analysis of total metals in air filters by flame atomic absorption using microwave digestion (NIOSH 7000M)
Met015R1	1	May-94	Inorganic	Determination of Lead in suspended Particulate matter collected from ambient air (Title 40 CFR part 50, appendix G)
Met016R1	1	May-94	Inorganic	Analysis of total metals in air filters by Inductively coupled plasma atomic emission spectrometry (ICP) using microwave digestion(NIOSH 7300M)
Met017R6	5	Apr-00	Inorganic	Inductively coupled plasma atomic emission spectroscopy EPA method 6010B
Met018R5	5	Apr-00	Inorganic	EPA method 200.8 Analysis of trace metal in water in ICP/MS (ELAN 6000)
Met019R4	4	Apr-00	Inorganic	Metal Analysis by ICP/MS - EPA method 6020
Met020R2	2	Apr-00	Inorganic	Sample preparation procedure for spectrochemical determination of total recoverable elements :EPA method 200.2
Met021R2	2	Apr-00	Inorganic	Waste Extraction test procedures. Title 22 part 66261.126 appendix II
Met022R1	1	May-98	Inorganic	Organo-Lead extraction in sediments, sludges & soils for AA and ICP analysis. ELAP method HMU 900

Met023R1	1	Dec-98	Inorganic	Arsenic sample preparation by flow Injection vapor generation - ICP-MS
Met024R1	1	Feb-99	Inorganic	Selenium sample preparation by flow Injection vapor generation for ICP-MS
Met025R3	3	Apr-00	Inorganic	Inductively coupled plasma atomic emission spectroscopy EPA method 200.7
Met026R1	1	Apr-00	Inorganic	Analysis of Gold by Flame Atomic Absorption Spectrometry EPA 231.1
Met027R1	1	Apr-00	Inorganic	Analysis of Lead by Flame Atomic Absorption Spectrometry EPA 239.1
Met028R1	1	Apr-00	Inorganic	Analysis of Lead by Palladium by Flame Atomic Absorption Spectrometry EPA 253.1
Met029R1	1	Apr-00	Inorganic	Analysis of Rhodium by Flame Atomic Absorption Spectrometry EPA 265.1
Met030R1	1	Apr-00	Inorganic	Analysis of Platinum by Flame Atomic Absorption Spectrometry EPA 255.1
Met031R1	1	Apr-00	Inorganic	Analysis of Mercury in liquid waste by Cold Vapor Atomic Absorption Spectrometry EPA 7470A
Met032R1	1	Jul-00	Inorganic	Maintenance of analytical instruments used for trace metal analysis

Inorganic Department - Microbiology SOPs

File Name	Rev. No	Revison Date	Title
Mic001			Discontinued - not in use
Mic002	1	Oct-96	Determination of Fecal Streptococus & Enterrococus by Multiple Technique
Mic003	2	Apr-00	Bacteriological Analysis of Drinking Water Samples - SM9223
Mic004	2	Apr-00	Heterotrophic Plate Count: Pour Plate Method SM 9215B
Mic005	2	Apr-00	Total and Fecal Coliform Analysis of Drinking Water and Waste Water by Multiple Tube Fermentation Technique SM 9221
Mic006	1	Apr-00	Quality Assurance for Microbiological Tests
Mic007	1	May-00	Using new methods and test kits in microbiological determinations
Mic008	1	Aug-00	Verification of Support Equipment used for Microbiological Determinations

Administration - Miscellaneous and administrative SOPs

File Name	Rev. No	Revision Date	Section	Title
Mis001R6	6	Dec-97	General	Sample receiving, log in storage and disposal
Mis002R3	3	Jul-95	Sampling	Industrial wastewater sampling instructions
Mis003R2	2	Apr-00	General	Back up System
Mis004R2	1	Apr-00	General	Chemicals receipt and storage and preparation of solutions
Mis005R2	2	Apr-00	General	Start and Shut down the Server
Mis006R1	1	Jul-96	Microbiology	Disposal of material used of microbiological determinations
Mis007R1	1	Jan-97	General	Sample container management
Mis008R1	1	Jan-97	General	Laboratory hazardous waste management
Mis009R2	2	Jan-98	General	Soil samples from Hawaii and Counties other than the United States
Mis010R1	1	Mar-99	Sampling	Sampling Instructions for protected groundwater supplies and water supplies with treatment
Mis011R1	1	Dec-99	General	Preparation, Approval, Distribution, & Revision of standard Operating Procedures
Mis012R1	1	Dec-99	General	Significant Figures and Rounding
Mis013R1	1	Dec-99	General	Generation and Utilization of Control Charts
Mis014R1	1	Dec-99	General	Performing Internal Audit
Mis015R1	1	Dec-99	General	Testing of Proficiency Test (PT) Samples
Mis016R1	1	Dec-99	General	Corrective Action Procedures
Mis017R1	1	Mar-00	General	Logbook Maintenance, Utilization, and Review
Mis018R1	1	Mar-00	General	Internal Laboratory Data Review
Mis019R1	1	Mar-00	General	Resolution of Complaints
Mis020R1	1	Jan-00	General	Analytical Balance Calibration & Check
Mis021R1	1	Jan-00	General	Calibration & Maintenance of Mechanical Pipettes
Mis022R1	1	Apr-00	General	Lims Security Systems
Mis023R1	1	Apr-00	General	Login a sample into the LIMS
Mis024R1	1	Apr-00	General	DI water Quality checks
Mis025R1	1	Apr-00	General	Manual Data Entry into the LIMS
Mis026R1	1	Apr-00	General	Taking reprresentative samples and sub-samples in the Laboratory.
Mis027R1	1	Apr-00	General	Electronic Data Transfer of Analytical Results
Mis028R1	1	Apr-00	General	Standard Cleaning Protocols for containers(WET001R1)
Mis029R1	1	Apr-00	General	Calibration and Verification of Thermometers
Mis030R1	1	Apr-00	General	Managerial Reviews
Mis031R1	1	Apr-00	General	Calibration and Verification of Lab Support Equipment
Mis032R1	1	Apr-00	General	Calculation of MDL and RLs
Mis033R1	1	Apr-00	General	Rejection/acceptance criteria for special analyses
Mis034R2	2	Aug-00	General	Performing IDCs
Mis035R1	1	Aug-00	General	Hiring a new employee
Mis036R1	1	Aug-00	General	Use of areas of incompatible activities

Mis037R1	1	Aug-00	General	Computers and electronic data requirements
Mis038R1	1	Aug-00	General	Chain of Custody Procedures for Legal and Evidentiary custody of samples

Inorganic Department - Wet Chemistry SOPs

File Name	Rev. No	Revison Date	Section	Title
Wet001R1	1	May-92	General	Moved to Mis028
Wet002R6	6	May-98	Microbiology	Discontinued - Moved to Mic003
Wet003R6	6	Apr-00	Inorganic	Analysis of Total Cyanide in Water Samples
Wet004R5	5	Apr-00	Inorganic	5 Day Biological Oxygen Demand (BOD) Test by SM 5210B
Wet005R1	1	Jun-92	Inorganic	Analysis of Heat of Combustion by ASTM Method D240 Bomb Calorimeter
Wet006R2	2	Jan-98	Inorganic	Analysis of Total Recoverable Petroleum Hydrocarbons in Soil by Method 418.1
Wet007R5	5	Oct-96	Microbiology	Discontinued - Moved to Mic006
Wet008R2	2	Jun-98	Inorganic	Non-ionic Surfactants as CTAS(Cobalt Thiocyanate Active Substances) SM method 5540 D
Wet009R3	3	Aug-98	Inorganic	Analysis of Color in Water by EPA Method 110.2
Wet010R1	1	Jul-92	Inorganic	Analysis of Thiocyanate in Wastewater by Method SM4500-CN M
Wet011R1	1	Jul-92	Inorganic	Analysis of Cyanate in Wastewater by Method SM4500-CN L
Wet012R1	1	Sep-92	Inorganic	Colorimetric Analysis of Formaldehyde in water by ASTM D-19
Wet013R2	2	Aug-98	Inorganic	Analysis of Odor in Drinking Water by EPA method 140.1/SM 2150
Wet014R1	2	Sep-92	Inorganic	Analysis of Taste by Standard methods 2160B,Flavor Threshold Test,FTT
Wet015R2	2	Sep-92	Inorganic	Analysis of Water content by Karl Fisher Titration ASTM method E203
Wet016R4	4	Feb-99	Inorganic	Analysis of Oil & Grease in Water by EPA Method 413.1
Wet017R1	1	Sep-92	Inorganic	Non - Polar Oil & Grease in Water by SM 5520 F, 18th Edition
Wet018R2	2	Apr-00	Inorganic	Cyanide Amenable to Chlorination in water ,SM 4500 CN-G
Wet019R3	3	Apr-00	Inorganic	Analysis of Total Racoverable Phenolics in Water - EPA 420.1
Wet020R2	2	Apr-00	Inorganic	Silica, Dissolved (EPA 370.1, Colorimetric)
Wet021R4	4	Apr-00	Inorganic	Pensky Marten closed cup method for determining Ignitability EPA 1010
Wet022R3	3	Apr-00	Inorganic	Alkalinity as CaCO3 - Titrimetric method SM2320 B
Wet023R3	3	Apr-00	Inorganic	Chloride (Titrimetric, Silver Nitrate) ASTM D-512-89 B
Wet024R4	4	Apr-00	Inorganic	Acidity as CaCO3 - SM 2310 B
Wet025R1	1	Sep-99	Inorganic	Acid Content (Titration)
Wet026R2	2	Jul-94	Inorganic	Floride,Potentiometric,Ion selective Electrode(Direct & Following Distillation) SM 4500-F B/C
Wet027R1	1	Jan-94	Inorganic	Alkaline Digestion for Cr VI (EPA 3060)
Wet028R2	2	Mar-96	Inorganic	pH (Electrometric), SM 4500-H+ B
Wet029R2	2	Apr-00	Inorganic	Chromium, Hexavalent (Colorimetric) EPA SM 3500-Cr D
Wet030R2	2	Apr-00	Inorganic	Determination of Total Releasable Cyanide (SW-846 chapter seven,step 7.3.3.2
Wet031R1	1	Jun-94	Inorganic	Dissolved Sulfide - Iodometric method (SM 4500 -S -2 E)

Wet032R2	2	Apr-00	Inorganic	Dissolved Sulfide - Methylene Blue method (SM 4500-S-2 D)
Wet033R2	2	Apr-00	Inorganic	Acid-Soluble & Acid-Insoluble Sulfides (EPA 9030A)
Wet034R2	2	Apr-00	Inorganic	Determination of Total Releasable Sulfide (Sw 846,Chapter seven,step 7.3.4.2)
Wet035R3	2	Apr-00	Inorganic	Ammonia-Nitrogen (NH3 -N) Titrimetric method following distillation, SM4500NH3 E
Wet036R5	5	Apr-00	Inorganic	Ammonia - Nitrogen (NH3-N) Ammonia-Selective Electrode method, SM4500NH3 F
Wet037R1	1	Jul-94	Microbiology	Discontinued - moved to Mic005
Wet038R2	2	Apr-00	Inorganic	Chorine,Total Residual (spectrophotometric, DPD) SM 4500 - Cl G
Wet039R3	3	Apr-00	Inorganic	Conductance (specific conductance) - SM 2510 B
Wet040R2	2	Apr-00	Inorganic	Hardness,total, as CaCO3 (Titrimetric, EDTA) - SM 2340 C
Wet041R3	3	Apr-00	Inorganic	Residue,Filterable - TDS (Gravimetric,Dried at 180°C) - SM 2540 C
Wet042R3	3	Apr-00	Inorganic	Residue, non-filterable TSS (Gravimetric, dried at 103-105°C) EPA Method 160.2
Wet043R3	3	Apr-00	Inorganic	Methylene Blue Active Substances (MBAS) -colorimetric SM5540C
Wet044R1	1	Aug-94	Inorganic	Thiosulfate and Sulfite (Iodometric,Aldehyde Adduct),(LACSD procedure 253B)
Wet045R4	4	Apr-00	Inorganic	Nitrogen, Kjeldahl, Total (Titrimetric), EPA Method 351.3
Wet046R2	2	Apr-00	Inorganic	Residue, total (Gravimetric , Dried at 103-105°C) SM 2540B
Wet047R2	2	Apr-00	Inorganic	Residue, Volatile (Gravimetric, Ignition at 550°C) EPA 160.4
Wet048R1	1	Sep-94	Inorganic	Residue,Settleable (volumetric,Imhoff cone),(EPA 160.5/SM 2540 F)
Wet049R1	1	Sep-94	Inorganic	Residue(Modified ANSI/AWWA B512-91),Gravimetric, evaporated at 22°C
Wet050R3	3	Apr-00	Inorganic	Chemical Oxygen Demand (Cod)test by EPA 410.4
Wet052R1	1	Jul-96	Microbiology	Not in use - Moved tp Mic006
Wet053R2	2	Apr-00	Inorganic	Analysis of Total Cyanide in Water Samples by selective electrode method (SM 4500-CN F)
Wet054R1	1	Jan-98	Inorganic	Analysis of Total Recoverable Petroleum Hydrocarbons in Soil by Method 418.1AZ
Wet055R3	3	Apr-00	Inorganic	HEM;Oil & Grease and SGT-HEM by Extyraction and Gravimetry, EPA 1664 Rev A
Wet056R3	3	Apr-00	Inorganic	Determination of Turbidity by Nephelometric Method EPA 180.1
Wet057R2	2	Apr-00	Inorganic	Total Phosphorus Analysis - SM 4500- P D
Wet058R1	1	Nov-98	General	Temperature measurements by SM 2550 B
Wet059R2	2	Jun-99	Inorganic	Hydrogen Peroxide Analysis - Method FMC
Wet060R1	1	Aug-92	Inorganic	NID Surfactants as CTAS(Cobalt Thiocyanate Active Substances) SM method 5540 D***DISCONTINUED See WET008****
Wet061R1	1	Jan-00	General	Analytical Balance Calibration and check - MOVED TO MIS020
Wet062R1	1	Oct-99	Inorganic	Total Recoverable phenols in soil and oil EPA 420.1Modified
Wet063R1	1	Oct-99	Inorganic	Total Recoverable Petroleum hydrocarbons in water EPA 418.1
Wet064R2	2	Apr-00	Inorganic	pH (Electrometric), EPA Method 9045C (soil and solid)
Wet065R1	1	Jan-99	Inorganic	pH (Electrometric), EPA Method 9040B (multiphase wastes)
Wet066R1	1	Nov-99	Inorganic	Analysis of Volatile Acids - SM 5560C
Wet067R1	1	Jan-00	General	Calibration & Maint of Mechanical Pipettes.MOVED to MIS021R1
Wet068R1	1	Apr-00	Inorganic	Corrosivity langlier Index SM 2330 B

Wet069R1	1	Apr-00	Inorganic	Hardness as CaCO3 by Calculation SM 2340 B
Wet070R1	1	Apr-00	Inorganic	Chlorine Dioxide (DPD Method) SM 4500-ClO2 D
Wet071R1	1	Apr-00	Inorganic	Nitrogen, Kjeldahl, Total (Potentiometric), EPA Method 351.4
Wet072R1	1	Apr-00	Inorganic	Dissolved Oxygen Membrane Electrode Method SM 4500-O G
Wet073R1	1	Apr-00	Inorganic	Sulfite, Iodometric method EPA 377.1
Wet074R1	1	Apr-00	Inorganic	Distillation for total and amenable cyanide EPA 9010B
Wet075R1	1	Apr-00	Inorganic	Ignitability as per CCR Chapter 10, Article 3
Wet076R1	1	Apr-00	Inorganic	Reactivity of a waste as per CCR Chapter 10, Article 3
Wet077R1	1	Apr-00	Inorganic	Corrosivity of a waste as per CCR Chapter 10, Article 3
Wet078R1	1	Apr-00	Inorganic	UV Absorbing Constituents UV-254 SM 5910
Wet079R1	1	Apr-00	Inorganic	Hexavalent Chromium, Spectrophotometric EPA 7196A
Wet080R1	1	May-00	Inorganic	Total Phosphorus Analysis - EPA 365.3
Wet081R1	1	May-00	Inorganic	Heat of Combustion by Bomb Calorimeter
Wet082R1	1	May-00	Inorganic	Water by Karl Fischer

Organic Department - Organics SOPs

SOP #	Rev No	Rev Date	Title
ORG001	5	Apr-00	Analysis of Anions (F-, Cl-, Br-, NO2-, NO3-, PO4-3, SO4-2) by Ion Chromatography, EPA Method 300.0(A)
ORG002	1	Feb-92	Determination of the Maximum Total Trihalomethane Potential.
ORG003	4	Apr-00	Total Organic Carbon (TOC) and Dissolved Organic Carbon DOC by SM5310C
ORG004	7	Apr-00	Determination of Total Organic Halides in water by Adsorption-Pyrolysis-Titrimetric Method , SM-5320B
ORG005	4	Apr-00	Determination of Ketones and aldehydes by HPLC - EPA method 8315
ORG006	3	Apr-00	N-Methylcarbamates by HPLC - EPA method 8318
ORG007	1	Sep-99	Determination of Total Halogens and Total Extractable Organic Halides - EPA 9076
ORG008	3	Apr-00	Analysis of Chlorination Disinfection Byproducts (DBPs) in Drinking water by Liquid-Liquid Extraction and GC/ECD- EPA 551.1
ORG009	8	Apr-00	Determination of Volatil Organic Compounds in Groudwater and Soil by GC/MS, without cryogenic cooling- EPA 8260B
ORG010	2	Apr-97	PCBs in Oil
ORG011	2	Apr-00	Explosive residues by HPLC - EPA method 8330
ORG012	2	Apr-00	Screening for Polychlorinated Biphenyls by Perchlorination and Gas Chromatography - EPA Method 508A
ORG013	3	Apr-00	Analysis of Volatile Petroleum Hydrocarbons (VPH, C6 to C10) in Soil and Water samples by P&T and GC/FID- EPA 8015
ORG014	3	Apr-00	Determination of Aromatic and Halogenated Volatiles by GC/PID and GC/ELCD - EPA8021A
ORG015	5	Apr-00	Analysis of Organophosphorus Compounds in Water, Soil, and Solid Waste by GC/NPD - EPA 8141A
ORG016	6	Apr-00	Analysis of organochlorine pesticides in liquid and solid waste by GC/ECD - EPA 8081A
ORG017	4	Apr-00	Diquat and Paraquat by LSE and HPLC With UV Detection - EPA 549.2
ORG018	1	Jun-93	Analysis of Endothall in Drinking Water by GC/ECD - EPA 548

ORG019	4	Apr-00	Analysis of Haloacetic acids in drinking water by GC-ECD SM6251B
ORG020	2	Apr-00	Glyphosate by HPLC - EPA method 547
ORG021	2	Apr-00	Analysis of Nitrogen-Phosphorus-Containing Pesticides in Ground Water and Drinking Water By EPA method 507
ORG022	3	Apr-00	Analysis of organochlorine pesticides and PCB's in drinking water - EPA 508
ORG023	3	Apr-00	Analysis of Extractable Petroleum Hydrocarbons (EPH, C10 to C32) in soil and water samples by GC/FID - EPA 8015
ORG024		Dec-93	Analysis of glyphosate in soil by EPA Method 547 modified
ORG025	1	Jul-99	Determination of Volatile Organic Content(VOC) in Paints and Related Coatings - EPA 24
ORG026	7	Apr-00	Determination of Volatile Organic Compounds by EPA method 524.2 Without Cryogenic cooling - EPA 524.2
ORG027	6	Feb-94	Ethylene Thiourea in Drinking Water - EPA 509
ORG028	3	Apr-00	Analysis of N-Methylcarbamates in Water by Direct Aqueous Injection HPLC with Post Column Derivatization - EPA 531.1
ORG029	2	Apr-00	Chlorinated acid herbicides in water, soil and solid waste - EPA 8151
ORG030	4	Apr-00	Analysis of EDB, DBCP and 123TCP in Water by Microextraction and GC/ECD -EPA 504.1
ORG031	4	Apr-00	Analysis of Chlorinated Acids in Water By GC/ECD - EPA Method 515.2
ORG032	1	Mar-94	Analysis of halogenated hydrocarbons in charcoal tubes
ORG033	3	Apr-00	Diuron (carbamates and Urea pesticides) by HPLC - EPA method 632
ORG034	1	Jun-94	4,4-Methylenedianiline(MDA) in Air Filter, OSHA57
ORG035	1	Dec-95	Chloral Hydrate in Drinking Water, EPA551.1 -See ORG008
ORG036	8	Apr-00	Determination of Semi-Volatile Organic Compounds in Waste Water, Soil, and Other Industrial wastes by GC/MS, Capillary Column Technique - EPA Method 8270C
ORG037	3	Apr-00	Analysis of Endothall in Drinking Water By Ion Exchange Disk Extraction, Acid Methanol Methylation and GC/MS or GC/FID - EPA 548.1
ORG038	1	Jul-96	Chlorinated Pesticides, SPE, GC/ECD, EPA508.1
ORG039	6	Apr-00	Determination of Organic Compounds in Drinking Water by Liquid Solid Extraction and GC/MS - EPA 525.2
ORG040	4	Apr-00	GC/MS Method for Semi-Volatile Organics - EPA 625
ORG041	3	Apr-00	Analysis of Purgeable Halocarbons and Aromatics by GC/ELCD, GC/PID - EPA Method 601/602
ORG042	4	Mar-00	Analysis of Perchlorate (ClO4-) by Ion Chromatography, EPA Method 314.0
ORG043	1	Dec-97	Determination of 1,4 Dioxane by Isotopic Dilution using GC/MS - EPA 8270M
ORG044	2	Oct-99	Total Petroleum Hydrocarbon (Oregon), TPH-G and TPH-D
ORG045	3	Apr-00	Cleanup Methods for Organic Analysis
ORG046	2	Jan-99	Sample Preparation and Extraction in Hazardous Waste - EPA 3500B
ORG047	2	Jan-99	Separatory Funnel Liquid-Liquid Extraction - EPA 3510B
ORG048	2	Jan-99	Ultrasonic Extraction - EPA 3550B
ORG049	1	Jan-98	Waste Dilution - EPA 3580A
ORG050	1	Jan-99	Purge-and-Trap Extraction - EPA 5030B
ORG051	3	Apr-00	Determination of Inorganic Anions by Ion Chromatography - EPA 9056

ORG052	1	Jan-98	Bomb Preparation Method for Solid Waste - EPA 5050
ORG053	1	Mar-98	C6 - C32 Hydrocarbons - 8015AZ
ORG054	1	Jun-98	Determination of Acrylonitrile by Gas Chromatography - EPA 8031
ORG055	1	Jul-97	UV-Absorbing Organics (UV254)- SM 5910--MOVED to WET078R1---
ORG056	1	Jan-99	Continuous Liquid-Liquid Extraction - EPA 3520C
ORG057	1	Jan-98	Soxlet Extraction - EPA 3540C
ORG058	3	Apr-00	Analysis of Polychlorinated Biphenyl's (PCBs) in liquid and solid waste by GC/ECD - EPA 8082
ORG059	1	Jul-99	Determination of Volatile Organic Compounds Specific to the Pharmaceutical Indystry by Isotope Dilution GC/MS - EPA 1666
ORG060	2	Apr-00	VOC in Wastewater by GC/MS - EPA 624
ORG061	3	Apr-00	Analysis of Anions (BrO3-, Br-,ClO3-,ClO2-) by Ion Chromatography, EPA Method 300.0(B)
ORG062	2	Sep-99	Determination of Total Organic Halides in water by Adsorption-Pyrolysis-Titrimetric Method , EPA9020B
ORG063	2	Oct-99	Determination of Total Halogens and Total Extractable Organic Halides by Method 9020B Modified
ORG064	2	Apr-00	Analysis of organochlorine pesticides and PCBs in wastewater matrices by GC/ECD, EPA Method 608.
ORG065	1	Mar-00	Determination of ultra low levels of N_Nitrosodimethylamine (NDMA) by Isotopic - EPA 1625C
ORG066	1	Oct-99	Determination of Polynuclear Aromatic Compound in Soil by SIM Method EPA 8270 Modified
ORG067	2	Apr-00	Determination of Volatil Organic Compounds in Soil by closed-system Purge-and-Trap and GC/MS- EPA 5035
ORG068	1	Jan-00	Total Petroleum Hydrocarbon (Oregon), TPH-G and TPH-D
ORG069	2	Apr-00	Analysis of Hexavalent Chromium by Ion Chromatography - EPA 7199
ORG070	2	Apr-00	Analysis of Phenols in Municipal & Industrial Wastewater- EPA 604
ORG071	1	Apr-00	Analysis of alcohols by GC-FID EPA Method 8015B
ORG072	1	May-00	Analysis of chlorinated acid herbicides GC-ECD EPA Method 515.3
ORG073	1	May-00	Analysis of chlorinated pesticies by GC-ECD EPA Method 505
ORG074	1	May-00	Establishing retention times Windows for organic analysis by GC and GC/MS
ORG075	1	May-00	Analysis of Haloacetic acids by L-L extraction and GC-ECD EPA 552.2
ORG076	1	Jul-00	Instrument Maintenance
ORG077	1	Oct-00	Analysis of Hexavalent Chromium by Ion Chromatography EPA 218.6

APPENDIX 8

Acceptance Limits for QC Determinations

Parameter	Anal. Method	Matrix	LCS					Matrix Spikes					RPD	Rem-arks
			Fqcy	LCL	UCL	Status	Remarks	Fqcy	LCL	UCL	Status	Remarks		
1,2-Dibromo-3-chloropropane	EPA504.1	Water	1 in 10	70	130	Final	Mandatory limits	1 in 20	65	135	Final	Mandatory limits	30	A
1,2-Dibromoethane (EDB)	EPA504.1	Water	1 in 10	70	130	Final	Mandatory limits	1 in 20	65	135	Final	Mandatory limits	30	A
1,2,3-Trichloropropane	EPA504.1	Water	1 in 10	70	130	Final	Mandatory limits	1 in 20	65	135	Final	Mandatory limits	30	A
Alachlor	EPA507	Water	1 in 20	25	160	updated 07/00	Lab generated	1 in 10	60	130	Final	Mandatory limits	30	A
Atrazine	EPA507	Water	1 in 20	22	156	updated 07/00	Lab generated	1 in 10	57	127	Final	Mandatory limits	30	A
Bromacil	EPA507	Water	1 in 20	28	168	updated 07/00	Lab generated	1 in 10	56	126	Final	Mandatory limits	30	A
Butachlor	EPA507	Water	1 in 20	23	160	updated 07/00	Lab generated	1 in 10	58	128	Final	Mandatory limits	30	A
Diazinon	EPA507	Water	1 in 20	14	157	updated 07/00	Lab generated	1 in 10	58	128	Final	Mandatory limits	30	A
Metolachlor	EPA507	Water	1 in 20	34	138	updated 07/00	Lab generated	1 in 10	23	149	Final	Mandatory limits	30	A
Metribuzin	EPA507	Water	1 in 20	44	132	updated 07/00	Lab generated	1 in 10	66	136	Final	Mandatory limits	30	A
Molinate	EPA507	Water	1 in 20	24	163	updated 07/00	Lab generated	1 in 10	63	133	Final	Mandatory limits	30	A
Prometryn	EPA507	Water	1 in 20	21	160	updated 07/00	Lab generated	1 in 10	58	128	Final	Mandatory limits	30	A
Simazine	EPA507	Water	1 in 20	29	162	updated 07/00	Lab generated	1 in 10	65	135	Final	Mandatory limits	30	A
Thiobencarb	EPA507	Water	1 in 20	33	154	updated 07/00	Lab generated	1 in 10	26	167	Updated 07/00	Lab generated	30	A
Dimethoate	EPA507	Water	1 in 20	70	130	Interim	not enough data	1 in 10	65	135	Interim .	not enough data	30	A
Prometon	EPA507	Water	1 in 20	70	130	Interim	not enough data	1 in 10	43	113	Final	Mandatory limits	30	A
DMNB(SS)	EPA507	Water	all	70	130	Final	Mandatory limits					Mandatory limits		
4,4'-DDD	EPA508	Water	1 in 20	45	130	updated 07/00	Lab generated	1 in 10	72	142	Final	Mandatory limits	30	A
4,4'-DDE	EPA508	Water	1 in 20	48	126	updated 07/00	Lab generated	1 in 10	64	134	Final	Mandatory limits	30	A
4,4'-DDT	EPA508	Water	1 in 20	33	146	updated 07/00	Lab generated	1 in 10	77	147	Final	Mandatory limits	30	A
Aldrin	EPA508	Water	1 in 20	40	129	updated 07/00	Lab generated	1 in 10	51	121	Final	Mandatory limits	30	A
alpha-BHC	EPA508	Water	1 in 20	34	127	updated 07/00	Lab generated	1 in 10	57	127	Final	Mandatory limits	30	A
beta-BHC	EPA508	Water	1 in 20	41	141	updated 07/00	Lab generated	1 in 10	60	130	Final	Mandatory limits	30	A
delta-BHC	EPA508	Water	1 in 20	34	139	updated 07/00	Lab generated	1 in 10	67	137	Final	Mandatory limits	30	A
Dieldrin	EPA508	Water	1 in 20	47	128	updated 07/00	Lab generated	1 in 10	52	122	Final	Mandatory limits	30	A
Endosulfan I	EPA508	Water	1 in 20	49	123	updated 07/00	Lab generated	1 in 10	52	122	Final	Mandatory limits	30	A
Endosulfan II	EPA508	Water	1 in 20	50	117	updated 07/00	Lab generated	1 in 10	57	127	Final	Mandatory limits	30	A
Endosulfan sulfate	EPA508	Water	1 in 20	31	211	updated 07/00	Lab generated	1 in 10	67	137	Final	Mandatory limits	30	A
Endrin	EPA508	Water	1 in 20	32	163	updated 07/00	Lab generated	1 in 10	53	123	Final	Mandatory limits	30	A
Endrin aldehyde	EPA508	Water	1 in 20	40	139	updated 07/00	Lab generated	1 in 10	53	123	Final	Mandatory limits	30	A
Heptachlor	EPA508	Water	1 in 20	35	151	updated 07/00	Lab generated	1 in 10	63	133	Final	Mandatory limits	30	A
Heptachlor epoxide	EPA508	Water	1 in 20	53	128	updated 07/00	Lab generated	1 in 10	52	122	Final	Mandatory limits	30	A
gamma-BHC (lindane)	EPA508	Water	1 in 20	42	134	updated 07/00	Lab generated	1 in 10	54	124	Final	Mandatory limits	30	A
Methoxychlor	EPA508	Water	1 in 20	64	146	updated 07/00	Lab generated	1 in 10	70	140	Final	Mandatory limits	30	A

Parameter	Anal. Method	Matrix	LCS					Matrix Spikes					RPD	Rem-arks
			Fqcy	LCL	UCL	Status	Remarks	Fqcy	LCL	UCL	Status	Remarks		
Chlordane	EPA508	Water	1 in 20	65	135	Interim	not enough data	1 in 10	64	134	Final	Mandatory limits	30	A
Chlorothalonil	EPA508	Water	1 in 20	61	121	Interim	not enough data	1 in 10	56	126	Final	Mandatory limits	30	A
Propahlor	EPA508	Water	1 in 20	75	131	Interim	not enough data	1 in 10	68	138	Final	Mandatory limits	30	A
Trifluralin	EPA508	Water	1 in 20	87	119	Interim	not enough data	1 in 10	68	138	Final	Mandatory limits	30	A
Decachlorobiphenyl (SS)	EPA508	Water	all	70	130	Final	Mandatory limits							
2,4,5-T	EPA515.3	Water	--	--	--	Final	Not required	1 in 10	70	130	Final	Mandatory limits	30	A
2,4-D	EPA515.3	Water	--	--	--	Final	Not required	1 in 10	70	130	Final	Mandatory limits	30	A
2,4-DB	EPA515.3	Water	--	--	--	Final	Not required	1 in 10	70	130	Final	Mandatory limits	30	A
3,5-Dichlorobenzoic acid	EPA515.3	Water	--	--	--	Final	Not required	1 in 10	70	130	Final	Mandatory limits	30	A
Acifluorfen	EPA515.3	Water	--	--	--	Final	Not required	1 in 10	70	130	Final	Mandatory limits	30	A
Bentazon	EPA515.3	Water	--	--	--	Final	Not required	1 in 10	70	130	Final	Mandatory limits	30	A
Dacthal (DCPA)	EPA515.3	Water	--	--	--	Final	Not required	1 in 10	70	130	Final	Mandatory limits	30	A
Dalapon	EPA515.3	Water	--	--	--	Final	Not required	1 in 10	70	130	Final	Mandatory limits	30	A
Dicamba	EPA515.3	Water	--	--	--	Final	Not required	1 in 10	70	130	Final	Mandatory limits	30	A
Dichlorprop	EPA515.3	Water	--	--	--	Final	Not required	1 in 10	70	130	Final	Mandatory limits	30	A
Dinoseb	EPA515.3	Water	--	--	--	Final	Not required	1 in 10	70	130	Final	Mandatory limits	30	A
Pentachlorophenol	EPA515.3	Water	--	--	--	Final	Not required	1 in 10	70	130	Final	Mandatory limits	30	A
Picloram	EPA515.3	Water	--	--	--	Final	Not required	1 in 10	70	130	Final	Mandatory limits	30	A
2,4,5-TP (Silvex)	EPA515.3	Water	--	--	--	Final	Not required	1 in 10	70	130	Final	Mandatory limits	30	A
2,4-dcpaa (SS)	EPA515.3	Water	all	70	130	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	
1,1,1,2-Tetrachloroethane	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
1,1,1-Trichloroethane	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
1,1,2,2-Tetrachloroethane	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
1,1,2-Trichloroethane	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
1,1-Dichloroethane	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
1,1-Dichloroethene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
1,1-Dichloropropene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
1,2,3-Trichlorobenzene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
1,2,3-Trichloropropane	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
1,2,4-Trichlorobenzene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
1,2,4-Trimethylbenzene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
1,2-Dibromo-3-chloropropane	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
1,2-Dibromoethane (EDB)	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
1,2-Dichlorobenzene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B

Parameter	Anal. Method	Matrix	LCS					Matrix Spikes					RPD	Rem-arks
			Fqcy	LCL	UCL	Status	Remarks	Fqcy	LCL	UCL	Status	Remarks		
1,2-Dichloroethane	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
1,2-Dichloropropane	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
1,3,5-Trimethylbenzene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
1,3-Dichlorobenzene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
1,3-Dichloropropane	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
1,4-Dichlorobenzene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
2,2-Dichloropropane	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
2-chlorotoluene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
4-Chlorotoluene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
4-isopropyltoluene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
Benzene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
Bromobenzene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
Bromochloromethane	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
Bromodichloromethane	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
Bromoform	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
Bromomethane	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
Carbon Tetrachloride	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
Chlorobenzene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
Chloroethane	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
Chloroform	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
Chloromethane	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
cis-1,2-Dichloroethene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
cis-1,3-Dichloropropene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
Dibromochloromethane	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
Dibromomethane	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
Dichlorodifluoromethane	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
Ethyl benzene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
Hexachlorobutadiene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
isopropylbenzene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
m/p-Xylenes	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
Methylene chloride+A45	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
Naphthalene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
n-Butyl benzene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
n-Propyl benzene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
o-Xylene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
sec-Butyl benzene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B

Parameter	Anal. Method	Matrix	LCS					Matrix Spikes					RPD	Rem-arks
			Fqcy	LCL	UCL	Status	Remarks	Fqcy	LCL	UCL	Status	Remarks		
Styrene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
tert-Butyl benzene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
Tetrachloroethene (PCE)	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
Toluene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
trans-1,2-Dichloroethene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required'	30	B
trans-1,3-Dichloropropene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
Trichloroethene (TCE)	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
Trichlorofluoromethane	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
Vinyl Chloride	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
4-Bromofluorobenzene (SS)	EPA524.2	Water	all	66	127	updated 07/00	Lab generated							
1,2-Dichloroethane-d4 (SS)	EPA524.2	Water	all	70	130	Interim	not enough data							
bis (2-Ethylhexyl) adipate	EPA525.2	Water	1 in 20	70	130	Final	Mandatory limits	1 in 20	70	130	Final	Mandatory limits	30	C
bis (2-Ethylhexyl) phthalate	EPA525.2	Water	1 in 20	70	130	Final	Mandatory limits	1 in 20	70	130	Final	Mandatory limits	30	C
Benzo (a) Pyrene	EPA525.2	Water	1 in 20	70	130	Final	Mandatory limits	1 in 20	70	130	Final	Mandatory limits	30	C
Hexachlorobenzene	EPA525.2	Water	1 in 20	70	130	Final	Mandatory limits	1 in 20	70	130	Final	Mandatory limits	30	C
1,3-dmnb (SS)	EPA525.2	Water	all	64	129	updated 07/00	Lab generated							
Perylene-d12 (SS)	EPA525.2	Water	all	68	123	updated 07/00	Lab generated							
Triphenylphosphate (SS)	EPA525.2	Water	all	65	155	updated 07/00	Lab generated							
3-Hydroxycarbofuran	EPA531.1	Water	1 in 20	80	120	Final	Mandatory limits	1 in 20	65	135	Final	Mandatory limits	30	A
Aldicarb (TEMIK)	EPA531.1	Water	1 in 20	80	120	Final	Mandatory limits	1 in 20	65	135	Final	Mandatory limits	30	A
Aldicarb Sulfone	EPA531.1	Water	1 in 20	80	120	Final	Mandatory limits	1 in 20	65	135	Final	Mandatory limits	30	A
Aldicarb Sulfoxide	EPA531.1	Water	1 in 20	80	120	Final	Mandatory limits	1 in 20	65	135	Final	Mandatory limits	30	A
Carbaryl	EPA531.1	Water	1 in 20	80	120	Final	Mandatory limits	1 in 20	65	135	Final	Mandatory limits	30	A
Carbofuran (FURADAN)	EPA531.1	Water	1 in 20	80	120	Final	Mandatory limits	1 in 20	65	135	Final	Mandatory limits	30	A
Methiocarb	EPA531.1	Water	1 in 20	80	120	Final	Mandatory limits	1 in 20	65	135	Final	Mandatory limits	30	A
Methomyl	EPA531.1	Water	1 in 20	80	120	Final	Mandatory limits	1 in 20	65	135	Final	Mandatory limits	30	A
Oxamyl (VYDATE)	EPA531.1	Water	1 in 20	80	120	Final	Mandatory limits	1 in 20	65	135	Final	Mandatory limits	30	A
Propoxur	EPA531.1	Water	1 in 20	80	120	Final	Mandatory limits	1 in 20	65	135	Final	Mandatory limits	30	A
Glyphsate	EPA547	Water	1 in 20	69	129	updated 07/00	Lab generated	1 in 20	69	129	updated 07/00	Lab generated	30	A
Endothall	EPA548.1	Water	1 in 20	45	144	updated 07/00	Lab generated	1 in 10	45	144	updated 07/00	Lab generated	30	A
Diquat	EPA549.2	Water	1 in 20	70	130	Interim	not enough data	1 in 10	70	130	Interim	not enough data	30	

Parameter	Anal. Method	Matrix	LCS					Matrix Spikes					RPD	Rem-arks
			Fqcy	LCL	UCL	Status	Remarks	Fqcy	LCL	UCL	Status	Remarks		
Chloropicrin	EPA551.1	Water	1 in 20	75	125	Final	Mandatory limits	1 in 10	75	125	Final	Mandatory limits	25	C
Trichloroacetonitrile	EPA551.1	Water	1 in 20	75	125	Final	Mandatory limits	1 in 10	75	125	Final	Mandatory limits	25	C
Dichloroacetonitrile	EPA551.1	Water	1 in 20	75	125	Final	Mandatory limits	1 in 10	75	125	Final	Mandatory limits	25	C
Chloral hydrate	EPA551.1	Water	1 in 20	75	125	Final	Mandatory limits	1 in 10	75	125	Final	Mandatory limits	25	C
1,1-dichloro-2-propanone	EPA551.1	Water	1 in 20	75	125	Final	Mandatory limits	1 in 10	75	125	Final	Mandatory limits	25	C
Chloropicrin	EPA551.1	Water	1 in 20	75	125	Final	Mandatory limits	1 in 10	75	125	Final	Mandatory limits	25	C
Bromochloroacetonitrile	EPA551.1	Water	1 in 20	75	125	Final	Mandatory limits	1 in 10	75	125	Final	Mandatory limits	25	C
1,1,1-trichloro-2-propanone	EPA551.1	Water	1 in 20	75	125	Final	Mandatory limits	1 in 10	75	125	Final	Mandatory limits	25	C
Dibromoacetonitrile	EPA551.1	Water	1 in 20	75	125	Final	Mandatory limits	1 in 10	75	125	Final	Mandatory limits	25	C
Decafluorobiphenyl (SS)	EPA551.1	Water	all	80	120	Final	Mandatory limits							
Monochloroacetic Acid	EPA552.2	Water	1 in 20	70	130	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	C
Monobromoacetic Acid	EPA552.2	Water	1 in 20	70	130	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	C
2,4-Dichlorophenylacetic acid	EPA552.2	Water	1 in 20	70	130	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	C
Trichloroacetic acid	EPA552.2	Water	1 in 20	70	130	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	C
Bromochloroacetic acid	EPA552.2	Water	1 in 20	70	130	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	C
Dibromoacetic acid	EPA552.2	Water	1 in 20	70	130	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	C
2,3-dbppa (SS)	EPA552.2	Water	all	70	130	Final	Mandatory limits							
Monochloroacetic Acid	SM6251B	Water	1 in 20	70	130	Interim	not enough data	1 in 10	70	130	Interim	not enough data	30	A
Monobromoacetic Acid	SM6251B	Water	1 in 20	70	130	Interim	not enough data	1 in 10	70	130	Interim	not enough data	30	A
2,4-Dichlorophenylacetic acid	SM6251B	Water	1 in 20	70	130	Interim	not enough data	1 in 10	70	130	Interim	not enough data	30	A
Trichloroacetic acid	SM6251B	Water	1 in 20	70	130	Interim	not enough data	1 in 10	70	130	Interim	not enough data	30	A
Bromochloroacetic acid	SM6251B	Water	1 in 20	70	130	Interim	not enough data	1 in 10	70	130	Interim	not enough data	30	A
Dibromoacetic acid	SM6251B	Water	1 in 20	70	130	Interim	not enough data	1 in 10	70	130	Interim	not enough data	30	A
2,3-dbppa (SS)	SM6251B	Water	all	70	130	Interim	not enough data							
4,4'-DDD	EPA608	Water	1 in 10	31	141	Final	Mandatory limits	1 in 10	31	141	Final	Mandatory limits	30	A
4,4'-DDE	EPA608	Water	1 in 10	30	145	Final	Mandatory limits	1 in 10	30	145	Final	Mandatory limits	30	A
4,4'-DDT	EPA608	Water	1 in 10	25	160	Final	Mandatory limits	1 in 10	25	160	Final	Mandatory limits	30	A
Aldrin	EPA608	Water	1 in 10	42	122	Final	Mandatory limits	1 in 10	42	122	Final	Mandatory limits	30	A
alpha-BHC	EPA608	Water	1 in 10	37	134	Final	Mandatory limits	1 in 10	37	134	Final	Mandatory limits	30	A
beta-BHC	EPA608	Water	1 in 10	17	147	Final	Mandatory limits	1 in 10	17	147	Final	Mandatory limits	30	A
delta-BHC	EPA608	Water	1 in 10	19	140	Final	Mandatory limits	1 in 10	19	140	Final	Mandatory limits	30	A
Dieldrin	EPA608	Water	1 in 10	36	146	Final	Mandatory limits	1 in 10	36	146	Final	Mandatory limits	30	A
Endosulfan I	EPA608	Water	1 in 10	45	153	Final	Mandatory limits	1 in 10	45	153	Final	Mandatory limits	30	A

Parameter	Anal. Method	Matrix	LCS					Matrix Spikes					RPD	Rem-arks
			Fqcy	LCL	UCL	Status	Remarks	Fqcy	LCL	UCL	Status	Remarks		
Endosulfan II	EPA608	Water	1 in 10	D	202	Final	Mandatory limits	1 in 10	D	202	Final	Mandatory limits	30	A
Endosulfan sulfate	EPA608	Water	1 in 10	26	144	Final	Mandatory limits	1 in 10	26	144	Final	Mandatory limits	30	A
Endrin	EPA608	Water	1 in 10	30	147	Final	Mandatory limits	1 in 10	30	147	Final	Mandatory limits	30	A
Heptachlor	EPA608	Water	1 in 10	34	111	Final	Mandatory limits	1 in 10	34	111	Final	Mandatory limits	30	A
Heptachlor epoxide	EPA608	Water	1 in 10	37	142	Final	Mandatory limits	1 in 10	37	142	Final	Mandatory limits	30	A
gamma-BHC (lindane)	EPA608	Water	1 in 10	32	127	Final	Mandatory limits	1 in 10	32	127	Final	Mandatory limits	30	A
Toxaphene	EPA608	Water	1 in 10	41	126	Final	Mandatory limits	1 in 10	41	126	Final	Mandatory limits	30	A
Chlordane	EPA608	Water	1 in 10	45	119	Final	Mandatory limits	1 in 10	45	119	Final	Mandatory limits	30	A
PCB-1016	EPA608	Water	1 in 10	50	154	Final	Mandatory limits	1 in 10	50	154	Final	Mandatory limits	30	A
PCB-1221	EPA608	Water	1 in 10	15	178	Final	Mandatory limits	1 in 10	15	178	Final	Mandatory limits	30	A
PCB-1232	EPA608	Water	1 in 10	10	215	Final	Mandatory limits	1 in 10	10	215	Final	Mandatory limits	30	A
PCB-1242	EPA608	Water	1 in 10	39	150	Final	Mandatory limits	1 in 10	39	150	Final	Mandatory limits	30	A
PCB-1248	EPA608	Water	1 in 10	38	158	Final	Mandatory limits	1 in 10	38	158	Final	Mandatory limits	30	A
PCB-1254	EPA608	Water	1 in 10	29	131	Final	Mandatory limits	1 in 10	29	131	Final	Mandatory limits	30	A
PCB-1260	EPA608	Water	1 in 10	8	127	Final	Mandatory limits	1 in 10	8	127	Final	Mandatory limits	30	A
1,1,1-Trichloroethane	EPA624	Water	1/day	57	162	Final	Mandatory limits	1 in 20	57	162	Final	Mandatory limits	30	A
1,1,2,2-Tetrachloroethane	EPA624	Water	1/day	46	157	Final	Mandatory limits	1 in 20	46	157	Final	Mandatory limits	30	A
1,1,2-Trichloroethane	EPA624	Water	1/day	52	150	Final	Mandatory limits	1 in 20	52	150	Final	Mandatory limits	30	A
1,1-Dichloroethane	EPA624	Water	1/day	59	155	Final	Mandatory limits	1 in 20	59	155	Final	Mandatory limits	30	A
1,1-Dichloroethene	EPA624	Water	1/day	D	234	Final	Mandatory limits	1 in 20	D	234	Final	Mandatory limits	30	A
1,2-Dichlorobenzene	EPA624	Water	1/day	18	190	Final	Mandatory limits	1 in 20	18	190	Final	Mandatory limits	30	A
1,2-Dichloroethane	EPA624	Water	1/day	49	155	Final	Mandatory limits	1 in 20	49	155	Final	Mandatory limits	30	A
1,2-Dichloropropane	EPA624	Water	1/day	D	210	Final	Mandatory limits	1 in 20	D	210	Final	Mandatory limits	30	A
1,3-Dichlorobenzene	EPA624	Water	1/day	59	156	Final	Mandatory limits	1 in 20	59	156	Final	Mandatory limits	30	A
1,4-Dichlorobenzene	EPA624	Water	1/day	18	190	Final	Mandatory limits	1 in 20	18	190	Final	Mandatory limits	30	A
2-Chloroethylvinyl ether	EPA624	Water	1/day	D	305	Final	Mandatory limits	1 in 20	D	305	Final	Mandatory limits	30	A
Benzene	EPA624	Water	1/day	37	151	Final	Mandatory limits	1 in 20	37	151	Final	Mandatory limits	30	A
Bromodichloromethane	EPA624	Water	1/day	35	155	Final	Mandatory limits	1 in 20	35	155	Final	Mandatory limits	30	A
Bromoform	EPA624	Water	1/day	45	169	Final	Mandatory limits	1 in 20	45	169	Final	Mandatory limits	30	A
Bromomethane	EPA624	Water	1/day	D	242	Final	Mandatory limits	1 in 20	D	242	Final	Mandatory limits	30	A
Carbon Tetrachloride	EPA624	Water	1/day	70	140	Final	Mandatory limits	1 in 20	70	140	Final	Mandatory limits	30	A
Chlorobenzene	EPA624	Water	1/day	37	160	Final	Mandatory limits	1 in 20	37	160	Final	Mandatory limits	30	A
Chloroethane	EPA624	Water	1/day	14	230	Final	Mandatory limits	1 in 20	14	230	Final	Mandatory limits	30	A
Chloroform	EPA624	Water	1/day	51	138	Final	Mandatory limits	1 in 20	51	138	Final	Mandatory limits	30	A
Chloromethane	EPA624	Water	1/day	D	273	Final	Mandatory limits	1 in 20	D	273	Final	Mandatory limits	30	A

Parameter	Anal. Method	Matrix	LCS					Matrix Spikes					RPD	Rem-arks
			Fqcy	LCL	UCL	Status	Remarks	Fqcy	LCL	UCL	Status	Remarks		
cis-1,3-Dichloropropene	EPA624	Water	1/day	D	227	Final	Mandatory limits	1 in 20	D	227	Final	Mandatory limits	30	A
Dibromochloromethane	EPA624	Water	1/day	53	149	Final	Mandatory limits	1 in 20	53	149	Final	Mandatory limits	30	A
Ethyl benzene	EPA624	Water	1/day	37	162	Final	Mandatory limits	1 in 20	37	162	Final	Mandatory limits	30	A
Methylene chloride	EPA624	Water	1/day	D	221	Final	Mandatory limits	1 in 20	D	221	Final	Mandatory limits	30	A
Tetrachloroethene (PCE)	EPA624	Water	1/day	64	148	Final	Mandatory limits	1 in 20	64	148	Final	Mandatory limits	30	A
Toluene	EPA624	Water	1/day	47	150	Final	Mandatory limits	1 in 20	47	150	Final	Mandatory limits	30	A
trans-1,2-Dichloroethene	EPA624	Water	1/day	54	156	Final	Mandatory limits	1 in 20	54	156	Final	Mandatory limits	30	A
trans-1,3-Dichloropropene	EPA624	Water	1/day	17	183	Final	Mandatory limits	1 in 20	17	183	Final	Mandatory limits	30	A
Trichloroethene (TCE)	EPA624	Water	1/day	71	157	Final	Mandatory limits	1 in 20	71	157	Final	Mandatory limits	30	A
Trichlorofluoromethane	EPA624	Water	1/day	17	181	Final	Mandatory limits	1 in 20	17	181	Final	Mandatory limits	30	A
Vinyl Chloride	EPA624	Water	1/day	D	251	Final	Mandatory limits	1 in 20	D	251	Final	Mandatory limits	30	A
4-Bromofluorobenzene (SS)	EPA624	Water	all	78	133	Updated 07/00	Lab generated							
1,2-Dichloroethane-d4 (SS)	EPA624	Water	all	69	141	Updated 07/00	Lab generated							
Toluene-d8 (SS)	EPA624	Water	all	86	123	Updated 07/00	Lab generated							
1,2,4-Trichlorobenzene	EPA625	Water	1/day	44	142	Final	Mandatory limits	1 in 20	44	142	Final	Mandatory limits	30	A
1,2-Dichlorobenzene	EPA625	Water	1/day	32	129	Final	Mandatory limits	1 in 20	32	129	Final	Mandatory limits	30	A
1,3-Dichlorobenzene	EPA625	Water	1/day	D	172	Final	Mandatory limits	1 in 20	D	172	Final	Mandatory limits	30	A
1,4-Dichlorobenzene	EPA625	Water	1/day	20	124	Final	Mandatory limits	1 in 20	20	124	Final	Mandatory limits	30	A
2,4,6-Trichlorophenol	EPA625	Water	1/day	37	144	Final	Mandatory limits	1 in 20	37	144	Final	Mandatory limits	30	A
2,4-Dichlorophenol	EPA625	Water	1/day	39	135	Final	Mandatory limits	1 in 20	39	135	Final	Mandatory limits	30	A
2,4-Dimethylphenol	EPA625	Water	1/day	32	119	Final	Mandatory limits	1 in 20	32	119	Final	Mandatory limits	30	A
2,4-Dinitrophenol	EPA625	Water	1/day	D	191	Final	Mandatory limits	1 in 20	D	191	Final	Mandatory limits	30	A
2,4-Dinitrotoluene	EPA625	Water	1/day	39	139	Final	Mandatory limits	1 in 20	39	139	Final	Mandatory limits	30	A
2,6-Dinitrotoluene	EPA625	Water	1/day	50	158	Final	Mandatory limits	1 in 20	50	158	Final	Mandatory limits	30	A
2-Chloronaphthalene	EPA625	Water	1/day	60	118	Final	Mandatory limits	1 in 20	60	118	Final	Mandatory limits	30	A
2-Chlorophenol	EPA625	Water	1/day	23	134	Final	Mandatory limits	1 in 20	23	134	Final	Mandatory limits	30	A
2-Nitrophenol	EPA625	Water	1/day	29	182	Final	Mandatory limits	1 in 20	29	182	Final	Mandatory limits	30	A
3,3'-dichlorobenzidine	EPA625	Water	1/day	D	262	Final	Mandatory limits	1 in 20	D	262	Final	Mandatory limits	30	A
4,4'-DDD	EPA625	Water	1/day	D	145	Final	Mandatory limits	1 in 20	D	145	Final	Mandatory limits	30	A
4,4'-DDE	EPA625	Water	1/day	4	136	Final	Mandatory limits	1 in 20	4	136	Final	Mandatory limits	30	A
4,4'-DDT	EPA625	Water	1/day	D	203	Final	Mandatory limits	1 in 20	D	203	Final	Mandatory limits	30	A
4,6-Dinitro-2-methylphenol	EPA625	Water	1/day	D	191	Final	Mandatory limits	1 in 20	D	191	Final	Mandatory limits	30	A
4-Bromophenyl phenyl ether	EPA625	Water	1/day	53	127	Final	Mandatory limits	1 in 20	53	127	Final	Mandatory limits	30	A
4-Chloro-3-Methylphenol	EPA625	Water	1/day	22	147	Final	Mandatory limits	1 in 20	22	147	Final	Mandatory limits	30	A
4-Chlorophenyl phenyl ether	EPA625	Water	1/day	25	158	Final	Mandatory limits	1 in 20	25	158	Final	Mandatory limits	30	A

Parameter	Anal. Method	Matrix	LCS					Matrix Spikes					RPD	Rem-arks
			Fqcy	LCL	UCL	Status	Remarks	Fqcy	LCL	UCL	Status	Remarks		
4-Nitrophenol	EPA625	Water	1/day	D	132	Final	Mandatory limits	1 in 20	D	132	Final	Mandatory limits	30	A
Acenaphthene	EPA625	Water	1/day	47	145	Final	Mandatory limits	1 in 20	47	145	Final	Mandatory limits	30	A
Acenaphthylene	EPA625	Water	1/day	33	145	Final	Mandatory limits	1 in 20	33	145	Final	Mandatory limits	30	A
Aldrin	EPA625	Water	1/day	D	156	Final	Mandatory limits	1 in 20	D	156	Final	Mandatory limits	30	A
Anthracene	EPA625	Water	1/day	27	133	Final	Mandatory limits	1 in 20	27	133	Final	Mandatory limits	30	A
Benzo (a) Anthracene	EPA625	Water	1/day	33	143	Final	Mandatory limits	1 in 20	33	143	Final	Mandatory limits	30	A
Benzo (a) Pyrene	EPA625	Water	1/day	17	163	Final	Mandatory limits	1 in 20	17	163	Final	Mandatory limits	30	A
Benzo (b) Fluoranthene	EPA625	Water	1/day	24	159	Final	Mandatory limits	1 in 20	24	159	Final	Mandatory limits	30	A
Benzo (g,h,i) Perylene	EPA625	Water	1/day	D	219	Final	Mandatory limits	1 in 20	D	219	Final	Mandatory limits	30	A
Benzo (k) Fluoranthene	EPA625	Water	1/day	11	162	Final	Mandatory limits	1 in 20	11	162	Final	Mandatory limits	30	A
beta-BHC	EPA625	Water	1/day	24	149	Final	Mandatory limits	1 in 20	24	149	Final	Mandatory limits	30	A
bis (2-Ethylhexyl) phthalate	EPA625	Water	1/day	8	158	Final	Mandatory limits	1 in 20	8	158	Final	Mandatory limits	30	A
bis(2-Chloroethoxy) methane	EPA625	Water	1/day	33	184	Final	Mandatory limits	1 in 20	33	184	Final	Mandatory limits	30	A
bis(2-Chloroethyl) Ether	EPA625	Water	1/day	12	158	Final	Mandatory limits	1 in 20	12	158	Final	Mandatory limits	30	A
bis(2-Chloroisopropyl) ether	EPA625	Water	1/day	36	166	Final	Mandatory limits	1 in 20	36	166	Final	Mandatory limits	30	A
Butyl benzyl phthalate	EPA625	Water	1/day	D	152	Final	Mandatory limits	1 in 20	D	152	Final	Mandatory limits	30	A
Chrysene	EPA625	Water	1/day	17	168	Final	Mandatory limits	1 in 20	17	168	Final	Mandatory limits	30	A
delta-BHC	EPA625	Water	1/day	D	110	Final	Mandatory limits	1 in 20	D	110	Final	Mandatory limits	30	A
Dibenzo (a,h) Anthracene	EPA625	Water	1/day	D	227	Final	Mandatory limits	1 in 20	D	227	Final	Mandatory limits	30	A
Dieldrin	EPA625	Water	1/day	29	136	Final	Mandatory limits	1 in 20	29	136	Final	Mandatory limits	30	A
Diethyl phthalate	EPA625	Water	1/day	D	114	Final	Mandatory limits	1 in 20	D	114	Final	Mandatory limits	30	A
Dimethyl phthalate	EPA625	Water	1/day	D	112	Final	Mandatory limits	1 in 20	D	112	Final	Mandatory limits	30	A
di-n-Butyl phthalate	EPA625	Water	1/day	1	118	Final	Mandatory limits	1 in 20	1	118	Final	Mandatory limits	30	A
di-n-Octyl phthalate	EPA625	Water	1/day	4	146	Final	Mandatory limits	1 in 20	4	146	Final	Mandatory limits	30	A
Endosulfan sulfate	EPA625	Water	1/day	D	107	Final	Mandatory limits	1 in 20	D	107	Final	Mandatory limits	30	A
Endrin aldehyde	EPA625	Water	1/day	D	209	Final	Mandatory limits	1 in 20	D	209	Final	Mandatory limits	30	A
Fluoranthene	EPA625	Water	1/day	26	137	Final	Mandatory limits	1 in 20	26	137	Final	Mandatory limits	30	A
Fluorene	EPA625	Water	1/day	59	121	Final	Mandatory limits	1 in 20	59	121	Final	Mandatory limits	30	A
Heptachlor	EPA625	Water	1/day	D	192	Final	Mandatory limits	1 in 20	D	192	Final	Mandatory limits	30	A
Heptachlor epoxide	EPA625	Water	1/day	26	155	Final	Mandatory limits	1 in 20	26	155	Final	Mandatory limits	30	A
Hexachlorobenzene	EPA625	Water	1/day	D	152	Final	Mandatory limits	1 in 20	D	152	Final	Mandatory limits	30	A
Hexachlorobutadiene	EPA625	Water	1/day	24	116	Final	Mandatory limits	1 in 20	24	116	Final	Mandatory limits	30	A
Hexachlorocyclopentadiene	EPA625	Water	1/day	11	70	Updated 07/00	Lab generated	1 in 20	11	70	Updated 07/00	Lab generated	30	A
Hexachloroethane	EPA625	Water	1/day	40	113	Final	Mandatory limits	1 in 20	40	113	Final	Mandatory limits	30	A
Indeno (1,2,3-cd) Pyrene	EPA625	Water	1/day	D	171	Final	Mandatory limits	1 in 20	D	171	Final	Mandatory limits	30	A
Isophorone	EPA625	Water	1/day	21	196	Final	Mandatory limits	1 in 20	21	196	Final	Mandatory limits	30	A

Parameter	Anal. Method	Matrix	LCS					Matrix Spikes					RPD	Rem-arks
			Fqcy	LCL	UCL	Status	Remarks	Fqcy	LCL	UCL	Status	Remarks		
Naphthalene	EPA625	Water	1/day	21	133	Final	Mandatory limits	1 in 20	21	133	Final	Mandatory limits	30	A
Nitrobenzene	EPA625	Water	1/day	35	180	Final	Mandatory limits	1 in 20	35	180	Final	Mandatory limits	30	A
N-Nitroso-dimethylamine	EPA625	Water	1/day	30	67	Updated 07/00	Lab generated	1 in 20	30	67	Updated 07/00	Lab generated	30	A
N-Nitroso-di-n-propylamine	EPA625	Water	1/day	D	230	Final	Mandatory limits	1 in 20	D	230	Final	Mandatory limits	30	A
N-Nitroso-diphenylamine	EPA625	Water	1/day	45	112	Updated 07/00	Lab generated	1 in 20	45	112	Updated 07/00	Lab generated	30	A
Pentachlorophenol	EPA625	Water	1/day	14	176	Final	Mandatory limits	1 in 20	14	176	Final	Mandatory limits	30	A
Phenanthrene	EPA625	Water	1/day	54	120	Final	Mandatory limits	1 in 20	54	120	Final	Mandatory limits	30	A
Phenol	EPA625	Water	1/day	5	112	Final	Mandatory limits	1 in 20	5	112	Final	Mandatory limits	30	A
Pyrene	EPA625	Water	1/day	52	115	Final	Mandatory limits	1 in 20	52	115	Final	Mandatory limits	30	A
2-fluorophenol (SS)	EPA625	Water	all	D	84	Updated 07/00	Lab generated							
Phenol-d5 (SS)	EPA625	Water	all	D	72	Updated 07/00	Lab generated							
2,4,6-Tribromophenol (SS)	EPA625	Water	all	D	97	Updated 07/00	Lab generated							
2-Fluorobiphenyl (SS)	EPA625	Water	all	23	103	Updated 07/00	Lab generated							
Nitrobenzene-D5 (SS)	EPA625	Water	all	D	129	Updated 07/00	Lab generated							
Terphenyl-d14 (SS)	EPA625	Water	all	16	146	Updated 07/00	Lab generated							
Diuron	EPA632	Water	1 in 20	73	134	Updated 07/00	Lab generated	1 in 10	73	134	Updated 07/00	Lab generated	25	A
DRO (Diesel)	EPA8015B	Water	1 in 20	69	122	Updated 04/97	Lab generated	1 in 20	71	129	Updated 04/97	Lab generated	25	D
n-Tetracosane (SS)	EPA8015B	Water	all	77	139	Updated 07/00	Lab generated							
DRO (Diesel)	EPA8015B	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	76	128	Updated 04/97	Lab generated	25	D
n-Tetracosane (SS)	EPA8015B	Solid	all	75	123	Updated 07/00	Lab generated							
GRO (gasoline)	EPA8015B	Water	1 in 20	53	136	Updated 07/00	Lab generated	1 in 20	62	142	Updated 07/00	Lab generated	25	D
4-Bromofluorobenzene (SS)	EPA8015B	Water	all	72	120	Updated 07/00	Lab generated							
GRO (gasoline)	EPA8015B	Solid	1 in 20	53	136	Updated 07/00	Lab generated	1 in 20	41	127	Updated 07/00	Lab generated	25	D
4-Bromofluorobenzene (SS)	EPA8015B	Solid	all	72	131	Updated 07/00	Lab generated							
Benzene	EPA8021B	Water	1 in 20	68	110	Updated 07/00	Lab generated	1 in 20	71	123	Updated 04/97	Lab generated	25	D
Toluene	EPA8021B	Water	1 in 20	67	111	Updated 07/00	Lab generated	1 in 20	80	118	Updated 04/97	Lab generated	25	D
Ethylbenzene	EPA8021B	Water	1 in 20	67	113	Updated 07/00	Lab generated	1 in 20	80	131	Updated 04/97	Lab generated	25	D
m,p-Xylenes	EPA8021B	Water	1 in 20	65	115	Updated 07/00	Lab generated	1 in 20	79	130	Updated 04/97	Lab generated	25	D
o-Xylene	EPA8021B	Water	1 in 20	65	114	Updated 07/00	Lab generated	1 in 20	80	119	Updated 04/97	Lab generated	25	D
Methyl t-butyl ether	EPA8021B	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	25	D
4-Bromofluorobenzene (SS)	EPA8021B	Water	all	82	108	Updated 07/00	Lab generated							
Benzene	EPA8021B	Solid	1 in 20	68	110	Updated 07/00	Lab generated	1 in 20	71	120	Updated 04/97	Lab generated	25	D

Parameter	Anal. Method	Matrix	LCS					Matrix Spikes					RPD	Remarks
			Fqcy	LCL	UCL	Status	Remarks	Fqcy	LCL	UCL	Status	Remarks		
Toluene	EPA8021B	Solid	1 in 20	67	111	Updated 07/00	Lab generated	1 in 20	72	122	Updated 04/97	Lab generated	25	D
Ethylbenzene	EPA8021B	Solid	1 in 20	67	113	Updated 07/00	Lab generated	1 in 20	76	128	Updated 04/97	Lab generated	25	D
m,p-Xylenes	EPA8021B	Solid	1 in 20	65	115	Updated 07/00	Lab generated	1 in 20	71	116	Updated 04/97	Lab generated	25	D
o-Xylene	EPA8021B	Solid	1 in 20	65	114	Updated 07/00	Lab generated	1 in 20	72	116	Updated 04/97	Lab generated	25	D
Methyl t-butyl ether	EPA8021B	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	25	D
4-Bromofluorobenzene (SS)	EPA8021B	Solid	all	63	132	Updated 07/00	Lab generated							
4,4'-DDD	EPA8081A	Water	1 in 20	51	129	Updated 07/00	Lab generated	1 in 20	45	140	Updated 04/97	Lab generated	25	D
4,4'-DDE	EPA8081A	Water	1 in 20	51	131	Updated 07/00	Lab generated	1 in 20	53	124	Updated 04/97	Lab generated	25	D
4,4'-DDT	EPA8081A	Water	1 in 20	46	162	Updated 07/00	Lab generated	1 in 20	51	144	Updated 04/97	Lab generated	25	D
Aldrin	EPA8081A	Water	1 in 20	57	121	Updated 07/00	Lab generated	1 in 20	44	122	Updated 04/97	Lab generated	25	D
alpha-BHC	EPA8081A	Water	1 in 20	54	130	Updated 07/00	Lab generated	1 in 20	57	125	Updated 04/97	Lab generated	25	D
beta-BHC	EPA8081A	Water	1 in 20	63	129	Updated 07/00	Lab generated	1 in 20	31	157	Updated 04/97	Lab generated	25	D
delta-BHC	EPA8081A	Water	1 in 20	59	137	Updated 07/00	Lab generated	1 in 20	56	146	Updated 04/97	Lab generated	25	D
Dieldrin	EPA8081A	Water	1 in 20	49	138	Updated 07/00	Lab generated	1 in 20	41	143	Updated 04/97	Lab generated	25	D
Endosulfan I	EPA8081A	Water	1 in 20	63	118	Updated 07/00	Lab generated	1 in 20	56	122	Updated 04/97	Lab generated	25	D
Endosulfan II	EPA8081A	Water	1 in 20	51	127	Updated 07/00	Lab generated	1 in 20	50	122	Updated 04/97	Lab generated	25	D
Endosulfan sulfate	EPA8081A	Water	1 in 20	70	147	Updated 07/00	Lab generated	1 in 20	57	155	Updated 04/97	Lab generated	25	D
Endrin	EPA8081A	Water	1 in 20	45	145	Updated 07/00	Lab generated	1 in 20	45	151	Updated 04/97	Lab generated	25	D
Endrin aldehyde	EPA8081A	Water	1 in 20	60	128	Updated 07/00	Lab generated	1 in 20	36	160	Updated 04/97	Lab generated	25	D
Heptachlor	EPA8081A	Water	1 in 20	59	138	Updated 07/00	Lab generated	1 in 20	36	157	Updated 04/97	Lab generated	25	D
Heptachlor epoxide	EPA8081A	Water	1 in 20	63	123	Updated 07/00	Lab generated	1 in 20	51	132	Updated 04/97	Lab generated	25	D
gamma-BHC (lindane)	EPA8081A	Water	1 in 20	55	139	Updated 07/00	Lab generated	1 in 20	47	150	Updated 04/97	Lab generated	25	D
Methoxychlor	EPA8081A	Water	1 in 20	42	154	Updated 07/00	Lab generated	1 in 20	32	178	Updated 04/97	Lab generated	25	D
Toxaphene	EPA8081A	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	25	D
Chlordane	EPA8081A	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	25	D
Mirex	EPA8081A	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	25	D
Decafluorobiphenyl (SS)	EPA8081A	Water	all	77	135	Updated 07/00	Lab generated							
2,4,5,6-pcmx (SS)	EPA8081A	Water	all	70	130	Interim	Not enough data							
4,4'-DDD	EPA8081A	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	34	159	Updated 07/00	Lab generated	25	D
4,4'-DDE	EPA8081A	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	27	164	Updated 07/00	Lab generated	25	D
4,4'-DDT	EPA8081A	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	32	185	Updated 07/00	Lab generated	25	D
Aldrin	EPA8081A	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	24	163	Updated 07/00	Lab generated	25	D
alpha-BHC	EPA8081A	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	19	153	Updated 07/00	Lab generated	25	D
beta-BHC	EPA8081A	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	25	150	Updated 07/00	Lab generated	25	D
delta-BHC	EPA8081A	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	24	172	Updated 07/00	Lab generated	25	D

Parameter	Anal. Method	Matrix	LCS					Matrix Spikes					RPD	Rem-arks
			Fqcy	LCL	UCL	Status	Remarks	Fqcy	LCL	UCL	Status	Remarks		
Dieldrin	EPA8081A	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	13	157	Updated 07/00	Lab generated	25	D
Endosulfan I	EPA8081A	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	24	153	Updated 07/00	Lab generated	25	D
Endosulfan II	EPA8081A	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	31	136	Updated 07/00	Lab generated	25	D
Endosulfan sulfate	EPA8081A	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	37	175	Updated 07/00	Lab generated	25	D
Endrin	EPA8081A	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	32	171	Updated 07/00	Lab generated	25	D
Endrin aldehyde	EPA8081A	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	19	147	Updated 07/00	Lab generated	25	D
Heptachlor	EPA8081A	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	35	152	Updated 07/00	Lab generated	25	D
Heptachlor epoxide	EPA8081A	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	44	133	Updated 07/00	Lab generated	25	D
gamma-BHC (lindane)	EPA8081A	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	22	165	Updated 07/00	Lab generated	25	D
Methoxychlor	EPA8081A	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	33	171	Updated 07/00	Lab generated	25	D
Toxaphene	EPA8081A	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	25	D
Chlordane	EPA8081A	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	25	D
Mirex	EPA8081A	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	25	D
Decafluorobiphenyl (SS)	EPA8081A	Solid	all	72	137	Updated 07/00	Lab generated							
2,4,5,6-pcmx (SS)	EPA8081A	Solid	all	70	130	Interim	Not enough data							
Aroclor-1016	EPA8082	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	68	133	Updated 07/00	Lab generated	25	D
Aroclor-1260	EPA8082	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	59	133	Updated 07/00	Lab generated	25	D
Decachlorobiphenyl (SS)	EPA8082	Water	all	70	130	Interim	Not enough data							
Aroclor-1016	EPA8082	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	71	125	Updated 07/00	Lab generated	25	D
Aroclor-1260	EPA8082	Solid	1 in 20	68	132	Updated 07/00	Lab generated	1 in 20	64	135	Updated 07/00	Lab generated	25	D
Decachlorobiphenyl (SS)	EPA8082	Solid	all	53	143	Updated 07/00	Lab generated							
Azinphos methyl	EPA8141A	Water	1 in 20	4	196	Updated 07/00	Lab generated	1 in 20	4	196	Updated 07/00	Lab generated	25	D
Bolstar	EPA8141A	Water	1 in 20	5	174	Updated 07/00	Lab generated	1 in 20	5	174	Updated 07/00	Lab generated	25	D
Chlorpyrifos	EPA8141A	Water	1 in 20	5	160	Updated 07/00	Lab generated	1 in 20	5	160	Updated 07/00	Lab generated	25	D
Coumaphos	EPA8141A	Water	1 in 20	14	162	Updated 07/00	Lab generated	1 in 20	14	162	Updated 07/00	Lab generated	25	D
Demeton-O	EPA8141A	Water	1 in 20	9	162	Updated 07/00	Lab generated	1 in 20	9	162	Updated 07/00	Lab generated	25	D
Demeton-S	EPA8141A	Water	1 in 20	5	181	Updated 07/00	Lab generated	1 in 20	5	181	Updated 07/00	Lab generated	25	D
Diazinon	EPA8141A	Water	1 in 20	23	132	Updated 07/00	Lab generated	1 in 20	23	132	Updated 07/00	Lab generated	25	D
Dichlorvos	EPA8141A	Water	1 in 20	12	133	Updated 07/00	Lab generated	1 in 20	12	133	Updated 07/00	Lab generated	25	D
Disulfoton	EPA8141A	Water	1 in 20	5	144	Updated 07/00	Lab generated	1 in 20	5	144	Updated 07/00	Lab generated	25	D
Ethoprop	EPA8141A	Water	1 in 20	5	146	Updated 07/00	Lab generated	1 in 20	5	146	Updated 07/00	Lab generated	25	D
Fensulfothion	EPA8141A	Water	1 in 20	45	95	Updated 07/00	Lab generated	1 in 20	45	95	Updated 07/00	Lab generated	25	D
Fenthion	EPA8141A	Water	1 in 20	5	164	Updated 07/00	Lab generated	1 in 20	5	164	Updated 07/00	Lab generated	25	D
Merphos	EPA8141A	Water	1 in 20	5	219	Updated 07/00	Lab generated	1 in 20	5	219	Updated 07/00	Lab generated	25	D

Parameter	Anal. Method	Matrix	LCS					Matrix Spikes					RPD	Rem-arks
			Fqcy	LCL	UCL	Status	Remarks	Fqcy	LCL	UCL	Status	Remarks		
Mevinphos	EPA8141A	Water	1 in 20	14	89	Updated 07/00	Lab generated	1 in 20	14	89	Updated 07/00	Lab generated	25	D
Naled	EPA8141A	Water	1 in 20	5	193	Updated 07/00	Lab generated	1 in 20	5	193	Updated 07/00	Lab generated	25	D
Parathion, methyl	EPA8141A	Water	1 in 20	22	133	Updated 07/00	Lab generated	1 in 20	22	133	Updated 07/00	Lab generated	25	D
Phorate	EPA8141A	Water	1 in 20	5	140	Updated 07/00	Lab generated	1 in 20	5	140	Updated 07/00	Lab generated	25	D
Ronnel	EPA8141A	Water	1 in 20	5	156	Updated 07/00	Lab generated	1 in 20	5	156	Updated 07/00	Lab generated	25	D
Stirofos	EPA8141A	Water	1 in 20	5	160	Updated 07/00	Lab generated	1 in 20	5	160	Updated 07/00	Lab generated	25	D
Tokuthion	EPA8141A	Water	1 in 20	5	179	Updated 07/00	Lab generated	1 in 20	5	179	Updated 07/00	Lab generated	25	D
Trichloronate	EPA8141A	Water	1 in 20	5	171	Updated 07/00	Lab generated	1 in 20	5	171	Updated 07/00	Lab generated	25	D
Triphenylphosphate (SS)	EPA8141A	Water	all	31	176	Updated 07/00	Lab generated							
Azinphos methyl	EPA8141A	Solid	1 in 20	44	219	Updated 07/00	Lab generated	1 in 20	44	219	Updated 07/00	Lab generated	25	D
Bolstar	EPA8141A	Solid	1 in 20	69	155	Updated 07/00	Lab generated	1 in 20	69	155	Updated 07/00	Lab generated	25	D
Chlorpyrifos	EPA8141A	Solid	1 in 20	63	152	Updated 07/00	Lab generated	1 in 20	63	152	Updated 07/00	Lab generated	25	D
Coumaphos	EPA8141A	Solid	1 in 20	36	241	Updated 07/00	Lab generated	1 in 20	36	241	Updated 07/00	Lab generated	25	D
Demeton-O	EPA8141A	Solid	1 in 20	5	151	Updated 07/00	Lab generated	1 in 20	5	151	Updated 07/00	Lab generated	25	D
Demeton-S	EPA8141A	Solid	1 in 20	14	197	Updated 07/00	Lab generated	1 in 20	14	197	Updated 07/00	Lab generated	25	D
Diazinon	EPA8141A	Solid	1 in 20	5	193	Updated 07/00	Lab generated	1 in 20	5	193	Updated 07/00	Lab generated	25	D
Dichlorvos	EPA8141A	Solid	1 in 20	33	220	Updated 07/00	Lab generated	1 in 20	33	220	Updated 07/00	Lab generated	25	D
Disulfoton	EPA8141A	Solid	1 in 20	5	182	Updated 07/00	Lab generated	1 in 20	5	182	Updated 07/00	Lab generated	25	D
Ethoprop	EPA8141A	Solid	1 in 20	77	159	Updated 07/00	Lab generated	1 in 20	77	159	Updated 07/00	Lab generated	25	D
Fensulfothion	EPA8141A	Solid	1 in 20	5	196	Updated 07/00	Lab generated	1 in 20	5	196	Updated 07/00	Lab generated	25	D
Fenthion	EPA8141A	Solid	1 in 20	60	171	Updated 07/00	Lab generated	1 in 20	60	171	Updated 07/00	Lab generated	25	D
Merphos	EPA8141A	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	25	D
Mevinphos	EPA8141A	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	25	D
Naled	EPA8141A	Solid	1 in 20	5	237	Interim	Not enough data	1 in 20	5	237	Interim	Not enough data	25	D
Parathion, methyl	EPA8141A	Solid	1 in 20	22	160	Updated 07/00	Lab generated	1 in 20	22	160	Updated 07/00	Lab generated	25	D
Phorate	EPA8141A	Solid	1 in 20	32	153	Updated 07/00	Lab generated	1 in 20	32	153	Updated 07/00	Lab generated	25	D
Ronnel	EPA8141A	Solid	1 in 20	50	180	Updated 07/00	Lab generated	1 in 20	50	180	Updated 07/00	Lab generated	25	D
Stirofos	EPA8141A	Solid	1 in 20	67	169	Updated 07/00	Lab generated	1 in 20	67	169	Updated 07/00	Lab generated	25	D
Tokuthion	EPA8141A	Solid	1 in 20	66	163	Updated 07/00	Lab generated	1 in 20	66	163	Updated 07/00	Lab generated	25	D
Trichloronate	EPA8141A	Solid	1 in 20	61	151	Updated 07/00	Lab generated	1 in 20	61	151	Updated 07/00	Lab generated	25	D
Triphenylphosphate (SS)	EPA8141A	Solid	all	70	130	Interim	Not enough data							
2,4-D	EPA8151A	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	25	D
Pentachlorophenol	EPA8151A	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	25	D
2,4,5-TP (Silvex)	EPA8151A	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	25	D
2,4,5-T	EPA8151A	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	25	D

Parameter	Anal. Method	Matrix	LCS					Matrix Spikes					RPD	Rem-arks
			Fqcy	LCL	UCL	Status	Remarks	Fqcy	LCL	UCL	Status	Remarks		
2,4-DB	EPA8151A	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	25	D
Dalapon	EPA8151A	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	25	D
Dicamba	EPA8151A	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	25	D
Dichloroprop	EPA8151A	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	25	D
Dinoseb	EPA8151A	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	25	D
MCPA	EPA8151A	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	25	D
MCPP	EPA8151A	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	25	D
2,4-dcaa (SS)	EPA8151A	Water	all	42	149	Updated 07/00	Lab generated							
2,4-D	EPA8151A	Solid	1 in 20	29	175	Updated 07/00	Lab generated	1 in 20	41	167	Updated 07/00	Lab generated	25	D
Pentachlorophenol	EPA8151A	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	50	77	Updated 07/00	Lab generated	25	D
2,4,5-TP (Silvex)	EPA8151A	Solid	1 in 20	34	142	Updated 07/00	Lab generated	1 in 20	23	143	Updated 07/00	Lab generated	25	D
2,4,5-T	EPA8151A	Solid	1 in 20	43	128	Updated 07/00	Lab generated	1 in 20	18	149	Updated 07/00	Lab generated	25	D
2,4-DB	EPA8151A	Solid	1 in 20	19	116	Updated 07/00	Lab generated	1 in 20	5	162	Updated 07/00	Lab generated	25	D
Dalapon	EPA8151A	Solid	1 in 20	43	132	Updated 07/00	Lab generated	1 in 20	28	112	Updated 07/00	Lab generated	25	D
Dicamba	EPA8151A	Solid	1 in 20	58	127	Updated 07/00	Lab generated	1 in 20	29	160	Updated 07/00	Lab generated	25	D
Dichloroprop	EPA8151A	Solid	1 in 20	42	145	Updated 07/00	Lab generated	1 in 20	10	161	Updated 07/00	Lab generated	25	D
Dinoseb	EPA8151A	Solid	1 in 20	41	112	Updated 07/00	Lab generated	1 in 20	5	128	Updated 07/00	Lab generated	25	D
MCPA	EPA8151A	Solid	1 in 20	36	120	Updated 07/00	Lab generated	1 in 20	5	180	Updated 07/00	Lab generated	25	D
MCPP	EPA8151A	Solid	1 in 20	35	117	Updated 07/00	Lab generated	1 in 20	5	179	Updated 07/00	Lab generated	25	D
2,4-dcaa (SS)	EPA8151A	Solid	all	42	149	Updated 07/00	Lab generated							
1,1,1-Trichloroethane	EPA8260B	Water	1 in 20	75	126	Updated 07/00	Lab generated							
1,1,2,2-Tetrachloroethane	EPA8260B	Water	1 in 20	61	128	Updated 07/00	Lab generated							
1,1,2-Trichloroethane	EPA8260B	Water	1 in 20	74	125	Updated 07/00	Lab generated							
1,1-Dichloroethane	EPA8260B	Water	1 in 20	73	129	Updated 07/00	Lab generated							
1,1-Dichloroethene	EPA8260B	Water	1 in 20	66	140	Updated 07/00	Lab generated	1 in 20	78	143	Updated 07/00	Lab generated	25	D
1,2-Dichloroethane	EPA8260B	Water	1 in 20	74	112	Updated 07/00	Lab generated							
1,2-Dichloropropane	EPA8260B	Water	1 in 20	78	126	Updated 07/00	Lab generated							
Benzene	EPA8260B	Water	1 in 20	74	122	Updated 07/00	Lab generated	1 in 20	80	126	Updated 07/00	Lab generated	25	D
Bromodichloromethane	EPA8260B	Water	1 in 20	76	125	Updated 07/00	Lab generated							
Bromomethane	EPA8260B	Water	1 in 20	69	131	Updated 07/00	Lab generated							
cis-1,2-Dichloroethene	EPA8260B	Water	1 in 20	72	120	Updated 07/00	Lab generated							
cis-1,3-Dichloropropene	EPA8260B	Water	1 in 20	73	128	Updated 07/00	Lab generated							
Carbon tetrachloride	EPA8260B	Water	1 in 20	74	130	Updated 07/00	Lab generated							
Bromoform	EPA8260B	Water	1 in 20	66	131	Updated 07/00	Lab generated							
Chloroform	EPA8260B	Water	1 in 20	70	120	Updated 07/00	Lab generated							

Parameter	Anal. Method	Matrix	LCS					Matrix Spikes					RPD	Rem-arks
			Fqcy	LCL	UCL	Status	Remarks	Fqcy	LCL	UCL	Status	Remarks		
Chlorobenzene	EPA8260B	Water	1 in 20	69	124	Updated 07/00	Lab generated							
Dibromochloromethane	EPA8260B	Water	1 in 20	78	127	Updated 07/00	Lab generated	1 in 20	78	121	Updated 07/00	Lab generated	25	D
Chloroethane	EPA8260B	Water	1 in 20	71	131	Updated 07/00	Lab generated							
Chloromethane	EPA8260B	Water	1 in 20	74	129	Updated 07/00	Lab generated							
Ethyl benzene	EPA8260B	Water	1 in 20	74	126	Updated 07/00	Lab generated							
Methylene chloride	EPA8260B	Water	1 in 20	68	129	Updated 07/00	Lab generated							
Tetrachloroethene	EPA8260B	Water	1 in 20	69	134	Updated 07/00	Lab generated							
Styrene	EPA8260B	Water	1 in 20	75	130	Updated 07/00	Lab generated							
trans-1,2-Dichloroethene	EPA8260B	Water	1 in 20	73	126	Updated 07/00	Lab generated							
trans-1,3-Dichloropropene	EPA8260B	Water	1 in 20	78	120	Updated 07/00	Lab generated							
Trichloroethene	EPA8260B	Water	1 in 20	71	137	Updated 07/00	Lab generated							
Toluene	EPA8260B	Water	1 in 20	74	122	Updated 07/00	Lab generated	1 in 20	76	123	Updated 07/00	Lab generated	25	D
Vinyl chloride	EPA8260B	Water	1 in 20	74	134	Updated 07/00	Lab generated	1 in 20	79	126	Updated 07/00	Lab generated	25	D
m/p-Xylenes	EPA8260B	Water	1 in 20	72	126	Updated 07/00	Lab generated							
o-Xylene	EPA8260B	Water	1 in 20	74	126	Updated 07/00	Lab generated							
1,2-Dichlorethane-d4 (SS)	EPA8260B	Water	all	71	136	Updated 07/00	Lab generated							
4-Bromofluorobenzene (SS)	EPA8260B	Water	all	76	131	Updated 07/00	Lab generated							
Toluene-d8 (SS)	EPA8260B	Water	all	80	122	Updated 07/00	Lab generated							
1,1,1-Trichloroethane	EPA8260B	Solid	1 in 20	65	126	Updated 07/00	Lab generated							
1,1,2,2-Tetrachloroethane	EPA8260B	Solid	1 in 20	71	118	Updated 07/00	Lab generated							
1,1,2-Trichloroethane	EPA8260B	Solid	1 in 20	75	116	Updated 07/00	Lab generated							
1,1-Dichloroethane	EPA8260B	Solid	1 in 20	77	123	Updated 07/00	Lab generated							
1,1-Dichloroethene	EPA8260B	Solid	1 in 20	81	117	Updated 07/00	Lab generated							
1,2-Dichloroethane	EPA8260B	Solid	1 in 20	75	114	Updated 07/00	Lab generated	1 in 20	86	135	Updated 07/00	Lab generated	25	D
1,2-Dichloropropane	EPA8260B	Solid	1 in 20	73	118	Updated 07/00	Lab generated							
Benzene	EPA8260B	Solid	1 in 20	71	127	Updated 07/00	Lab generated							
Bromodichloromethane	EPA8260B	Solid	1 in 20	67	129	Updated 07/00	Lab generated	1 in 20	74	137	Updated 07/00	Lab generated	25	D
Bromomethane	EPA8260B	Solid	1 in 20	70	122	Updated 07/00	Lab generated							
cis-1,2-Dichloroethene	EPA8260B	Solid	1 in 20	64	125	Updated 07/00	Lab generated							
cis-1,3-Dichloropropene	EPA8260B	Solid	1 in 20	69	122	Updated 07/00	Lab generated							
Carbon tetrachloride	EPA8260B	Solid	1 in 20	72	127	Updated 07/00	Lab generated							
Bromoform	EPA8260B	Solid	1 in 20	70	129	Updated 07/00	Lab generated							
Chloroform	EPA8260B	Solid	1 in 20	70	125	Updated 07/00	Lab generated							
Chlorobenzene	EPA8260B	Solid	1 in 20	71	117	Updated 07/00	Lab generated							
Dibromochloromethane	EPA8260B	Solid	1 in 20	75	126	Updated 07/00	Lab generated	1 in 20	67	123	Updated 07/00	Lab generated	25	D
Chloroethane	EPA8260B	Solid	1 in 20	74	116	Updated 07/00	Lab generated							

Parameter	Anal. Method	Matrix	LCS Fqcy	LCS LCL	LCS UCL	LCS Status	LCS Remarks	Matrix Spikes Fqcy	Matrix Spikes LCL	Matrix Spikes UCL	Matrix Spikes Status	Matrix Spikes Remarks	RPD	Rem-arks
Chloromethane	EPA8260B	Solid	1 in 20	69	127	Updated 07/00	Lab generated							
Ethyl benzene	EPA8260B	Solid	1 in 20	68	128	Updated 07/00	Lab generated							
Methylene chloride	EPA8260B	Solid	1 in 20	74	122	Updated 07/00	Lab generated							
Tetrachloroethene	EPA8260B	Solid	1 in 20	63	134	Updated 07/00	Lab generated							
Styrene	EPA8260B	Solid	1 in 20	68	123	Updated 07/00	Lab generated							
trans-1,2-Dichloroethene	EPA8260B	Solid	1 in 20	67	133	Updated 07/00	Lab generated							
trans-1,3-Dichloropropene	EPA8260B	Solid	1 in 20	68	123	Updated 07/00	Lab generated							
Trichloroethene	EPA8260B	Solid	1 in 20	77	126	Updated 07/00	Lab generated	1 in 20	64	131	Updated 07/00	Lab generated	25	D
Toluene	EPA8260B	Solid	1 in 20	68	128	Updated 07/00	Lab generated	1 in 20	69	133	Updated 07/00	Lab generated	25	D
Vinyl chloride	EPA8260B	Solid	1 in 20	75	119	Updated 07/00	Lab generated							
m/p-Xylenes	EPA8260B	Solid	1 in 20	65	131	Updated 07/00	Lab generated							
o-Xylene	EPA8260B	Solid	1 in 20	69	128	Updated 07/00	Lab generated							
1,2-Dichlorethane-d4 (SS)	EPA8260B	Solid	all	76	129	Updated 07/00	Lab generated							
4-Bromofluorobenzene (SS)	EPA8260B	Solid	all	85	131	Updated 07/00	Lab generated							
Toluene-d8 (SS)	EPA8260B	Solid	all	79	121	Updated 07/00	Lab generated							
1,2,4-Trichlorobenzene	EPA8270C	Water	1 in 20	36	108	Updated 07/00	Lab generated	1 in 20	35	111	Updated 07/00	Lab generated	30	D
1,4-Dichlorobenzene	EPA8270C	Water	1 in 20	36	75	Updated 07/00	Lab generated	1 in 20	38	76	Updated 07/00	Lab generated	30	D
2,4-Dinitrotoluene	EPA8270C	Water	1 in 20	47	113	Updated 07/00	Lab generated	1 in 20	48	115	Updated 07/00	Lab generated	30	D
2-Chlorophenol	EPA8270C	Water	1 in 20	54	102	Updated 07/00	Lab generated	1 in 20	27	126	Updated 07/00	Lab generated	30	D
4-Chloro-3-Methylphenol	EPA8270C	Water	1 in 20	44	147	Updated 07/00	Lab generated	1 in 20	26	148	Updated 07/00	Lab generated	30	D
4-Nitrophenol	EPA8270C	Water	1 in 20	11	89	Updated 07/00	Lab generated	1 in 20	8	93	Updated 07/00	Lab generated	30	D
Acenaphthene	EPA8270C	Water	1 in 20	37	106	Updated 07/00	Lab generated	1 in 20	23	124	Updated 07/00	Lab generated	30	D
N-Nitroso-di-n-propylamine	EPA8270C	Water	1 in 20	41	82	Updated 07/00	Lab generated	1 in 20	43	83	Updated 07/00	Lab generated	30	D
Pentachlorophenol	EPA8270C	Water	1 in 20	21	151	Updated 07/00	Lab generated	1 in 20	33	154	Updated 07/00	Lab generated	30	D
Phenol	EPA8270C	Water	1 in 20	21	56	Updated 07/00	Lab generated	1 in 20	15	62	Updated 07/00	Lab generated	30	D
Pyrene	EPA8270C	Water	1 in 20	28	132	Updated 07/00	Lab generated	1 in 20	17	133	Updated 07/00	Lab generated	30	D
2,4,6-Tribromophenol	EPA8270C	Water	all	59	110	Updated 07/00	Lab generated							
2-Fluorobiphenyl	EPA8270C	Water	all	25	121	Updated 07/00	Lab generated							
2-Fluorophenol	EPA8270C	Water	all	22	87	Updated 07/00	Lab generated							
Nitrobenzene-d5	EPA8270C	Water	all	41	99	Updated 07/00	Lab generated							
Phenol-d5	EPA8270C	Water	all	10	64	Updated 07/00	Lab generated							
Terphenyl-d14	EPA8270C	Water	all	26	139	Updated 07/00	Lab generated							
1,2,4-Trichlorobenzene	EPA8270C	Solid	1 in 20	24	121	Updated 07/00	Lab generated	1 in 20	26	114			30	D
1,4-Dichlorobenzene	EPA8270C	Solid	1 in 20	8	113	Updated 07/00	Lab generated	1 in 20	22	96			30	D
2,4-Dinitrotoluene	EPA8270C	Solid	1 in 20	21	123	Updated 07/00	Lab generated	1 in 20	29	118			30	D

Parameter	Anal. Method	Matrix	LCS					Matrix Spikes					RPD	Rem-arks
			Fqcy	LCL	UCL	Status	Remarks	Fqcy	LCL	UCL	Status	Remarks		
2-Chlorophenol	EPA8270C	Solid	1 in 20	16	130	Updated 07/00	Lab generated	1 in 20	22	119			30	D
4-Chloro-3-Methylphenol	EPA8270C	Solid	1 in 20	22	145	Updated 07/00	Lab generated	1 in 20	22	140			30	D
4-Nitrophenol	EPA8270C	Solid	1 in 20	11	142	Updated 07/00	Lab generated	1 in 20	18	135			30	D
Acenaphthene	EPA8270C	Solid	1 in 20	20	124	Updated 07/00	Lab generated	1 in 20	26	119			30	D
N-Nitroso-di-n-propylamine	EPA8270C	Solid	1 in 20	21	106	Updated 07/00	Lab generated	1 in 20	13	114			30	D
Pentachlorophenol	EPA8270C	Solid	1 in 20	30	132	Updated 07/00	Lab generated	1 in 20	29	142			30	D
Phenol	EPA8270C	Solid	1 in 20	15	129	Updated 07/00	Lab generated	1 in 20	15	125			30	D
Pyrene	EPA8270C	Solid	1 in 20	15	133	Updated 07/00	Lab generated	1 in 20	16	151			30	D
2,4,6-Tribromophenol (SS)	EPA8270C	Solid	all	D	127	Updated 07/00	Lab generated						30	D
2-Fluorobiphenyl (SS)	EPA8270C	Solid	all	16	136	Updated 07/00	Lab generated							
2-Fluorophenol (SS)	EPA8270C	Solid	all	22	116	Updated 07/00	Lab generated							
Nitrobenzene-d5 (SS)	EPA8270C	Solid	all	23	110	Updated 07/00	Lab generated							
Phenol-d5 (SS)	EPA8270C	Solid	all	23	114	Updated 07/00	Lab generated							
Terphenyl-d14 (SS)	EPA8270C	Solid	all	22	167	Updated 07/00	Lab generated							
Formaldehyde	EPA8315A	Water	1 in 20	60	135	Updated 07/00	Lab generated	1 in 20	73	129	Updated 07/00	Lab generated	20	D
Acetaldehyde	EPA8315A	Water	1 in 20	64	125	Updated 07/00	Lab generated	1 in 20	64	125	Updated 07/00	Lab generated	20	D
Formaldehyde	EPA8315A	Solid	1 in 20	70	118	Updated 07/00	Lab generated	1 in 20	70	118	Updated 07/00	Lab generated	20	D
Acetaldehyde	EPA8315A	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	20	D
3-Hydroxycarbofuran	EPA8318	Solid	1 in 20	61	147	Updated 07/00	Lab generated	1 in 20	61	147	Updated 07/00	Lab generated	20	D
Aldicarb (TEMIK)	EPA8318	Solid	1 in 20	56	147	Updated 07/00	Lab generated	1 in 20	56	147	Updated 07/00	Lab generated	20	D
Aldicarb Sulfone	EPA8318	Solid	1 in 20	60	154	Updated 07/00	Lab generated	1 in 20	60	154	Updated 07/00	Lab generated	20	D
Aldicarb sulfoxide	EPA8318	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	20	D
Carbaryl	EPA8318	Solid	1 in 20	53	101	Updated 07/00	Lab generated	1 in 20	53	101	Updated 07/00	Lab generated	20	D
Carbofuran (FURADAN)	EPA8318	Solid	1 in 20	68	138	Updated 07/00	Lab generated	1 in 20	68	138	Updated 07/00	Lab generated	20	D
Methiocarb	EPA8318	Solid	1 in 20	71	112	Updated 07/00	Lab generated	1 in 20	71	112	Updated 07/00	Lab generated	20	D
Methomyl	EPA8318	Solid	1 in 20	56	149	Updated 07/00	Lab generated	1 in 20	56	149	Updated 07/00	Lab generated	20	D
Propoxur	EPA8318	Solid	1 in 20	73	133	Updated 07/00	Lab generated	1 in 20	73	133	Updated 07/00	Lab generated	20	D
1,3,5-Trinitrobenzene	EPA8330	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	20	D
1,3-Dinitrobenzene	EPA8330	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	20	D
2,4,6-Trinitrotoluene	EPA8330	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	20	D
2,6-Dinitrotoluene	EPA8330	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	20	D
2,6-Dinitrotoluene	EPA8330	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	20	D
2-Aminodinitrotoluene	EPA8330	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	20	D

Parameter	Anal. Method	Matrix	LCS					Matrix Spikes					RPD	Rem-arks
			Fqcy	LCL	UCL	Status	Remarks	Fqcy	LCL	UCL	Status	Remarks		
2-Nitrotoluene	EPA8330	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	20	D
3-Nitrotoluene	EPA8330	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	20	D
4-Aminodinitrotoluene	EPA8330	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	20	D
4-Nitrotoluene	EPA8330	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	20	D
HMX	EPA8330	Water	1 in 20	21	155	Updated 07/00	Lab generated	1 in 20	21	155	Updated 07/00	Lab generated	20	D
Nitrobenzene	EPA8330	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	20	D
RDX	EPA8330	Water	1 in 20	24	138	Updated 07/00	Lab generated	1 in 20	24	138	Updated 07/00	Lab generated	20	D
Tetryl	EPA8330	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	20	D
1,3,5-Trinitrobenzene	EPA8330	Solid	1 in 20	56	135	Updated 07/00	Lab generated	1 in 20	56	135	Updated 07/00	Lab generated	20	D
1,3-Dinitrobenzene	EPA8330	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	20	D
2,4,6-Trinitrotoluene	EPA8330	Solid	1 in 20	53	142	Updated 07/00	Lab generated	1 in 20	53	142	Updated 07/00	Lab generated	20	D
2,4-Dinitrotoluene	EPA8330	Solid	1 in 20	37	133	Updated 07/00	Lab generated	1 in 20	37	133	Updated 07/00	Lab generated	20	D
2,6-Dinitrotoluene	EPA8330	Solid	1 in 20	34	164	Updated 07/00	Lab generated	1 in 20	34	164	Updated 07/00	Lab generated	20	D
2-Aminodinitrotoluene	EPA8330	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	20	D
2-Nitrotoluene	EPA8330	Solid	1 in 20	56	156	Updated 07/00	Lab generated	1 in 20	56	156	Updated 07/00	Lab generated	20	D
3-Nitrotoluene	EPA8330	Solid	1 in 20	79	139	Updated 07/00	Lab generated	1 in 20	79	139	Updated 07/00	Lab generated	20	D
4-Aminodinitrotoluene	EPA8330	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	20	D
4-Nitrotoluene	EPA8330	Solid	1 in 20	56	174	Updated 07/00	Lab generated	1 in 20	56	174	Updated 07/00	Lab generated	20	D
HMX	EPA8330	Solid	1 in 20	68	147	Updated 07/00	Lab generated	1 in 20	68	147	Updated 07/00	Lab generated	20	D
Nitrobenzene	EPA8330	Solid	1 in 20	47	158	Updated 07/00	Lab generated	1 in 20	47	158	Updated 07/00	Lab generated	20	D
RDX	EPA8330	Solid	1 in 20	43	154	Updated 07/00	Lab generated	1 in 20	43	154	Updated 07/00	Lab generated	20	D
Tetryl	EPA8330	Solid	1 in 20	46	152	Updated 07/00	Lab generated	1 in 20	46	152	Updated 07/00	Lab generated	20	D
Total Organic Halides	SM5320B	Water	1 in 20	76	126	Updated 07/00	Lab generated	1 in 20	73	129	Updated 07/00	Lab generated	15	C
Total Organic Halides	EPA9020B	Water	1 in 20	73	125	Updated 07/00	Lab generated	1 in 10	73	129	Updated 07/00	Lab generated	20	A
Total Organic Halides	EPA9020B	Solid	1 in 20	81	117	Updated 07/00	Lab generated	1 in 10	68	125	Updated 07/00	Lab generated	20	A
Total Organic Carbon	SM5310C	Water	1 in 10	90	110	Final	Set at the lab	1 in 10	80	117	Updated 07/00	Lab generated	20	A
Perchlorate	EPA314	Water	1 in 20	85	115	Final	Mandatory limits	1 in 20	80	120	Final	Mandatory limits	15	C
Perchlorate	EPA314M	Solid	1 in 20	85	115	Final	Mandatory limits	1 in 20	65	122	Updated 07/00	Lab generated	20	D
NDMA	EPA1625M	Water	1 in 10	70	130	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	20	D

Parameter	Anal. Method	Matrix	LCS					Matrix Spikes						Rem-arks
			Fqcy	LCL	UCL	Status	Remarks	Fqcy	LCL	UCL	Status	Remarks		
Silver	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Arsenic	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Boron	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Barium	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Beryllium	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Calcium	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Cadmium	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Cobalt	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Chromium, total	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Copper	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Iron	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Potassium	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Lithium	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Magnesium	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Manganese	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Molybdenum	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Sodium	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Nickel	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Phosphorus	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Lead	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Antimony	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Selenium	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Silica	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Tin	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Titanium	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Thallium	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Vanadium	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Zinc	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Silver	EPA200.8	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Aluminum	EPA200.8	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Arsenic	EPA200.8	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Barium	EPA200.8	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Beryllium	EPA200.8	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Cadmium	EPA200.8	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Cobalt	EPA200.8	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A

Parameter	Anal. Method	Matrix	LCS					Matrix Spikes						Rem-
			Fqcy	LCL	UCL	Status	Remarks	Fqcy	LCL	UCL	Status	Remarks		arks
Chromium, total	EPA200.8	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Copper	EPA200.8	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Manganese	EPA200.8	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Molybdenum	EPA200.8	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Nickel	EPA200.8	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Lead	EPA200.8	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Antimony	EPA200.8	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Selenium	EPA200.8	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Thallium	EPA200.8	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Vanadium	EPA200.8	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Zinc	EPA200.8	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Selenium	200.8Hyd	Water	1 in 10	90	110	Final	Mandatory limits	1 in 10	90	110	Final	Mandatory Limits	10	A
Bromide	EPA300.0	Water	1 in 20	90	110	Final	Mandatory limits	1 in 10	80	109	updated 07/00	Lab generated	20	A
Chloride	EPA300.0	Water	1 in 20	90	110	Final	Mandatory limits	1 in 10	66	130	updated 07/00	Lab generated	20	A
Fluoride	EPA300.0	Water	1 in 20	90	110	Final	Mandatory limits	1 in 10	81	112	updated 07/00	Lab generated	20	A
Nitrate as NO3	EPA300.0	Water	1 in 20	90	110	Final	Mandatory limits	1 in 10	76	113	updated 07/00	Lab generated	20	A
Nitrite as NO2	EPA300.0	Water	1 in 20	90	110	Final	Mandatory limits	1 in 10	96	124	updated 07/00	Lab generated	20	A
o-Phosphate as PO4	EPA300.0	Water	1 in 20	90	110	Final	Mandatory limits	1 in 10	86	113	updated 07/00	Lab generated	20	A
Sulfate	EPA300.0	Water	1 in 20	90	110	Final	Mandatory limits	1 in 10	76	131	updated 07/00	Lab generated	20	A
Chlorate	EPA300.0	Water	1 in 20	90	110	Final	Mandatory limits	1 in 10	75	125	Interim	Not enough data	20	A
Chlorite	EPA300.0	Water	1 in 20	90	110	Final	Mandatory limits	1 in 10	75	125	Interim	Not enough data	20	A
Bromate	EPA300.0	Water	1 in 20	90	110	Final	Mandatory limits	1 in 10	75	125	Interim	Not enough data	20	A
Silver	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Arsenic	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Boron	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Barium	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Beryllium	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Calcium	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Cadmium	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Cobalt	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Chromium, total	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Copper	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Iron	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C

Parameter	Anal. Method	Matrix	LCS					Matrix Spikes						Remarks
			Fqcy	LCL	UCL	Status	Remarks	Fqcy	LCL	UCL	Status	Remarks		
Potassium	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Lithium	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Magnesium	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Manganese	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Molybdenum	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Sodium	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Nickel	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Phosphorus	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Lead	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Antimony	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Selenium	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Silica	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Tin	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Titanium	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Thallium	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Vanadium	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Zinc	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Silver	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Arsenic	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Boron	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Barium	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Beryllium	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Calcium	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Cadmium	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Cobalt	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Chromium, total	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Copper	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Iron	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Potassium	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Lithium	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Magnesium	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Manganese	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Molybdenum	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Sodium	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Nickel	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Phosphorus	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C

Parameter	Anal. Method	Matrix	LCS					Matrix Spikes						Rem- arks
			Fqcy	LCL	UCL	Status	Remarks	Fqcy	LCL	UCL	Status	Remarks		
Lead	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Antimony	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Selenium	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Silica	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Tin	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Titanium	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Thallium	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Vanadium	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Zinc	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Silver	EPA6020	Water	1 in 20	76	127	Updated 07/00	Lab generated	1 in 20	76	127	Updated 07/00	Lab generated	20	A
Aluminum	EPA6020	Water	1 in 20	83	116	Updated 07/00	Lab generated	1 in 20	83	116	Updated 07/00	Lab generated	20	A
Arsenic	EPA6020	Water	1 in 20	86	114	Updated 07/00	Lab generated	1 in 20	86	114	Updated 07/00	Lab generated	20	A
Barium	EPA6020	Water	1 in 20	80	116	Updated 07/00	Lab generated	1 in 20	80	116	Updated 07/00	Lab generated	20	A
Beryllium	EPA6020	Water	1 in 20	85	113	Updated 07/00	Lab generated	1 in 20	85	113	Updated 07/00	Lab generated	20	A
Cadmium	EPA6020	Water	1 in 20	86	115	Updated 07/00	Lab generated	1 in 20	86	115	Updated 07/00	Lab generated	20	A
Cobalt	EPA6020	Water	1 in 20	78	118	Updated 07/00	Lab generated	1 in 20	78	118	Updated 07/00	Lab generated	20	A
Chromium, total	EPA6020	Water	1 in 20	85	117	Updated 07/00	Lab generated	1 in 20	85	117	Updated 07/00	Lab generated	20	A
Copper	EPA6020	Water	1 in 20	78	120	Updated 07/00	Lab generated	1 in 20	78	120	Updated 07/00	Lab generated	20	A
Manganese	EPA6020	Water	1 in 20	75	125	Interim	Not enough data	1 in 20	75	125	Interim	Not enough data	20	A
Molybdenum	EPA6020	Water	1 in 20	85	113	Updated 07/00	Lab generated	1 in 20	85	113	Updated 07/00	Lab generated	20	A
Nickel	EPA6020	Water	1 in 20	78	119	Updated 07/00	Lab generated	1 in 20	78	119	Updated 07/00	Lab generated	20	A
Lead	EPA6020	Water	1 in 20	77	127	Updated 07/00	Lab generated	1 in 20	77	127	Updated 07/00	Lab generated	20	A
Antimony	EPA6020	Water	1 in 20	80	126	Updated 07/00	Lab generated	1 in 20	80	126	Updated 07/00	Lab generated	20	A
Selenium	EPA6020	Water	1 in 20	79	123	Updated 07/00	Lab generated	1 in 20	79	123	Updated 07/00	Lab generated	20	A
Strontium	EPA6020	Water	1 in 20	75	125	Interim	Not enough data	1 in 20	75	125	Interim	Not enough data	20	A
Tiitanium	EPA6020	Water	1 in 20	75	125	Interim	Not enough data	1 in 20	75	125	Interim	Not enough data	20	A
Thallium	EPA6020	Water	1 in 20	86	112	Updated 07/00	Lab generated	1 in 20	86	112	Updated 07/00	Lab generated	20	A
Vanadium	EPA6020	Water	1 in 20	78	117	Updated 07/00	Lab generated	1 in 20	78	117	Updated 07/00	Lab generated	20	A
Zinc	EPA6020	Water	1 in 20	81	121	Updated 07/00	Lab generated	1 in 20	81	121	Updated 07/00	Lab generated	20	A
Tin	EPA6020	Water	1 in 20	75	125	Interim	Not enough data	1 in 20	75	125	Interim	Not enough data	20	A
Tellurium	EPA6020	Water	1 in 20	75	125	Interim	Not enough data	1 in 20	75	125	Interim	Not enough data	20	A
Silver	EPA6020	Solid	1 in 20	76	127	Updated 07/00	Lab generated	1 in 20	72	137	Updated 07/00	Lab generated	20	A
Aluminum	EPA6020	Solid	1 in 20	83	116	Updated 07/00	Lab generated	1 in 20	75	125	Interim	Not enough data	20	A
Arsenic	EPA6020	Solid	1 in 20	86	114	Updated 07/00	Lab generated	1 in 20	80	114	Updated 07/00	Lab generated	20	A
Barium	EPA6020	Solid	1 in 20	80	116	Updated 07/00	Lab generated	1 in 20	62	135	Updated 07/00	Lab generated	20	A

Parameter	Anal. Method	Matrix	LCS					Matrix Spikes						Rem-arks
			Fqcy	LCL	UCL	Status	Remarks	Fqcy	LCL	UCL	Status	Remarks		
Beryllium	EPA6020	Solid	1 in 20	85	113	Updated 07/00	Lab generated	1 in 20	77	116	Updated 07/00	Lab generated	20	A
Cadmium	EPA6020	Solid	1 in 20	86	115	Updated 07/00	Lab generated	1 in 20	78	116	Updated 07/00	Lab generated	20	A
Cobalt	EPA6020	Solid	1 in 20	78	118	Updated 07/00	Lab generated	1 in 20	69	120	Updated 07/00	Lab generated	20	A
Chromium, total	EPA6020	Solid	1 in 20	85	117	Updated 07/00	Lab generated	1 in 20	72	121	Updated 07/00	Lab generated	20	A
Copper	EPA6020	Solid	1 in 20	78	120	Updated 07/00	Lab generated	1 in 20	61	133	Updated 07/00	Lab generated	20	A
Manganese	EPA6020	Solid	1 in 20	75	125	Interim	Not enough data	1 in 20	75	125	Interim	Not enough data	20	A
Molybdenum	EPA6020	Solid	1 in 20	85	113	Updated 07/00	Lab generated	1 in 20	76	118	Updated 07/00	Lab generated	20	A
Nickel	EPA6020	Solid	1 in 20	78	119	Updated 07/00	Lab generated	1 in 20	67	120	Updated 07/00	Lab generated	20	A
Lead	EPA6020	Solid	1 in 20	77	127	Updated 07/00	Lab generated	1 in 20	71	124	Updated 07/00	Lab generated	20	A
Antimony	EPA6020	Solid	1 in 20	80	126	Updated 07/00	Lab generated	1 in 20	69	125	Updated 07/00	Lab generated	20	A
Selenium	EPA6020	Solid	1 in 20	79	123	Updated 07/00	Lab generated	1 in 20	75	117	Updated 07/00	Lab generated	20	A
Strontium	EPA6020	Solid	1 in 20	75	125	Interim	Not enough data	1 in 20	75	125	Interim	Not enough data	20	A
Tiitanium	EPA6020	Solid	1 in 20	75	125	Interim	Not enough data	1 in 20	75	125	Interim	Not enough data	20	A
Thallium	EPA6020	Solid	1 in 20	86	112	Updated 07/00	Lab generated	1 in 20	68	120	Updated 07/00	Lab generated	20	A
Vanadium	EPA6020	Solid	1 in 20	78	117	Updated 07/00	Lab generated	1 in 20	63	127	Updated 07/00	Lab generated	20	A
Zinc	EPA6020	Solid	1 in 20	81	121	Updated 07/00	Lab generated	1 in 20	72	126	Updated 07/00	Lab generated	20	A
Tin	EPA6020	Solid	1 in 20	75	125	Interim	Not enough data	1 in 20	75	125	Interim	Not enough data	20	A
Tellurium	EPA6020	Solid	1 in 20	75	125	Interim	Not enough data	1 in 20	75	125	Interim	Not enough data	20	A
Mercury	EPA245.1	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	20	A
Mercury	EPA7070A	Water	1 in 20	90	110	Final-(QCS)	Mandatory limits	1 in 20	79	124	Updated 07/00	Lab generated	20	D
Mercury	EPA7471A	Solid	1 in 20	90	110	Final-(QCS)	Mandatory limit	1 in 20	67	130	Updated 07/00	Lab generated	20	D
Oil&Grease (HEM)	EPA1664A	Water	1 in 20	78	114	Final (OPR)	Mandatory limits	1 in 20	78	114	Final	Mandagtory limits	--	
Oil&Grease (SGT-HEM)	EPA1664A	Water	1 in 20	64	132	Final (OPR)	Mandatory limits	1 in 20	64	132	Final	Mandagtory limits	--	
Cyanide (colorimetric)	SM4500CN E	Water	1 in 10	78	123	Updated 07/00	Lab generated	1 in 10	78	123	Updated 07/00	Lab generated	20	A
Cyanide (electrode)	SM4500CN F	Water	1 in 10	80	109	Updated 07/00	Lab genrated	1 in 10	80	109	Updated 07/00	Lab generated	20	A
Cyanide (EPA 9010)	EPA 9010	Water	1 in 20	85	115	Final	Mandatory limits	1 in 20	70	130	Interim	Not enough data	20	C
Cyanide (EPA 9010)	EPA 9010	Solid	1 in 20	85	115	Final	Mandatory limits	1 in 20	70	130	Interim	Not enough data	20	C
Total Kjeldahl Nitrogen	SM4500NB	Water	1 in 20	69	116	Updated 07/00	Lab generated	—	—	—	Final	Not required	15	D

Parameter	Anal. Method	Matrix	LCS					Matrix Spikes						Rem-arks
			Fqcy	LCL	UCL	Status	Remarks	Fqcy	LCL	UCL	Status	Remarks		
Total Dissolved Solids	SM2540C	Water	1 in 20	93	105	Updated 07/00	Lab generated	--	--	--	Final	Not available	15	E
Total Suspended Solids	EPA160.2	Water	--	--	--	Final	Not available	--	--	--	Final	Not available		
Alkalinity	SM2320B	Water	1 in 20	94	111	Updated 07/00	Lab generated	--	--	--	Final	Not available	12	E
Ammonia	SM4500NH 3D	Water	1 in 20	79	119	Updated 07/00	Lab generated	--	--	--	Final	Not available	14	E
BOD	SM5210B	Water	1 in 20	85	115	Final (Glu:a)	Mandatory limits	--	--	--	Final	Not available	18	E
Chloride - titration	ASTMD512	Water	1 in 20	81	110	Updated 07/00	Lab generated	--	--	--	Final	Not required	15	D
Chlorine - residual	SM4500Cl G	Water	1 in 20	81	115	Updated 07/00	Lab generated	--	--	--	Final	Not required	12	E
COD	EPA410.4	Water	1 in 20	90	110	Final	Mandatory limits	1 in 10	90	110	Final	Mandatory limits	15	D
Chromium, hexavalent	EPA7196 A	Water	1 in 10	89	110	Updated 07/00	Lab generated	1 in 10	89	110	Updated 07/00	Lab generated	12	E
Chromium, hexavalent	SM3500CrD	Water	1 in 20	85	113	Updated 07/00	Lab generated	1 in 20	85	113	Updated 07/00	Lab generated	10	E
Chromium, hexavalent	3060/7196A	Solid	1 in 20	80	120	Final	Mandatory Limits	1 in 20	75	125	Final	Mandatory limits	20	C
conductivity	SM2510B	Water	1 in 20	96	102	Updated 07/00	Lab generated	--	--	--	Final	Not required	5	E
Hydrogen peroxide	FMC	Water	1 in 20	70	127	Updated 07/00	Lab generated	1 in 20	70	127	Updated 07/00	Lab generated	13	E
Surfactants	SM5540C	Water	1 in 20	79	124	Updated 07/00	Lab generated	--	--	--	Final	Not required	15	E
NID	SM5540D	Water	1 in 20	64	139	Updated 07/00	Lab generated	--	--	--	Final	Not required	20	D
Total Phosphorus	SM4500PD	Water	1 in 20	73	128	Updated 07/00	Lab generated	1 in 20	73	128	Updated 07/00	Lab generated	15	E
Phenolics	EPA420.1	Water	1 in 20	73	119	Updated 07/00	Lab generated	1 in 20	73	119	Updated 07/00	Lab generated	13	E
Turbidity	EPA180.1	Water	1 in 10	90	110	Final	Mandatory limits	--	--	--	Final	Not required	10	D
UV254	SM5910	Water	1 in 10	90	110	See SOP		--	--	--	Final	Not required	10	D

Parameter	Anal. Method	Matrix	LCS					Matrix Spikes						Rem-arks
			Fqcy	LCL	UCL	Status	Remarks	Fqcy	LCL	UCL	Status	Remarks		
o-Phosphate	EPA 365.3	Water	--	--	--			1 in 10	70	130	Interim	Not enough data	20	D
Hydrolixable po4	EPA 365.3	Water	1 in 10	70	130	Interim	Not enough data	--	--	--				
Thiosulfate	LACSD253	Water	1 in 10	70	130	Interim	Not enough data	--	--	--	Final	Not required	20	D
Odor		Water	--	--	--			--	--	--	Final	Not required	20	D
Color		Water	--	--	--			--	--	--	Final	Not required	20	D
Sulfide_dissolved		Water	1 in 10	70	130	Interim	Not enough data	--	--	--	Final	Not required	20	D
Flash Point	EPA1010	all	1 in 10	98	102	Final	Mandatory limits	--	--	--	Final	Not required	20	D
Residual Dissolved Solids		Water	--	--	--	Final	Not available	--	--	--	Final	Not available	15	D

A	Not specified in method
B	For LFB/LFB dup
C	Mandatory Limits
D	Set by the lab

APPENDIX 9

INITIAL DEMONSTRATION OF CAPABILITY

A demonstration of capability (DOC) is made prior to using any test method, and at any time there is a significant change in instrument type, personnel or test method.

All demonstrations are documented through the use of the form in this appendix.

The following steps are performed.

a) A quality control sample is obtained from an outside source. If not available, the QC sample is prepared by the laboratory using stock standards that are prepared independently from those used in instrument calibration.
b) The analyte(s) are diluted in a volume of clean matrix sufficient to prepare four aliquots at the concentration specified, or if unspecified, to a concentration approximately 10 times the laboratory-calculated detection limit.
c) Four aliquots are prepared and analyzed according to the test method either concurrently or over a period of days.
d) Using all of the results, the mean recovery and the standard deviation is calculated for each parameter of interest.
e) The calculated mean and standard deviation are compared to the corresponding acceptance criteria for precision and accuracy in the test method (if applicable) or in laboratory generated acceptance criteria (if there are not established mandatory criteria). If all parameters meet the acceptance criteria, the analysis of the actual samples may begin. If any one of the parameters does not meet the acceptance criteria, the analysis, the performance is unacceptable for that parameter.
f) When one or more of the tested parameters fail at least one of the acceptance criteria, the laboratory repeats the test for all parameters that failed to meet criteria. If repeated failure occurs, the laboratory will locate and correct the source of the problem and repeat the test for all compounds of interest beginning with c)

CERTIFICATION STATEMENT

The following certification statement is used to document the completion of each demonstration of capability. A copy of the certification statement is retained in the personnel records of each affected employee.

CERTIFICATION STATEMENT FOR METHOD VALIDATION

INITIAL DEMONSTRATION OF CAPABILITY CERTIFICATION STATEMENT

Date:__________

Weck Laboratories, Inc.
14859 E. Clark Avenue
City of Industry, CA 91745

Analyst Name:______________________________

Matrix:______________________________

Method and analyte:______________________________

We, the undersigned, CERTIFY that:

1. The analyst identified above, using the cited test method, which is in use at this facility for the analyses of samples under the National Laboratory Accreditation Program, have met the Initial Demonstration of Capability.
2. The test method was performed by the analyst identified on this certification.
3. A copy of the laboratory specific SOPs are available for all personnel on site.
4. The data associated with the initial demonstration of capability are true, accurate, complete and self-explanatory (1)
5. All raw data (including a copy of this certification form) necessary to reconstruct and validate these analyses have been retained at the facility, and, the associated information is well-organized and available for review by authorized inspectors.

Technical Director's Name	Signature	Date
QA Officer's name	Signature	Date

(1): True: Consistent with supporting data. Accurate: Based on good laboratory practices consistent with sound scientific principles/practices. Complete: Includes the results of all supporting performance testing. Self-explanatory: Data properly labeled and stored so that the results are clear and require no additional explanation.

Corrective Action Report

QUALITY ASSURANCE IRREGULARITY REPORT

Date: ______________ Method: ______________________________

Sample ID Number(s) Involved: ______________________________

Nature of QA Irregularity: ______________________________

CORRECTIVE ACTION

Steps taken to investigate irregularity:

Explanation of probable cause irregularity:

Steps taken to prevent future occurrence, if applicable:

Comments:

Were samples reanalyzed and acceptable QC obtained: **YES - NO**

Were samples reported with qualifiers: **YES - NO**

Analyst name(s): ______________________

Signed: ______________________ Date: __________

Analyst

Signed: ______________________ Date: __________

QA Officer

APPENDIX 11

Laboratory Accreditations

- State of California ELAP #1132
- State of Oregon CA211
- Los Angeles County Sanitation Districts Industrial Wastewater Testing Number 10143
- South Coast Air Quality Management District Ambient air testing Certificate number 93LA107

APPENDIX 12

Flags used for Data Qualifiers

Use these codes to enter in the single-digit field "Flag" of the LIMS. For other QC qualifier use the case narrative field of the QC section.

B: Compound detected in the blank. Sample result equal or less than 10 times the concentration in the blank.

J: Estimated value, detected but below the reporting limit

H: Estimated value, concentration over the calibration range.

R: Result is suspect, LCS recovery greater than the upper control limit

L: Result is suspect, LCS recovery lower than the control limit

Q: QC result out of acceptance limits

T: Trace detection, detected but below the reporting limit

STATE OF CALIFORNIA
DEPARTMENT OF HEALTH SERVICES

ENVIRONMENTAL LABORATORY CERTIFICATION

is hereby granted to

WECK LABORATORIES, INC.

14859 EAST CLARK AVENUE
INDUSTRY, CALIFORNIA

to conduct analyses of environmental samples as specified in the "List of Approved Fields of Testing and Analytes" which accompanies this Certificate.

This Certificate is granted in accordance with provisions of Section 1010, et seq. (New Section 100825) of the Health and Safety Code.

Certificate No.: 1132

Expiration Date: 03/31/2002

Issued on: 03/01/2000
at Berkeley, California,
subject to forfeiture or revocation.

George C. Kulasingam, Ph.D.
Manager
Environmental Laboratory Accreditation Program

CA[illegible]ORNIA DEPARTMENT OF HEALTH S[illegible]ICES
ENVIRON[illegible]TAL LABORATORY ACCREDITA[illegible]N PROGRAM
List of Approved Fields of Testing and Analytes

WECK LABORATORIES, INC.
14859 EAST CLARK AVENUE
INDUSTRY, CA

PHONE No. (626) 336-2139
COUNTY LOS ANGELES

Certificate No. 1132
Expiration Date 03/31/2002

01 Microbiology of Drinking Water and Wastewater

01.01A	Total and Fecal Coliform in Drinking Water by Multiple Tube Fermentation
01.03	Total Coliform and E. coli in Drinking Water by Chromogenic/Fluorogenic Substrate
01.05	Heterotrophic Plate Count
01.06	Total Coliform in Wastewater by Multiple Tube Fermentation
01.07	Fecal Coliform in Wastewater by Multiple Tube Fermentation
01.12	Total Coliform in Source Water by Multiple Tube Fermentation
01.13	Fecal Coliform in Source Water by Multiple Tube Fermentation
01.16	Total Coliform in Source Water by Chromogenic/Fluorogenic Substrate

02 Inorganic Chemistry and Physical Properties of Drinking Water

02.01	Alkalinity
02.02	Calcium
02.03	Chloride
02.04	Corrosivity
02.05	Fluoride
02.06	Hardness
02.07	Magnesium
02.08	MBAS
02.09	Nitrate
02.10	Nitrite
02.11	Sodium
02.12	Sulfate
02.13	Total Filterable Residue and Conductivity
02.16	Phosphate, ortho
02.17	Silica
02.18	Cyanide
02.19	Potassium

03 Analysis of Toxic Chemical Elements in Drinking Water

03.01	Arsenic
03.02	Barium
03.03	Cadmium
03.04	Chromium, total
03.05	Copper
03.06	Iron
03.07	Lead
03.08	Manganese
03.09	Mercury
03.10	Selenium
03.11	Silver
03.12	Zinc
03.13	Aluminum
03.15	Antimony
03.16	Beryllium
03.17	Nickel
03.18	Thallium
03.19	Chromium (VI)

04 Organic Chemistry of Drinking Water by GC/MS

04.02	EPA Method 524.2
04.03	EPA Method 525.2
04.06	EPA Method 548.1 Endothall
04.07	EPA Method 524.2 Trihalomethanes only

05 Organic Chemistry of Drinking Water (excluding GC/MS)

05.06	EPA Method 504.1 EDB, DBCP
05.07	EPA Method 505
05.09	EPA Method 507 N,P Pesticides
05.10A	EPA Method 508
05.10B	EPA Method 508.1
05.11	EPA Method 508A PCBs Quantitation
05.13-2	EPA Method 515.2 Chlorophenoxy Herbicides
05.14-1	EPA Method 531.1 Carbamates
05.15-1	EPA Method 547 Glyphosate
05.16	EPA Method 548.1 Endothall by GC
05.17-1	EPA Method 549.1 Diquat and Paraquat
05.20A-1	EPA Method 551 Chlorinated Hydrocarbons
05.21A	EPA Method 552.1 Dalapon
05.26-1	EPA Method 552.2 Haloacetic Acids

09 Physical Properties Testing of Hazardous Waste

09.01	Ignitability by Flashpoint Determination
09.02	Corrosivity - pH Determination
09.03	Corrosivity - towards steel
09.04	Reactivity

10 Inorganic Chemistry and Toxic Chemical Elements of Hazardous Waste

10.01	Antimony
10.02	Arsenic
10.03	Barium
10.04	Beryllium
10.05	Cadmium
10.06	Chromium, total
10.07	Cobalt
10.08	Copper
10.09	Lead
10.10	Mercury
10.11	Molybdenum
10.12	Nickel
10.13	Selenium
10.14	Silver
10.15	Thallium
10.16	Vanadium
10.17	Zinc
10.18	Chromium (VI)
10.19	Cyanide
10.20	Fluoride
10.21	Sulfide
10.99	Others

11 Extraction Tests of Hazardous Waste

11.01	California Waste Extraction Test (WET)

11.02	Extraction Procedure Toxicity
11.03	Toxicity Characteristic Leaching Procedure (TCLP) All Classes

12 Organic Chemistry of Hazardous Waste by GC/MS

12.01	EPA Method 8240B Volatile Compounds
12.03	EPA Method 8270B
12.06	EPA Method 8260A

13 Organic Chemistry of Hazardous Waste (excluding GC/MS)

13.01	EPA Method 8010B Halogenated Volatiles
13.02	EPA Method 8015B Nonhalogenated Volatiles
13.04	EPA Method 8030A
13.05	EPA Method 8041 Phenols
13.06B	EPA Method 8061
13.07B	EPA Method 8081
13.08	EPA Method 8091 Nitroaromatics and Cyclic Ketones
13.09	EPA Method 8100 Polynuclear Aromatic Hydrocarbons
13.10B	EPA Method 8121 Chlorinated Hydrocarbons
13.11B	EPA Method 8141A
13.12B	EPA Method 8151
13.14A	EPA Method 632
13.14B	EPA Method 8318
13.15	Total Petroleum Hydrocarbons - Gasoline (LUFT)
13.16	Total Petroleum Hydrocarbons - Diesel (LUFT)
13.17	EPA Method 418.1 TRPH - Screening by IR
13.18	EPA Method 8011 EDB and DBCP
13.19	EPA Method 8021A
13.23	EPA Method 8330 Nitroaromatics and Nitramines
13.26	EPA Method 8031 Acrylonitrile
13.27	EPA Method 8032A Acrylamide
13.28	EPA Method 8316 Acrylamide, Acrylonitrile, Acrolein
13.29	EPA Method 8315A Carbonyl Compounds
13.31	EPA Method 8331 Tetrazene
13.99	Others

16 Wastewater Inorganic Chemistry, Nutrients and Demand

16.01	Acidity
16.02	Alkalinity
16.03	Ammonia
16.04	Biochemical Oxygen Demand
16.05	Boron
16.06	Bromide
16.07	Calcium
16.09	Chemical Oxygen Demand
16.10	Chloride
16.11	Chlorine Residual, total
16.12	Cyanide
16.13	Cyanide amenable to Chlorination
16.14	Fluoride
16.15	Hardness
16.16	Kjeldahl Nitrogen
16.17	Magnesium
16.18	Nitrate
16.19	Nitrite

16.20	Oil and Grease
16.21	Organic Carbon
16.22	Oxygen, Dissolved
16.23	pH
16.24	Phenols
16.25	Phosphate, ortho
16.26	Phosphorus, total
16.27	Potassium
16.28	Residue, Total
16.29	Residue, Filterable (Total Dissolved Solids)
16.30	Residue, Nonfilterable (Total Suspended Solids)
16.31	Residue, Settleable (Settleable Solids)
16.32	Residue, Volatile
16.33	Silica
16.34	Sodium
16.35	Specific Conductance
16.36	Sulfate
16.37	Sulfide (includes total & soluble)
16.38	Sulfite
16.39	Surfactants (MBAS)
16.40	Tannin and Lignin
16.41	Turbidity
16.44	Total Recoverable Petroleum Hydrocarbons by IR
16.45	Total Organic Halides

17 Toxic Chemical Elements in Wastewater

17.01	Aluminum
17.02	Antimony
17.03	Arsenic
17.04	Barium
17.05	Beryllium
17.06	Cadmium
17.07	Chromium (VI)
17.08	Chromium, total
17.09	Cobalt
17.10	Copper
17.11	Gold
17.13	Iron
17.14	Lead
17.15	Manganese
17.16	Mercury
17.17	Molybdenum
17.18	Nickel
17.20	Palladium
17.21	Platinum
17.22	Rhodium
17.24	Selenium
17.25	Silver
17.27	Thallium
17.28	Tin
17.29	Titanium
17.30	Vanadium
17.31	Zinc

18	**Organic Chemistry of Wastewater by GC/MS**
18.01	EPA Method 624
18.02	EPA Method 625
19	**Organic Chemistry of Wastewater (excluding GC/MS)**
19.01	EPA Method 601
19.02	EPA Method 602
19.03	EPA Method 603 Acrolein, Acrylonitrile
19.04	EPA Method 604
19.05	EPA Method 605 Benzidine
19.06	EPA Method 606 Phthalate Esters
19.07	EPA Method 607 Nitrosamines
19.08	EPA Method 608
19.09	EPA Method 609 Nitroaromatics and Cyclic Ketones
19.10	EPA Method 610
19.11	EPA Method 611 Haloethers
19.12	EPA Method 632 Carbamates
19.14	EPA Method 612 Chlorinated Hydrocarbons

Attachment D

Field Audit Checklist

Date(s) Completed:

Person Performing the Audit:

Plan	**Check here if Plan was Properly Followed**	**Check here if Corrections were made and Explain Below**
Proper Sampling Procedures Followed:		
Timing of Sampling		
Location of Sample Sites		
Frequency of Sampling		
Proper Sample Handling Procedures Followed:		
Refrigeration		
Protection from Contamination		
Speed of shipment to Lab		
Proper Packing for Shipment to Lab		
Proper Documentation:		
Field Sampling Forms		
Sample labels		
Master Sampling Logbook		
Chain-of-Custody Forms		

Explanation of Corrections Made:

Attachment E

Glossary of Certain Quality Control Terms[♦]

"Equipment Rinsate or Blank – A sample of analyte-free media which has been used to rinse the sampling equipment. It is collected after completion of decontamination and prior to sampling. This blank is useful in documenting adequate decontamination of sampling equipment."

"Field Blank – An aliquot of reagent water or other reference matrix that is placed in a sample container in the laboratory or the field, and treated as a sample in all respects, including exposure to sampling site conditions, storage, preservation and all analytical procedures. The purpose of the field blank is to determine if the field or sample transporting procedures and environments have contaminated the sample. This aliquot is a combined field/equipment blank if it is also used to rinse the sampling equipment."

"Field Duplicates – Independent samples that are collected as close as possible to the same point in space and time. They are two separate samples taken from the same source, stored in separate containers, and analyzed independently. These duplicates are useful in documenting the precision of the sampling process."

"Field Split Samples – One sample is taken in one container and split into two containers: one sent to the normal lab and one sent to another lab. If both labs turn in the same exact results then the proficiency of the lab normally used is proven."

"Matrix Spike – An aliquot of sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix."

[♦] Quoted items are from the Delaware River Basin Commission.

<u>End of Solano Irrigation District Interim NPDES Monitoring Plan</u>

Attachment F

Mitigation Measures of Potential Adverse Effects

Measures:

The application of aquatic herbicides to irrigation water may create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials however such hazards are substantially mitigated. Mitigation for the safe transport of aquatic herbicides: chemical transport vehicles are inspected regularly and a driver with a hazardous materials endorsement on his driver's license is used, as needed; Department of Transportation regulations are followed; and SID has an excellent record due to training and company wide efforts toward safety. Mitigation for the safe use of aquatic herbicides: yearly herbicide use training is conducted, only applicators holding a valid Qualified Applicator's Certificate apply the aquatic herbicides, herbicide labels are followed, applicable laws and regulations are followed, Pest Control Recommendations are used. All giving an excellent record regarding herbicide use. SID does not dispose of hazardous materials, but it does properly dispose of empty containers as per the Department of Pesticide Regulation laws and regulations.

The application of aquatic herbicides to irrigation water may create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment however such a hazard is substantially mitigated. This is because chemical transport vehicles are inspected regularly and a driver with a hazardous materials endorsement on his driver's license is used as needed; Department of Transportation regulations are followed; SID has an excellent driving and loading record due to training and company wide efforts toward safety; yearly herbicide use training is conducted; only applicators holding a valid Qualified Applicator's Certificate apply the aquatic herbicides; herbicide labels are followed; applicable laws and regulations are followed; Pest Control Recommendations are used; and herbicides are properly stored. The District's past history of safety has been excellent in the proper storage, proper transport, and proper application.

The addition of aquatic herbicides to irrigation water will exceed the California Toxic Rule standard within the canal to which applied for a short time period; however, because SID keeps treated water within its systems and minimizes charge water releases, and because SID follows FIFRA etc, any impact will be less than significant with these mitigations, and because we operate under the Interim NPDES Permit, and because we monitor any charge water releases under our Interim NPDES Permit and because we have had independent monitoring conducted by the San Francisco Estuary Institute (SFEI) these violations are adequately mitigated. (Please see SID Monitoring Plan attached as **Tab B**)

The application of aquatic herbicides to irrigation water could have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory however because of District's application protocol and monitoring plan (Please see SID Monitoring Plan attached as **Tab B)** the threat to these species is sufficiently mitigated.

The application of aquatic herbicides to irrigation water could have impacts that are individually limited, but cumulatively considerable ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects) however because of District's application protocol and monitoring plan (Please see SID Monitoring Plan attached as **Tab B**) the threat of these "cumulative effects to the environment is sufficiently mitigated.

The application of aquatic herbicides to irrigation water could have environmental effects which could cause substantial adverse effects on human beings, either directly or indirectly; however because the District notifies all local water treatment plants and follows precise treatment schedules of copper treatments the plants avoid taking treated water. SID follows all manufacturers labeling and FIFIRA requirements, the potential for such adverse effects on human beings are mitigated. In addition, due to the District's application protocol and monitoring plan (included as attached as **Tab B**), the threat to human beings is sufficiently mitigated.

Solano Irrigation District

NPDES Monitoring Plan

September 3, 2003

Written by:
Mark Veil
Pest Control Specialist
Solano Irrigation District

Monitoring Plan

Element No. 1

Project Description

Water travels from Lake Berryessa, down Putah Creek and through Lake Solano (to a diversion dam) before it flows into the Putah South Canal (PSC) which is owned by the federal government and operated by Solano Irrigation District (SID). The flows in this canal range from about 55 cubic feet/second (CFS) in the winter to as high as 800 CFS in the summer.

The 32.3 mile long concrete lined PSC is the "central hub" of the District's water distribution system. This is because it acts as a type of feeder canal that supplies water to the treatment plants for five cities and a large prison, to some year-round use pipelines and to many seasonal use irrigation canals and pipelines. There are nine separate irrigation canals that total 112 miles in length and there are about 186 miles of pipeline. The District also maintains about 70 miles of drainage ditches. Approximately 55,000 acres of irrigated land is serviced each year. The gross area of the District contains approximately 73,000 acres.

Solano Irrigation District is located in Solano County. Much of the land the District services is located in the western part of the Sacramento Valley just south of Putah Creek and extending south of Vacaville. It also services land in Suisun Valley and Green Valley which lie west of the Sacramento Valley near Fairfield.

Most of the Project water is used on fertile, flat farmland. Some of the crops grown include tomatoes, wheat, alfalfa, corn, beans, grapes and various orchard crops.

The water distribution/recovery system in agricultural land is as follows: water is delivered to the land via pipelines and canals and tail water from irrigated fields flows into drains and ultimately into flood channels.

Beneficial Uses of Canal Water

As can be seen from the project description in Element No. 1, the primary beneficial uses of water in the Putah South Canal are 1) domestic water (for drinking and for landscape irrigation) for much of the Solano County population, numbering over 400,000 people; and 2) farmland irrigation water. The primary beneficial uses of the water in the earthen irrigation canals is farmland irrigation water for about 55,000 acres and landscape and field irrigation water for some rural homeowners. The gross value of the agricultural production in the area irrigated is estimated to be about $148 million. This production consists of food, feed and some ornamental landscape plants.

Copper Sulfate is the aquatic pesticide used by Solano Irrigation District to maintain these beneficial uses. If the water quality drops because algae and underwater rooted plants are not controlled then these beneficial uses will be negatively affected. The following will occur: meters, screens, pumps, sprinklers, pipes and farmers' irrigation siphon pipes will plug; a taste and odor problem will develop in drinking water; a mosquito problem will develop in the canals due to a lack of flow; and it will become impossible to deliver most of the water needed through any of the canals because the aquatic weeds and algae will greatly impede flow.

There is more on this subject in Elements No. 5 and 6.

Representative Application Site for Copper Sulfate Use: Application Site Location and Description

Location

The start of the Putah South Canal (headgate).

Flows when applications are made

Peak irrigation season flows (mid May – mid Sept) = 350 to 800 CFS

Non-peak irrigation season flows (in April, part of May, part of Sept and Oct) = 100 to 349 CFS

Canal Dimensions

Location on Canal (start @ mile 0.0)	Bottom Width	Top Water Width	Normal Depth of Canal
Mile 0.0 to 6.15	12'	Approx 35'	10.28'
Mile 6.15 to 13.79	10'	Approx 30'	8.66'

The water entering the concrete lined PSC already has a significant amount of algae and aquatic plant fragments in it from Lake Solano. Since we do yearly silt removal from the bottom of this canal, our main concern has been the control of algae and not rooted aquatic weeds.

Pesticide Use

Copper Sulfate is used in the PSC for the control of algae. It also seems to hinder growth on some of the aquatic weeds present.

When Pesticide is used

The Copper Sulfate treatments are started after we get a number of warm and clear days with no rain and after the low winter flows have started to increase in the spring. This means that actual treatments usually start in April. The treatments continue until about the end of October when algae growing conditions become less optional (with cloudy days, silty water, shorter days and colder water temperatures).

Climate During Use

Rain: Almost none. Mostly sunny days with daytime highs ranging from about 80°F to 105°F. (A treatment would normally be cancelled if it was a dark cloudy day.)

Wind: N/A

Rates Used

1 to 2 lbs of Copper Sulfate per cubic feet per second (CFS) of water flow. (Note: 1 cubic foot equals 7.48 gallons and cubic feet per second equals the amount of water that passes a given point in one second.) 1½ lbs/CFS and 2 lbs/CFS are the rates most often used. The rate selected depends mainly on the amount of algae found in the canal prior to the treatment. It also depends, to a lesser degree, on the amount of algae seen floating into the canal from Lake Solano.

Treatment Frequency

Normally once every two weeks.

Receiving Water Types

The treatment travels down the PSC and part of it goes into some irrigation canals as it is dissipating. This dissipation means that the copper is constantly being removed from the canal water in the following ways: when it is taken up by aquatic plants and algae, when it is bound up in silt and soil in the canal, and when it precipitates out.

If there were spills of this treated water, they could only occur from the ends of certain irrigation canals and laterals in the following systems: Vaughn, Weyand, Kilkenny, Canal 3 and possibly Canal 4. The possible receiving waters include the following: McCune Creek Channel, Sweeney Creek Channel, New Gibson Canyon Channel and Horse Creek Channel. The treated water more than likely would not ever reach these channels. These flood control channels are maintained by the Solano County Public Works Department.

Representative Application Site for Aquatic Glyphosate (Aqua Master or Rodeo)

Pesticide Use

Weeds on the irrigation canal waterlines can be controlled (with the possible rare exception of a few cattails, bulrush, or horsetail plants) without aquatic applications by lowering the canals; but weeds, such as cattails, in the drainage ditches can not be controlled without the use of aquatic glyphosate.

Representative Application Site Location and Description

Location

The Fry Road drain is located next to Fry Road in Solano County, east of Vacaville. It runs north of and parallel to Dally Canal Lateral 5.

Approximate flows when applications are made

0 flow to ½ CFS (equals 0 inches deep to about 8 inches deep.)

Fry Road Drain Description

The drain is 2 1/2 miles long. It averages about 5 1/2' deep, 5' wide at the bottom and 17 1/2' wide at the top.

When Pesticide is Used

The date of the first aquatic glyphosate treatment is dependant when the amount of weed growth present warrants a need for control. This is normally when weed growth on the drain bottom is starting to become fairly dense but before that growth is so large that it will not disintegrate after an application. Cattail control is normally started after the first plants have matured or headed out (about June or July). So, the first treatment is normally made in June or July with a second treatment in about September.

Rates Used

This is dependant upon the weed species present, stage of plant growth and label rates. The following are the normal label rates used:

1. *Annual Weeds*
   Annual weeds less than 6" tall = 24oz/acre broadcast
   Annual weeds more than 6" tall = 40oz/acre broadcast

(There are exceptions such as Italian ryegrass which requires 48oz/acre.)

2. *Perennial Weeds*

   For perennial weed control using hand-held equipment the *Aqua Master* label instructions are to "apply ¾ to 1 ½ percent solution to control or destroy most vigorously growing aquatic weeds." The rates for broadcast applications using a boom sprayer range from 4 to 7 ½ pints per acre.

Climate During Use

Rain: It almost never rains during the times when aquatic glyphosate is used. The District personnel will normally not use aquatic glyphosate if rain is expected within six hours after an application (so it won't wash off). There are mostly sunny days with daytime highs ranging from about 80° F to 105° F. Normally, the only spraying done during the higher temperatures is on weeds which are not drought stressed (lower control is achieved on drought stressed plants).
Wind: During the time of year when aquatic glyphosate would need to be used, the wind speeds can range from 0 mph to 25 or 30 mph. Of course, spraying can only be done when there is no danger of drift (wind speeds below 10 mph).

Receiving Water Types

The receiving water would be Old Alamo relocation, which flows into New Alamo Channel.

Element No. 2

An Assessment of Existing and Potential Adverse Impacts on Beneficial Uses: Copper Sulfate

Existing Adverse Impacts

None Known.

Potential Adverse Impacts

It is not possible for copper sulfate to harm the drinking water since all the water treatment plants along the PSC stop taking water when the copper sulfate treated water is moving by each of their outlets. (There is also a 1 ppm tolerance for copper in drinking water.)

If a small amount of spill occurred in the flood channels, it would probably not show an adverse impact for the following reasons: 1) there would be a low amount of copper present in the canal water through sorption and sedimentation which happened in the canal, 2) the massive amount of dilution that would occur once the spill entered the channel, 3) the moderately high alkalinity (140) of area water decreases the toxicity of copper to aquatic organisms, and 4) the amount of biologically active copper is greatly reduced in area water because the active copper ions react with carbonate and bicarbonate ions to form inactive complexes which precipitate out.

The levels used will not harm livestock or crop plants. Past research has shown no residue buildup in crop soil. Copper at very low levels is needed for plant growth and is already present in the environment.

Aquatic glyphosate (Aqua Master).

Existing Adverse Impacts
None.

Potential Adverse Impacts
Monsanto information says that "glyphosate dissipates rapidly from water by binding tightly to suspended soil particles and through deposition in bottom sediment and microbial degradation." It is no longer available for plant uptake, once it is bound to the soil particles. The microbial degradation process can take place in both aerobic and anaerobic conditions. Monsanto literature also says that when their aquatic glyphosate is applied according to the label, "there are no restrictions on water use for irrigation, recreation or domestic purposes." This is because of what was already mentioned plus it does not bioaccumulate and it has the lowest toxicity ratings possible. Downstream organisms are, thus, not affected.

If crops were irrigated with water from treated glyphosate areas, they would not be affected. Only those plants sprayed with aquatic glyphosate are affected. Submerged plants are not affected.

As seen from the above discussion, there are no potential adverse impacts on either the water in drains sprayed with aquatic glyphosate or possible receiving waters.

<u>Element No. 3</u>

Note: This will be modified to satisfy Region #2 (Bay Area Region) sampling requirements to monitor copper treatments in their area. Since the possible receiving waters are similar in Region #2 and Region #5, the aquatic glyphosate monitoring will be done in Region #5 only (as discussed with both Regions).

Water Quality Analyses

Aquatic glyphosate (Aqua Master)
Monitoring will be done twice per season. As described in Element No. 1, this is dependent upon when the vegetation in the Fry Road Drain needs to be treated (possibly June and September).

Sampling

1. Pre-treatment samples
   On the morning of treatment day just prior to treatment, collect two water samples in the area to be treated and one water sample near the end of the drain whether or not that area will be treated. This is to insure that water has not carried glyphosate into the drain.
2. Samples taken immediately after the treatment
   Take three water samples in the treated area as near the surface as possible. As with all samples, the time each sample was taken and the location of where the sample was taken must both be recorded.
3. Take three more samples within two hours (and close to two hours) after the treatment. These samples should be taken within the front edge of the treated water which would, of course, be downstream of where the treatment was made. The location of these sampling

sites can be determined by either a water flow velocity determination or through the visual aid of dye that was placed on the downstream edge of the treatment at the time of treatment. Do not take these samples right next to each other. Take one of the samples just upstream of the leading edge of the treatment. Take a second sample further upstream of the first by a distance equal to about 20% of the total length of drain sprayed. Take a third sample that same distance upstream from the second sample.

4. Sampling the day after treatment
   In the morning, take two samples at the estimated location of the treated water of the drain or near its end and take one sample at the very end of the drain where it can possibly discharge into receiving waters (delete this third sample if the other two were taken at this same site).

Discussion of Surfactants used with Aquatic Glyphosate

Aquatic glyphosate is required to be used with a non-ionic surfactant. The surfactant is needed so that the spray droplets will spread out and not bead up, thus giving better plant coverage which greatly improves herbicide leaf penetration. SID uses R-11 which is a nonionic surfactant that is registered for aquatic use. One of the reasons it was chosen is that it has the safest hazard rating possible ("caution"). It is normally used at a rate of 64 oz/100 gallons of spray solution with aquatic glyphosate.

We also use LI 700 with aquatic glyphosate. LI 700 is a non-ionic surfactant acidifier (spray solution buffer) that is registered for aquatic use with herbicides. It basically offers some protection to aquatic glyphosate when it is used in spray solutions with moderately hard to hard water (with pH of 8 or higher). It lowers the pH and thus reduces the availability of cations such as calcium, magnesium, and iron to react with glyphosate which would make whatever glyphosate that reacted with those ions less available to act as a herbicide. It will, of course, not change the pH of a water body sprayed (only the spray solution). LI 700 is extremely safe in the aquatic environment (as shown on the MSDS).

Discussions were made with Martin Lemon, a Monsanto representative (the glyphosate manufacturer); with Jeff Vipond, a Huntsman representative (the R-11 manufacturer); and with Michael Atkinson, a Loveland Industries representative (the LI 700 manufacturer), regarding the need for surfactant sampling.

The following are items from those discussions with conclusions which were drawn from those items:

There are no analytical tests that can uniquely determine the presence of either R-11 or LI 700. Their components are common chemicals that could come from other sources.

In 1989, a study was done for the Forestry Department in Canada (from the "Proceedings of the Carnation Creek Herbicide Workshop"). They applied glyphosate with a non-ionic surfactant and applied it by air over three watersheds. In their application they used a ratio of a certain amount of glyphosate to a certain amount of surfactant. They then sampled the water for glyphosate. If any glyphosate was found, they would then calculate the probable amount of surfactant present by using the same ratio for glyphosate to surfactant that was used in the application.

Since there is no analytical method that can uniquely determine the presence of the surfactants and since glyphosate is the only true herbicidal active ingredient in the mix, SID personnel think it is best to use the above ratio method for surfactant determination (as needed).

Copper Sulfate

Monitoring will be done twice per season: once for an application made during a probable low flow period (April, part of May, part of September, or October) and once for an application made during a probable high flow period (mid-May through mid-September).

The sampling will be done relative to treatments made at the Putah South Canal headgate (see Element No. 1). Samples will be collected just downstream of the application site, midway between that site and possible receiving waters and at selected possible discharge sites into receiving waters. Since the possible receiving waters (see Element No. 1) are all similar, there will only be a need to sample at one or two of the possible spill sites that go into those receiving waters. One such site would be at the end of the Solano Irrigation District ditch just downstream of the end of Vaughn Canal Lateral 4 (next to McCune Creek Channel). Another site would be at the end of Weyand Canal Lateral 1-G, where it is next to McCune Creek Channel.

Sampling

1. Pre-treatment samples
   Two samples will be taken the afternoon just prior to the application at the probable #2 "application" sampling site (see #2) and at the possible discharge site located downstream of Vaughn Canal Lateral 4.
2. Sampling shortly after the application
   Two samples will be taken just downstream from this Putah South Canal headgate application at the first spot on the canal where the treatment has thoroughly mixed. The samples will be intentionally taken from the "slug" of copper sulfate treated canal water.
3. Midpoint Samples
   Solano Irrigation District staff will make an estimate of the water flow velocity in the canal between the treatment site (mile 0.0) and the possible discharge sites for receiving waters. Near the end of the workday, two more sets of samples will be taken at the two sites in the canals where the copper sulfate treated canal water is expected to be at. This means that one set of two samples will be taken at a site between the Putah South Canal headgate and the end of Weyand Canal Lateral 1-G, and one set of two samples will be taken at a site between the Putah South Canal headgate at the end of the Solano Irrigation District ditch located just downstream of the end of Vaughn Canal Lateral 4.
4. Samples taken at the selected possible discharge sites
   Take two samples at each possible discharge site at the end of the application workday (approximately 3:00 p.m.).
5. Continued monitoring
   On the first day following the application day, one set of morning samples and one set of afternoon samples will each be taken at each of the sampling sites mentioned in #1 through #4 above.

On the second day following the application day, one set of afternoon samples will be taken at each of the sampling sites mentioned in #1 through #4 above.
Note: Continued monitoring will not be needed on the days after the application day for following monitoring periods if this first sampling period shows non-detects for those samples.

Element No. 4

Quality Assurance Plan (QAP)

1. *QAP Objectives*

The primary goal of the specifications and procedures in this QAP is for the provision of standardized procedures and references which are aimed at achieving quality defensible data. Procedures are established for documenting and reviewing the sampling, sample movement (from field to lab), sample analysis and data.

All field personnel involved in sampling will be required by their supervisors to both follow this QAP and have a copy of it.

> Note: All parts of this QAP which pertain to the laboratory (such as laboratory custody procedures) are included in the attached "Quality Assurance Program manual" from Weck Laboratories, Inc. (As Attachment C). Weck Labs is required to follow their own QAP.

2. *Field Procedures*

Sample Locations

Sample locations were selected as described in previous elements. The following was also considered: 1) closeness to our headquarters for ease of travel to the sampling sites, and 2) the proximity of the possible discharge sites to the application site. One such possible discharge site was always selected that was fairly close to the application site and another was selected that was further downstream from the site.

> Note:Sampling Frequency and duration have been previously discussed.

Requirements of Field Sampling

Sampling and field equipment that contacted treated water must be decontaminated after a use in a sampling area. For the glyphosate samples "a 500 ml sampling container has been specified in the sampling procedure in order to insure collection of a representative sample. Some samples will require filtration. A 20 ml sample can be readily filtered using a syringe filter. This will provide an adequate sample for analysis." (Monsanto)

Sample Holding Times, Storage and Preservation (See Table 1)

All samples will be put into "iced" coolers very shortly after they are taken and then kept refrigerated until they are shipped. They will then be shipped in coolers with blue ice.

Table 1
Sample Holding Times, Storage and Preservation

Sample Type	Analysis Method	Maximum Allowable Holding Times Prior to Lab Analysis	Container(s)	Preservation	Storage Temperature
Glyphosate	EPA #547	14 days	1 oz. Plastic (as recommended and provided by Monsanto)	Only needed if the water is chlorinated	4°C ± 1-2°
Copper	Copper EPA #200.7 Or 200.8	6 Months with Preservation	½ pt or 1 pt plastic	Nitric Acid to pH of below 2	Same

Documentation

Field activities must be documented in order to properly support any data interpretation and to ensure that data is defensible.

The following are some of the items that will be recorded during field sampling:

1) Name of person who took sample
2) Identification of the site sampling location
3) The time and date that each sample was collected
4) Any observations which may influence the results from the samples (such as if particles are in the water, weather conditions, conditions of the canal or drain, etc.)
5) If there were any problems that were encountered during the sampling. (A copy of the sampling data form that will probably be used is included in this plan as Attachment A.)

Identification of Samples

Samples will be labeled with the following for identification: 1) sample time and date, 2) location where sampled (tentative), 3) analytical method requested, 4) identification number of the sample.

Field Staff Training

Personnel who conduct the sampling will receive training and supervision regarding the procedures to be followed.

Quality Control Samples

One field blank (a clean sample), one field split sample (analyzed at a different lab), and one pair of matrix spikes will be taken once per year for each active ingredient sampled. The Regional Board will be given a copy of the results. (See Attachment E for definitions.)

3. __Sample Documentation and Custody Procedures__

The possession of the samples from the time they are taken until the results are reported by the lab, must be traceable.

Documentation

A master sampling log book shall be maintained for all the samples taken. The people doing the sampling will be responsible for the following:

- Initial and date all daily entries.
- Accurately record sampling activities on both the field form and the log book.
- Only make legible entries and use ink that is waterproof. The entries should accurately document the sample collection activities.
- If there are errors or changes in the entries then a single line should be used to cross each one out. The change must be initialed and dated.
- They must legibly and accurately complete the chain of custody forms.

Chain-of-Custody Form

After the samples are collected and just prior to release or shipment, a Chain-of-Custody form is filled out. Cross checking is done between the field documentation, the sample labels and the Chain-of-Custody form to verify container type, amount of containers, sample volume and sample identification.

The following information is included in the Chain-of-Custody form:

- Date Sampled
- Time Sampled
- Sample Type
- Sample Identification
- Analysis Requested
- Release and Acceptance Signature Blocks
- Sample volume
- A Remarks Section (Can be used to record the method of shipment and courier name)
- Client Name and Information
- Special Handling Instructions
- Sample Condition

(A copy of the Chain-of-Custody form that will probably be used is included in this plan as Attachment B.) The signature blocks are, of course, signed on the Chain-of-Custody form anytime there is a change in the custody of the samples.

Sample Handling and Shipments

Sample shipments are always accompanied by a Chain-of-Custody form. A copy of the form is retained for project records. Temperature increase, bottle breakage and cross contamination can all be prevented during shipment to the lab in the following ways:

- Plastic reclosable bags are used to individually seal the sample containers.
- Some type of cushioning material (bubble wrap, etc.) between the bottles helps prevent breakage by not allowing them to touch each other.
- Coolers made of hard plastic are used to ship/transport the samples.
- The samples are packed with ice. The ice can be put into reclosable bags, but must contact the samples to about two inches deep on both the bottom and top of the cooler.
- Coolers are always sealed with Chain-of-Custody seals and taped shut.
- The sample control people at the laboratory will be notified just prior to sample shipment.
- Next day air delivery is used to assure that the samples arrive without a significant temperature increase.

5. Data Validation and Audit

Technical Audits Done in the Field

Project Managers with Solano Irrigation District routinely check (through observation) to make sure that the proper sampling, sample handling and documentation procedures are followed. This is done to help ensure that this QAP is adhered to. A field audit checklist will be completed one to two times per year. A copy of this audit form is included in this plan (as Attachment D).

Data Validation (data quality audit) and Technical Systems Audit

Each quarter the California Regional Water Quality Control Board will perform a data quality audit on 1% of the generated data. This is done to verify that the analytical method was followed properly with correctly calculated and reported results. The following items will be reviewed during the validation:

- Lab procedures documentation
- The Chain-of-Custody records
- That data was accurately reduced, transcribed, and reported
- That the parameters for quality control and the method specific calibration procedures were properly adhered to
- That the recorded results are precise and accurate.

The Regional Water Quality Control Board will also do an annual check of field procedures by conducting a technical systems audit. Audit results and recommendations will be given to Solano Irrigation District.

5. Data Assessment Procedures

Data will be assessed primarily through the use of the quality control samples. This will help determine if the program has met the quality assurance objectives. Data quality will be assessed and an attempt will be made to identify possible limitations on the use of data.

The laboratory is required to follow its own QAP. Any associated results from the analysis of laboratory quality control samples must be reported with sample results so the Solano Irrigation District (SID) staff can evaluate the performance of the analytical process.

SID staff must review all project data. A review is made on the results of each batch of samples that was analyzed by the lab. This must, of course, include any field and lab quality control samples that were analyzed.

The following steps will be included in the review of the project data:

- Lab and field data will be reviewed for completeness and accuracy in documentation, Chain-of-Custody procedures, compliance with acceptable holding times of samples in refrigeration (see Table 1) and that the quality control samples were taken with the required frequency.
- Evaluate quality control blank sample results in order to identify contamination.
- Reviewing all spike and split sample results to determine if a high enough degree of project accuracy and precision is being met.

(See Attachment E for definitions of quality control sample types.)

6. Corrective Action

SID personnel will make sure that procedures specified in the QAP are followed (especially regarding sample collection, data documentation, sample preservation, proper shipment and data analysis).

Any field data problems that might require corrective action will be documented in either the field sampling form or data log.

Element No. 5

Combined with SID's Best Management Practices

Element No. 5 is "an evaluation of any non-toxic or less-toxic pest control methods that may provide a practicable substitute for pesticide application" (form NPDES permit).

Currently in canals there are no "beneficial" aquatic plant species that are capable of out competing the many undesirable aquatic plant species present. These undesirables, if left unchecked, will greatly reduce the beneficial uses of water in canals.

Our irrigation district is aware of an isolated canal system in southern California which uses a non-native Asian fish (the grass carp) for aquatic weed control. SID is not allowed by the California Department of Fish and Game to use these fish due to the risk of their introduction into surrounding habitats. They are not an option for us.

The mowing of aquatic weeds to replace aquatic glyphosate use is not a viable option. The following are reasons:

1) side-tractor mowers do not have enough reach to get most of the weeds in the bottom of drains that aquatic glyphosate will be used on;
2) SID currently does not own a $120,000 side-tractor mower; and
3) the wet conditions encountered to mow aquatic weeds would probably quickly damage or ruin a mower.

There is more on the "evaluation of non-toxic or less-toxic pest control methods" under the "Alternative Control Methods" section (3C) of the following SID Best Management Practices:

Solano Irrigation District
Best Management Practices
Aquatic Pesticides

1. Licensing, pesticide labeling, and permits. Solano Irrigation District (SID) has two licensed Pest Control Advisors and the employees who make aquatic applications are each licensed with a Qualified Applicator Certificate. Last summer we switched from using Magnacide H to Clearigate, a material that does not require a permit. Our PCA who writes the very thorough Pest Control Recommendations is also very careful to only allow pesticide use which is consistent with the pesticide labels.

2. Notification requirements. Since we stopped using Magnacide H our notification requirements have greatly decreased; but we still keep the lines of communication open with our County Department of Agriculture regarding what, why, and how we use different products.

3a. Personnel at SID routinely make preliminary site evaluations. These are used to determine areas in need of a treatment, location of a treatment site (site suitability), and some of the precautions to be used for a particular type of treatment. We constantly consider the different treatment options, which is one of the reasons we switched from Magnacide H to Clearigate. Pest type and growth stage are also considered in order to help determine the treatment type. This greatly increases the likelihood of achieving a high level of control.

3b. Secondary site evaluations and pre-treatment monitoring are routinely made. Some of the factors considered are weed species present, growth stage, weed location, and weed density. These are used to help determine such things as the appropriate mechanical control measure or herbicide to use, herbicide rate, and may also help in determining the number of treatment sites needed.

3c. Alternative Control Measures. As an alternative to Clearigate use, we have evaluated the mechanical removal of aquatic weeds with a huge chain, two tractors, one excavator, a dump truck, and at least four to six men. Besides the extreme canal-bank erosion damage and the silt water quality problem, the estimated cost of six to ten times the chemical cost makes this mechanical procedure cost prohibitive on a large scale. Even if it were decided to do this mechanical control, it would not be able to adequately maintain the required beneficial uses (see Element #1).

On a couple of our low use laterals we dry them out in order to control the aquatic weeds. This is only possible on a very limited scale because the majority of the canals and laterals have a moderate to high water demand. Crops would either greatly suffer or die from lack of water if these higher use canals were allowed to go through a long dry out period during the growing season.

Clearigate and Magnacide H both have the ability to control both rooted aquatic weeds and algae. Copper Sulfate controls algae and has only very limited control on the rooted aquatic weeds (in our water). One of our canals, the Putah South Canal, is concrete lined and so far we have been able to clean the silt out of it well enough to keep most rooted aquatic weeds from growing (they need the silt to root in). We still must use Copper Sulfate in order to keep the filamentous algae from becoming a huge problem. There is no alternative to using some type of copper-based product in this particular canal. Problems would be immense if we tried to do without it. Without adequate filamentous algae control, water deliveries to several cities would be greatly hindered (with huge repercussions). Water deliveries for farmland irrigation would also be partly curtailed due to restricted flow and there would be a high level of screen and pump plugging from a large amount of algae. This option of canal cleaning for silt removal is, of course, not a consideration for all of our unlined (earthen) irrigation canals.

On the concrete lined Putah South Canal we have promoted the growth of grass on its banks. This decreases total herbicide use and improves erosion control, thus decreasing the total amount of silt that would go into the canal.

Glyphosate controls most grasses and broadleaf weeds and is very effective because it controls all or much of each of their root systems. Alternative products have some of the following problems: a higher handling hazard, they do not control the weeds we want controlled, they have use restrictions, they are not legal for our use, they are not translocated and are thus not nearly as effective as Glyphosate, and/or they are more sensitive to crops and the environment.

As an alternative to aquatic glyphosate use (Rodeo or Aqua Master) we have considered the possibility of doing more excavator work. This would slowly and surely enlarge the size of our canals and drains beyond what is acceptable and still would not give adequate weed control. Cattails, for example, would inundate canals and drains and would greatly impede the flow of water.

We do some burning of dry weed growth. Burning has only limited effectiveness because it only gets the top growth and it does not help us adequately keep weed seed out of farmers' fields. Burning is also a slow, dangerous process that does not work as well on green foliage. In recent years the two local Air Pollution Control Boards have said "no" to many of our requests to burn (while, of course, saying the same to others). This has greatly discouraged us from doing much of the burning we would like to do.

We have already adopted a program which promotes the growth of grass on the inside banks of some of our larger drains. Since the grass is not in the canals, it has not hindered water delivery; but has decreased the total overall herbicide usage with improved erosion control.

3d. BMP's done prior to and during a treatment. If the wind is high enough or becomes high enough to cause significant drift at the start of or during a glyphosate application, then that application will either not be made or will be terminated. If conditions will be dusty immediately after a glyphosate treatment, then we will delay the treatment (since dust hinders control). Low pressures and special nozzles are used to help control drift.

If it is raining or rain is expected very shortly after a glyphosate application then that application will not be made. If the water level in the canal or drain is much higher than normal then the aquatic glyphosate application will not be made.

SID personnel follow all applicable laws and regulations for the application of pesticides.

Each herbicide label has many specific BMP's for that herbicide. So, we always read and follow the product labels.

All Solano Irrigation District applicators go through yearly training. It covers such topics as safe application techniques, proper use of application equipment, applicable laws and regulations, and has specifics about the use of the different aquatic and non-aquatic herbicides that are used.

If it is an extremely cloudy or dark day, we would cancel an aquatic copper application. If the canal water is extremely turbid with almost no flow after some rain, we would cancel a copper sulfate application.

S.I.D. subscribes to a daily Solano County weather forecast. This forecast is checked constantly by one of our Pest Control Advisors. The weather information helps him make the above decisions and schedule future applications.

If water is being delivered outside our system to, for example, another irrigation district then we will either delay the copper treatment until water is no longer being delivered outside our system or we will curtail water delivery to the outside system.

We do not allow irrigators to turn their water off at night during canal treatment days (for the submerged aquatic weed treatments in the irrigation canals). If we allowed these night shutoffs then the water that had been going onto their fields would spill into potential receiving waters. This way we keep this spill from occuring.

Water temperature and pH are considered for copper applications, and application water pH is usually adjusted for glyphosate use (to improve efficacy).

So overall, we consider site conditions, water use, and weather conditions in the decision to continue with a treatment or not.

3e. Post-treatment assessment. This evaluation of efficacy is routine and normally starts at about one week after application and continues for the rest of the irrigation season. If a treatment is deemed hazardous or ineffective then we either make corrective changes, eliminate that treatment type from a given area, or totally eliminate a certain type of treatment from our program. If the control level is at a higher level than we consider necessary, we decrease the treatment rate and/or eliminate the treatment site (as with copper sulfate).

Element No. 6

"Evaluation of the effectiveness of representative BMPs to eliminate or reduce the discharge of pollutants and minimize the areal extent and duration of impacts caused by the discharge of pollutants" (from NPDES permit).

At this time we do not have quantitative data (from analyzed samples, etc.) that could evaluate the effectiveness of our BMPs in this way. We can, on the other hand, evaluate the BMPs on the basis of the goals of good Standard Operating Procedures (SOPs) (such as labels and laws followed and precautions taken).

Many millions of dollars are spent on research for safety issues for each pesticide label. SID follows the herbicide labels in order to make safe applications both for applicators and for the environment.

SID personnel also follow all applicable laws and regulations for the application of pesticides. Many of these laws and regulations are written to prevent misapplication, one purpose of which is to protect the environment.

Drift prevention and the standard operating procedure of not applying aquatic glyphosate right before a rain both help keep some of it from going into the water. SID's BMP of not applying aquatic glyphosate when the water levels are higher than normal will also keep some glyphosate out of the water.

The training SID gives employees is significant because it helps ensure that the laws, labels and other BMPs are followed. The training also help applicators make effective applications to adequately control undesirable weed species which would otherwise harm the beneficial uses of the canal water (see Element No. 1).

Our BMPs also address the goal of keeping the applied herbicides out of receiving waters as much as possible (see "BMPs done prior to and during a treatment").

SID has taken a pro-active approach to both the development of the BMPs and the development of an integrated pest management program for vegetation management. For example, the grass that we promote on the banks above the concrete lined Putah South Canal effectively helps us in several ways. The grass aids us by helping to keep out undesirable rank weed growth through competition and allelopathy. It has also allowed for a decrease in total pesticide use with improved erosion control (over previous bare-ground spraying). This improved erosion control has helped in aquatic weed control by giving the rooted aquatic weeds less silt to root in. Some silt is still carried into the Putah South Canal with the canal water. It is removed mechanically. It is through this silt prevention and removal program that SID is able to maintain control of the rooted aquatic weeds in this canal.

SID feels strongly that by following our BMPs, we effectively protect the associated area's possible receiving waters from any adverse impacts.

Attachment A

Data Sampling Form

FIELD SAMPLING FORM

Site ID: ______________________________

Site Description: Fill out as completely as possible. *Waterway depth, width, flow velocity, % vegetation coverage, lined or unlined, etc. For example - Aquamaster application within waterway, at edge of waterway, 10 feet up bank, etc.*

____

____

____

____

Sample Description:

Date	Time	Sample ID	Rep (1,2,3)	Sampler Initials	Filtration Required (Y/N)	Sample Location – Edge, Middle, Distance from Application

Site Diagram: *Include each sample location and application area*

Signature: ______________________________ Date: ________

Attachment B

Chain-of-Custody Form

Weck Laboratories, Inc.
Analytical & Environmental Services
14859 East Clark Avenue • Industry, CA 91745
Tel 626-336-2139 • Fax 626-336-2634 • www.wecklabs.com

CHAIN OF CUSTODY RECORD

CLIENT NAME:

PROJECT:

ADDRESS:

PHONE #:

FAX #:

PROJECT MANAGER

SAMPLER

P.O. #

Page______ Of______

SPECIAL HANDLING

- ☐ Same Day Rush 100%
- ☐ 24 Hour Rush 75%
- ☐ 48 - 72 Hour Rush 60%
- ☐ 4 - 5 Day Rush 30%
- ☐ Rush Extraction 50%
- ☐ 10 - 15 Business Days
- ☐ QA/QC Package

Reporting Agency ____________

Method of Shipment ____________

ID# (For lab Use Only)	DATE SAMPLED	TIME SAMPLED	SMPL TYPE	SAMPLE IDENTIFICATION/SITE LOCATION	# OF CONT.	ANALYSIS REQUESTED	REMARKS

RELINQUISHED BY	DATE / TIME	RECEIVED BY	DATE / TIME

SAMPLE CONDITION:
Actual Temperature:

Received On Ice Y / N
Preserved Y / N
Evidence Seals Intact Y / N
Container Attacked Y / N
Preserved at Lab Y / N

SAMPLE TYPE CODE:
AQ= Aqueous
NA= Non Aqueous
SL = Sludge
DW = Drinking Water
WW = Waste Water
RW = Rain Water
GW = Ground Water
SO = Soil
SW = Solid Waste
OL = Oil
OT = Other Matrix

RUSH TURN AROUND TIME MAY REQUIRE SURCHARGE
TERMS AND CONDITIONS: SEE BACK OF THIS FORM

SPECIAL REQUIREMENTS / BILLING INFORMATION

DISTRIBUTION: WHITE & CANARY - For Laboratory PINK - For Client

Attachment C

"Quality Assurance Program Manual"

from Weck Laboratories, Inc.

and

"Environmental Laboratory Certification"

for Weck Laboratories, Inc.

Weck Laboratories, Inc.
Environmental and Analytical Services - Since 1964

Quality Assurance Program Manual

Facility Name: Weck Laboratories, Inc.
Location: 14859 E. Clark Ave., Industry, CA 91745
Telephone: 626-336-2139

Revision 12
EFFECTIVE DATE: December 1, 2000
DATE OF SUBMITTAL: October 15, 2000

Approved by:

Jayna Kostura
QA Officer
11/15/00
Date
626 336 2139 x 116

Alfredo Pierri
President/Laboratory Director
11/15/00
Date
626-336-2139 x 115
Telephone

Truyet Mai
QA Officer designee
11/20/00
Date
626-336-2139
Telephone

Alan Ching
Technical Director – Organic Section
11/16/00
Date
626-336-2139 x 125
Telephone

Joe Chau
Technical Director - Inorganic Section
11/16/00
Date
626-336-2139 x 123
Telephone

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Table of Contents

Table of Contents-continued

Table of Contents-continued

1 INTRODUCTION

Weck Laboratories is an independent testing laboratory specialized in environmental analytical services. The company was founded in 1964 and it is organized as a California corporation.

The purpose of the Weck Laboratories Quality Assurance Program is to operate under standardized QA procedures, to provide guidance to all personnel and it is designed to continually monitor the reliability of test results, ensuring that they fall within acceptable limits, and provide guidelines for the implementation of corrective action when necessary.

This Quality Assurance Manual is a summary document that outlines the policies and operational procedures associated with the facility of Weck Laboratories, Inc. in the City of Industry, California. It is intended to ensure the high quality of analytical services that the Laboratory is committed to provide to its clients. This Manual contains references to other supporting documents also related to the Quality Assurance Program, such as SOPs, QC acceptance limits, MDL studies, Performance Evaluation Results and Policy documents.

The QA Manual and its supporting documents are reviewed annually to ensure that they reflect current laboratory practices and are in agreement with current regulations.

All policies and procedures have been structured in accordance with the NELAC standards and applicable requirements, regulations, guidance, and technical standards from the USEPA and State regulatory agencies. This manual has been prepared in accordance with the guidance documents listed in section 19.

This Quality Manual, SOPs and related documentation describe the quality system for Weck Laboratories, Inc.

1.1 Mission Statement

Weck Laboratories provides qualitative and quantitative data for use in critical decisions relating to the protection of the public and the environment. The data used for such purposes must be scientifically valid, defensible and of known and documented quality in accordance with standards developed by the National Environmental Laboratory Accreditation Conference (NELAC) and any applicable State or EPA regulations or requirements.

It is our goal to provide our clients with the best possible services, in terms of quality of laboratory work, honesty in our procedures and reporting, efficiency in our turnaround time and reasonable prices for our services.

Top management of the laboratory is totally committed to the attainment of the best possible quality of data and instructs and educates the staff on this company policy.

All the necessary resources and materials shall be provided to the management of the laboratory in order to meet and/or improve the quality requirements of NELAC, of the analytical methods performed at the lab and any special requirements from clients.

1.2 Services provided

The services provided by this facility are the following:

- Organic chemical analyses
- Inorganic chemical analyses

- Trace metal analyses
- Microbiological analysis limited to total coliform, fecal coliform and standard plate count.
- Physical analyses

The technical and service requirements for all requests to provide analyses are thoroughly evaluated before commitments are made to accept the work. This includes a review of facilities and instrumentation, staffing, and any special QC or reporting requirements to ensure that analyses can be performed within the expected schedule. All measurements are made using published reference methods or methods developed by Weck Laboratories. Competence with all methods is demonstrated according to the procedure described in Appendix 9 prior to use.

1.3 Proficiency Testing

Weck Laboratories, Inc. analyzes Proficiency Testing samples two times per year from an approved PT provider that meets the requirements specified in chapter 2 of the current NELAC standard. The specific analytes and matrices analyzed are based on the current scope of the laboratory services and are documented in a laboratory SOP on PT samples analyses.
The goal for PT results is obtaining 100% of all analytes within acceptable limits. When there are results out of the acceptance range, corrective action is initiated to prevent the error from reoccurring. A report with the documentation of the corrective action is also filed.

1.4 Ethics policy

Weck Laboratories, Inc. has developed a proactive program for prevention and detection of improper, unethical or illegal actions. A main component of this program is the periodic training and communications that the employees receive from management about the ethics policy and the utmost importance of an honest and ethical behavior in all activities performed at the laboratory.

Proper ethical conduct in the laboratory is strictly enforced. The Company's Code of Ethics (Appendix 2) is presented to current and prospective employees in both the QA manual and the Employee Handbook. Both documents contain provisions to acknowledge receipt and understanding by signing an attached form. The Laboratory Ethics seminar that is presented as a refresher to current employees and as part of the hiring process for new employees include elements describing examples of improper and illegal actions, as well as training in identifying appropriate and inappropriate laboratory and instrument manipulation practices.

Punishment for improper, illegal or unethical activities range from suspension to termination, depending on the degree and nature of the unethical activity.

Employees are required and encouraged to bring up to management any improper activities they detect or are suspicious of. Any incident reported is immediately investigated by the management and the person or persons involved are subject to disciplinary actions.
The Management shall also monitor the program for detecting improper, unethical or illegal action by performing internal proficiency testing (single or double blind), reviewing of analytical data post-analysis, performing electronic data audits and providing a rewards program for employees vigilance and co-monitoring.

In order to assist the laboratory technical personnel in performing their duties without detrimental influences, it is the policy of the Company that all laboratory personnel are free from any commercial, financial or other undue pressures that could adversely affect their normal performance having an impact on the quality of the work they produce. By this policy all laboratory personnel dedicated to technical activities should not be influenced by, or involved in any financial or commercial matter while performing laboratory work. If any employee feels that he or she might be under any kind of pressure as described above, the Laboratory Director must be notified immediately.

2 QUALITY POLICY

2.1 QA objectives for measuring data

The objective of the Quality Assurance Program is to monitor the reliability of the analytical data produced by the Laboratory and to implement effectively the quality control procedures and operations defined for each analysis. The purposes of this program are:

- Provide data that is scientifically valid, defensible, and of known and documented quality in accordance with standards developed by the National Environmental Laboratory Accreditation Conference (NELAC) and any applicable state or EPA regulations or requirements.
- Ensure that analytical results fall between acceptable control limits.
- Provide mechanisms for corrective action when necessary.
- Establish standardized practices to provide consistency in the generation of data.
- Define the quality of each analytical system in terms of accuracy, precision and sensitivity.
- Identify in the early stages possible problems that may affect data quality.

2.2 Resources

The resources of Weck Laboratories are instrumental in implementing this policy. Highly trained personnel, including chemists and related scientists continue their education by attending seminars and technical meetings; instrumentation that is continuously upgraded to maintain the state-of-the-art in analytical instruments; and a facility consisting of 9500 sq. ft. of laboratory area distributed in a manner that minimizes laboratory contamination.

3 DESCRIPTION OF THE QAP MANUAL

3.1 Terminology

ASTM	American Society of Testing and Materials
Audit	A documented investigative evaluation used to determine the degree of compliance with established procedures and guidelines, applied to specific analytical processes.

CAL	Calibration standard, a solution prepared from the dilution of stock standard solutions. The CAL solutions are used to calibrate the instrument response with respect to analyte concentration.
CARB	California Air Resources Board
COC	Chain of custody
Corrective Action	The measures taken to correct a situation that is out of the control limits set by QC procedures
Dissolved analyte	The concentration of analyte in an aqueous sample that will pass through a 0.45 µm membrane filter assembly prior to sample acidification.
DLR	Detection Limit for Reporting purposes, established by the California Department of Health Services for potable water analysis.
DQIs	Data Quality Indicators
DQOs	Data Quality Objectives
ELAP	Environmental Laboratory Accreditation Program. A program managed by the State of California, Department of Health Services for accreditation of environmental testing laboratories.
EPA	United States Environmental Protection Agency
IPC	Instrument Performance Check Solution - A solution of the method analyte, used to evaluate the performance of the instrument system with respect to a defined set of method criteria.
LD1 and LD2	Laboratory Duplicates - Two aliquots of the same sample taken in the laboratory and analyzed separately with identical procedures. Analyses of LD1 and LD2 indicate precision associated with laboratory procedures, but not with sample collection, preservation, or storage procedures.
LDR	Linear Dynamic Range - The concentration range over which the instrument response to an analyte is linear.
LFB	Laboratory Fortified Blank - An aliquot of LRB to which known quantities of the method analytes are added in the laboratory. The LFB is analyzed exactly like a sample, and its purpose is to determine whether the methodology is in control and whether the laboratory is capable of making accurate and precise measurements.
LFM	Laboratory Fortified Sample Matrix (LFM) – Also known as Matrix Spike. An aliquot of an environmental sample to which a known quantity of the method analyte is added in the laboratory. The LFM is analyzed exactly like a sample, and its purpose is to determine whether the sample matrix contributes bias to the

	analytical results. The background concentration of the analyte in the sample matrix must be determined in a separate aliquot and the measured value in the LFM corrected for background concentration.
LOQ	Limit of Quantitation
LRB	Laboratory Reagent Blank - An aliquot of reagent water or other blank matrices that are treated exactly as a sample including exposure to all glassware, equipment, solvents, reagents, and internal standards that are used with other samples. The LRB is used to determine if the method analyte or other interferences are present in the laboratory environment, reagents, or apparatus.
MDL	Method Detection Limit - The minimum concentration of an analyte that can be identified, measured, and reported with 99% confidence that the analyte concentration is greater than zero.
MS	Matrix spike
MSD	Matrix spike duplicate
NELAC	National Environmental Laboratory Accreditation Conference
NIOSH	National Institute for Occupational Safety and Health
NIST	National Institute for Standards and Technology
PT	Proficiency Testing
PQL	Practical Quantitation Limit
QA	Quality Assurance
QAP	Quality Assurance Program
QAPjP	Quality Assurance Project Plan
QC	Quality Control
QCS	Quality Control Sample - A solution of the method analyte of known concentration, which is used to fortify an aliquot of LRB or sample matrix. The QCS is obtained from a source external to the laboratory and different from the source of the calibration standards. It is used to check either laboratory or instrument performance.
RPD	Relative percent difference
RSD	Relative standard deviation
SCAQMD	South Coast Air Quality Management District

SOP	Standard Operating Procedure
WP	Water Pollution Performance Evaluation Samples
WS	Water Supply Performance Evaluation Samples

Other terminology commonly used can be found in the glossary section of the NELAC standards.

3.2 Scope

The purpose of the Quality Assurance Program (QAP) described in this manual is to ensure the integrity of the data produced by the laboratory. The QAP encompasses all aspects of the analytical process. The management of Weck Laboratories, Inc. is committed to provide analytical and environmental services of the highest possible quality in order to satisfy the requirements of the regulatory agencies and to meet or exceed our clients' expectations.

This commitment is transmitted to all levels of our organization. Employees and associates are encouraged to constantly improve the quality of their work.

3.3 Fields of Testing

The analytical activities that will be described in this manual are divided into the following main groups:

- Environmental testing involving analysis of drinking water, wastewater, soil and hazardous waste. The analysis of environmental samples follows primarily the methodology approved by the California Department of Health Services under the Environmental Laboratory Accreditation Program and other regulatory agencies.
- Industrial Hygiene analysis of metals and organics in air filters and sorbent tubes following primarily NIOSH published methods.
- Analysis of air samples follows the methodology of the California Air Resources Board, the SCAQMD and other agencies.

3.4 Management Of The QAP Manual

The Quality Assurance Program is constantly monitored, reviewed and evaluated. The Quality Assurance Officer is the primary person in charge of updating, revising and distributing this QAP Manual. The Laboratory Director and Technical Directors also have input in the upgrade of the Manual. The revision process takes place when needed if there is a change in some of the processes described, and it is also reviewed and re-approved yearly, if no changes are needed. After the revision is completed, the manual is approved for release by the QA Officer and by the Management. After it is submitted, some time is allowed for training of the personnel in the changes introduced if any. The Dates of submittal and the effective date are in the cover page of the document.

4 DESCRIPTION OF THE LABORATORY

4.1 Identification

Dr. Friedrich J. Weck founded Weck Laboratories, Inc. in 1964 as a consulting and contract laboratory dedicated to independent analytical testing and research activities. Over the years the Laboratory's primary activity shifted to environmental analytical chemistry.

The company is a California Corporation established in 1981. The address of the Laboratory facility is 14859 East Clark Avenue, City of Industry, California, 91745, located north of the 60 Freeway, Seventh Avenue exit.

4.2 Fields of Activity

Weck Laboratories offers a full range of environmental testing, including drinking water, wastewater, groundwater, soil, hazardous waste, ambient air and industrial hygiene testing. The types of analyses performed include organic, inorganic, physical and bacteriological tests, distributed between two buildings located at the facility.

4.3 Organizational Structure

The different positions within the laboratory have job descriptions that are maintained in the Human Resources department. The organization chart of Weck Laboratories, Inc., can be found in Appendix 3.

5 STAFF

5.1 Management Personnel

The following are the responsibilities and activities within the QAP in which the key and management personnel are engaged:

<u>Laboratory Director</u>

- Defining the minimal level of experience and skills necessary for all positions in the laboratory.
- Ensuring that all technical laboratory personnel have demonstrated initial and ongoing proficiency in the activities for which they are responsible.
- Ensuring that the training of its personnel is kept up-to-date.
- Documenting all analytical and operational activities.
- Supervising all personnel
- Ensuring that all sample acceptance criteria are verified and that samples are logged into the sample tracking system and properly labeled and stored.
- Performing with the other management staff an annual Management System Review.
- Documenting the quality of all data reported by the laboratory
- Ensuring that the laboratory has the appropriate resources and facilities to perform requested work
- Ensuring that corrective actions relating to findings from the internal audit are completed; and
- Nominating deputies when the Technical Directors or QA Officer are absent.

- Developing a proactive program for prevention and detection of improper, unethical or illegal actions.
- Ensuring that only those outside support services and supplies that are of adequate quality to sustain confidence in the laboratory's tests are used.

QA Officer

The QA Officer is responsible for the Quality System of the laboratory and its implementation. He or she has direct access to the highest level of management (President/Laboratory Director) and to the Technical Directors to resolve any dispute involving data quality.

The specific functions and characteristics of the QA Officer are the following:

- Serve as the focal point for QA/QC and be responsible for the oversight and/or review of quality control data.
- Have functions independent from laboratory day-to-day operations for which he or she has quality assurance oversight.
- Be able to evaluate data objectively and perform assessments without any outside influence.
- Have documented training and/or experience in QA/QC procedures and be knowledgeable in the quality system as defined under NELAC.
- Have a general knowledge of the analytical tests methods for which data review is performed.
- Arrange for or conduct internal audits on the entire technical operation annually
- Notify laboratory management of deficiencies and non-compliance items in the quality system and monitor corrective action.
- The QA Officer has sufficient authority to stop work as deemed necessary in the event of serious QA/QC issues.

Technical Directors

The individuals who have overall responsibility for the technical operation of the laboratory. There are two technical directors: for Organic Analysis and for Inorganic and microbiological analysis.
The Technical Directors report to the Laboratory Director, their activities and responsibilities are the following:

- Certifying that personnel with appropriate educational and/or technical background perform all tests for which the laboratory is accredited
- Monitoring standards of performance in quality control and quality assurance.
- Monitoring the validity of the analyses performed and data generated in the laboratory to assure reliable data
- Ensuring that sufficient number of qualified personnel are employed to supervise and perform the work of the laboratory, and
- Providing educational direction to laboratory staff

The Technical Directors of Weck Laboratories meet the requirements specified in Section 4.1.1.1 of the NELAC Standards.

Resumes of management personnel are in Appendix 1

5.2 Personnel Qualifications

The technical staff is responsible for sample analysis and identification of corrective actions. The staff reports directly to the Laboratory Director. All personnel are responsible for complying with all quality assurance/quality control (QA/QC) requirements that pertain to their organizational/technical function. As documented in the employee records, each employee has the experience and education to adequately demonstrate knowledge for their particular function and the general knowledge of laboratory operations, analytical test methods, QA/QC procedures and records management.

5.3 Personnel Training

Each employee is required to read, understand, and to use the current versions of the established Standard Operating Procedures and Analytical Method Protocols, which relates to his/her job responsibilities. The Training records show evidence of the revisions of the SOPs the employees have reviewed. Each employee demonstrates initial proficiency by following the procedure described in Appendix 9 of this manual, and demonstrates continued proficiency on a yearly basis by acceptable performance on Laboratory Control Samples (LCS), successful analysis of blind samples or by analyzing in parallel a sample analyzed by a trained or re-trained analyst. The training records of the analysts are organized by analyst and kept with personnel files. They include initial and continuing training, continuing education, participation in technical conferences or seminars and internal training activities. Initial training for new employees is performed by the section group leaders, laboratory supervisors or experienced chemists with the guidance of the lab supervisor and includes the observation of the QC procedures described in this manual.

The company has a policy that encourages all technical personnel to participate in technical seminars and meetings involving innovative analytical technologies, new instrumentation and software applied to environmental testing. Records of this participation are maintained in the personnel files.

6 LABORATORY CAPABILITIES AND ACCREDITATIONS

Weck Laboratories, Inc. analyzes water, soil, hazardous waste and air samples. The following are the type of analysis performed:

- <u>Drinking Water and Groundwater</u>

  - Sampling: production wells and monitoring wells
  - Inorganic: trace metals, wet chemistry
  - Organic: volatile, semi-volatile, pesticides, herbicides
  - Bacteriological: Total and fecal coliforms, Heterotrophic Plate Count

- <u>Waste Water</u>

  - Sampling: composite samplers, grabs.
  - Inorganic: metals, physical parameters, wet chemistry
  - Organic: volatile, semi-volatile, pesticides, herbicides
  - Bacteriological: Total and fecal coliforms, Heterotrophic Plate Count

- <u>Hazardous Waste and Soil</u>

- Characteristics: physical properties, leaching tests
- Organic: volatile, semi-volatile, pesticides, herbicides
- Inorganic: metals, wet chemistry

- Industrial Hygiene

  - Indoor Air Analysis: air filters (metals)
  - Sorbent tubes (organics)

The different analytical techniques and methods performed at the laboratory are described in the laboratory specific SOPs.

The Laboratory is accredited by various regulatory agencies to perform environmental testing. Current accreditations are listed in appendix 11.

The instrumental analytical capabilities of Weck Laboratories, Inc. include the following:

- **Sampling and field equipment**

  24 hours composite samplers for water.
  Flow measurement instruments
  Water quality kits
  Encore samplers for soil
  Immunoassay determinations

- **Inorganic analysis:**

  ICP-AES
  ICP-MS
  ICP-MS Flow Injection Analysis (hydride generation)
  Flame Atomic Absorption
  Cold Vapor Atomic Absorption
  Hydride AA
  UV-visible spectrometry
  Ion Chromatography

- **Organic Analysis**

  Purge and Trap equipment for direct purging of soils
  Purge and trap for water
  GC/MS for volatile organics
  GC/MS for semi volatile organics
  GC/MS/MS (tandem Mass spectrometry)
  GC/MS with Chemical Ionization positive ion
  GC with FID,NPD,ECD,PID,ELCD, TCD
  HPLC with post-column derivatization and UV-Visible and Fluorescence detectors.
  TOX
  TOC

Infrared analysis

A complete list of laboratory instrumentation is in Appendix 4.

7. QUALITY ASSURANCE OBJECTIVES

The overall QA objective of Weck Laboratories, Inc. is to develop and implement procedures for laboratory analysis, chain-of-custody, and reporting that will provide results, which are of known and documented quality. Data Quality Indicators (DQIs) are used as qualitative and quantitative descriptors in interpreting the degree of acceptability or utility of data. The principal DQIs are precision, bias (accuracy), representativeness, comparability, completeness and detection limits. The DQIs are used as quantitative goals for the quality of data generated in the analytical measurement process. This section summarizes how specific QA objectives are achieved. The specific application of these various activities are contained in the method SOPs.

7.1 Precision

Precision is a measure of the degree to which two or more measurements are in agreement.

Precision is assessed through the calculation of relative percent differences (RPD) and relative standard deviations (RSD) for replicate samples. For analyses that have detectable levels of analytes (for example inorganic analyses), laboratory precision is usually assessed through the analysis of a sample/sample duplicate pair and field duplicate pairs. For analyses that frequently show no detectable levels of analytes (e.g., organic analyses), the precision is usually determined through the analysis of matrix spike/matrix spike duplicates (MS/MSD) and field duplicate samples.

7.2 Accuracy

Accuracy is the degree of agreement between an observed value and an accepted reference or true value.

Accuracy is assessed by the analysis of blanks and through the adherence to all sample handling, preservation and holding times. Laboratory accuracy is further assessed through the analysis of MS/MSD, external quality control check samples, laboratory control samples (LCS and LCSD) and surrogate compounds spikes.

7.3 Representativeness

Representativeness expresses the degree to which data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point process condition, or an environmental condition within a defined spatial and/or temporal boundary.

Representativeness is ensured by using the proper sampling techniques, proper analytical procedures, appropriate methods; meeting sample holding times and analyzing field duplicate samples.

7.4 Completeness

Completeness is a measure of the amount of valid data obtained from a measurement system compared to the amount that was expected to be obtained under normal conditions.

Laboratory completeness is a measure of the amount of valid measurement obtained from all the measurement taken in the project. The laboratory completeness objective is that the generation of valid data for all samples be greater than 95 percent.

7.5 Comparability

Comparability is an expression of the confidence with which one data can be compared to another.

Comparability is achieved by the use of routine analytical methods, achieving holding times, reporting results in common units, use of consistent detection levels, and consistent rules for reporting data.

7.6 Detection Limits

Method Detection Limits (MDLs) are determined for all analytes as specified in the NELAC standards. From these, Reporting Limits (RL) are obtained. See section 12.2 for more detailed information.

8. SAMPLING

Most samples processed at the laboratory are collected by clients or their representatives. When required, Weck Laboratories can provide technical assistance for sample collection and handling and can prepare appropriate sample containers with preservatives.
Weck Laboratories field personnel conduct sampling of wastewater and potable water for projects that require this. Our personnel do not perform industrial hygiene sampling.

In order to assure the quality of the entire analytical process, Weck Laboratories works closely with field personnel employed by the client to meet general QA criteria and if available specific criteria as per the QAPjP.

For all sampling conducted by Weck Laboratories, NELAC standards will be followed, when they become available. This will also be done in field and sampling activities that are performed by clients but in which Weck Laboratories, Inc. has some participation.

9. SAMPLE HANDLING

This section summarizes policies and practices for sample handling. Further details are contained in the corresponding SOPs.

9.1 Sample Tracking

Weck Laboratories, Inc. uniquely identifies each sample to be tested, to ensure that there can be no confusion regarding identity. The sample identification system includes identification for all samples, sub-samples and subsequent extracts and/or digestates. A unique identification (ID) code is placed on each sample container.

9.2 Sample Acceptance Policy

Weck Laboratories, Inc. has a written sample acceptance policy that outlines the circumstances under which samples will be accepted. Data from any samples, which do not meet the policy, are noted in the laboratory report defining the nature and substance of the variation. The policy requires or establishes:

- Proper, full, and complete documentation, including the sample identification, the location, date and time of collection, collector's name, preservation type, sample type and any special remarks concerning the sample. This information must be fully documented in the chain of custody record. Appendix 5
- Unique identification of samples using durable labels completed in indelible ink on all sample containers.
- Use of appropriate sample containers and preservatives as per table in Appendix 6.
- All samples have adequate holding time to be analyzed (Appendix 6).
- Adequate sample size for all analysis requested.
- Special instructions and additional information required to perform the analysis properly (i.e., time, flow rate, etc.).
- Procedures that are used when samples show signs of damage or contamination.
- Samples received at the required temperature (usually 4°C ± 2 °C) or with evidence of chilling process started (received "on ice").

If any of the above requirements are not met, the client is notified immediately, and the irregularity is documented:

- If the client acknowledges the irregularity and instructs the laboratory to continue with analysis this is documented and samples accepted.
- If the client does not acknowledge the irregularity the samples are rejected.
- If the irregularity is noted in samples submitted for bacteriological analysis, the samples are rejected without exception.

When a request for a new project is received involving multiple samples or tests that have a short holding time the Lab Manager and/or Technical Directors are notified. The Lab Manager with the assistance of the Technical Directors evaluates the project and calculates the resources needed to complete it within the turn around time required and the holding times, taking into consideration the volume of work in house and/or expected.

If it is determined that the new project will not affect the proper completion of jobs already in house and that the laboratory has the resources (personnel, equipment and facilities) necessary to accommodate the new project, this is accepted.

If the Lab Manager or any of the supervisors thinks that the new job will create problems in terms of reduced quality of work, completion out of specified or required time, or any other detrimental situation, the new project is not accepted and the client notified.

If there are alternatives, such as postponement or modification of sampling schedules in order to accommodate the project, this is proposed to the client.

9.3 Sample Receipt Protocol

Upon receipt, the condition of the sample, including any abnormalities or departures from standard condition is recorded. All samples, which require thermal preservation, are considered acceptable if the arrival temperature is either within +/- 2 °C of the required temperature or the method specific range. Samples that are hand delivered to the laboratory immediately after collection may not meet these criteria. In these cases, the samples will be considered acceptable if there is evidence that the chilling process has begun, such as arrival on ice. The temperature at which the samples are received is measured and reported in the COC record.

Where applicable, Weck Laboratories, Inc. verifies chemical preservation using readily available techniques, such as pH or free chlorine, prior to or during sample preparation or analysis. The results of all checks are recorded.
When there is any doubt as to the sample's suitability for testing or if the sample does not meet any of the above criteria or if irregularities are noted, the client is notified immediately, and the irregularity is documented. If the client acknowledges the irregularity and instructs the laboratory to continue with analysis this is also documented. If the client does not acknowledge the irregularity the samples are rejected. If the irregularity is noted in samples submitted for bacteriological analysis for compliance purposes, the samples are rejected without exception.

The sample identification number is affixed to all sample containers and worksheets are prepared for the different types of analyses requested. When there are different containers or sub-samples belonging to one sample for multiple tests, the fraction name is indicated on the sample bottle and the worksheet. For example if sample "XXX" requires EPA 8081 and 8270, and two containers were received, then each bottle is also labeled with the required test and/or test method. Alternatively, pre-labeled bottles containing the required tests are also provided.

9.4 Storage conditions

Samples that require thermal preservation are stored under refrigeration, which is +/- 2 ^{o}C of the specified preservation temperature. When this temperature is 4 ^{o}C, a storage temperature of just above the freezing temperature to 6 ^{o}C is considered acceptable. Samples are stored in a manner that prevents cross contamination, normally they are separated based on matrix, analysis and level of known contamination. Other samples are kept in specific areas while they are being tested. Evidence samples are stored in secured and controlled access areas.

9.5 Custody of Samples and Documentation

The Chain-of-Custody procedures begin when the sample is collected. At that time, a COC form is prepared, containing all the information about the sample (project name, sample identification, date and time of collection, name of person performing the sampling, matrix type, tests requested, number of containers, field measurements, and all other pertinent information).

The person who does the sampling must sign the COC record. The relinquishing and receiving parties must also sign the COC, indicating the date and time this operation was performed.
If the client submits the sample to the laboratory, a copy of the COC form is given to the client as evidence of receipt, while the other two copies are kept at the laboratory.

For samples received in sealed ice chests by commercial freight companies (UPS, FedEx), copies of shipping papers are attached to the COC form for future reference. The person receiving the sample also makes a notation of the type of shipment on the COC.

Access to all samples and sub-samples is controlled. The laboratory area is maintained secured and is restricted to authorized personnel only.

When full Legal/Evidentiary Chain Of Custody protocols are required, COC records are used to establish an intact, continuous record of the physical possession, storage and disposal of sample containers, collected samples, sample aliquots, and sample extracts or digestates, The COC records account for all time periods associated with the samples. The COC records identify all individuals who physically handled individual samples. The COC forms remain with the samples during transport or shipment. If shipping containers and/or individual sample containers are submitted with sample custody seals, and any seals are not intact, the lab shall note this on the chain of custody. Other documents pertaining to the transport of the samples, such as receipts from common carriers are kept as part of the documentation. When evidentiary samples, subsamples, digestates or extracts are transferred to another party they are subject to the requirements of legal chain of custody. These samples are kept in a locked area or refrigerator with the key in possession of the designated sample custodian.

9.6 Sample disposal

Samples are retained for thirty days from report date unless otherwise instructed by the client or if the samples are part of litigation or have been received under legal/evidentiary requirements, in which case the disposal of the physical sample is accomplished with the concurrence of the affected legal authority. After the retention period samples are either returned to the client or properly disposed of according to federal and state laws and regulations.

10. CALIBRATION PROCEDURES AND FREQUENCY

10.1 Traceability of Calibration

Whenever applicable, calibration of analytical support equipment and instruments is traceable to national standards of measurement.

10.2 Reference Standards

Reference standards of measurement (such as Class S or equivalent weights or traceable thermometers) are used for calibration only. Reference standards are subjected to in-service checks between calibrations and verifications.
Reference materials that require re-certification are submitted promptly to a qualified certification body.

10.3 General Requirements

Each calibration is dated and labeled with or traceable to the method, instrument, analysis date, and each analyte name, concentration and response (or response factor). Sufficient information is recorded to permit reconstruction of the calibration. Acceptance criteria for calibrations comply with method requirements or are established and documented.

10.4 Analytical Support Equipment

Analytical support equipment includes: balances, ovens, refrigerators, freezers, incubators, water baths, temperature measuring devices and volumetric dispensing devices if quantitative results are dependent on their accuracy, as in standard preparation and dispensing or dilution into a specified volume. All such support equipment is:

- Maintained in proper working order. The records of all activities including service calls are kept.

- Calibrated (annually for balances and certified thermometer, quarterly for mechanical pipettes), using NIST traceable references when available, over the entire range of use. The results of such calibration must be within the specifications required in the application for which the equipment is used, if not, the equipment is either removed from service until repaired or a correction factor is applied to it, if applicable.

Prior to use on each working day, balances, ovens, refrigerators, freezers, incubators, water baths and mechanical pipettes are verified for the expected use range. The acceptability for use or continued use is according to the needs of the analysis or application for which the equipment is being used.

10.4.1 Balances and reference weights

Laboratory balances and Class S reference weights are serviced and calibrated once a year by a third party specialist, Watson Bros. Weck Laboratories has a contract with Watson Bros., by which they automatically come for balance and weights inspection and calibration every year. The calibration or service is performed more frequently if a problem is suspected or observed by visual inspection.

10.4.2 Thermometers

All thermometers are checked annually against a NIST traceable reference thermometer, which is submitted for certification on annual basis.

10.4.3 Monitoring of Temperature

All refrigerators and freezers used for storage of samples and standards or reagents are monitored for temperature daily. The incubators used for bacteriological analysis are monitored twice a day for temperatures and the incubator for BOD is monitored daily. The temperatures are entered in charts posted on each unit that also include the initials of the person performing the checks and the acceptance ranges. When a temperature is out of compliance in any refrigerator, freezer or incubator, immediate action is taken to correct the problem.

10.5 Instrument Calibration

All instruments are calibrated in accordance with the respective SOPs and/or method of analysis. The typical calibration procedure consists of an initial calibration, performed by running a series of standards and calculating the response by using either the response factors or by linear or polynomial regression analysis. This is followed by a calibration verification when an initial instrument calibration is not performed on the day of analysis. All calibration procedures are thoroughly documented. The frequency, acceptance criteria and the conditions that will require recalibration are described in the corresponding SOPs. In all cases, the initial calibration is verified using an independently prepared calibration verification solution. For all chemical determinations in which standards are involved for calibration, it is the policy of the company to use a secondary reference material obtained from a different source, such as another supplier (preferred) or a different lot number, or prepared in house. This secondary reference can be an LCS or other standard run to verify the integrity of the primary standard.

Specific analyses' calibrations are checked more frequently. Some instruments (TOC and TOX analyzers) have built-in calibration features. The internal calibration of these instruments is monitored daily for accuracy.

All results are calculated based on the response curve from the initial calibration and are bracketed by calibration standards or reported as having a lower confidence level by either flagging them with defined qualifiers or explaining in the case narrative.

The following is the criteria used for the acceptance of an initial calibration, unless specified differently in the analytical methods:

- Use the average response factor (RF) if the percent relative standard deviation (%RSD) of the points is less than 20%. In this case, linearity through the origin is assumed.
- If the %RSD is greater than 20%, linearity through the origin cannot be assumed and a linear regression, a weighed linear regression or a non-linear regression can be used. The acceptance criteria for linear regression is a coefficient of correlation (r) equal or greater than 0.99 and for non-linear regression the coefficient of determination (COD) must be equal or greater than 0.98. In both cases, the curve is not to be forced through the origin nor the origin is used as another point. The sample results must be within the first and last standards.
- The number of data points to construct the initial calibration curve shall be obtained from the analytical method employed. If no criteria is specified, the laboratory shall construct initial calibration curves using a minimum of two data points without counting the blank and zero standard.
- The lowest standard shall be at or near the reporting limit for the method and at or below the regulatory limit/decision level if known by the laboratory.

If the initial calibration fails, the analysis procedure is stopped and evaluated. For example, a second standard may be analyzed and evaluated or a new initial calibration curve may be established and verified. In all cases, the initial calibration must be acceptable before analyzing samples.

When an initial calibration is not performed on the day of the analysis, a calibration verification check standard is analyzed at the beginning and at the end of each batch. An exception to this policy is for internal standard methods (e.g. most organic methods). For these analyses, the calibration check is only analyzed at the beginning of the analytical sequence. The concentration of this calibration check is specified in each method SOP.

If a calibration check standard fails, and routine corrective action procedures fail to produce a second consecutive calibration check within acceptance criteria, a new initial calibration curve is constructed. If the continuing calibration acceptance criteria are exceeded high (i.e. high bias), and there are non-detects for the corresponding analyte in all environmental samples associated with the continuing calibration check, then those non-detects may be reported, otherwise the samples affected by the unacceptable check are reanalyzed after a new calibration has been established, evaluated and accepted. If the continuing calibration acceptance criteria are below the low limit, results may be reported if sample results indicate a concentration above an action level and accurate values are not required by the customer. Otherwise, additional sample analysis does not occur until a new calibration curve is established and verified.

11. TEST METHODS AND STANDARD OPERATING PROCEDURES

The analytical procedures currently in use in the laboratory are based on the methodology approved by the EPA, the California Department of Health Services, the AIHA, and other regulatory agencies.

In some cases, Weck Laboratories can perform analyses that are not specifically described in the guidelines cited above. In these cases, the following approach is taken:

- Review other sources of test methods such as AOAC, ASTM, Pesticide Manual, etc., to find a suitable method for the matrix and analyte in question.
- Produce a modification of a standard test procedure for similar parameter or matrix
- Develop a special method in house suitable for the particular problem

For these special situations the analytical procedure is discussed with the client and performed upon the client's approval. Whenever possible, the same QA/QC guidelines as for standard methods are used, but the laboratory may deviate from these guidelines if necessary.

SOPs are maintained for the operations and procedures employed in the laboratory. The SOPs provide all information needed to perform the different analytical tasks in accordance with regulatory requirements and in a consistent and controlled manner following the guidelines described in this QAP manual. They are subject to continuous review and update. Copies of all SOPs are accessible to all personnel. Each SOP has an alphanumeric code that indicates the section it belongs, the number that identifies it, the revision number, the effective date and the signature of the QA Officer, Technical Director or Laboratory Director.

A current list of the Standard Operating Procedures in use is in Appendix 7.

11.1 Test Methods

The methods in use at the laboratory are described in the following publications:

- Tests Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, current edition,
- Methods for Chemical Analysis of Water and Wastewater, EPA-600/4-79-020.
- Standard Methods for the Examination of Water and Wastewater, current edition, APHA, AWWA, WPCF.
- Criteria for Identification of Hazardous and Extremely Hazardous Wastes, California Code of Regulations Title 22.
- Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater EPA-600/4-82-057.
- Recommended Methods of Analysis for the Organic components required for AB1803, 5th Edition Revised April 1986.
- Draft Method for Total Petroleum Hydrocarbons and Total Organic Lead, LUFT Methods, California Department of Health Services.
- Methods for the Determination of Organic Compounds in Finished Drinking Water and Raw Source Water - EPA 500 series.
- NIOSH Manual of Analytical Methods, US Department of Health and Human Services.
- Laboratory Methods of Analysis for Enforcement samples, SCAQMD, 1986.
- Stationary Source Test Methods, Air Resources Board, 1990.
- OSHA Analytical Methods Manual, 2nd Ed., U.S. Dept. of Labor, 1990.

Reference methods for all analytical procedures are kept in the Laboratory Office. Copies of specific methods are also in the corresponding sectors where the analyses are performed.

11.2 SOPs for Sample Management

These SOPs describe the receipt, handling, scheduling, and storage of samples

Sample receipt and handling – These procedures describe the precautions to be used in opening sample shipment containers and how to verify that chain of custody has been maintained, examine samples for damage, check for proper preservatives and temperatures, and log samples into the laboratory sample streams.

Sample scheduling – These procedures describe the sample scheduling in the laboratory and includes procedures used to ensure that holding time requirements are met.

Sample storage – These procedures describe the storage conditions for all samples, verification and documentation of daily storage condition, and how to ensure that custody of the samples is maintained while in the laboratory.

11.3 SOPs for Reagent/Standard Preparation

These SOPs describe how to prepare standards and reagents. Information concerning specific grades of materials used in reagent and standard preparation, appropriate glassware and containers for preparation and storage, and labeling and record keeping for stocks and dilutions is included.

11.4 SOPs for General Laboratory Techniques

These SOPs describe all essentials of laboratory operations that are not addressed elsewhere. These techniques include glassware cleaning procedures, operation of analytical balances, pipetting techniques, and use of volumetric glassware, among others.

Procedures for test methods describing how the analyses are actually performed in the laboratory are specified in method SOPs. These SOPs for sample preparation, cleanup and analysis are based on publications listed in Section 11.1 above or on internally developed methods validated according to EPA's Performance-Based Measurement System.

The elements included or referenced in the SOPs, when applicable are the following:

11.4.1 Identification of the test method
11.4.2 Applicable matrix or matrices
11.4.3 Method detection limit
11.4.4 Scope and application, including components to be analyzed
11.4.5 Summary of the method
11.4.6 Definitions
11.4.7 Interferences
11.4.8 Safety
11.4.9 Equipment and supplies
11.4.10 Reagents and standards
11.4.11 Sample collection, preservation and handling
11.4.12 Quality control
11.4.13 Calibration and Standardization
11.4.14 Procedure

11.4.15 Calculations
11.4.16 Method Performance
11.4.17 Pollution prevention
11.4.18 Data assessment and acceptance criteria for quality control measures
11.4.19 Corrective actions for out-of-control data
11.4.20 Contingencies for handling out-of-control or unacceptable data
11.4.21 Waste management
11.4.22 References
11.4.23 Tables, Diagrams, flowcharts and validation data.

11.5 SOPs for Equipment Calibration and Maintenance

These SOPs describe how to ensure that laboratory equipment and instrumentation are in working order. These procedures include calibration procedures and schedules, maintenance procedures and schedules, maintenance logs, services agreements for all equipment, and spare parts available in-house. Calibration and maintenance of laboratory equipment and instrumentation are in accordance with manufacturers' specifications or applicable test specifications.

12. QUALITY CONTROL DETERMINATIONS

12.1 QC determinations

The data acquired from QC determinations are used to estimate the quality of analytical data, to determine the need for corrective action in response to deficiencies, and to interpret results after corrective action procedures are implemented. Each method SOP includes a QC section, which addresses the minimum QC requirements for the procedure. The internal QC checks may differ slightly for each individual procedure but in general are described below. The acceptance limits and corrective actions for these QC checks are described in Section 15 and 16 of this manual.

12.1.1 Blanks – Negative Controls

Method Blanks or LRB are performed at a frequency of one per batch of samples per matrix type per sample extraction or preparation method. The result of this analysis is one of the QC measures to be used to assess batch acceptance.

Blanks and negative controls are used in microbiological analysis on regular basis. They consist of blanks, sterility checks and known negative cultures. The detailed description is contained in the corresponding SOP.

Blanks are prepared and analyzed in the following situations, or whenever there is a need to obtain further information:

- A blank is extracted for every batch and type of matrix for analysis of semi-volatile organics by GC, GC/MS or HPLC.
- A blank is carried through all the digestion procedures for analysis of metals by AA, ICP or ICP-MS for every batch of samples and type of matrix for each instrument used.
- A blank is carried through the leaching procedures (TCLP, EP TOX, and WET) using the same extraction fluid, bottles and agitators as the samples.

- System/Reagent blanks are analyzed at the beginning of the day prior to calibration, after a high level standard, after changing matrix and after samples that are known or suspected to be very concentrated.
- Reagent blanks are analyzed for all wet chemistry determinations involving titrations or colorimetry and their value is subtracted from the reading of the samples, if appropriate.
- Blanks for mobility procedures (TCLP, ZHE, EP TOX, and WET) are analyzed by the appropriate method.
- Additional field and trip blanks are prepared and analyzed where required or whenever requested by the client

Sometimes the blanks may show detectable limits of target analytes. In these cases the source of the contamination must be investigated and measures taken to correct, minimize or eliminate the problem if:

- The blank contamination exceeds a concentration greater than 1/10 of the measured concentration of any sample in the associated sample batch or
- The blank contamination exceeds the concentration present in the samples and is greater than 1/10 of the specified regulatory limit.
- The blank contamination is over the reporting limit for that analyte

Any sample associated with the contaminated blank shall be reprocessed for analysis or the results reported with appropriate data qualifying codes.

12.1.2 Reproducibility and Recovery Determinations – Positive Controls

For the determination of accuracy and precision of the analytical methods, the techniques of fortified blanks, matrix spike/ matrix spike duplicate, sample duplicates and surrogate spiking are used on a regular basis. The frequency is dictated by each analytical method or Standard Operating Procedure (minimum 1 per batch of 20 samples). The results obtained are compared with current acceptance limits (Appendix 8) and recorded in the LIMS. For methods that do not specify the acceptance criterion, this is statistically obtained from data generated at the lab; for some EPA 500's series methods they are also recorded in summary sheets for each batch.

For microbiological determination of total and fecal coliforms positive checks are included with each batch analyzed. A more detailed description is included in the corresponding SOP.

12.1.2.1 Duplicates

The determination of the precision of a method is accomplished by analyzing duplicate samples. Duplicate analysis is also performed when unusual or suspicious results are obtained. The relative percent difference is calculated, compared with the acceptance criteria (Appendix 8) and recorded win the LIMS. The evaluation of precision for most methods, however, is accomplished by comparing the results obtained for matrix spike and matrix spike duplicate determinations (MS/MSD), rather than analysis of duplicate samples. This is preferred since in many cases samples with frequent "not detected" results yield no useful information for statistical determinations of precision.
Poor performance in the duplicates generally indicates a problem with the sample composition and is reported to the client whose sample was used for the duplicate to assist in data assessment.
If Laboratory duplicates are employed, the selected sample(s), as much as possible, are rotated among client samples so that various matrix problems may be noted and/or addressed. Samples that are labeled field blank, equipment blank or trip blank are not selected for duplicate analysis.

The frequency of duplicates or MSDs is as mandated by the analytical method or SOP and at a minimum 1 every 20 samples or 1 per batch.

12.1.2.2 Laboratory Control Sample (LCS)

Laboratory Control Sample (LCS) or QC Check Samples are analyzed at a frequency established in each analytical method or SOP, minimum of 1 per batch of 20 or less samples per matrix type per sample extraction or preparation method. The exception is for analytes for which spiking solutions are not available such as total suspended solids, total dissolved solids, total volatile solids, total solids, pH, color, odor, temperature, dissolved oxygen or turbidity. The results of these samples are used to determine batch acceptance.

Laboratory Control Samples are also known as LFB and are defined as a sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes from a source independent of the calibration standards or a material containing known and verified amounts of analytes. It is generally used to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system.

The matrices used to prepare the LCS are Ottawa sand for soil and solid samples and reagent water for aqueous samples.

If the mandated or requested test method does not specify the spiking components, all reportable components to be reported are spiked, with the following exceptions:

- Where the components interfere with accurate assessment (such as simultaneously spiking chlordane, toxaphene and PCBs in Method 608),
- When the test method has an extremely long list of components or components are incompatible. In this case a representative number (at a minimum 10%) of the listed components are used to control the test method. The selected components of each spiking mix are chosen in order to represent all chemistries, elution patterns and masses, permit specified analytes and other client requested components.

However, in the cases that a few parameters are used for spiking, all reported components are used in the spike mixture within a two-year time period.

12.1.2.3 Matrix Spikes

The matrix spike consists of adding a known amount of a specified number of target analytes defined in the analytical method or SOP to the sample matrix (usually on the samples in the batch). The frequency of MS/MSD determinations is established in the analytical method or SOP and it is at a minimum, one per batch of 20 samples or less, per matrix type per sample extraction or preparation method. Matrix spikes are not performed for analytes for which spiking solutions are not available such as, solids determinations (total suspended, total dissolved, total volatile), pH, color, odor, temperature, dissolved oxygen, BOD, COD or turbidity. The selected sample(s) for spiking are be rotated among client samples, as much as possible, so that various matrix problems may be noted and/or addressed. The spiked samples are then analyzed as the other samples in the batch and the recoveries calculated and compared with acceptance limits. Results are recorded in the LIMS. For industrial hygiene samples, unused sample collection media is used for spiking. The samples selected for spiking are rotated among received samples so that various matrix problems may be noted and/or addressed. Samples that are labeled equipment blanks, field blanks or trip blanks must no be used for matrix spiking.

All efforts shall be made to obtain additional sample aliquots for matrix spiking; when bottles are prepared in house additional containers are provided for matrix spikes. If the sample containers are prepared by the client or provided by a third party, a good communication should be established with all

parties involved in order to obtain enough sample aliquots to perform matrix spiking for all test methods required. If, in spite of all efforts made, there are no extra samples received for matrix spiking, a pair of LCS/ LCS duplicate is analyzed for assessing accuracy and precision.
Poor performance in a matrix spike generally indicates a problem with the sample composition, and not the laboratory analysis, and is reported to the client whose sample was used for the spike with the appropriate data qualifiers or in the case narrative to assist in data assessment.
In general, all reportable components are in the spike mixes. However, in cases where the components interfere with accurate assessment (such as simultaneously spiking chlordane, toxaphene and PCBs in method 608), the test method has an extremely long list of components (such as Methods 8270 or 6010) or components are incompatible, a representative number (10%) of the listed components are used. The selected components of each spiking mix represent all chemistries, elution patterns and masses and include permit specified analytes and other client requested components.
However, in the cases that a few parameters are used for spiking, all reported components are used in the spike mixture within a two-year time period.

12.1.2.4 Surrogates

For GC and GC/MS analysis, surrogate standards are added to all samples, blanks and QC samples. Surrogates are compounds that are very similar in their chemical and chromatographic characteristics as the target compounds but are not present in environmental samples, or at least they are not part of the target compounds list. Results from recoveries of surrogate standards are compared with acceptance values and recorded in each worksheet containing the results of the samples and in the LIMS. Poor surrogate recovery generally indicates a problem with the sample composition and is reported to the client whose sample produced the poor recovery in order to assist in data assessment.

12.1.2.5 Equations used for calculations

The following equations are used in the calculation of recovery and RPD:

From duplicate sample:

$$RPD = \frac{S_a - S_b}{((S_a + S_b) \div 2)} x100\%$$

Where: S_a = First sub-sample analyzed
S_b = Second sub-sample analyzed

From MS/MSD analysis:

$$RPD = \frac{R_a - R_b}{((R_a + R_b) \div 2)} x100\%$$

Where: R_a = Amount of analyte found in Matrix Spike.
R_b = Amount of analyte found in Matrix Spike Duplicate

Recovery of matrix spikes:

$$\text{Recovery} = \frac{SSR - SR}{CA} x100\%$$

Where:
SSR= Results of spiked sample
SR = Results of sample (unspiked)
CA = Concentration of spike added

Surrogate recoveries:

$$\%\,\text{Recovery} = \frac{ConcentrationFound}{ConcentrationAdded} x100\%$$

Where:
Concentration found = Result obtained after analysis
Concentration added = Amount of surrogate spiked

12.1.2.6 Quality Control Charts

Quality Control charts are generated from data stored in the LIMS for recoveries of matrix spikes, LCSs, surrogates and RPD. Control limits are determined with a minimum of 20 data point population. Upper and lower warning limits are established at 2 standard deviations from the mean of the population and acceptance limits are established at 3 standard deviations from the mean unless the method has published acceptance limits. The graphical record is updated quarterly.

12.1.3 External References and Control Samples

External Reference Samples or QCS are obtained from various sources are analyzed on a regular basis, minimum quarterly. Reference samples simulating matrix and analytes of interest are purchased from Environmental Resource Associates, Inc. or other NIST approved vendors, and analyzed for drinking water, wastewater, hazardous waste and priority pollutants.

Interlaboratory comparisons are run whenever possible, as well as intralaboratory comparisons by analyzing an analyte by different analytical methods.

12.2 Method Detection Limit and Reporting Limits

The MDL is defined as the minimum concentration of an analyte that can be measured and reported with 99% confidence that the analyte concentration is greater than zero.

For analytes for which spiking is a viable option, detection limits are determined by a Method Detection Limit (MDL) study for each common matrix by the procedure described in 40CFR Part 136, Appendix B. This procedure consists of spiking seven or more aliquots of the matrix (preferably free of the analytes) with each compound of interest, at a concentration between 3 and 5 times the estimated MDL. These spiked samples are subject to the entire analytical process and analyzed. The MDL is calculated as follows:

MDL = S x t

Where
S = Standard deviation of the seven replicates.

t = Student's "t" value for 99% confidence for the corresponding number of degrees of freedom. For 7 replicates this number is 3.14.

An MDL study is not performed for any component for which spiking solutions are not available, such as total suspended solids, total dissolved solids, total volatile solids, total solids, pH, color, odor, temperature, dissolved oxygen or turbidity. For these types of analytes, the detection limit is based on a signal to noise ratio from the analysis of a QC check sample or calibration standard.

The method detection limit is initially determined for the compounds of interest in each method and in each matrix (aqueous or soil/solid). Laboratory pure reagent water and Ottawa sand are used as matrices for aqueous and soil/solid matrix respectively.

The detection limit is initially determined for the compounds of interest in each test method in a matrix in which there are neither target analytes nor interferences at a concentration that would impact the results.

Detection limits are repeated each time there is a significant change in the test method or instrument type, or at a frequency specified by the analytical method.

When determining the MDL, all sample processing steps of the analytical method are included in the determination of the detection limit.

The MDL studies are documented in spreadsheets created for that purpose. The documentation includes the matrix type, date of analysis, analyst name or initials, instrument used, values obtained and calculations. The raw data and supporting documents are retained, either attached to the spreadsheet used for calculation or filed by date with the general raw data.

The Reporting Limit is normally set at 10 times the standard deviation. This is equivalent to multiply the MDL (obtained for 7 replicates) by 3.18 and rounding to the nearest 1, 2 or 5. In other cases, for certain methods the reporting limit is obtained by multiplying the MDL by another factor (between 1 and 10). The reporting limit for each analyte in each method is referenced in the corresponding SOP.

The Reporting Level is often referenced as Practical Quantitation Limit or PQL. Certain projects require reporting all detected analytes, even below the reporting limit; in this case, when an analyte is detected but it is below the PQL, it is reported with a "J" flag indicating that the concentration is only estimated.

In some cases project-specific reporting limits are used, when the DQOs mandate a different reporting limit than the RLs used routinely by Weck Laboratories.

For potable water analysis, the Detection Limit for Reporting purposes (DLRs) is used instead of the actual MDLs or RLs. For this matrix the calculated MDL must be not greater than the DLR. DLRs are verified on regular basis by including the lowest calibration point at or below the DLR.

12.3 Selectivity

Absolute and relative retention times aid in thé identification of components in chromatographic analyses and help evaluate the effectiveness of a column to separate constituents. Acceptance criteria for retention time windows are documented in each method SOP.

A confirmation is performed to verify a compound identification when positive results are detected on a sample from a location that has not been previously tested. Such confirmations are performed on organic tests except when the analysis involves the use of a mass spectrometer. To accomplish the confirmation, a secondary column (different phase than the analytical columns) or a mass spectrometer are used.

Acceptance criteria for mass spectral tuning are contained in the corresponding SOPs.

12.4 Demonstration of Method Capability

Prior to acceptance and use of any method, satisfactory initial demonstration of method performance is required. The initial demonstration of capability (IDC) is also performed by each technical staff member and it is repeated each time there is a significant change in instrument type, personnel, work cell composition or test method. The process is described in Appendix 9. A Certification Statement is completed for each analyst documenting that this activity has been performed (Appendix 9). The associated records supporting the activity are also retained at the laboratory and they are available to reproduce the analytical results summarized in the Certification Statement.

The demonstration of method capability consists of performing the analysis on a clean matrix, which has been spiked with the compounds of interest or purchased from a certified vendor.

For analysis that require the use of a specialized "work cell" (a group consisting of analysts with specifically defined tasks that together perform the test method), the group as a unit performs the IDC. The supporting documentation is also kept at the laboratory.

When a work cell is employed, and the members of the cell change, the new employee works with experienced analysts in the specialty area and this new work cell demonstrates acceptable performance through acceptable continuing performance checks, such as laboratory control samples. This continued performance check is documented and the four preparation batches following the change in personnel is monitored to ensure that none of the batches result in the failure of any batch acceptance criteria (method blank and laboratory control sample). If there is a failure, the demonstration of capability is repeated. When the entire work cell is changed or replaced, the new work cell repeats the demonstration of capability (Appendix 9).

When a work cell(s) is employed the performance of the group (work cell) is linked to the training records of the individual members of the work cell.

12.5 Performance and Proficiency Testing Programs

The following are the proficiency testing programs in which the laboratory currently participates on regular basis.

12.5.1 Drinking water analysis: WS Studies

12.5.2 Wastewater analysis: WP studies

12.5.3 Hazardous waste and soil

12.5.4 Bacteriological Performance Evaluation Study.

The Proficiency Testing samples are purchased from NIST approved vendors.

The laboratory participates in other special PT programs managed by government agencies or private entities.

12.6 Additional Quality Control Checks

Whenever possible, additional QC checks are performed such as running a sample using different techniques and different standards (EPA Method 602 & EPA Method 624), correlations between COD, BOD and TOC; TDS & Specific Conductivity, balance between cations and anions on water analysis, etc.

13. DATA REDUCTION, VALIDATION AND REPORTING

13.1 Laboratory worksheets - Raw data documentation

Upon acceptable receipt of samples by the laboratory, sample worksheets are generated for the required testing. These worksheets are distributed to the respective laboratory departments.

The data that is being obtained, such as weights, extraction volumes, calculations, etc. are recorded in the worksheet. Raw data being produced is also entered in sheets called "run logs" that summarize the final results for a certain batch of samples. These run logs are used for entering the results in the LIMS.

After raw data is entered in the corresponding worksheets and run logs, it is initialed by the analyst and saved chronologically for future review. All electronic raw data is stored in magnetic tapes or CDs.

13.2 Data Reduction and Validation

Some instruments have a computerized data reduction and calculation, such as GC/MS, HPLC, GC and ICP. The protocols to perform these tasks are described in the corresponding SOPs and the computer programs used for data reduction are validated before use and checked periodically by manual calculations. The results obtained from computer data reduction are double checked by the analyst and entered in the worksheet, and the software-generated hardcopy is attached to the worksheet. A supervisor or second analyst performs a secondary review of the raw data (e.g. chromatograms and reports summary) for proper integration of peaks, identification of compounds, QC, etc. If a discrepancy is noted, the worksheet is returned to the primary analyst for corrective action. For analyses that do not have automatic data reduction, the analyst performs the necessary calculations to obtain the final result, and then the results are reviewed by the supervisor or second analyst.

All information used in the calculations (e.g. raw data, calibration files, tuning records, results of standard additions, interference check results, sample response, and blank or background correction protocols) as well as sample preparation information (e.g. weight or volume of sample used, percent dry weight for solids, extract volume, dilution factor used) are recorded in order to enable reconstruction of the final result.

As described in Section 16, the results of the quality control sample analysis are reviewed, and evaluated before data are reported.

After the results are entered into the LIMS they are verified for completeness and correctness and if no discrepancies are encountered they are released for reporting.

13.3 Report Format and Contents

After the data is entered in the LIMS and approved, a report or "Certificate of Analysis" is generated from the information contained in the LIMS database. The certificate of analysis, containing the results of each test, or series of tests, is then submitted with all supporting documentation to the person who signs it. The signatory personnel include the Lab Director, The QA Officer, the QA Officer designee, and the Technical Directors.

The analytical report contains the following information, at a minimum:

- Header with complete laboratory information.
- Client's information (Company name, address, contact person, etc.)
- Project name or number
- Lab ID number assigned to the sample (unique identification number).
- Description and unambiguous identification of the sample(s) including the client identification code.
- Sample login information (date, time and initials of person that received the sample)
- Sampling information (date, time, name of sampler)
- If the laboratory collected the sample, reference to sampling procedure.
- Analysis performed.
- Results obtained
- Date of preparation and analysis
- Time of preparation and/or analysis for tests with holding times of less than 48 hours when required to demonstrate that the test was performed within holding times (the time of preparation/analysis is entered in the case narrative of the report).
- Name of method used for preparation and analysis
- Minimum Reporting Level or PQL
- Signature of authorized person (Lab Manager, Lab Director, etc.)
- Any additional information that is important to be reported.
- Any deviations from, additions to or exclusion from SOPs, and any conditions that may have affected the quality of results, and including the use and definitions of data qualifiers (appendix 12).
- Measurements, examinations and derived results, supported by tables, graphs, sketches and photographs as appropriate, and any failures identified; identification of whether data are calculated on dry weight basis; identification of the reporting units such as ug/l or mg/kg
- Clear identification of all test data provided by outside sources, such as subcontracted laboratories, clients, etc.
- Clear identification of numerical results with values below the RL (J qualifier).

Exceptions to this standard approach for reporting are allowed with the approval of the Technical Director and are documented.

Any result not obtained in accordance with the approved method and the lab QA Plan by use of proper lab technique, must be documented as such in the case narrative section of the Certificate of Analysis.

Material amendments to a test report after issue are made only in the form of a further document, or data transfer including the statement "Supplement to Certificate of Analysis, identification number".

Clients are notified promptly, in writing, of any event such as the identification of defective measuring or test equipment that cast doubt on the validity of results given in any test report or amendment to a report.

Test results are certified to meet all requirements of the NELAC standards, or reasons are provided if they do not.

After signed, the Certificates of Analysis are sent to the client by mail. In some cases the report is submitted by fax prior to be sent by US Mail.

13.4 Records

Records provide the direct evidence and support for the necessary technical interpretations, judgments, and discussions concerning laboratory results. These records, particularly those that are anticipated to be used as evidentiary data, provide the historical evidence needed for later reviews and analyses. Records should be legible, identifiable, and retrievable, and protected against damage, deterioration or loss. All records referenced in this section are retained for a minimum of five years.

Laboratory records generally consist of bound notebooks with pre-numbered pages, official laboratory worksheets, personnel qualifications and training forms, equipment maintenance and calibration forms, chain-of-custody forms, sample analysis request forms, and analytical change request forms. All records are recorded in indelible ink and retained for a minimum of five years. Records that are stored or generated by computers have hard copy or write protected backup copies.

Any documentation errors are corrected by drawing a single line through the error so that it remains legible and is initialed by the responsible individual, along with the date of change. The correction is written adjacent to the error. Strip-chart recorder printouts are signed by the person who performed the instrumental analysis. If corrections need to be made in computerized data, a system parallel to the corrections for handwritten data is used.
In the event the Laboratory is sold, all past records shall be transferred to the custody of the new legal owner or operator of the Laboratory.
This management however shall maintain responsibility and accountability for laboratory work performed prior to the transfer. A written statement to this effect shall be provided.
The new owner/operator shall be accountable and liable for all work performed after the transfer date and he/she shall provide a written statement to that effect.
In the case the laboratory goes out of business, the present management shall maintain custody of all records and make them available to clients for a period of at least five years.

Laboratory records include the following:

13.4.1 Standard Operating Procedures

SOPs are controlled documents. They are reviewed on regular basis and if there are any revisions, these are distributed to all affected individuals to ensure implementation of changes.

13.4.2 Equipment Maintenance Documentation

Documents detailing the receipt and specification of analytical equipment are retained. A history of the maintenance record of each system serves as an indication of the adequacy of maintenance schedules and parts inventory. As appropriate, the maintenance guidelines of the equipment manufacturer are followed. When maintenance is necessary, it is documented in either standard forms or in logbooks.

13.4.3 Calibration Records and Traceability of Standards/Reagents

The frequency, conditions, standards, and records reflecting the calibration history of a measurement system are recorded.

13.4.4 Sample Management

A record of all procedures to which a sample is subjected while in the possession of the laboratory is maintained. These include records pertaining to:

- Sample preservation including appropriateness of sample container and compliance with holding time requirements.
- Sample identification, receipt, acceptance or rejection and log-in
- Sample storage and tracking including shipping receipts, transmittal forms, and internal routing and assignment records.
- Disposal of hazardous samples including the date of sample or sub-sample disposal and name of responsible person.
- Automated sample handling systems

13.4.5 Original Data

The raw data and calculated results for all samples is maintained in laboratory notebooks, logs, bench sheets, files or other sample tracking or data entry forms. Instrumental output is stored in a computer file and/or a hard copy report. These records include:

- Laboratory sample ID code
- Date of analysis
- Instrumentation identification and instrument operating conditions/parameters
- Analysis type and sample preparation information, including sample aliquots processed, cleanup, and separation protocols.
- All manual, automated, or statistical calculations
- Confirmatory analysis data, when required to be performed
- Review history of sample data
- Analyst's or operator's initials/signature

13.4.6 QC Data

The raw data and calculated results for all QC samples and standards are maintained in the manner described in 13.4.5. Documentation allows correlation of sample results with associated QC data. Documentation also includes the source and lot numbers of standards for traceability. QC samples include, but are not limited to, control samples, method blanks, matrix spikes and matrix spike duplicates.

13.4.7 Correspondence

Correspondence pertinent to a project is kept and placed in the project files.

13.4.8 Deviations

When a deviation from a documented policy occurs, including SOPs, analytical methods, QA/QC criteria, etc., the laboratory notifies this to the client in the Certificate of Analysis under the case narrative section or on a supplemental report indicating the deviation and the reasons for it. All deviations from SOPs are reviewed and approved by the QA Officer or Technical Director

13.4.9 Final Reports

Copies of final reports are kept in each client's file, along with supporting documentation

13.4.10 Administrative Records

The following are maintained:

- Personnel qualifications, experience and training records
- Initial and continuing demonstration of proficiency for each analyst
- A log of names, initials and signatures for all individuals who are responsible for signing or initialing any laboratory record.

13.5 Document Control System

A document control system is used to ensure that all personnel have access to current policies and procedures at all times. Documents, which are managed by this system, include this Quality Manual and all SOPs. The system consists of a document review, revision and approval system, and document control and distribution.

All quality documents (this manual, SOPs, policies, etc.) are reviewed and approved by the QA Officer, the Technical Director and the Laboratory Director. Such documents are revised whenever the activity described changes significantly. All documents are reviewed annually or more often if it is needed.

All QA/QC documents are controlled by the QA Officer. Controlled copies are provided to individuals in the laboratory who need copies. The QA Officer maintains a distribution list for controlled copies and ensures that any revisions are distributed appropriately.

13.6 Confidentiality

All analytical reports and results are kept in confidence to the customer who requested the analyses and only released to third parties with written permission from a properly authorized representative of the client. This information includes, but is not limited to COCs, Certificates of Analysis, raw data, bench sheets, electronic information and sample results.

In addition no information pertaining to clients is posted in public areas where the access is not restricted.

Access to laboratory records and LIMS data is limited to authorized laboratory personnel except with the permission of the QA Officer or Laboratory Director. NELAP-related records are made available to authorized accrediting authority personnel.

14 PERFORMANCE AND SYSTEM AUDITS AND FREQUENCY

14.1 Internal Laboratory Audits

Annual internal audits are performed to verify that laboratory operations continue to comply with the requirements of the quality system. The quality assurance officer plans and organizes internal audits as required by a predetermined schedule and requested by management. Such audits are performed by the

Quality Assurance Officer or personnel designated by the QA officer, who are by trained and qualified and wherever resources permit, independent of the activity to be audited. Technical personnel are not allowed to audit their own activities unless it can be thoroughly demonstrated that an effective audit will be carried out.
Where the audit findings cast doubt on the correctness or validity of the laboratory's results, an immediate corrective action is initiated and any client whose work may have been affected is notified.
The internal system audits include an examination of laboratory documentation on sample receiving, sample log-in, sample storage, chain-of-custody procedures, sample preparation and analysis, instrument operating records, etc.

14.2 Management Review

At least once per year, laboratory management conducts a review of the quality system to ensure its continuing suitability and effectiveness and to introduce any necessary changes or improvements in the quality system and laboratory operations. The review takes account of reports from managerial and supervisory personnel, the outcome of recent internal audits, assessment by external bodies, the results of proficiency tests, any changes in the volume and type of work undertaken, feedback from clients, corrective actions and other relevant factors.
The managerial review is performed according to specified procedures detailed in the corresponding SOP and the records of review findings and actions are kept at the laboratory.

15 FACILITIES, EQUIPMENT AND REAGENTS

15.1 Facilities

The Laboratory is divided into two separate buildings. One is dedicated to organic analysis (GC, GC/MS, TOC, TOX and HPLC) and the other houses the offices, inorganic analysis and sample extraction for organics. This separation prevents contamination of low levels of common laboratory solvents in the volatile organics analyses.

It is the policy of the company to assure that the facilities housing the laboratory are adequate to perform the analyses for which it is accredited. This includes physical space, workbenches, ventilation, utilities and other services. The company shall procure to improve the condition of the facilities whenever possible and make plans for future expansions or improvements.

15.2 Equipment Maintenance

Records are maintained for all major equipment, including documentation of all routine and non-routine maintenance activities.

The records include:

- The name of the equipment
- The manufacturer's name, type identification, and serial number or other unique identification.
- Date received and date placed in service (if available)
- Current location, where appropriate.
- If available, condition when received (e.g. new, used, reconditioned)
- Dates and results of calibrations, if appropriate
- Details of maintenance carried out to date and planned for the future

- History of any damage, malfunction, modification or repair

When purchasing new laboratory equipment and accessories, only reputable brands will be considered and always the instruments that have the best quality shall be considered, regardless of the difference in price with a similar instrument, considered of an inferior quality.

Instruments and equipment are maintained in optimum condition. Frequent inspections, routine preventative maintenance, prompt service, etc. ensure optimal performance.

It is the policy of the company to provide analytical instruments and software adequate to meet the method requirements and the quality control operations specified in both NELAC and the individual methods. Older instruments shall be replaced with newer ones as technology improves and efforts shall be made to provide a greater degree of automation and security in analytical instruments. A list of major instruments and reference materials is in Appendix 4.

Service contracts with the manufacturer or instrument Maintenance Company are maintained for the following instruments:

- ICP instruments for metal analysis
- GC/MS units for volatile organics
- Purge and Trap systems and autosamplers
- GC/MS units for semi-volatile organics

The analyst in charge of each particular instrument performs preventive maintenance for all other analytical instruments.

All maintenance and repairs are thoroughly documented in logbooks, with information pertaining to the description of the problem or routine maintenance, date of occurrence and name of person that performed the maintenance operation.

A routine preventive maintenance program is used to minimize the occurrence of instrument failure and other system malfunctions. Designated employees regularly perform routine scheduled maintenance and repair of instruments. All laboratory instruments are maintained according with manufacturer's specifications.

Glassware is cleaned to meet the sensitivity of the method. Any cleaning and storage procedures that are not specified by the method are documented in laboratory records or SOPs.

15.3 Reagents and Chemicals

The reagents and chemicals used in the laboratory are obtained from reputable suppliers that have proven consistency over the years. Purity specifications are chosen based on the analysis and this is always verified by the analysis of solvent blanks and check standards. The following are some of the reagents used:

- Solvents used for Gas Chromatography and GC/MS are "organic residue analysis" grade.
- Methanol used for volatile organics by GC or GC/MS is "Purge and Trap" grade.
- All inorganic chemicals are "reagent grade" or better, depending of the requirement.
- Nitric acid used for preparation of standards for ICP/MS analysis is "trace metals".

The quality of reagent water sources is monitored and documented to meet method specific requirements.

15.4 Analytical Standards and Reference Materials

Most of the standards used are purchased as certified solutions from qualified vendors. These stock standards are traceable to NIST, the corresponding documentation, including certificate of analysis or purity, date of receipt, recommended storage conditions, expiration date, etc., is maintained in laboratory files.

The original containers provided by the vendor are labeled with an expiration date.

All chemical reagents and analytical standards received at the laboratory are inspected for appearance and expiration date, if any. They are then entered into a bound logbook and a unique identification number is assigned to each chemical or standard, which is written on the label. The entry in the logbook consists of the supplier, name of the chemical or standard, date received, lot number and expiration date, if any. This identification number is referenced when a dilution of the stock is made or when a reagent solution is prepared.

Analytical standards prepared in the laboratory are prepared from certified stock solutions or pure product. Quality Control Standards (QCS) are prepared or obtained from a separate source other than the working standards.

The management does not reject any request from technical personnel to obtain a reference material or any type of instrument or chemical that he or she considers essential for the normal operation of the laboratory.

15.5 Computers and Electronic Data Related Requirements

Where computers or automated equipment are used for the capture, processing, manipulation, recording, reporting storage or retrieval of test data:

- Section 8.1 through 8.11 of the EPA Document "2185 – Good Automated Laboratory Practices" (1995), is used as the standard.
- Computer software is documented to be adequate for use.
- Procedures are established and implemented to protect the integrity of data.
- Computer and automated equipment are maintained to ensure proper functioning
- Appropriate procedures are used for the maintenance of security of data including the prevention of unauthorized access to, and the unauthorized amendment of, computer records.

16 SPECIFIC ROUTINE PROCEDURES USED TO EVALUATE DATA QUALITY

Quality control acceptance criteria are used to determine the validity of the data based on the analysis of internal quality control check (QC) samples (see section 11). The specific QC samples and acceptance criteria are found in the laboratory SOPs. Typically, acceptance criteria are taken from published EPA methods. Where no EPA criteria exist, laboratory generated acceptance criteria are established. Acceptance criteria for bias are based on historical mean recovery plus minus three standard deviation units, and acceptance criteria for precision range from zero (no difference between duplicate control samples) to the historical mean relative percent difference plus three standard deviation units.

Analytical data generated with QC samples that fall within prescribed acceptance criteria indicate the laboratory was in control. Data generated with QC samples that fall outside the established acceptance criteria indicate the laboratory was "out of control" for the failing tests. These data are considered suspect and the corresponding samples are reanalyzed or reported with qualifiers.

Many published EPA methods do not contain recommended acceptance criteria for QC sample results. In these situations, Weck Laboratories, Inc. uses 70 – 130 % as interim acceptance criteria for recoveries of spiked analytes, until in-house limits are developed. In-house limits are based on a 95% confidence interval and must include a minimum of 20 data points.

16.1 Laboratory Control Samples

A Laboratory Control Sample is analyzed with each batch of samples to verify that the accuracy of the analytical process is within the expected performance of the method.
The results of the LCS are compared to acceptance criteria to determine usability of the data. Data generated with LCS samples that fall outside the established acceptance criteria are judged to be out-of-control. These data are considered suspect and the corresponding samples are reanalyzed or reported with qualifiers.
LCS samples are prepared in each corresponding matrix (reagent water for aqueous and Ottawa sand for soil/solid), which must be free of the target analytes to be analyzed.

16.2 Matrix Spikes/Matrix Spike Duplicates

Results from MS/MSD analyses are primarily designed to assess data quality in a given matrix, and not laboratory performance. In general, if the LCS results are within acceptance criteria, performance problems with MS/MSD results may either be related to the specific sample matrix or to an inappropriate choice of extraction, cleanup, or determinative methods. If any individual percent recovery in the matrix spike (or matrix spike duplicate) falls outside the designated acceptance criteria, Weck Laboratories, Inc. will determine if the poor recovery is related to a matrix effect or a laboratory performance problem. A matrix effect is indicated if the LCS data are within acceptance criteria but the matrix spike data exceed the acceptance criteria.

16.3 Surrogates Recoveries

Surrogates are exclusively used in organic analysis. Surrogate recovery data from individual samples are compared to surrogate recovery acceptance criteria in the methods. As for MS/MSD results, surrogate recoveries are used primarily to evaluate data quality and not laboratory performance.

16.4 Method Blanks

Method blank analyses are used to assess acceptance of sample results. The source of contamination is investigated and measures taken to correct, minimize or eliminate the problem if:

- The blank contamination exceeds a concentration greater than 1/10 of the measured concentration of any sample in the associated sample batch or
- The blank contamination exceeds the concentration present in the samples and is greater than 1/10 of the specified regulatory limit.
- The blank contamination is over the reporting limit for that analyte

Each sample in the affected batch is assessed against the above criteria to determine if the sample results are acceptable. Any sample associated with the contaminated blank is reprocessed for analysis or the results reported with appropriate qualifying codes.

17 CORRECTIVE ACTION

Corrective action is the process of identifying, recommending, approving and implementing measures to counter unacceptable procedures or out of control QC performance that can affect data quality. To the extent possible, samples are reported only if all quality control measures are acceptable. If a quality control measure is found to be out of control, and the data is to be reported, all samples associated with the failed quality control measure are reported with the appropriate data qualifier(s). Sample results may also be qualified when holding times are not met, improper sample containers and/or preservatives are used or when other deviations from laboratory standard practices and procedures occur.

Corrective action in the laboratory may occur prior to, during and after initial analyses. A number of conditions such as broken sample containers, multiple phases, low or high pH readings, and potentially high concentration samples may be identified during sample login or just prior to analysis. The SOPs specify conditions during and after analysis that may automatically trigger corrective action or optional procedures. These conditions may include dilution of samples, additional sample extract cleanup, and automatic reinjection/reanalysis when certain QC criteria are not met.

Any QC sample result outside of acceptance limits requires corrective action. Once the problem has been identified and addressed, corrective action may include the reanalysis of samples, or appropriately qualifying the results.

The analyst will identify the need for corrective action. The Technical Director will approve the required corrective action to be implemented by the laboratory staff. The QA Officer will ensure implementation and documentation of the corrective action.

Corrective actions are performed prior to release of the data from the laboratory. The corrective action will be documented in both a corrective action log (Appendix 10), signed by the personnel involved, and the narrative in data report.

Where a complaint, or any other circumstance, raises doubt concerning the laboratory's compliance with the laboratory's policies or procedures, or with the quality of the laboratory's tests, the laboratory shall ensure that those areas of activity and responsibility involved are promptly audited in accordance with internal audit procedures established under this QA Manual. All complaints received at the laboratory from clients or other parties shall be treated according to the corresponding standard operating procedure for its resolution. Records of the compliant and subsequent actions are maintained for future review.

There are some cases in which the QC checks do not fail but the analyst or supervisor discovers that an unexpected or contradictory result has been obtained. These situations are considered also as "Out-Of-Control" and an investigation is carried out.

The investigations/corrective action procedures includes but is not limited to:

- Investigate the probable cause of irregularity.

- Review the sample's documented history.
- Review the documentation for errors.
- Scrutinize the sample preparation (digestion, extraction, dilutions, cleanup, etc.)
- Verify standards with reference materials.
- Re-analyze the sample if possible.
- Investigate alternate methodologies.
- If the event is determined to be matrix dependent the data is reported with a qualifier.

18 SUBCONTRACTING AND SUPPORT SERVICES AND SUPPLIES

18.1 Subcontracted Laboratory Services

A subcontracted laboratory will be used only if Weck Laboratories does not have the capability of performing the requested test or if the client specifically requests a particular analysis to be subcontracted.

Weck Laboratories advises the client in writing of its intention to subcontract any portion of the testing to another party.

When subcontracting any part of the testing covered under NELAP, this work is placed with a laboratory accredited under NELAP for the tests to be performed.

The corresponding records demonstrating that the above requirements are met are retained (e.g. copies of the subcontracted lab certifications, communications with the client, etc.)

When subcontracted laboratories are used, this is indicated in the Certificate of Analysis and the original report from the subcontracted lab is sent to the client, keeping a copy for our files.

18.2 Outside Support Services and Supplies

Weck Laboratories, Inc. only uses those outside support services and supplies that are of adequate quality to sustain confidence in the laboratory's tests. Records of all suppliers for support services or supplies required for tests are maintained.

19 REFERENCES

19.1 NELAC Standards, July 1, 1999 Revision 11
19.2 Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans,
19.3 QAMS-005/80, December 29, 1980, Office of Monitoring Systems and Quality Assurance, ORD, USEPA, Washington, DC 20460
19.4 RCRA QAPP Instructions, USEPA Region 5, Revision: April 1998
19.5 ASTM D-5283-92. Generation of Environmental Data Related to Waste Management Activities: Quality Assurance and Quality Control Planning and Implementation.
19.6 American National Standards Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs (ANSI/ASQC E-4), 1994.
19.7 EPA 2185 – Good Automated Laboratory Practices, 1995
19.8 ISO/IEC Guide 25: 1990. General Requirements For The Competence Of Calibration And Testing Laboratories.
19.9 QA/R-2: EPA Requirements for Quality Management Plans, August 1994.

19.10 QA/G-4: Guidance for the Data Quality Objectives Process EPA/600/R-96/055, September 1994.

19.11 A/R-5: EPA Requirements for Quality Assurance Project Plans Draft – November 1997

19.12 QA/G-5: Guidance on Quality Assurance Project Plans EPA/600/R-98/018, February 1998.

19.13 A/G-6: Guidance for the Preparation of Standard Operating Procedures for Quality Related Operations EPA/600/R-96/027, November 1995.

19.14 A/G-9: Guidance for the Data Quality Assessment: Practical Methods for Data Analysis EPA/600/R-96/084, January 1998.

19.15 Manual for the Certification of Laboratories Analyzing Drinking Water EPA/570/9-90/008.

Appendix

APPENDIX 1
RESUMES OF KEY PERSONNEL

Name	Position
Alfredo Pierri	Laboratory Director
Jayna Kostura	QA Officer
Leung (Alan) Ching	Technical Director Organic Analyses
Thanh (Joe) Chau	Technical Director Inorganic Analyses
Truyet Mai	QA Officer Designee

ALFREDO E. PIERRI, R.E.A.

Title

President, Laboratory Technical Director

Education

M.S. (equiv.) - University of Buenos Aires, Argentina, 1978. Chemistry

- University of California, Los Angeles
Certificate in Hazardous Materials Control and Management,
1991 - 1993

Affiliations

American Chemical Society
American Society of Mass Spectrometry
American Water Works Association
National Association of Environmental Professionals
Water Environment Federation

Professional Experience

01/87 to Present	Weck Laboratories, Inc. Industry, California	President Laboratory Director
09/84 to 12/86	SCS Engineers Analytical Laboratory Long Beach, California	Laboratory Manager
07/79 to 09/84	Argentina Atomic Energy Energy Commission Chemistry Department Buenos Aires, Argentina	Analytical Chemist

Mr. Pierri has extensive experience in analytical chemistry. Most of his work in this field has been in the application and development of instrumental methods of analysis for organic analytes using GC, GC/MS, HPLC, IR and UV-Visible spectrometry. He has also worked in Atomic Absorption Spectrometry with flame and graphite furnace and Inductively Coupled Plasma (ICP) spectrometry. In the last 9 years he has been working exclusively in the environmental field obtaining in 1993 the certification as Registered Environmental Assessor (REA-04975) from the California Environmental Protection Agency.

As Laboratory Director, Mr. Pierri is responsible for all laboratory operations including the supervision of the overall performance of the laboratory, revision of analytical reports and Quality Assurance Program and provision of technical assistance and direction to laboratory personnel.

Mr. Pierri is well acquainted in all aspects of environmental regulations at Federal and State level, providing consulting services and guidance to clients in regulatory compliance and chemical treatment issues as well as understanding and interpreting analytical data.

Other relevant experience and projects in which Mr. Pierri has participated are as follows:

- Characterization of wastes to be classified as hazardous as per State of California and Federal Regulations.
- Determination of contamination in soil and groundwater due to leaking underground storage tanks.
- Design and implementation of a Quality Assurance Program in Environmental Monitoring, writing of the QA manual and training of laboratory personnel.
- Interpretation of analytical data and compliance with regulations for drinking water for different potable water purveyors in Southern California.
- Compliance for wastewater discharges with local regulatory agencies and NPDES permits.
- Consulting services to industrial clients on pre-treatment of effluents in order to minimize organic matter and solids and reduce costs in taxes imposed by POTWs.
- Identification of unknown materials by chemical and physical methods.
- Implementation of a LIMS and use of personal computers for data acquisition, handling, and reporting.
- Teaching of Analytical Organic Chemistry at University Level for MS program.

JAYNA K. KOSTURA

Title:

QA Officer

Education

B.S. - University of California, Davis, 1977
Biological Sciences

- University of California, Riverside
Certificate in Hazardous Materials Management, 1994

Professional Experience

09/00 to Present	Weck Laboratories, Inc. Industry, California	QA Officer
10/90 to 09/00	Weck Laboratories, Inc. Industry, California	Laboratory Manager
01/79 to 09/90	Chemical Consultants Industry, California	Laboratory Director
05/78 to 01/79	Chemical Consultants Industry, California	Analyst

Ms. Kostura has extensive experience in the environmental monitoring field. As QA Officer she is responsible for supervising and auditing the QA plan and investigating irregularities. She also has responsibilities in reviewing the QA Program Manual and Standard Operating Procedures.

As Chemical Hygiene Officer Ms. Kostura is responsible for development and implementation of the Chemical Hygiene Plan as well as the Injury and Illness Prevention Program.

Ms. Kostura is also very well versed in compliance regulations and treatment of industrial wastes, providing technical support to clients and consultants, as well as interpretation of analytical data.

Ms. Kostura has hands-on experience in analytical determinations by Atomic Absorption spectrometry, Plasma Spectrometry, wet chemistry and microbiology, as well as studies in chemical treatment of wastewater for the electroplating and other industries.

Ms. Kostura's relevant experience is as follows:

- Reviewing QA/QC procedures and data for environmental testing.
- Interpretation of analytical data and interaction with regulatory agencies at federal, state and local levels.
- Writing of SOPs for different test methods.
- Evaluation and reviewing analytical data for inorganic analysis by AA, ICP, wet chemistry methods and organic analyses.

ALAN CHING

Title:

Technical Director Organic Analyses

Education

B.S. - Chu Hai College, Hong Kong, 1985
Chemistry

- Shangai University of Technology, China
Analytical Chemistry Courses 1978 - 1981

M.S - California Polytechnic University, Pomona
Analytical Chemistry, 1997

Professional Experience

09/00 – Pres.	Weck Laboratories, Inc.	Technical Director Organic Analyses
08/97 - 09/00	Weck Laboratories, Inc.	Organic Section Group Leader
04/96 - 07/97	Weck Laboratories, Inc.	QC Officer
02/95 - 03/96	Weck Laboratories, Inc.	Senior Chemist - GC
10/90 - 02/95	Weck Laboratories, Inc.	Senior chemist AA/ICP
04/89 - 06/89	Dinippon Ink and Chemical Hong Kong	Sales & Customer Technical Service
09/86 - 03/89	DIC - Sheng Zheng Company Shengzheng, China	Production Management and Quality Control
01/85 - 08/86	Dinippon Ink and Chemical	Lab Technician

Project Experience

- Supervision and training of personnel in the organic section.
- Technical advisor for organic analysis and troubleshooting.
- Signing of organic analysis reports (in absence of Lab Manager or Lab Director).
- Reviewing and maintaining the QA manual and QA/QC documentation.

Alan Ching, Continued

- Analysis of environmental samples for metals, and other elements by atomic absorption and ICP spectrometry using flame, hydride generation, cold vapor and graphite furnace.
- Preparation and set-up of leaching tests for hazardous waste characterization.
- Maintenance of atomic absorption and ICP instrumentation.
- Development and application of microwave digestion methods for metal analysis in environmental samples.
- Analysis of water in solvents, paints, inks and petroleum products by Karl-Fisher titration.
- Separation and detection of four different arsenic compounds using ion exchange chromatography and UV detection. (Master's degree project)
    - Analysis of environmental samples by GC and GC/MS including pesticides, herbicides, hydrocarbons, volatile organics, etc.

JOE CHAU

Title

Technical Director for Inorganic and Microbiology

Education

B.S. - California Polytechnic University, Pomona, CA, 1988
Electrical Engineering

B.S - California Polytechnic University, Pomona, CA. 1993
Chemistry, Industrial Option

Professional Experience

09/00 – Pres. Inorganic Microbiology	Weck Laboratories, Inc. Industry, California	Technical Director for Analysis and
01/96 – 09/00	Weck Laboratories, Inc. Industry, California	Inorganic Section Supervisor
09/89 – 01/96.	Weck Laboratories, Inc. Industry, California	Senior chemist Spectroscopy (AA, ICP, ICP-MS)
09/88 - 09/89	Lights of America, Inc. Walnut, California	Electronic Technician

Project Experience

- Supervising and training of personnel in the wet chemistry, metals and microbiology groups.
- Technical advisor and troubleshooting for ICP-AES, ICP/MS and AA analyses.
- Signing of inorganic analysis reports (in absence of Lab Manager or Lab Director).
- Development of analytical procedures for the determination of environmental samples by ICP-MS
- ICP-MS operation and maintenance
- Analysis of water, wastewater, soil and hazardous waste samples by flame Atomic Absorption Spectrometry (AAS) and Inductively Coupled Plasma Emission Spectrometry (ICP-AES).
- Analysis of air filters for lead and other metals following NIOSH procedures.
- Operation and programming of ICP-AES spectrometer for analysis of metals.

- Maintenance and troubleshooting of AA and ICP instrumentation.
- Digestion methods and sample preparation for metal analysis including hot plate digestion and microwave digestion.
  - Leaching procedures for hazardous waste classification TCLP, WET and EP TOX.

Special Qualifications

Seminars:

Participation of seminars about AA, ICP and sample preparation given by Thermo Jarrell Ash, Varian and Perkin-Elmer, 1990 to 1992.

Continuing Education

Certificate Program for Hazardous Waste Management, University of California, Irvine, 1991

Perkin Elmer, ICP-MS training course. San Jose, CA 1996

TRUYET T. MAI

Title:

QA Officer Designee

Education

Ph.D. - University of Besancon, France, 1973
Structural Organic Chemistry.

Professional Experience

09/00 - Pres.	Weck Laboratories, Inc. Industry, CA	QA Officer designee
	BKK Inc. West Covina, CA	Lab Manager and Leachate Treatment Plant Manager
1997 - 09/00	Weck Laboratories, Inc. Industry, CA	QA Officer
	BKK Inc. West Covina, CA	Lab Manager and Leachate Treatment Plant Manager
1995 - 1997	Greenfield Environmental Chula Vista, CA	Lab Manager
1989 - 1994	Chemical Waste Management Kettleman City, CA	Lab Manager
1987 - 1989	University of Minnesota Medical School, MN	Research Associate

Prior to 1986, Dean, Associate Professor and Lecturer in Chemistry for Universities in France and Viet Nam.

Project Experience

- Managing QA Programs for environmental labs.
- Several years United States, European and Asian experience as an Analytical & Environmental Laboratory Manger in the toxic waste industry.
- Extensive experience in the acceptance, approval, and treatment of US EPA, Title 22, and OSHA regulations for solid waste, wastewater and air monitoring program.
- Recognized for ability to work with diversified professionals from different cultures and dealing confidently with sensitive situations.

- Specialized in troubleshooting and preparing of most lab equipment.

APPENDIX 2

CODE OF ETHICS

Weck Laboratories, Inc. is committed to ensuring the integrity of our data and meeting the quality needs of our clients. We pledge to manage our business according to the following principals:

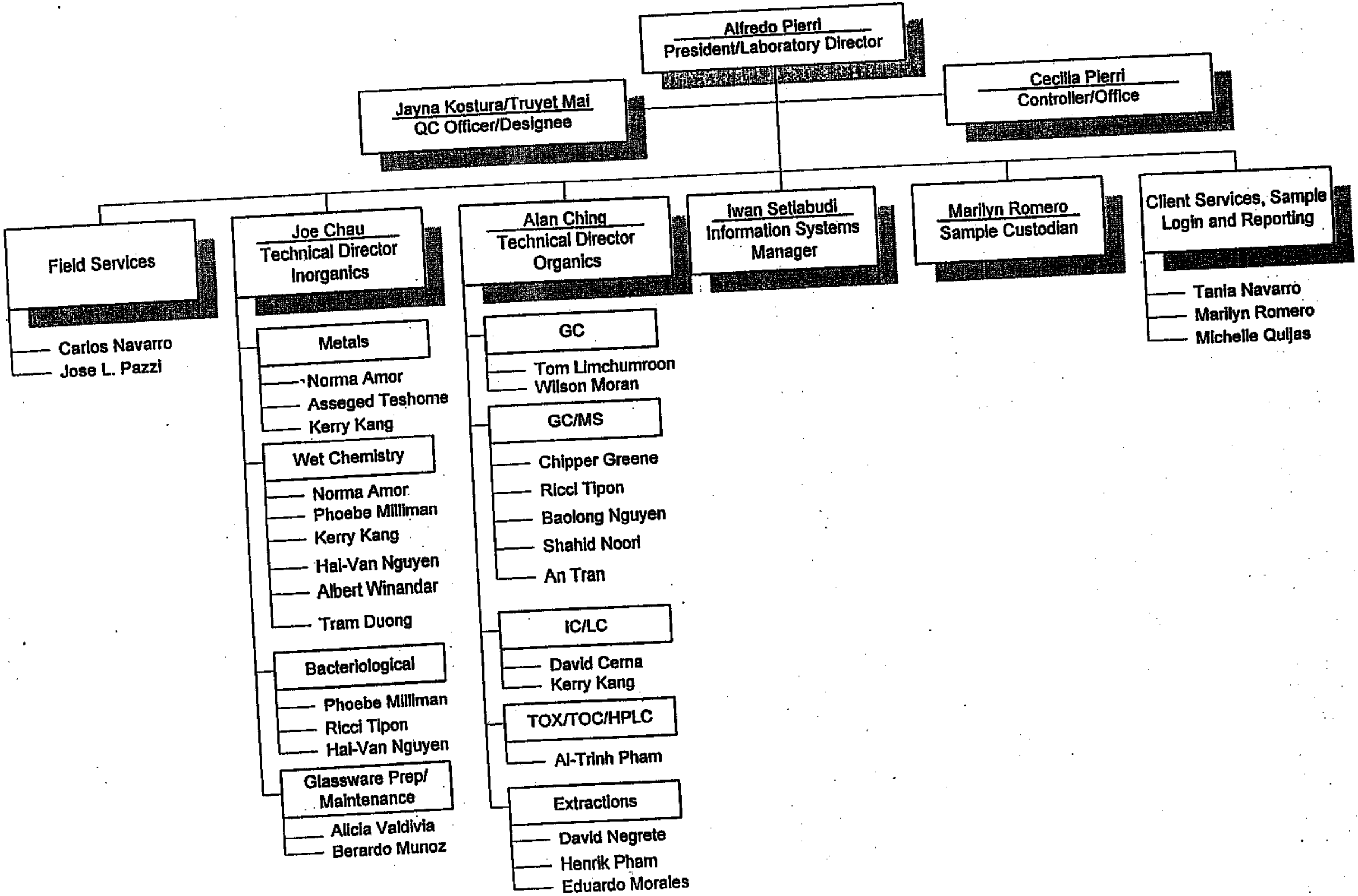
- To produce results that are technically sound and legally defensible;
- To assert competency only for work for which adequate equipment and personnel are available;
- To present services in a confidential, honest, and forthright manner;
- To have a clear understanding with the client as to the extent and kind of services to be rendered;
- To provide employees with guidelines and an understanding of the ethical and quality standards required in this industry;
- To operate facilities in a manner that protects the environment and the health and safety of employees and the public;
- To obey all pertinent federal, state, and local laws and regulations;
- To continually improve product and service quality;
- To treat employees equitably, acknowledge their scientific contributions, and provide them with opportunities for professional growth and development;
- To recognize and respond to community concerns; and
- To deal openly, honestly, and fairly in all business and financial matters with employees, clients and the public.

APPENDIX 3

WECK LABORATORIES, INC.

Company Organization Chart

October 2000



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APPENDIX 4

List of Major Equipment as October 2000

Inorganic analysis:

1	ICP/MS Perkin Elmer, model ELAN 6000, with autosampler
1	ICP Perkin Elmer, Model Optima 3200 XL DV with autosampler
1	Mercury analyzer CETAC model M6000 A with autosampler
2	Atomic Absorption Spectrometers Thermo Jarrell Ash models Video 11E and S-H 11.
1	Hydride generation system Thermo-Jarrell Ash model AVA-440.
1	Ion chromatograph Dionex model DX-120 with autosampler.
1	Ion chromatograph Dionex Model DX-500 with gradient pump and conductivity detector.
1	UV-Visible Spectrophotometer Milton Roy Genesis 5.

Organic analysis:

1	GC/MS Varian Saturn 2000 with autosampler and chemical ionization with ECD detector
1	GC/MS system, Agilent model 6890/5973N turbo pump with CI and autosampler
1	GC/MS system, Hewlett-Packard 6890/5973
1	GC/MS system, Hewlett-Packard 5890 series II/5972 MSD
2	GC/MS systems, Hewlett-Packard 5890/5970 MSD, upgraded operating under DOS Chemstation, latest software revision (1996)
4	Gas chromatographs Hewlett Packard model 5890A with 3 FIDs, 2 ECDs, 1 NPD, 1 TCD, and 1 PIDs .
1	Gas chromatograph Agilent model 6890+ with dual ECD
5	Automatic liquid samplers Hewlett Packard model 7673A.
1	Purge and Trap Tekmar Model 3100
2	Purge and trap Tekmar Model 3000.
2	Purge and trap autosampler Archon Model 5100A.
1	Purge and trap with autosampler Dynatech model Dynasoil.
2	Purge and trap Tekmar model 2000.
2	Purge and trap discrete autosampler Tekmar model 2016.
1	Purge and trap autosampler Aquatek 70.
1	HPLC System Dionex with GPM gradient pump, post-column reaction system, and UV-VIS.
2	IC/HPLC system Dionex DX-500 with conductivity, and UV and Fluorescence detectors and Dionex 3500 autosampler
1	Total organic carbon (TOC) O-I Analytical model 700.
1	Total organic halides (TOX) Mitsubishi TOX-10 E
1	Infrared analyzer fixed wavelength Buck Scientific model 404

A102376 (1-2)

METROPOLITAN WATER DISTRICT
La Verne Water Quality Laboratory
LOGIN CHAIN OF CUSTODY REPORT (1n01)

Project: INORGANIC COMPLIANCE POC: Suzanne Teague (909)392-5072
PO #: 74176
MWD Contact Name:
MWD Contact Phone:

Account: 107 Weck Laboratories Inc
Address: 14859 East Clark Avenue
City : Industry State: CA Zipcode: 91745-1396
Phone : (626) 336-2139 Fax: (626) 336-2634

Laboratory Sample ID	Site	Collect Date	Collect Time	Receive Date	Receive Time	Recd By	Matrix		Analysis	Hold Date	Due Date	Number of Bottles
✓ M16783-3	JPPEFF	02-APR-01	10:35	02-APR-01	14:28	U05442	Water	S	CYANIDE (WECK)	02-MAY-01		1
✓ M16783-4	JPPEFF	02-APR-01	10:35	02-APR-01	14:28	U05442	Water	S	MBAS (WECK)	04-APR-01		1
16783-8	JPPINF	02-APR-01	10:40	02-APR-01	14:29	U05442	Water	S	CYANIDE (WECK)	02-MAY-01		1
✓ M16783-9	JPPINF	02-APR-01	10:40	02-APR-01	14:29	U05442	Water	S	MBAS (WECK)	04-APR-01		1
~~*M16783-15~~	~~JPPGWRBT~~	~~02-APR-01~~					~~Water~~	~~S~~	~~RADON-222 (WECK)~~			1
~~*M16783-16~~	~~JPPGWRBT~~	~~02-APR-01~~					~~Water~~	~~S~~	~~URANIUM (WECK)~~			1

CYANIDE IN 0.05N NaOH

SAMPLER: SYLVIA VASILIU

5°C

Relinquished by: Date: 4-3-01 Recd by: Date: 4/3/01
Relinquished by: Date: 04/3/01 Recd by: Date: 4/3/01 3:05P
* Account/Project differ for this sample.

Software and computers:

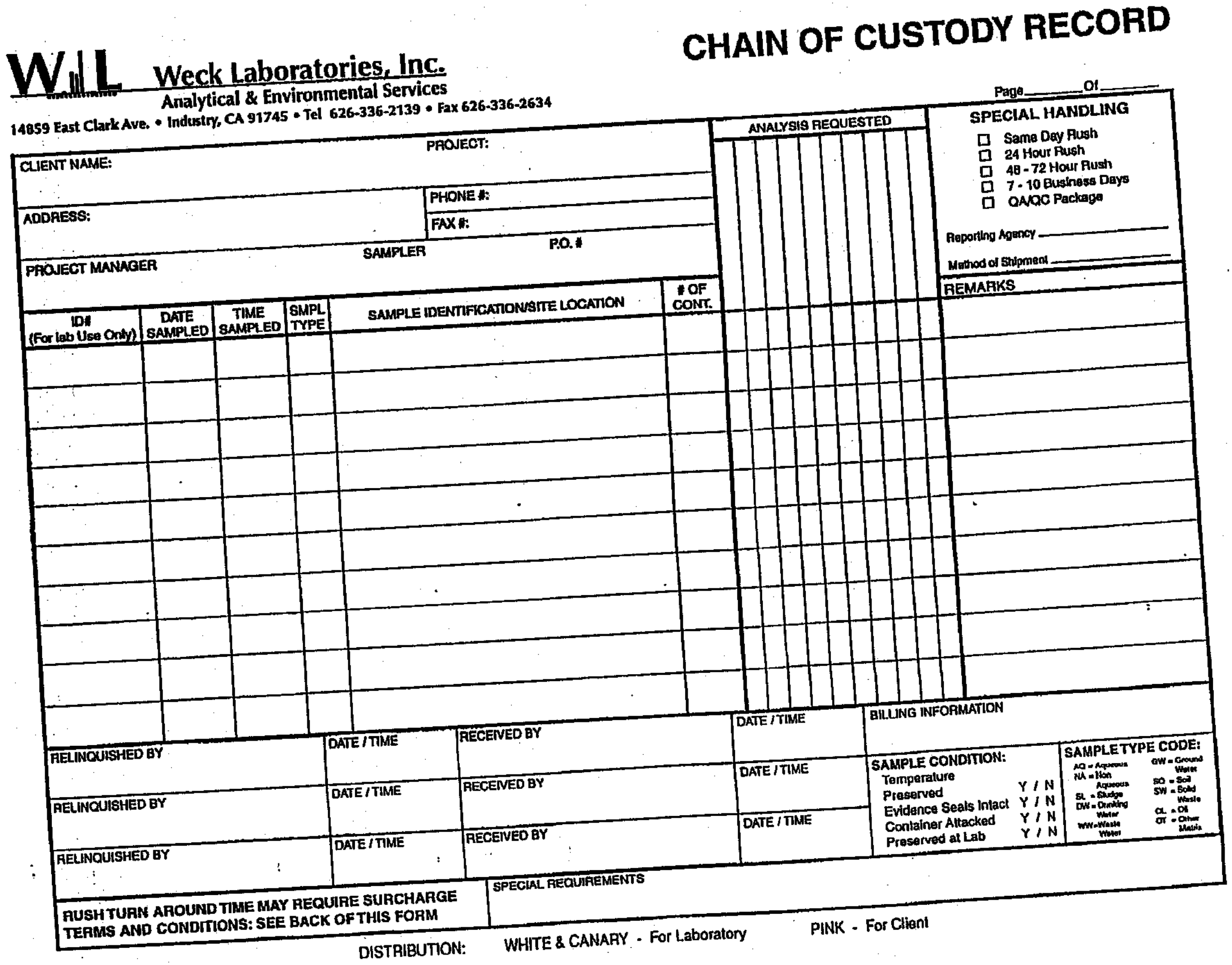
1	DIONEX chromatographic software Peak Net, version 5.2 based on Windows NT platform for operation and data acquisition of HPLC and IC equipment
1	Hewlett-Packard chromatographic software "Chemstation" capable of operating 4 HP5890 Gas Chromatographs simultaneously based on Windows 3.11
1	GC/MS Chemstation software for HP GC/MS systems
1	GC/MS software for Varian instrument
1	Software for ICP and ICP-MS Perkin Elmer
1	Software for data acquisition from pH meters and Ion Selective meters
27	Personal computer workstations connected in a computer network throughout the laboratories.
1	Laboratory Information Management System (LIMS) "Aspen" from Telecations, Inc. running on Novell Computer Network.

Analytical Support Equipment:

1	Sonic disrupter Sonic & Materials model VC600-2.
2	Continuous Liquid-liquid extraction apparatus Organomation Inc., model Corning accelerated extraction concentration – 8 positions
1	Leaching equipment for TCLP including ZHE extractors, agitators and filtration units Associated Design, Inc.
1	Leaching equipment for TCLP with agitators, Environmental Express.
1	Digital analytical balance Sartorius model 1712 MP8
1	Digital analytical balance Sartorius model Analytic A120S
1	Laboratory balance top loader Mettler model PC440 delta range
1	Laboratory balance top loader Sartorius model 1212MP
1	Nanopure Water system Barntead Type D 4700.
1	Millipore Milli-Q water purification system.
1	RO + Milli Q with UV lamp water purification for ultralow organics

APPENDIX 5

Chain of Custody Form



WL Weck Laboratories, Inc.
Analytical & Environmental Services
14859 East Clark Ave. • Industry, CA 91745 • Tel 626-336-2139 • Fax 626-336-2634

CHAIN OF CUSTODY RECORD

Page________ Of________

CLIENT NAME:

PROJECT:

ADDRESS:

PHONE #:

FAX #:

PROJECT MANAGER

SAMPLER

P.O. #

ANALYSIS REQUESTED

SPECIAL HANDLING

- ☐ Same Day Rush
- ☐ 24 Hour Rush
- ☐ 48 - 72 Hour Rush
- ☐ 7 - 10 Business Days
- ☐ QA/QC Package

Reporting Agency ________________

Method of Shipment ________________

ID# (For lab Use Only)	DATE SAMPLED	TIME SAMPLED	SMPL TYPE	SAMPLE IDENTIFICATION/SITE LOCATION	# OF CONT.	REMARKS

RELINQUISHED BY	DATE / TIME	RECEIVED BY	DATE / TIME
RELINQUISHED BY	DATE / TIME	RECEIVED BY	DATE / TIME
RELINQUISHED BY	DATE / TIME	RECEIVED BY	DATE / TIME

BILLING INFORMATION

SAMPLE CONDITION:

Temperature	
Preserved	Y / N
Evidence Seals Intact	Y / N
Container Attacked	Y / N
Preserved at Lab	Y / N

SAMPLE TYPE CODE:

AQ = Aqueous
NA = Non Aqueous
SL = Sludge
DW = Drinking Water
WW = Waste Water
GW = Ground Water
SO = Soil
SW = Solid Waste
OL = Oil
OT = Other Matrix

RUSH TURN AROUND TIME MAY REQUIRE SURCHARGE
TERMS AND CONDITIONS: SEE BACK OF THIS FORM

SPECIAL REQUIREMENTS

DISTRIBUTION: WHITE & CANARY - For Laboratory PINK - For Client

APPENDIX 6

Sample Collection and Holding Times

Analysis	Container Type	Size	Preservative	Holding Time
Microbiology:				
Coliform/Plate Count	P/G(1)	125mL	$Na_2S_2O_3$, R	6 hours
Organic Chemistry:				
Oil & Grease	G	1 Liter	H_2SO_4 to pH<2	28 Days
VOC's in Water	G, TFE Septum	2X 40 mL	$Na_2S_2O_3$(2), R, NH, HCl ph <2	14 days
VOC's in Soil	G, Jar	4 oz.	NH, R	14 Days
Semi-Volatiles in Water	G, TFE lined Cap	1 Liter	None(3), R	7 Days
Semi-Volatiles in Soil	G, Jar	4 oz	None, R	7 Days
Total Organic Carbon	G, A	100mL	H_2SO_4 to pH<2, R	14 Days
Total Organic Halides	G, A	250mL	None(3), R	14 Days
Inorganic Chemistry:				
General Metals	P/G	500mL	HNO_3 to pH<2	6 months
Chromium (VI)	P/G	250mL	None, R	24 Hours
Mercury	P/G	500mL	HNO_3 to pH<2	28 Days
Cyanide	P/G	500mL	NaOH to pH>12, R, $Na_2S_2O_3$	14 Days
Nitrate-nitrogen	P/G	100mL	None, R	48 Hours
Nitrite-nitrogen	P/G	100mL	None, R	48 Hours
TKN	P/G	500mL	H_2SO_4 to pH<2, R	28 Days
Phenolics	G,.A	500mL	H_2SO_4 to pH<2, R	28 Days
Total Phosphorus	P	100mL	H_2SO_4 to pH<2, R	28 Days
o-Phosphate	P	100mL	Filter, R	48 Hours
Sulfide	P/G	250mL	NaOH pH>9/ZnOAc	7 Days
Silica	P	100mL	R	28 Days
Anions(F^-,Cl^-,$SO4^=$,Br^-)	P	250mL	None, R	28 Days
Ammonia Nitrogen	P/G	250mL	H_2SO_4 to pH<2, R	28 Days

Analysis	Container Type	Size	Preservative	Holding Time
General Chemistry:				
Alkalinity/Acidity	P/G	100mL	NH,R	14 Days
BOD$_5$	P/G	1 L	None.R	48 Hours
COD	P/G	100mL	H_2SO_4 to pH<2, R	28 Days
Residual Chlorine	P/G	250mL	None	run immediately
pH	P/G	50 mL	None	run immediately
TDS	P	500mL	None, R	7 Days
TSS	P	500mL	None, R	7 Days
Settleable Solids	P	1 Liter	None, R	48 Hours
Turbidity	P/G	100mL	None, R	48 Hours
MBAS - Foaming agents	P/G	250mL	None, R	48 Hours
Drinking Water:				
General Physical except odor	G	1 Liter	None, R	48 Hours
Odor	G	1 Liter	None, R	24 hours
Cations, Hardness	P	500mL	HNO_3 to pH<2	6 months
Conductivity	P	100mL	R	28 days
Organochlorine Pesticides - EPA 508.1	G, TFE-lined Cap	1 Liter	R, Na_2SO_3, HCl pH<2	14 Days
PCBs - EPA 508A	G, TFE-lined Cap	1 Liter	R	7 Days
Chlorinated Herbicides -EPA 515.2	G,A TFE-lined Cap	1 Liter	R$^{(3)}$, HCl pH<2	14 Days
Volatile Organics	G, TFE-lined Septa	3X40 mL	R$^{(3)}$, HCl pH<2	14 Days
Total THMs	G, TFE-lined Septa	2X40 mL	25mg Ascorbic Acid	14 Days
Maximum Potential THMs	G, A TFE-lined Septa	2X250 mL	None	Incubate ASAP
EDB/DBCP - EPA 504.1	G, TFE-lined Septa	2X40 mL	R$^{(3)}$	14 Days
Triazine Pesticides EPA 507	G, TFE-lined Cap	1 Liter	R$^{(3)}$	7 Days
Carbamate Pesticides EPA 531.1	G, TFE-lined Cap or septum	125mL	R$^{(3)}$, ClAcOH pH<3	28 Days
Glyphosate EPA 547	G, A,TFE-lined Cap	125mL	R$^{(3)}$	14 Days
Endothall - EPA 548.1	G, A,TFE-lined Cap	125mL	R$^{(3)(5)}$	7 Days
Diquat - EPA 549.1	P, A	500mL	R$^{(3)(6)}$	7 Days
Chlorinated hydrocarbons-EPA 551	G, A, TFE-lined Cap	40 ml	R$^{(4)}$	14 Days
2,3,7,8-TCDD EPA 1613$^{(5)}$	G, A,TFE-lined Cap	1 L	R$^{(3)}$, Dark	7 Days
Synthetic Organic Chemicals-EPA 525.2	G, TFE-lined Cap	1 L	R, Na_2SO_3, HCl pH<2	14 Days

Analysis	Container Type	Size	Preservative	Holding Time
UST/LUFT:				
TRPH	G	1 Liter	NH, R	14 Days
Total Petroleum Hydrocarbons	G, TFE-lined Septa	2X40 mL	NH, R	14 Days
BTEX EPA 8020	G, TFE-lined Septa	2X40 mL	NH, R, HCl ph<2	14 Days
TPH and BTEX	G, TFE-lined Septa	3X40 mL	NH,R, HCl pH <2	14 Days
Total Lead	P/G	100 mL	HNO_3 to pH<2	6 Months
Hazardous Waste:				
Corrosivity (aqueous)	G/P	50 mL	R	7 Days
Corrosivity (nonaqueous)	G/P	10 g	R	7 Days
Flash Point	G	50 g	R	7 Days
Reactivity (acid/base)	G/P	50 g	R	7 Days
Reactivity (cyanide)	P/G	50 g	NH, R	Analyze ASAP
Reactive Sulfide	P/G	50 g	NH, R	Analyze ASAP

Additional information about sample collection and holding times can be found in Understanding Environmental Analytical Methods, Version 2.2, Genium Publishing Corporation.

Notes:

For soil samples: If sampling brass tubes are not available, use 4 oz. wide mouth jars, no headspace, hold at 4 °C

P:	Plastic, polyethylene or equivalent
R:	Refrigerate at 4 °C
G:	Glass
NH:	No Headspace
A:	Amber Glass

(1): Sterile Container
(2): For Chlorinated Systems
(3): If residual chlorine is present add $Na_2S_2O_3$ or ascorbic acid
(4): Add dechlorinating agent ($Na_2S_2O_3$ or ascorbic acid) depending on analytes to be measured. See method.
(5): Add HCl to pH 1.5-2 if high biological activity.
(6): Add H_2SO_4 to pH <2 if biological activity.

APPENDIX 7

List of SOPs as October 2000

Inorganic Department - Metals SOPs

File Name	Rev. No	Revision Date	Section	Title
Met001R5	5	Apr-00	Inorganic	Toxicity Characteristic Leaching Procedure (TCLP)
Met002R1	1	Jun-92	Inorganic	Analysis of Lead & Copper for drinking water (lead & copper rule)
Met003R1	1	Jan-94	Inorganic	Analysis of Mercury in solid sorbent by cold vapor technique (NIOSH 6009)
Met004R1	1	Nov-92	Inorganic	Analysis of Total Lead in air filter by NIOSH 7082
Met005R4	4	Apr-00	Inorganic	Acid digestion of Aqueous samples & extracts for Total Metals for analysis by FLAA or ICP Spectroscopy EPA 3010 modified
Met006R4	4	Aug-96	Inorganic	Graphite Furnace Atomic Absorption - EPA method 200.9
Met007R3	3	Apr-00	Inorganic	Acid digestion of sediments, sludges & soils (EPA 3050B)
Met008R2	2	Apr-00	Inorganic	Flame Atomic Absorption Spectrometry - EPA 7000
Met009R1	1	Jan-94	Inorganic	Acid digestion of sediments, sludges, soils & wipes (EPA 3050 M)
Met010R5	5	Apr-00	Inorganic	Analysis of Hg in sediment by manual cold vapor technique, EPA 7471A
Met011R3	3	Apr-00	Inorganic	Analysis of Hg in water by manual cold vapor technique EPA method 245.1
Met012R2	2	Apr-00	Inorganic	Selenium (Atomic Absorption, Gaseous Hydride) EPA 7741/270.3
Met013R1	1	Jan-94	Inorganic	Arsenic (Atomic Absorption, Gaseous Hydride) EPA 7061/ 206.3
Met014R2	2	Mar-94	Inorganic	Analysis of total metals in air filters by flame atomic absorption using microwave digestion (NIOSH 7000M)
Met015R1	1	May-94	Inorganic	Determination of Lead in suspended Particulate matter collected from ambient air (Title 40 CFR part 50, appendix G)
Met016R1	1	May-94	Inorganic	Analysis of total metals in air filters by Inductively coupled plasma atomic emission spectrometry (ICP) using microwave digestion(NIOSH 7300M)
Met017R6	5	Apr-00	Inorganic	Inductively coupled plasma atomic emission spectroscopy EPA method 6010B
Met018R5	5	Apr-00	Inorganic	EPA method 200.8 Analysis of trace metal in water in ICP/MS (ELAN 6000)
Met019R4	4	Apr-00	Inorganic	Metal Analysis by ICP/MS - EPA method 6020
Met020R2	2	Apr-00	Inorganic	Sample preparation procedure for spectrochemical determination of total recoverable elements :EPA method 200.2
Met021R2	2	Apr-00	Inorganic	Waste Extraction test procedures. Title 22 part 66261.126 appendix II
Met022R1	1	May-98	Inorganic	Organo-Lead extraction in sediments, sludges & soils for AA and ICP analysis. ELAP method HMU 900

Met023R1	1	Dec-98	Inorganic	Arsenic sample preparation by flow Injection vapor generation - ICP-MS
Met024R1	1	Feb-99	Inorganic	Selenium sample preparation by flow Injection vapor generation for ICP-MS
Met025R3	3	Apr-00	Inorganic	Inductively coupled plasma atomic emission spectroscopy EPA method 200.7
Met026R1	1	Apr-00	Inorganic	Analysis of Gold by Flame Atomic Absorption Spectrometry EPA 231.1
Met027R1	1	Apr-00	Inorganic	Analysis of Lead by Flame Atomic Absorption Spectrometry EPA 239.1
Met028R1	1	Apr-00	Inorganic	Analysis of Lead by Palladium by Flame Atomic Absorption Spectrometry EPA 253.1
Met029R1	1	Apr-00	Inorganic	Analysis of Rhodium by Flame Atomic Absorption Spectrometry EPA 265.1
Met030R1	1	Apr-00	Inorganic	Analysis of Platinum by Flame Atomic Absorption Spectrometry EPA 255.1
Met031R1	1	Apr-00	Inorganic	Analysis of Mercury in liquid waste by Cold Vapor Atomic Absorption Spectrometry EPA 7470A
Met032R1	1	Jul-00	Inorganic	Maintenance of analytical instruments used for trace metal analysis

Inorganic Department - Microbiology SOPs

File Name	Rev. No	Revison Date	Title
Mic001			Discontinued - not in use
Mic002	1	Oct-96	Determination of Fecal Streptococus & Enterrococus by Multiple Technique
Mic003	2	Apr-00	Bacteriological Analysis of Drinking Water Samples - SM9223
Mic004	2	Apr-00	Heterotrophic Plate Count: Pour Plate Method SM 9215B
Mic005	2	Apr-00	Total and Fecal Coliform Analysis of Drinking Water and Waste Water by Multiple Tube Fermentation Technique SM 9221
Mic006	1	Apr-00	Quality Assurance for Microbiological Tests
Mic007	1	May-00	Using new methods and test kits in microbiological determinations
Mic008	1	Aug-00	Verification of Support Equipment used for Microbiological Determinations

Administration - Miscellaneous and administrative SOPs

File Name	Rev. No	Revision Date	Section	Title
Mis001R6	6	Dec-97	General	Sample receiving, log in storage and disposal
Mis002R3	3	Jul-95	Sampling	Industrial wastewater sampling instructions
Mis003R2	2	Apr-00	General	Back up System
Mis004R2	1	Apr-00	General	Chemicals receipt and storage and preparation of solutions
Mis005R2	2	Apr-00	General	Start and Shut down the Server
Mis006R1	1	Jul-96	Microbiology	Disposal of material used of microbiological determinations
Mis007R1	1	Jan-97	General	Sample container management
Mis008R1	1	Jan-97	General	Laboratory hazardous waste management
Mis009R2	2	Jan-98	General	Soil samples from Hawaii and Counties other than the United States
Mis010R1	1	Mar-99	Sampling	Sampling Instructions for protected groundwater supplies and water supplies with treatment
Mis011R1	1	Dec-99	General	Preparation, Approval, Distribution, & Revision of standard Operating Procedures
Mis012R1	1	Dec-99	General	Significant Figures and Rounding
Mis013R1	1	Dec-99	General	Generation and Utilization of Control Charts
Mis014R1	1	Dec-99	General	Performing Internal Audit
Mis015R1	1	Dec-99	General	Testing of Proficiency Test (PT) Samples
Mis016R1	1	Dec-99	General	Corrective Action Procedures
Mis017R1	1	Mar-00	General	Logbook Maintenance, Utilization, and Review
Mis018R1	1	Mar-00	General	Internal Laboratory Data Review
Mis019R1	1	Mar-00	General	Resolution of Complaints
Mis020R1	1	Jan-00	General	Analytical Balance Calibration & Check
Mis021R1	1	Jan-00	General	Calibration & Maintenance of Mechanical Pipettes
Mis022R1	1	Apr-00	General	Lims Security Systems
Mis023R1	1	Apr-00	General	Login a sample into the LIMS
Mis024R1	1	Apr-00	General	DI water Quality checks
Mis025R1	1	Apr-00	General	Manual Data Entry into the LIMS
Mis026R1	1	Apr-00	General	Taking reprresentative samples and sub-samples in the Laboratory.
Mis027R1	1	Apr-00	General	Electronic Data Transfer of Analytical Results
Mis028R1	1	Apr-00	General	Standard Cleaning Protocols for containers(WET001R1)
Mis029R1	1	Apr-00	General	Calibration and Verification of Thermometers
Mis030R1	1	Apr-00	General	Managerial Reviews
Mis031R1	1	Apr-00	General	Calibration and Verification of Lab Support Equipment
Mis032R1	1	Apr-00	General	Calculation of MDL and RLs
Mis033R1	1	Apr-00	General	Rejection/acceptance criteria for special analyses
Mis034R2	2	Aug-00	General	Performing IDCs
Mis035R1	1	Aug-00	General	Hiring a new employee
Mis036R1	1	Aug-00	General	Use of areas of incompatible activities

Mis037R1	1	Aug-00	General	Computers and electronic data requirements
Mis038R1	1	Aug-00	General	Chain of Custody Procedures for Legal and Evidentiary custody of samples

Inorganic Department - Wet Chemistry SOPs

File Name	Rev. No	Revison Date	Section	Title
Wet001R1	1	May-92	General	Moved to Mis028
Wet002R6	6	May-98	Microbiology	Discontinued - Moved to Mic003
Wet003R6	6	Apr-00	Inorganic	Analysis of Total Cyanide in Water Samples
Wet004R5	5	Apr-00	Inorganic	5 Day Biological Oxygen Demand (BOD) Test by SM 5210B
Wet005R1	1	Jun-92	Inorganic	Analysis of Heat of Combustion by ASTM Method D240 Bomb Calorimeter
Wet006R2	2	Jan-98	Inorganic	Analysis of Total Recoverable Petroleum Hydrocarbons in Soil by Method 418.1
Wet007R5	5	Oct-96	Microbiology	Discontinued - Moved to Mic006
Wet008R2	2	Jun-98	Inorganic	Non-ionic Surfactants as CTAS(Cobalt Thiocyanate Active Substances) SM method 5540 D
Wet009R3	3	Aug-98	Inorganic	Analysis of Color in Water by EPA Method 110.2
Wet010R1	1	Jul-92	Inorganic	Analysis of Thiocyanate in Wastewater by Method SM4500-CN M
Wet011R1	1	Jul-92	Inorganic	Analysis of Cyanate in Wastewater by Method SM4500-CN L
Wet012R1	1	Sep-92	Inorganic	Colorimetric Analysis of Formaldehyde in water by ASTM D-19
Wet013R2	2	Aug-98	Inorganic	Analysis of Odor in Drinking Water by EPA method 140.1/SM 2150
Wet014R1	2	Sep-92	Inorganic	Analysis of Taste by Standard methods 2160B,Flavor Threshold Test,FTT
Wet015R2	2	Sep-92	Inorganic	Analysis of Water content by Karl Fisher Titration ASTM method E203
Wet016R4	4	Feb-99	Inorganic	Analysis of Oil & Grease in Water by EPA Method 413.1
Wet017R1	1	Sep-92	Inorganic	Non - Polar Oil & Grease in Water by SM 5520 F, 18th Edition
Wet018R2	2	Apr-00	Inorganic	Cyanide Amenable to Chlorination in water ,SM 4500 CN-G
Wet019R3	3	Apr-00	Inorganic	Analysis of Total Racoverable Phenolics in Water - EPA 420.1
Wet020R2	2	Apr-00	Inorganic	Silica, Dissolved (EPA 370.1, Colorimetric)
Wet021R4	4	Apr-00	Inorganic	Pensky Marten closed cup method for determining Ignitability EPA 1010
Wet022R3	3	Apr-00	Inorganic	Alkalinity as CaCO3 - Titrimetric method SM2320 B
Wet023R3	3	Apr-00	Inorganic	Chloride (Titrimetric, Silver Nitrate) ASTM D-512-89 B
Wet024R4	4	Apr-00	Inorganic	Acidity as CaCO3 - SM 2310 B
Wet025R1	1	Sep-99	Inorganic	Acid Content (Titration)
Wet026R2	2	Jul-94	Inorganic	Floride,Potentiometric,Ion selective Electrode(Direct & Following Distillation) SM 4500-F B/C
Wet027R1	1	Jan-94	Inorganic	Alkaline Digestion for Cr VI (EPA 3060)
Wet028R2	2	Mar-96	Inorganic	pH (Electrometric), SM 4500-H+ B
Wet029R2	2	Apr-00	Inorganic	Chromium, Hexavalent (Colorimetric) EPA SM 3500-Cr D
Wet030R2	2	Apr-00	Inorganic	Determination of Total Releasable Cyanide (SW-846 chapter seven,step 7.3.3.2
Wet031R1	1	Jun-94	Inorganic	Dissolved Sulfide - Iodometric method (SM 4500 -S -2 E)

Wet032R2	2	Apr-00	Inorganic	Dissolved Sulfide - Methylene Blue method (SM 4500-S-2 D)
Wet033R2	2	Apr-00	Inorganic	Acid-Soluble & Acid-Insoluble Sulfides (EPA 9030A)
Wet034R2	2	Apr-00	Inorganic	Determination of Total Releasable Sulfide (Sw 846,Chapter seven,step 7.3.4.2)
Wet035R3	2	Apr-00	Inorganic	Ammonia-Nitrogen (NH_3 -N) Titrimetric method following distillation, SM4500NH3 E
Wet036R5	5	Apr-00	Inorganic	Ammonia - Nitrogen (NH_3-N) Ammonia-Selective Electrode method, SM4500NH3 F
Wet037R1	1	Jul-94	Microbiology	Discontinued - moved to Mic005
Wet038R2	2	Apr-00	Inorganic	Chorine,Total Residual (spectrophotometric, DPD) SM 4500 - Cl G
Wet039R3	3	Apr-00	Inorganic	Conductance (specific conductance) - SM 2510 B
Wet040R2	2	Apr-00	Inorganic	Hardness,total, as $CaCO_3$ (Titrimetric, EDTA) - SM 2340 C
Wet041R3	3	Apr-00	Inorganic	Residue,Filterable - TDS (Gravimetric,Dried at 180°C) - SM 2540 C
Wet042R3	3	Apr-00	Inorganic	Residue, non-filterable TSS (Gravimetric, dried at 103-105°C) EPA Method 160.2
Wet043R3	3	Apr-00	Inorganic	Methylene Blue Active Substances (MBAS) -colorimetric SM5540C
Wet044R1	1	Aug-94	Inorganic	Thiosulfate and Sulfite (Iodometric,Aldehyde Adduct),(LACSD procedure 253B)
Wet045R4	4	Apr-00	Inorganic	Nitrogen, Kjeldahl, Total (Titrimetric), EPA Method 351.3
Wet046R2	2	Apr-00	Inorganic	Residue, total (Gravimetric , Dried at 103-105°C) SM 2540B
Wet047R2	2	Apr-00	Inorganic	Residue, Volatile (Gravimetric, Ignition at 550°C) EPA 160.4
Wet048R1	1	Sep-94	Inorganic	Residue,Settleable (volumetric,Imhoff cone),(EPA 160.5/SM 2540 F)
Wet049R1	1	Sep-94	Inorganic	Residue(Modified ANSI/AWWA B512-91),Gravimetric, evaporated at 22°C
Wet050R3	3	Apr-00	Inorganic	Chemical Oxygen Demand (Cod)test by EPA 410.4
Wet052R1	1	Jul-96	Microbiology	Not in use - Moved tp Mic006
Wet053R2	2	Apr-00	Inorganic	Analysis of Total Cyanide in Water Samples by selective electrode method (SM 4500-CN F)
Wet054R1	1	Jan-98	Inorganic	Analysis of Total Recoverable Petroleum Hydrocarbons in Soil by Method 418.1AZ
Wet055R3	3	Apr-00	Inorganic	HEM;Oil & Grease and SGT-HEM by Extyraction and Gravimetry, EPA 1664 Rev A
Wet056R3	3	Apr-00	Inorganic	Determination of Turbidity by Nephelometric Method EPA 180.1
Wet057R2	2	Apr-00	Inorganic	Total Phosphorus Analysis - SM 4500- P D
Wet058R1	1	Nov-98	General	Temperature measurements by SM 2550 B
Wet059R2	2	Jun-99	Inorganic	Hydrogen Peroxide Analysis - Method FMC
Wet060R1	1	Aug-92	Inorganic	NID Surfactants as CTAS(Cobalt Thiocyanate Active Substances) SM method 5540 D***DISCONTINUED See WET008****
Wet061R1	1	Jan-00	General	Analytical Balance Calibration and check - MOVED TO MIS020
Wet062R1	1	Oct-99	Inorganic	Total Recoverable phenols in soil and oil EPA 420.1Modified
Wet063R1	1	Oct-99	Inorganic	Total Recoverable Petroleum hydrocarbons in water EPA 418.1
Wet064R2	2	Apr-00	Inorganic	pH (Electrometric), EPA Method 9045C (soil and solid)
Wet065R1	1	Jan-99	Inorganic	pH (Electrometric), EPA Method 9040B (multiphase wastes)
Wet066R1	1	Nov-99	Inorganic	Analysis of Volatile Acids - SM 5560C
Wet067R1	1	Jan-00	General	Calibration & Maint of Mechanical Pipettes.MOVED to MIS021R1
Wet068R1	1	Apr-00	Inorganic	Corrosivity langlier Index SM 2330 B

Wet069R1	1	Apr-00	Inorganic	Hardness as CaCO3 by Calculation SM 2340 B
Wet070R1	1	Apr-00	Inorganic	Chlorine Dioxide (DPD Method) SM 4500-ClO2 D
Wet071R1	1	Apr-00	Inorganic	Nitrogen, Kjeldahl, Total (Potentiometric), EPA Method 351.4
Wet072R1	1	Apr-00	Inorganic	Dissolved Oxygen Membrane Electrode Method SM 4500-O G
Wet073R1	1	Apr-00	Inorganic	Sulfite, Iodometric method EPA 377.1
Wet074R1	1	Apr-00	Inorganic	Distillation for total and amenable cyanide EPA 9010B
Wet075R1	1	Apr-00	Inorganic	Ignitability as per CCR Chapter 10, Article 3
Wet076R1	1	Apr-00	Inorganic	Reactivity of a waste as per CCR Chapter 10, Article 3
Wet077R1	1	Apr-00	Inorganic	Corrosivity of a waste as per CCR Chapter 10, Article 3
Wet078R1	1	Apr-00	Inorganic	UV Absorbing Constituents UV-254 SM 5910
Wet079R1	1	Apr-00	Inorganic	Hexavalent Chromium, Spectrophotometric EPA 7196A
Wet080R1	1	May-00	Inorganic	Total Phosphorus Analysis - EPA 365.3
Wet081R1	1	May-00	Inorganic	Heat of Combustion by Bomb Calorimeter
Wet082R1	1	May-00	Inorganic	Water by Karl Fischer

Organic Department - Organics SOPs

SOP #	Rev No	Rev Date	Title
ORG001	5	Apr-00	Analysis of Anions (F-, Cl-, Br-, NO2-, NO3-, PO4-3, SO4-2) by Ion Chromatography, EPA Method 300.0(A)
ORG002	1	Feb-92	Determination of the Maximum Total Trihalomethane Potential.
ORG003	4	Apr-00	Total Organic Carbon (TOC) and Dissolved Organic Carbon DOC by SM5310C
ORG004	7	Apr-00	Determination of Total Organic Halides in water by Adsorption-Pyrolysis-Titrimetric Method , SM-5320B
ORG005	4	Apr-00	Determination of Ketones and aldehydes by HPLC - EPA method 8315
ORG006	3	Apr-00	N-Methylcarbamates by HPLC - EPA method 8318
ORG007	1	Sep-99	Determination of Total Halogens and Total Extractable Organic Halides - EPA 9076
ORG008	3	Apr-00	Analysis of Chlorination Disinfection Byproducts (DBPs) in Drinking water by Liquid-Liquid Extraction and GC/ECD- EPA 551.1
ORG009	8	Apr-00	Determination of Volatil Organic Compounds in Groudwater and Soil by GC/MS, without cryogenic cooling- EPA 8260B
ORG010	2	Apr-97	PCBs in Oil
ORG011	2	Apr-00	Explosive residues by HPLC - EPA method 8330
ORG012	2	Apr-00	Screening for Polychlorinated Biphenyls by Perchlorination and Gas Chromatography - EPA Method 508A
ORG013	3	Apr-00	Analysis of Volatile Petroleum Hydrocarbons (VPH, C6 to C10) in Soil and Water samples by P&T and GC/FID- EPA 8015
ORG014	3	Apr-00	Determination of Aromatic and Halogenated Volatiles by GC/PID and GC/ELCD - EPA8021A
ORG015	5	Apr-00	Analysis of Organophosphorus Compounds in Water, Soil, and Solid Waste by GC/NPD - EPA 8141A
ORG016	6	Apr-00	Analysis of organochlorine pesticides in liquid and solid waste by GC/ECD - EPA 8081A
ORG017	4	Apr-00	Diquat and Paraquat by LSE and HPLC With UV Detection - EPA 549.2
ORG018	1	Jun-93	Analysis of Endothall in Drinking Water by GC/ECD - EPA 548

ORG019	4	Apr-00	Analysis of Haloacetic acids in drinking water by GC-ECD SM6251B
ORG020	2	Apr-00	Glyphosate by HPLC - EPA method 547
ORG021	2	Apr-00	Analysis of Nitrogen-Phosphorus-Containing Pesticides in Ground Water and Drinking Water By EPA method 507
ORG022	3	Apr-00	Analysis of organochlorine pesticides and PCB's in drinking water - EPA 508
ORG023	3	Apr-00	Analysis of Extractable Petroleum Hydrocarbons (EPH, C10 to C32) in soil and water samples by GC/FID - EPA 8015
ORG024		Dec-93	Analysis of glyphosate in soil by EPA Method 547 modified
ORG025	1	Jul-99	Determination of Volatile Organic Content(VOC) in Paints and Related Coatings - EPA 24
ORG026	7	Apr-00	Determination of Volatile Organic Compounds by EPA method 524.2 Without Cryogenic cooling - EPA 524.2
ORG027	6	Feb-94	Ethylene Thiourea in Drinking Water - EPA 509
ORG028	3	Apr-00	Analysis of N-Methylcarbamates in Water by Direct Aqueous Injection HPLC with Post Column Derivatization - EPA 531.1
ORG029	2	Apr-00	Chlorinated acid herbicides in water, soil and solid waste - EPA 8151
ORG030	4	Apr-00	Analysis of EDB, DBCP and 123TCP in Water by Microextraction and GC/ECD -EPA 504.1
ORG031	4	Apr-00	Analysis of Chlorinated Acids in Water By GC/ECD - EPA Method 515.2
ORG032	1	Mar-94	Analysis of halogenated hydrocarbons in charcoal tubes
ORG033	3	Apr-00	Diuron (carbamates and Urea pesticides) by HPLC - EPA method 632
ORG034	1	Jun-94	4,4-Methylenedianiline(MDA) in Air Filter, OSHA57
ORG035	1	Dec-95	Chloral Hydrate in Drinking Water, EPA551.1 -See ORG008
ORG036	8	Apr-00	Determination of Semi-Volatile Organic Compounds in Waste Water, Soil, and Other Industrial wastes by GC/MS, Capillary Column Technique - EPA Method 8270C
ORG037	3	Apr-00	Analysis of Endothall in Drinking Water By Ion Exchange Disk Extraction, Acid Methanol Methylation and GC/MS or GC/FID - EPA 548.1
ORG038	1	Jul-96	Chlorinated Pesticides, SPE, GC/ECD, EPA508.1
ORG039	6	Apr-00	Determination of Organic Compounds in Drinking Water by Liquid Solid Extraction and GC/MS - EPA 525.2
ORG040	4	Apr-00	GC/MS Method for Semi-Volatile Organics - EPA 625
ORG041	3	Apr-00	Analysis of Purgeable Halocarbons and Aromatics by GC/ELCD, GC/PID - EPA Method 601/602
ORG042	4	Mar-00	Analysis of Perchlorate (ClO4-) by Ion Chromatography, EPA Method 314.0
ORG043	1	Dec-97	Determination of 1,4 Dioxane by Isotopic Dilution using GC/MS - EPA 8270M
ORG044	2	Oct-99	Total Petroleum Hydrocarbon (Oregon), TPH-G and TPH-D
ORG045	3	Apr-00	Cleanup Methods for Organic Analysis
ORG046	2	Jan-99	Sample Preparation and Extraction in Hazardous Waste - EPA 3500B
ORG047	2	Jan-99	Separatory Funnel Liquid-Liquid Extraction - EPA 3510B
ORG048	2	Jan-99	Ultrasonic Extraction - EPA 3550B
ORG049	1	Jan-98	Waste Dilution - EPA 3580A
ORG050	1	Jan-99	Purge-and-Trap Extraction - EPA 5030B
ORG051	3	Apr-00	Determination of Inorganic Anions by Ion Chromatography - EPA 9056

ORG052	1	Jan-98	Bomb Preparation Method for Solid Waste - EPA 5050
ORG053	1	Mar-98	C6 - C32 Hydrocarbons - 8015AZ
ORG054	1	Jun-98	Determination of Acrylonitrile by Gas Chromatography - EPA 8031
ORG055	1	Jul-97	UV-Absorbing Organics (UV254)- SM 5910--MOVED to WET078R1---
ORG056	1	Jan-99	Continuous Liquid-Liquid Extraction - EPA 3520C
ORG057	1	Jan-98	Soxlet Extraction - EPA 3540C
ORG058	3	Apr-00	Analysis of Polychlorinated Biphenyl's (PCBs) in liquid and solid waste by GC/ECD - EPA 8082
ORG059	1	Jul-99	Determination of Volatile Organic Compounds Specific to the Pharmaceutical Indystry by Isotope Dilution GC/MS - EPA 1666
ORG060	2	Apr-00	VOC in Wastewater by GC/MS - EPA 624
ORG061	3	Apr-00	Analysis of Anions (BrO3-, Br-,ClO3-,ClO2-) by Ion Chromatography, EPA Method 300.0(B)
ORG062	2	Sep-99	Determination of Total Organic Halides in water by Adsorption-Pyrolysis-Titrimetric Method , EPA9020B
ORG063	2	Oct-99	Determination of Total Halogens and Total Extractable Organic Halides by Method 9020B Modified
ORG064	2	Apr-00	Analysis of organochlorine pesticides and PCBs in wastewater matrices by GC/ECD, EPA Method 608.
ORG065	1	Mar-00	Determination of ultra low levels of N_Nitrosodimethylamine (NDMA) by Isotopic - EPA 1625C
ORG066	1	Oct-99	Determination of Polynuclear Aromatic Compound in Soil by SIM Method EPA 8270 Modified
ORG067	2	Apr-00	Determination of Volatil Organic Compounds in Soil by closed-system Purge-and-Trap and GC/MS- EPA 5035
ORG068	1	Jan-00	Total Petroleum Hydrocarbon (Oregon), TPH-G and TPH-D
ORG069	2	Apr-00	Analysis of Hexavalent Chromium by Ion Chromatography - EPA 7199
ORG070	2	Apr-00	Analysis of Phenols in Municipal & Industrial Wastewater- EPA 604
ORG071	1	Apr-00	Analysis of alcohols by GC-FID EPA Method 8015B
ORG072	1	May-00	Analysis of chlorinated acid herbicides GC-ECD EPA Method 515.3
ORG073	1	May-00	Analysis of chlorinated pesticies by GC-ECD EPA Method 505
ORG074	1	May-00	Establishing retention times Windows for organic analysis by GC and GC/MS
ORG075	1	May-00	Analysis of Haloacetic acids by L-L extraction and GC-ECD EPA 552.2
ORG076	1	Jul-00	Instrument Maintenance
ORG077	1	Oct-00	Analysis of Hexavalent Chromium by Ion Chromatography EPA 218.6

APPENDIX 8

Acceptance Limits for QC Determinations

Parameter	Anal. Method	Matrix	LCS					Matrix Spikes					RPD	Rem-arks
			Fqcy	LCL	UCL	Status	Remarks	Fqcy	LCL	UCL	Status	Remarks		
1,2-Dibromo-3-chloropropane	EPA504.1	Water	1 in 10	70	130	Final	Mandatory limits	1 in 20	65	135	Final	Mandatory limits	30	A
1,2-Dibromoethane (EDB)	EPA504.1	Water	1 in 10	70	130	Final	Mandatory limits	1 in 20	65	135	Final	Mandatory limits	30	A
1,2,3-Trichloropropane	EPA504.1	Water	1 in 10	70	130	Final	Mandatory limits	1 in 20	65	135	Final	Mandatory limits	30	A
Alachlor	EPA507	Water	1 in 20	25	160	updated 07/00	Lab generated	1 in 10	60	130	Final	Mandatory limits	30	A
Atrazine	EPA507	Water	1 in 20	22	156	updated 07/00	Lab generated	1 in 10	57	127	Final	Mandatory limits	30	A
Bromacil	EPA507	Water	1 in 20	28	168	updated 07/00	Lab generated	1 in 10	56	126	Final	Mandatory limits	30	A
Butachlor	EPA507	Water	1 in 20	23	160	updated 07/00	Lab generated	1 in 10	58	128	Final	Mandatory limits	30	A
Diazinon	EPA507	Water	1 in 20	14	157	updated 07/00	Lab generated	1 in 10	58	128	Final	Mandatory limits	30	A
Metolachlor	EPA507	Water	1 in 20	34	138	updated 07/00	Lab generated	1 in 10	23	149	Final	Mandatory limits	30	A
Metribuzin	EPA507	Water	1 in 20	44	132	updated 07/00	Lab generated	1 in 10	66	136	Final	Mandatory limits	30	A
Molinate	EPA507	Water	1 in 20	24	163	updated 07/00	Lab generated	1 in 10	63	133	Final	Mandatory limits	30	A
Prometryn	EPA507	Water	1 in 20	21	160	updated 07/00	Lab generated	1 in 10	58	128	Final	Mandatory limits	30	A
Simazine	EPA507	Water	1 in 20	29	162	updated 07/00	Lab generated	1 in 10	65	135	Final	Mandatory limits	30	A
Thiobencarb	EPA507	Water	1 in 20	33	154	updated 07/00	Lab generated	1 in 10	26	167	Updated 07/00	Lab generated	30	A
Dimethoate	EPA507	Water	1 in 20	70	130	Interim	not enough data	1 in 10	65	135	Interim	not enough data	30	A
Prometon	EPA507	Water	1 in 20	70	130	Interim	not enough data	1 in 10	43	113	Final	Mandatory limits	30	A
DMNB(SS)	EPA507	Water	all	70	130	Final	Mandatory limits					Mandatory limits		
4,4'-DDD	EPA508	Water	1 in 20	45	130	updated 07/00	Lab generated	1 in 10	72	142	Final	Mandatory limits	30	A
4,4'-DDE	EPA508	Water	1 in 20	48	126	updated 07/00	Lab generated	1 in 10	64	134	Final	Mandatory limits	30	A
4,4'-DDT	EPA508	Water	1 in 20	33	146	updated 07/00	Lab generated	1 in 10	77	147	Final	Mandatory limits	30	A
Aldrin	EPA508	Water	1 in 20	40	129	updated 07/00	Lab generated	1 in 10	51	121	Final	Mandatory limits	30	A
alpha-BHC	EPA508	Water	1 in 20	34	127	updated 07/00	Lab generated	1 in 10	57	127	Final	Mandatory limits	30	A
beta-BHC	EPA508	Water	1 in 20	41	141	updated 07/00	Lab generated	1 in 10	60	130	Final	Mandatory limits	30	A
delta-BHC	EPA508	Water	1 in 20	34	139	updated 07/00	Lab generated	1 in 10	67	137	Final	Mandatory limits	30	A
Dieldrin	EPA508	Water	1 in 20	47	128	updated 07/00	Lab generated	1 in 10	52	122	Final	Mandatory limits	30	A
Endosulfan I	EPA508	Water	1 in 20	49	123	updated 07/00	Lab generated	1 in 10	52	122	Final	Mandatory limits	30	A
Endosulfan II	EPA508	Water	1 in 20	50	117	updated 07/00	Lab generated	1 in 10	57	127	Final	Mandatory limits	30	A
Endosulfan sulfate	EPA508	Water	1 in 20	31	211	updated 07/00	Lab generated	1 in 10	67	137	Final	Mandatory limits	30	A
Endrin	EPA508	Water	1 in 20	32	163	updated 07/00	Lab generated	1 in 10	53	123	Final	Mandatory limits	30	A
Endrin aldehyde	EPA508	Water	1 in 20	40	139	updated 07/00	Lab generated	1 in 10	53	123	Final	Mandatory limits	30	A
Heptachlor	EPA508	Water	1 in 20	35	151	updated 07/00	Lab generated	1 in 10	63	133	Final	Mandatory limits	30	A
Heptachlor epoxide	EPA508	Water	1 in 20	53	128	updated 07/00	Lab generated	1 in 10	52	122	Final	Mandatory limits	30	A
gamma-BHC (lindane)	EPA508	Water	1 in 20	42	134	updated 07/00	Lab generated	1 in 10	54	124	Final	Mandatory limits	30	A
Methoxychlor	EPA508	Water	1 in 20	64	146	updated 07/00	Lab generated	1 in 10	70	140	Final	Mandatory limits	30	A

Parameter	Anal. Method	Matrix	LCS					Matrix Spikes					RPD	Rem-arks
			Fqcy	LCL	UCL	Status	Remarks	Fqcy	LCL	UCL	Status	Remarks		
Chlordane	EPA508	Water	1 in 20	65	135	Interim	not enough data	1 in 10	64	134	Final	Mandatory limits	30	A
Chlorothalonil	EPA508	Water	1 in 20	61	121	Interim	not enough data	1 in 10	56	126	Final	Mandatory limits	30	A
Propahlor	EPA508	Water	1 in 20	75	131	Interim	not enough data	1 in 10	68	138	Final	Mandatory limits	30	A
Trifluralin	EPA508	Water	1 in 20	87	119	Interim	not enough data	1 in 10	68	138	Final	Mandatory limits	30	A
Decachlorobiphenyl (SS)	EPA508	Water	all	70	130	Final	Mandatory limits							
2,4,5-T	EPA515.3	Water	--	--	--	Final	Not required	1 in 10	70	130	Final	Mandatory limits	30	A
2,4-D	EPA515.3	Water	--	--	--	Final	Not required	1 in 10	70	130	Final	Mandatory limits	30	A
2,4-DB	EPA515.3	Water	--	--	--	Final	Not required	1 in 10	70	130	Final	Mandatory limits	30	A
3,5-Dichlorobenzoic acid	EPA515.3	Water	--	--	--	Final	Not required	1 in 10	70	130	Final	Mandatory limits	30	A
Acifluorfen	EPA515.3	Water	--	--	--	Final	Not required	1 in 10	70	130	Final	Mandatory limits	30	A
Bentazon	EPA515.3	Water	--	--	--	Final	Not required	1 in 10	70	130	Final	Mandatory limits	30	A
Dacthal (DCPA)	EPA515.3	Water	--	--	--	Final	Not required	1 in 10	70	130	Final	Mandatory limits	30	A
Dalapon	EPA515.3	Water	--	--	--	Final	Not required	1 in 10	70	130	Final	Mandatory limits	30	A
Dicamba	EPA515.3	Water	--	--	--	Final	Not required	1 in 10	70	130	Final	Mandatory limits	30	A
Dichlorprop	EPA515.3	Water	--	--	--	Final	Not required	1 in 10	70	130	Final	Mandatory limits	30	A
Dinoseb	EPA515.3	Water	--	--	--	Final	Not required	1 in 10	70	130	Final	Mandatory limits	30	A
Pentachlorophenol	EPA515.3	Water	--	--	--	Final	Not required	1 in 10	70	130	Final	Mandatory limits	30	A
Picloram	EPA515.3	Water	--	--	--	Final	Not required	1 in 10	70	130	Final	Mandatory limits	30	A
2,4,5-TP (Silvex)	EPA515.3	Water	--	--	--	Final	Not required	1 in 10	70	130	Final	Mandatory limits	30	A
2,4-dcpaa (SS)	EPA515.3	Water	all	70	130	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	
1,1,1,2-Tetrachloroethane	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
1,1,1-Trichloroethane	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
1,1,2,2-Tetrachloroethane	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
1,1,2-Trichloroethane	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
1,1-Dichloroethane	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
1,1-Dichloroethene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
1,1-Dichloropropene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
1,2,3-Trichlorobenzene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
1,2,3-Trichloropropane	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
1,2,4-Trichlorobenzene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
1,2,4-Trimethylbenzene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
1,2-Dibromo-3-chloropropane	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
1,2-Dibromoethane (EDB)	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
1,2-Dichlorobenzene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B

Parameter	Anal. Method	Matrix	LCS					Matrix Spikes					RPD	Rem-arks
			Fqcy	LCL	UCL	Status	Remarks	Fqcy	LCL	UCL	Status	Remarks		
1,2-Dichloroethane	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
1,2-Dichloropropane	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
1,3,5-Trimethylbenzene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
1,3-Dichlorobenzene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
1,3-Dichloropropane	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
1,4-Dichlorobenzene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
2,2-Dichloropropane	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
2-chlorotoluene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
4-Chlorotoluene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
4-isopropyltoluene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
Benzene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
Bromobenzene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
Bromochloromethane	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
Bromodichloromethane	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
Bromoform	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
Bromomethane	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
Carbon Tetrachloride	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
Chlorobenzene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
Chloroethane	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
Chloroform	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
Chloromethane	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
cis-1,2-Dichloroethene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
cis-1,3-Dichloropropene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
Dibromochloromethane	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
Dibromomethane	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
Dichlorodifluoromethane	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
Ethyl benzene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
Hexachlorobutadiene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
isopropylbenzene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
m/p-Xylenes	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
Methylene chloride+A45	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
Naphthalene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
n-Butyl benzene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
n-Propyl benzene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
o-Xylene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
sec-Butyl benzene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B

Parameter	Anal. Method	Matrix	LCS					Matrix Spikes					RPD	Rem-arks
			Fqcy	LCL	UCL	Status	Remarks	Fqcy	LCL	UCL	Status	Remarks		
Styrene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
tert-Butyl benzene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
Tetrachloroethene (PCE)	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
Toluene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
trans-1,2-Dichloroethene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
trans-1,3-Dichloropropene	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
Trichloroethene (TCE)	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
Trichlorofluoromethane	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
Vinyl Chloride	EPA524.2	Water	1 in 10	70	130	Final	Mandatory limits	--	--	--	Final	Not required	30	B
4-Bromofluorobenzene (SS)	EPA524.2	Water	all	66	127	updated 07/00	Lab generated							
1,2-Dichloroethane-d4 (SS)	EPA524.2	Water	all	70	130	Interim	not enough data							
bis (2-Ethylhexyl) adipate	EPA525.2	Water	1 in 20	70	130	Final	Mandatory limits	1 in 20	70	130	Final	Mandatory limits	30	C
bis (2-Ethylhexyl) phthalate	EPA525.2	Water	1 in 20	70	130	Final	Mandatory limits	1 in 20	70	130	Final	Mandatory limits	30	C
Benzo (a) Pyrene	EPA525.2	Water	1 in 20	70	130	Final	Mandatory limits	1 in 20	70	130	Final	Mandatory limits	30	C
Hexachlorobenzene	EPA525.2	Water	1 in 20	70	130	Final	Mandatory limits	1 in 20	70	130	Final	Mandatory limits	30	C
1,3-dmnb (SS)	EPA525.2	Water	all	64	129	updated 07/00	Lab generated							
Perylene-d12 (SS)	EPA525.2	Water	all	68	123	updated 07/00	Lab generated							
Triphenylphosphate (SS)	EPA525.2	Water	all	65	155	updated 07/00	Lab generated							
3-Hydroxycarbofuran	EPA531.1	Water	1 in 20	80	120	Final	Mandatory limits	1 in 20	65	135	Final	Mandatory limits	30	A
Aldicarb (TEMIK)	EPA531.1	Water	1 in 20	80	120	Final	Mandatory limits	1 in 20	65	135	Final	Mandatory limits	30	A
Aldicarb Sulfone	EPA531.1	Water	1 in 20	80	120	Final	Mandatory limits	1 in 20	65	135	Final	Mandatory limits	30	A
Aldicarb Sulfoxide	EPA531.1	Water	1 in 20	80	120	Final	Mandatory limits	1 in 20	65	135	Final	Mandatory limits	30	A
Carbaryl	EPA531.1	Water	1 in 20	80	120	Final	Mandatory limits	1 in 20	65	135	Final	Mandatory limits	30	A
Carbofuran (FURADAN)	EPA531.1	Water	1 in 20	80	120	Final	Mandatory limits	1 in 20	65	135	Final	Mandatory limits	30	A
Methiocarb	EPA531.1	Water	1 in 20	80	120	Final	Mandatory limits	1 in 20	65	135	Final	Mandatory limits	30	A
Methomyl	EPA531.1	Water	1 in 20	80	120	Final	Mandatory limits	1 in 20	65	135	Final	Mandatory limits	30	A
Oxamyl (VYDATE)	EPA531.1	Water	1 in 20	80	120	Final	Mandatory limits	1 in 20	65	135	Final	Mandatory limits	30	A
Propoxur	EPA531.1	Water	1 in 20	80	120	Final	Mandatory limits	1 in 20	65	135	Final	Mandatory limits	30	A
Glyphsate	EPA547	Water	1 in 20	69	129	updated 07/00	Lab generated	1 in 20	69	129	updated 07/00	Lab generated	30	A
Endothall	EPA548.1	Water	1 in 20	45	144	updated 07/00	Lab generated	1 in 10	45	144	updated 07/00	Lab generated	30	A
Diquat	EPA549.2	Water	1 in 20	70	130	Interim	not enough data	1 in 10	70	130	Interim	not enough data	30	

Parameter	Anal. Method	Matrix	LCS					Matrix Spikes					RPD	Rem-arks
			Fqcy	LCL	UCL	Status	Remarks	Fqcy	LCL	UCL	Status	Remarks		
Chloropicrin	EPA551.1	Water	1 in 20	75	125	Final	Mandatory limits	1 in 10	75	125	Final	Mandatory limits	25	C
Trichloroacetonitrile	EPA551.1	Water	1 in 20	75	125	Final	Mandatory limits	1 in 10	75	125	Final	Mandatory limits	25	C
Dichloroacetonitrile	EPA551.1	Water	1 in 20	75	125	Final	Mandatory limits	1 in 10	75	125	Final	Mandatory limits	25	C
Chloral hydrate	EPA551.1	Water	1 in 20	75	125	Final	Mandatory limits	1 in 10	75	125	Final	Mandatory limits	25	C
1,1-dichloro-2-propanone	EPA551.1	Water	1 in 20	75	125	Final	Mandatory limits	1 in 10	75	125	Final	Mandatory limits	25	C
Chloropicrin	EPA551.1	Water	1 in 20	75	125	Final	Mandatory limits	1 in 10	75	125	Final	Mandatory limits	25	C
Bromochloroacetonitrile	EPA551.1	Water	1 in 20	75	125	Final	Mandatory limits	1 in 10	75	125	Final	Mandatory limits	25	C
1,1,1-trichloro-2-propanone	EPA551.1	Water	1 in 20	75	125	Final	Mandatory limits	1 in 10	75	125	Final	Mandatory limits	25	C
Dibromoacetonitrile	EPA551.1	Water	1 in 20	75	125	Final	Mandatory limits	1 in 10	75	125	Final	Mandatory limits	25	C
Decafluorobiphenyl (SS)	EPA551.1	Water	all	80	120	Final	Mandatory limits							
Monochloroacetic Acid	EPA552.2	Water	1 in 20	70	130	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	C
Monobromoacetic Acid	EPA552.2	Water	1 in 20	70	130	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	C
2,4-Dichlorophenylacetic acid	EPA552.2	Water	1 in 20	70	130	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	C
Trichloroacetic acid	EPA552.2	Water	1 in 20	70	130	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	C
Bromochloroacetic acid	EPA552.2	Water	1 in 20	70	130	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	C
Dibromoacetic acid	EPA552.2	Water	1 in 20	70	130	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	C
2,3-dbppa (SS)	EPA552.2	Water	all	70	130	Final	Mandatory limits							
Monochloroacetic Acid	SM6251B	Water	1 in 20	70	130	Interim	not enough data	1 in 10	70	130	Interim	not enough data	30	A
Monobromoacetic Acid	SM6251B	Water	1 in 20	70	130	Interim	not enough data	1 in 10	70	130	Interim	not enough data	30	A
2,4-Dichlorophenylacetic acid	SM6251B	Water	1 in 20	70	130	Interim	not enough data	1 in 10	70	130	Interim	not enough data	30	A
Trichloroacetic acid	SM6251B	Water	1 in 20	70	130	Interim	not enough data	1 in 10	70	130	Interim	not enough data	30	A
Bromochloroacetic acid	SM6251B	Water	1 in 20	70	130	Interim	not enough data	1 in 10	70	130	Interim	not enough data	30	A
Dibromoacetic acid	SM6251B	Water	1 in 20	70	130	Interim	not enough data	1 in 10	70	130	Interim	not enough data	30	A
2,3-dbppa (SS)	SM6251B	Water	all	70	130	Interim	not enough data							
4,4'-DDD	EPA608	Water	1 in 10	31	141	Final	Mandatory limits	1 in 10	31	141	Final	Mandatory limits	30	A
4,4'-DDE	EPA608	Water	1 in 10	30	145	Final	Mandatory limits	1 in 10	30	145	Final	Mandatory limits	30	A
4,4'-DDT	EPA608	Water	1 in 10	25	160	Final	Mandatory limits	1 in 10	25	160	Final	Mandatory limits	30	A
Aldrin	EPA608	Water	1 in 10	42	122	Final	Mandatory limits	1 in 10	42	122	Final	Mandatory limits	30	A
alpha-BHC	EPA608	Water	1 in 10	37	134	Final	Mandatory limits	1 in 10	37	134	Final	Mandatory limits	30	A
beta-BHC	EPA608	Water	1 in 10	17	147	Final	Mandatory limits	1 in 10	17	147	Final	Mandatory limits	30	A
delta-BHC	EPA608	Water	1 in 10	19	140	Final	Mandatory limits	1 in 10	19	140	Final	Mandatory limits	30	A
Dieldrin	EPA608	Water	1 in 10	36	146	Final	Mandatory limits	1 in 10	36	146	Final	Mandatory limits	30	A
Endosulfan I	EPA608	Water	1 in 10	45	153	Final	Mandatory limits	1 in 10	45	153	Final	Mandatory limits	30	A

Parameter	Anal. Method	Matrix	LCS					Matrix Spikes					RPD	Rem-arks
			Fqcy	LCL	UCL	Status	Remarks	Fqcy	LCL	UCL	Status	Remarks		
Endosulfan II	EPA608	Water	1 in 10	D	202	Final	Mandatory limits	1 in 10	D	202	Final	Mandatory limits	30	A
Endosulfan sulfate	EPA608	Water	1 in 10	26	144	Final	Mandatory limits	1 in 10	26	144	Final	Mandatory limits	30	A
Endrin	EPA608	Water	1 in 10	30	147	Final	Mandatory limits	1 in 10	30	147	Final	Mandatory limits	30	A
Heptachlor	EPA608	Water	1 in 10	34	111	Final	Mandatory limits	1 in 10	34	111	Final	Mandatory limits	30	A
Heptachlor epoxide	EPA608	Water	1 in 10	37	142	Final	Mandatory limits	1 in 10	37	142	Final	Mandatory limits	30	A
gamma-BHC (lindane)	EPA608	Water	1 in 10	32	127	Final	Mandatory limits	1 in 10	32	127	Final	Mandatory limits	30	A
Toxaphene	EPA608	Water	1 in 10	41	126	Final	Mandatory limits	1 in 10	41	126	Final	Mandatory limits	30	A
Chlordane	EPA608	Water	1 in 10	45	119	Final	Mandatory limits	1 in 10	45	119	Final	Mandatory limits	30	A
PCB-1016	EPA608	Water	1 in 10	50	154	Final	Mandatory limits	1 in 10	50	154	Final	Mandatory limits	30	A
PCB-1221	EPA608	Water	1 in 10	15	178	Final	Mandatory limits	1 in 10	15	178	Final	Mandatory limits	30	A
PCB-1232	EPA608	Water	1 in 10	10	215	Final	Mandatory limits	1 in 10	10	215	Final	Mandatory limits	30	A
PCB-1242	EPA608	Water	1 in 10	39	150	Final	Mandatory limits	1 in 10	39	150	Final	Mandatory limits	30	A
PCB-1248	EPA608	Water	1 in 10	38	158	Final	Mandatory limits	1 in 10	38	158	Final	Mandatory limits	30	A
PCB-1254	EPA608	Water	1 in 10	29	131	Final	Mandatory limits	1 in 10	29	131	Final	Mandatory limits	30	A
PCB-1260	EPA608	Water	1 in 10	8	127	Final	Mandatory limits	1 in 10	8	127	Final	Mandatory limits	30	A
1,1,1-Trichloroethane	EPA624	Water	1/day	57	162	Final	Mandatory limits	1 in 20	57	162	Final	Mandatory limits	30	A
1,1,2,2-Tetrachloroethane	EPA624	Water	1/day	46	157	Final	Mandatory limits	1 in 20	46	157	Final	Mandatory limits	30	A
1,1,2-Trichloroethane	EPA624	Water	1/day	52	150	Final	Mandatory limits	1 in 20	52	150	Final	Mandatory limits	30	A
1,1-Dichloroethane	EPA624	Water	1/day	59	155	Final	Mandatory limits	1 in 20	59	155	Final	Mandatory limits	30	A
1,1-Dichloroethene	EPA624	Water	1/day	D	234	Final	Mandatory limits	1 in 20	D	234	Final	Mandatory limits	30	A
1,2-Dichlorobenzene	EPA624	Water	1/day	18	190	Final	Mandatory limits	1 in 20	18	190	Final	Mandatory limits	30	A
1,2-Dichloroethane	EPA624	Water	1/day	49	155	Final	Mandatory limits	1 in 20	49	155	Final	Mandatory limits	30	A
1,2-Dichloropropane	EPA624	Water	1/day	D	210	Final	Mandatory limits	1 in 20	D	210	Final	Mandatory limits	30	A
1,3-Dichlorobenzene	EPA624	Water	1/day	59	156	Final	Mandatory limits	1 in 20	59	156	Final	Mandatory limits	30	A
1,4-Dichlorobenzene	EPA624	Water	1/day	18	190	Final	Mandatory limits	1 in 20	18	190	Final	Mandatory limits	30	A
2-Chloroethylvinyl ether	EPA624	Water	1/day	D	305	Final	Mandatory limits	1 in 20	D	305	Final	Mandatory limits	30	A
Benzene	EPA624	Water	1/day	37	151	Final	Mandatory limits	1 in 20	37	151	Final	Mandatory limits	30	A
Bromodichloromethane	EPA624	Water	1/day	35	155	Final	Mandatory limits	1 in 20	35	155	Final	Mandatory limits	30	A
Bromoform	EPA624	Water	1/day	45	169	Final	Mandatory limits	1 in 20	45	169	Final	Mandatory limits	30	A
Bromomethane	EPA624	Water	1/day	D	242	Final	Mandatory limits	1 in 20	D	242	Final	Mandatory limits	30	A
Carbon Tetrachloride	EPA624	Water	1/day	70	140	Final	Mandatory limits	1 in 20	70	140	Final	Mandatory limits	30	A
Chlorobenzene	EPA624	Water	1/day	37	160	Final	Mandatory limits	1 in 20	37	160	Final	Mandatory limits	30	A
Chloroethane	EPA624	Water	1/day	14	230	Final	Mandatory limits	1 in 20	14	230	Final	Mandatory limits	30	A
Chloroform	EPA624	Water	1/day	51	138	Final	Mandatory limits	1 in 20	51	138	Final	Mandatory limits	30	A
Chloromethane	EPA624	Water	1/day	D	273	Final	Mandatory limits	1 in 20	D	273	Final	Mandatory limits	30	A

Parameter	Anal. Method	Matrix	LCS					Matrix Spikes					RPD	Rem-arks
			Fqcy	LCL	UCL	Status	Remarks	Fqcy	LCL	UCL	Status	Remarks		
cis-1,3-Dichloropropene	EPA624	Water	1/day	D	227	Final	Mandatory limits	1 in 20	D	227	Final	Mandatory limits	30	A
Dibromochloromethane	EPA624	Water	1/day	53	149	Final	Mandatory limits	1 in 20	53	149	Final	Mandatory limits	30	A
Ethyl benzene	EPA624	Water	1/day	37	162	Final	Mandatory limits	1 in 20	37	162	Final	Mandatory limits	30	A
Methylene chloride	EPA624	Water	1/day	D	221	Final	Mandatory limits	1 in 20	D	221	Final	Mandatory limits	30	A
Tetrachloroethene (PCE)	EPA624	Water	1/day	64	148	Final	Mandatory limits	1 in 20	64	148	Final	Mandatory limits	30	A
Toluene	EPA624	Water	1/day	47	150	Final	Mandatory limits	1 in 20	47	150	Final	Mandatory limits	30	A
trans-1,2-Dichloroethene	EPA624	Water	1/day	54	156	Final	Mandatory limits	1 in 20	54	156	Final	Mandatory limits	30	A
trans-1,3-Dichloropropene	EPA624	Water	1/day	17	183	Final	Mandatory limits	1 in 20	17	183	Final	Mandatory limits	30	A
Trichloroethene (TCE)	EPA624	Water	1/day	71	157	Final	Mandatory limits	1 in 20	71	157	Final	Mandatory limits	30	A
Trichlorofluoromethane	EPA624	Water	1/day	17	181	Final	Mandatory limits	1 in 20	17	181	Final	Mandatory limits	30	A
Vinyl Chloride	EPA624	Water	1/day	D	251	Final	Mandatory limits	1 in 20	D	251	Final	Mandatory limits	30	A
4-Bromofluorobenzene (SS)	EPA624	Water	all	78	133	Updated 07/00	Lab generated							
1,2-Dichloroethane-d4 (SS)	EPA624	Water	all	69	141	Updated 07/00	Lab generated							
Toluene-d8 (SS)	EPA624	Water	all	86	123	Updated 07/00	Lab generated							
1,2,4-Trichlorobenzene	EPA625	Water	1/day	44	142	Final	Mandatory limits	1 in 20	44	142	Final	Mandatory limits	30	A
1,2-Dichlorobenzene	EPA625	Water	1/day	32	129	Final	Mandatory limits	1 in 20	32	129	Final	Mandatory limits	30	A
1,3-Dichlorobenzene	EPA625	Water	1/day	D	172	Final	Mandatory limits	1 in 20	D	172	Final	Mandatory limits	30	A
1,4-Dichlorobenzene	EPA625	Water	1/day	20	124	Final	Mandatory limits	1 in 20	20	124	Final	Mandatory limits	30	A
2,4,6-Trichlorophenol	EPA625	Water	1/day	37	144	Final	Mandatory limits	1 in 20	37	144	Final	Mandatory limits	30	A
2,4-Dichlorophenol	EPA625	Water	1/day	39	135	Final	Mandatory limits	1 in 20	39	135	Final	Mandatory limits	30	A
2,4-Dimethylphenol	EPA625	Water	1/day	32	119	Final	Mandatory limits	1 in 20	32	119	Final	Mandatory limits	30	A
2,4-Dinitrophenol	EPA625	Water	1/day	D	191	Final	Mandatory limits	1 in 20	D	191	Final	Mandatory limits	30	A
2,4-Dinitrotoluene	EPA625	Water	1/day	39	139	Final	Mandatory limits	1 in 20	39	139	Final	Mandatory limits	30	A
2,6-Dinitrotoluene	EPA625	Water	1/day	50	158	Final	Mandatory limits	1 in 20	50	158	Final	Mandatory limits	30	A
2-Chloronaphthalene	EPA625	Water	1/day	60	118	Final	Mandatory limits	1 in 20	60	118	Final	Mandatory limits	30	A
2-Chlorophenol	EPA625	Water	1/day	23	134	Final	Mandatory limits	1 in 20	23	134	Final	Mandatory limits	30	A
2-Nitrophenol	EPA625	Water	1/day	29	182	Final	Mandatory limits	1 in 20	29	182	Final	Mandatory limits	30	A
3,3'-dichlorobenzidine	EPA625	Water	1/day	D	262	Final	Mandatory limits	1 in 20	D	262	Final	Mandatory limits	30	A
4,4'-DDD	EPA625	Water	1/day	D	145	Final	Mandatory limits	1 in 20	D	145	Final	Mandatory limits	30	A
4,4'-DDE	EPA625	Water	1/day	4	136	Final	Mandatory limits	1 in 20	4	136	Final	Mandatory limits	30	A
4,4'-DDT	EPA625	Water	1/day	D	203	Final	Mandatory limits	1 in 20	D	203	Final	Mandatory limits	30	A
4,6-Dinitro-2-methylphenol	EPA625	Water	1/day	D	191	Final	Mandatory limits	1 in 20	D	191	Final	Mandatory limits	30	A
4-Bromophenyl phenyl ether	EPA625	Water	1/day	53	127	Final	Mandatory limits	1 in 20	53	127	Final	Mandatory limits	30	A
4-Chloro-3-Methylphenol	EPA625	Water	1/day	22	147	Final	Mandatory limits	1 in 20	22	147	Final	Mandatory limits	30	A
4-Chlorophenyl phenyl ether	EPA625	Water	1/day	25	158	Final	Mandatory limits	1 in 20	25	158	Final	Mandatory limits	30	A

Parameter	Anal. Method	Matrix	LCS					Matrix Spikes					RPD	Rem-arks
			Fqcy	LCL	UCL	Status	Remarks	Fqcy	LCL	UCL	Status	Remarks		
4-Nitrophenol	EPA625	Water	1/day	D	132	Final	Mandatory limits	1 in 20	D	132	Final	Mandatory limits	30	A
Acenaphthene	EPA625	Water	1/day	47	145	Final	Mandatory limits	1 in 20	47	145	Final	Mandatory limits	30	A
Acenaphthylene	EPA625	Water	1/day	33	145	Final	Mandatory limits	1 in 20	33	145	Final	Mandatory limits	30	A
Aldrin	EPA625	Water	1/day	D	156	Final	Mandatory limits	1 in 20	D	156	Final	Mandatory limits	30	A
Anthracene	EPA625	Water	1/day	27	133	Final	Mandatory limits	1 in 20	27	133	Final	Mandatory limits	30	A
Benzo (a) Anthracene	EPA625	Water	1/day	33	143	Final	Mandatory limits	1 in 20	33	143	Final	Mandatory limits	30	A
Benzo (a) Pyrene	EPA625	Water	1/day	17	163	Final	Mandatory limits	1 in 20	17	163	Final	Mandatory limits	30	A
Benzo (b) Fluoranthene	EPA625	Water	1/day	24	159	Final	Mandatory limits	1 in 20	24	159	Final	Mandatory limits	30	A
Benzo (g,h,i) Perylene	EPA625	Water	1/day	D	219	Final	Mandatory limits	1 in 20	D	219	Final	Mandatory limits	30	A
Benzo (k) Fluoranthene	EPA625	Water	1/day	11	162	Final	Mandatory limits	1 in 20	11	162	Final	Mandatory limits	30	A
beta-BHC	EPA625	Water	1/day	24	149	Final	Mandatory limits	1 in 20	24	149	Final	Mandatory limits	30	A
bis (2-Ethylhexyl) phthalate	EPA625	Water	1/day	8	158	Final	Mandatory limits	1 in 20	8	158	Final	Mandatory limits	30	A
bis(2-Chloroethoxy) methane	EPA625	Water	1/day	33	184	Final	Mandatory limits	1 in 20	33	184	Final	Mandatory limits	30	A
bis(2-Chloroethyl) Ether	EPA625	Water	1/day	12	158	Final	Mandatory limits	1 in 20	12	158	Final	Mandatory limits	30	A
bis(2-Chloroisopropyl) ether	EPA625	Water	1/day	36	166	Final	Mandatory limits	1 in 20	36	166	Final	Mandatory limits	30	A
Butyl benzyl phthalate	EPA625	Water	1/day	D	152	Final	Mandatory limits	1 in 20	D	152	Final	Mandatory limits	30	A
Chrysene	EPA625	Water	1/day	17	168	Final	Mandatory limits	1 in 20	17	168	Final	Mandatory limits	30	A
delta-BHC	EPA625	Water	1/day	D	110	Final	Mandatory limits	1 in 20	D	110	Final	Mandatory limits	30	A
Dibenzo (a,h) Anthracene	EPA625	Water	1/day	D	227	Final	Mandatory limits	1 in 20	D	227	Final	Mandatory limits	30	A
Dieldrin	EPA625	Water	1/day	29	136	Final	Mandatory limits	1 in 20	29	136	Final	Mandatory limits	30	A
Diethyl phthalate	EPA625	Water	1/day	D	114	Final	Mandatory limits	1 in 20	D	114	Final	Mandatory limits	30	A
Dimethyl phthalate	EPA625	Water	1/day	D	112	Final	Mandatory limits	1 in 20	D	112	Final	Mandatory limits	30	A
di-n-Butyl phthalate	EPA625	Water	1/day	1	118	Final	Mandatory limits	1 in 20	1	118	Final	Mandatory limits	30	A
di-n-Octyl phthalate	EPA625	Water	1/day	4	146	Final	Mandatory limits	1 in 20	4	146	Final	Mandatory limits	30	A
Endosulfan sulfate	EPA625	Water	1/day	D	107	Final	Mandatory limits	1 in 20	D	107	Final	Mandatory limits	30	A
Endrin aldehyde	EPA625	Water	1/day	D	209	Final	Mandatory limits	1 in 20	D	209	Final	Mandatory limits	30	A
Fluoranthene	EPA625	Water	1/day	26	137	Final	Mandatory limits	1 in 20	26	137	Final	Mandatory limits	30	A
Fluorene	EPA625	Water	1/day	59	121	Final	Mandatory limits	1 in 20	59	121	Final	Mandatory limits	30	A
Heptachlor	EPA625	Water	1/day	D	192	Final	Mandatory limits	1 in 20	D	192	Final	Mandatory limits	30	A
Heptachlor epoxide	EPA625	Water	1/day	26	155	Final	Mandatory limits	1 in 20	26	155	Final	Mandatory limits	30	A
Hexachlorobenzene	EPA625	Water	1/day	D	152	Final	Mandatory limits	1 in 20	D	152	Final	Mandatory limits	30	A
Hexachlorobutadiene	EPA625	Water	1/day	24	116	Final	Mandatory limits	1 in 20	24	116	Final	Mandatory limits	30	A
Hexachlorocyclopentadiene	EPA625	Water	1/day	11	70	Updated 07/00	Lab generated	1 in 20	11	70	Updated 07/00	Lab generated	30	A
Hexachloroethane	EPA625	Water	1/day	40	113	Final	Mandatory limits	1 in 20	40	113	Final	Mandatory limits	30	A
Indeno (1,2,3-cd) Pyrene	EPA625	Water	1/day	D	171	Final	Mandatory limits	1 in 20	D	171	Final	Mandatory limits	30	A
Isophorone	EPA625	Water	1/day	21	196	Final	Mandatory limits	1 in 20	21	196	Final	Mandatory limits	30	A

Parameter	Anal. Method	Matrix	LCS					Matrix Spikes					RPD	Rem-arks
			Fqcy	LCL	UCL	Status	Remarks	Fqcy	LCL	UCL	Status	Remarks		
Naphthalene	EPA625	Water	1/day	21	133	Final	Mandatory limits	1 in 20	21	133	Final	Mandatory limits	30	A
Nitrobenzene	EPA625	Water	1/day	35	180	Final	Mandatory limits	1 in 20	35	180	Final	Mandatory limits	30	A
N-Nitroso-dimethylamine	EPA625	Water	1/day	30	67	Updated 07/00	Lab generated	1 in 20	30	67	Updated 07/00	Lab generated	30	A
N-Nitroso-di-n-propylamine	EPA625	Water	1/day	D	230	Final	Mandatory limits	1 in 20	D	230	Final	Mandatory limits	30	A
N-Nitroso-diphenylamine	EPA625	Water	1/day	45	112	Updated 07/00	Lab generated	1 in 20	45	112	Updated 07/00	Lab generated	30	A
Pentachlorophenol	EPA625	Water	1/day	14	176	Final	Mandatory limits	1 in 20	14	176	Final	Mandatory limits	30	A
Phenanthrene	EPA625	Water	1/day	54	120	Final	Mandatory limits	1 in 20	54	120	Final	Mandatory limits	30	A
Phenol	EPA625	Water	1/day	5	112	Final	Mandatory limits	1 in 20	5	112	Final	Mandatory limits	30	A
Pyrene	EPA625	Water	1/day	52	115	Final	Mandatory limits	1 in 20	52	115	Final	Mandatory limits	30	A
2-fluorophenol (SS)	EPA625	Water	all	D	84	Updated 07/00	Lab generated							
Phenol-d5 (SS)	EPA625	Water	all	D	72	Updated 07/00	Lab generated							
2,4,6-Tribromophenol (SS)	EPA625	Water	all	D	97	Updated 07/00	Lab generated							
2-Fluorobiphenyl (SS)	EPA625	Water	all	23	103	Updated 07/00	Lab generated							
Nitrobenzene-D5 (SS)	EPA625	Water	all	D	129	Updated 07/00	Lab generated							
Terphenyl-d14 (SS)	EPA625	Water	all	16	146	Updated 07/00	Lab generated							
Diuron	EPA632	Water	1 in 20	73	134	Updated 07/00	Lab generated	1 in 10	73	134	Updated 07/00	Lab generated	25	A
DRO (Diesel)	EPA8015B	Water	1 in 20	69	122	Updated 04/97	Lab generated	1 in 20	71	129	Updated 04/97	Lab generated	25	D
n-Tetracosane (SS)	EPA8015B	Water	all	77	139	Updated 07/00	Lab generated							
DRO (Diesel)	EPA8015B	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	76	128	Updated 04/97	Lab generated	25	D
n-Tetracosane (SS)	EPA8015B	Solid	all	75	123	Updated 07/00	Lab generated							
GRO (gasoline)	EPA8015B	Water	1 in 20	53	136	Updated 07/00	Lab generated	1 in 20	62	142	Updated 07/00	Lab generated	25	D
4-Bromofluorobenzene (SS)	EPA8015B	Water	all	72	120	Updated 07/00	Lab generated							
GRO (gasoline)	EPA8015B	Solid	1 in 20	53	136	Updated 07/00	Lab generated	1 in 20	41	127	Updated 07/00	Lab generated	25	D
4-Bromofluorobenzene (SS)	EPA8015B	Solid	all	72	131	Updated 07/00	Lab generated							
Benzene	EPA8021B	Water	1 in 20	68	110	Updated 07/00	Lab generated	1 in 20	71	123	Updated 04/97	Lab generated	25	D
Toluene	EPA8021B	Water	1 in 20	67	111	Updated 07/00	Lab generated	1 in 20	80	118	Updated 04/97	Lab generated	25	D
Ethylbenzene	EPA8021B	Water	1 in 20	67	113	Updated 07/00	Lab generated	1 in 20	80	131	Updated 04/97	Lab generated	25	D
m,p-Xylenes	EPA8021B	Water	1 in 20	65	115	Updated 07/00	Lab generated	1 in 20	79	130	Updated 04/97	Lab generated	25	D
o-Xylene	EPA8021B	Water	1 in 20	65	114	Updated 07/00	Lab generated	1 in 20	80	119	Updated 04/97	Lab generated	25	D
Methyl t-butyl ether	EPA8021B	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	25	D
4-Bromofluorobenzene (SS)	EPA8021B	Water	all	82	108	Updated 07/00	Lab generated							
Benzene	EPA8021B	Solid	1 in 20	68	110	Updated 07/00	Lab generated	1 in 20	71	120	Updated 04/97	Lab generated	25	D

Parameter	Anal. Method	Matrix	LCS					Matrix Spikes					RPD	Rem-arks
			Fqcy	LCL	UCL	Status	Remarks	Fqcy	LCL	UCL	Status	Remarks		
Toluene	EPA8021B	Solid	1 in 20	67	111	Updated 07/00	Lab generated	1 in 20	72	122	Updated 04/97	Lab generated	25	D
Ethylbenzene	EPA8021B	Solid	1 in 20	67	113	Updated 07/00	Lab generated	1 in 20	76	128	Updated 04/97	Lab generated	25	D
m,p-Xylenes	EPA8021B	Solid	1 in 20	65	115	Updated 07/00	Lab generated	1 in 20	71	116	Updated 04/97	Lab generated	25	D
o-Xylene	EPA8021B	Solid	1 in 20	65	114	Updated 07/00	Lab generated	1 in 20	72	116	Updated 04/97	Lab generated	25	D
Methyl t-butyl ether	EPA8021B	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	25	D
4-Bromofluorobenzene (SS)	EPA8021B	Solid	all	63	132	Updated 07/00	Lab generated							
4,4'-DDD	EPA8081A	Water	1 in 20	51	129	Updated 07/00	Lab generated	1 in 20	45	140	Updated 04/97	Lab generated	25	D
4,4'-DDE	EPA8081A	Water	1 in 20	51	131	Updated 07/00	Lab generated	1 in 20	53	124	Updated 04/97	Lab generated	25	D
4,4'-DDT	EPA8081A	Water	1 in 20	46	162	Updated 07/00	Lab generated	1 in 20	51	144	Updated 04/97	Lab generated	25	D
Aldrin	EPA8081A	Water	1 in 20	57	121	Updated 07/00	Lab generated	1 in 20	44	122	Updated 04/97	Lab generated	25	D
alpha-BHC	EPA8081A	Water	1 in 20	54	130	Updated 07/00	Lab generated	1 in 20	57	125	Updated 04/97	Lab generated	25	D
beta-BHC	EPA8081A	Water	1 in 20	63	129	Updated 07/00	Lab generated	1 in 20	31	157	Updated 04/97	Lab generated	25	D
delta-BHC	EPA8081A	Water	1 in 20	59	137	Updated 07/00	Lab generated	1 in 20	56	146	Updated 04/97	Lab generated	25	D
Dieldrin	EPA8081A	Water	1 in 20	49	138	Updated 07/00	Lab generated	1 in 20	41	143	Updated 04/97	Lab generated	25	D
Endosulfan I	EPA8081A	Water	1 in 20	63	118	Updated 07/00	Lab generated	1 in 20	56	122	Updated 04/97	Lab generated	25	D
Endosulfan II	EPA8081A	Water	1 in 20	51	127	Updated 07/00	Lab generated	1 in 20	50	122	Updated 04/97	Lab generated	25	D
Endosulfan sulfate	EPA8081A	Water	1 in 20	70	147	Updated 07/00	Lab generated	1 in 20	57	155	Updated 04/97	Lab generated	25	D
Endrin	EPA8081A	Water	1 in 20	45	145	Updated 07/00	Lab generated	1 in 20	45	151	Updated 04/97	Lab generated	25	D
Endrin aldehyde	EPA8081A	Water	1 in 20	60	128	Updated 07/00	Lab generated	1 in 20	36	160	Updated 04/97	Lab generated	25	D
Heptachlor	EPA8081A	Water	1 in 20	59	138	Updated 07/00	Lab generated	1 in 20	36	157	Updated 04/97	Lab generated	25	D
Heptachlor epoxide	EPA8081A	Water	1 in 20	63	123	Updated 07/00	Lab generated	1 in 20	51	132	Updated 04/97	Lab generated	25	D
gamma-BHC (lindane)	EPA8081A	Water	1 in 20	55	139	Updated 07/00	Lab generated	1 in 20	47	150	Updated 04/97	Lab generated	25	D
Methoxychlor	EPA8081A	Water	1 in 20	42	154	Updated 07/00	Lab generated	1 in 20	32	178	Updated 04/97	Lab generated	25	D
Toxaphene	EPA8081A	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	25	D
Chlordane	EPA8081A	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	25	D
Mirex	EPA8081A	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	25	D
Decafluorobiphenyl (SS)	EPA8081A	Water	all	77	135	Updated 07/00	Lab generated							
2,4,5,6-pcmx (SS)	EPA8081A	Water	all	70	130	Interim	Not enough data							
4,4'-DDD	EPA8081A	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	34	159	Updated 07/00	Lab generated	25	D
4,4'-DDE	EPA8081A	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	27	164	Updated 07/00	Lab generated	25	D
4,4'-DDT	EPA8081A	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	32	185	Updated 07/00	Lab generated	25	D
Aldrin	EPA8081A	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	24	163	Updated 07/00	Lab generated	25	D
alpha-BHC	EPA8081A	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	19	153	Updated 07/00	Lab generated	25	D
beta-BHC	EPA8081A	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	25	150	Updated 07/00	Lab generated	25	D
delta-BHC	EPA8081A	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	24	172	Updated 07/00	Lab generated	25	D

Parameter	Anal. Method	Matrix	LCS					Matrix Spikes					RPD	Remarks
			Fqcy	LCL	UCL	Status	Remarks	Fqcy	LCL	UCL	Status	Remarks		
Dieldrin	EPA8081A	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	13	157	Updated 07/00	Lab generated	25	D
Endosulfan I	EPA8081A	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	24	153	Updated 07/00	Lab generated	25	D
Endosulfan II	EPA8081A	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	31	136	Updated 07/00	Lab generated	25	D
Endosulfan sulfate	EPA8081A	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	37	175	Updated 07/00	Lab generated	25	D
Endrin	EPA8081A	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	32	171	Updated 07/00	Lab generated	25	D
Endrin aldehyde	EPA8081A	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	19	147	Updated 07/00	Lab generated	25	D
Heptachlor	EPA8081A	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	35	152	Updated 07/00	Lab generated	25	D
Heptachlor epoxide	EPA8081A	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	44	133	Updated 07/00	Lab generated	25	D
gamma-BHC (lindane)	EPA8081A	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	22	165	Updated 07/00	Lab generated	25	D
Methoxychlor	EPA8081A	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	33	171	Updated 07/00	Lab generated	25	D
Toxaphene	EPA8081A	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	25	D
Chlordane	EPA8081A	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	25	D
Mirex	EPA8081A	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	25	D
Decafluorobiphenyl (SS)	EPA8081A	Solid	all	72	137	Updated 07/00	Lab generated							
2,4,5,6-pcmx (SS)	EPA8081A	Solid	all	70	130	Interim	Not enough data							
Aroclor-1016	EPA8082	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	68	133	Updated 07/00	Lab generated	25	D
Aroclor-1260	EPA8082	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	59	133	Updated 07/00	Lab generated	25	D
Decachlorobiphenyl (SS)	EPA8082	Water	all	70	130	Interim	Not enough data							
Aroclor-1016	EPA8082	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	71	125	Updated 07/00	Lab generated	25	D
Aroclor-1260	EPA8082	Solid	1 in 20	68	132	Updated 07/00	Lab generated	1 in 20	64	135	Updated 07/00	Lab generated	25	D
Decachlorobiphenyl (SS)	EPA8082	Solid	all	53	143	Updated 07/00	Lab generated							
Azinphos methyl	EPA8141A	Water	1 in 20	4	196	Updated 07/00	Lab generated	1 in 20	4	196	Updated 07/00	Lab generated	25	D
Bolstar	EPA8141A	Water	1 in 20	5	174	Updated 07/00	Lab generated	1 in 20	5	174	Updated 07/00	Lab generated	25	D
Chlorpyrifos	EPA8141A	Water	1 in 20	5	160	Updated 07/00	Lab generated	1 in 20	5	160	Updated 07/00	Lab generated	25	D
Coumaphos	EPA8141A	Water	1 in 20	14	162	Updated 07/00	Lab generated	1 in 20	14	162	Updated 07/00	Lab generated	25	D
Demeton-O	EPA8141A	Water	1 in 20	9	162	Updated 07/00	Lab generated	1 in 20	9	162	Updated 07/00	Lab generated	25	D
Demeton-S	EPA8141A	Water	1 in 20	5	181	Updated 07/00	Lab generated	1 in 20	5	181	Updated 07/00	Lab generated	25	D
Diazinon	EPA8141A	Water	1 in 20	23	132	Updated 07/00	Lab generated	1 in 20	23	132	Updated 07/00	Lab generated	25	D
Dichlorvos	EPA8141A	Water	1 in 20	12	133	Updated 07/00	Lab generated	1 in 20	12	133	Updated 07/00	Lab generated	25	D
Disulfoton	EPA8141A	Water	1 in 20	5	144	Updated 07/00	Lab generated	1 in 20	5	144	Updated 07/00	Lab generated	25	D
Ethoprop	EPA8141A	Water	1 in 20	5	146	Updated 07/00	Lab generated	1 in 20	5	146	Updated 07/00	Lab generated	25	D
Fensulfothion	EPA8141A	Water	1 in 20	45	95	Updated 07/00	Lab generated	1 in 20	45	95	Updated 07/00	Lab generated	25	D
Fenthion	EPA8141A	Water	1 in 20	5	164	Updated 07/00	Lab generated	1 in 20	5	164	Updated 07/00	Lab generated	25	D
Merphos	EPA8141A	Water	1 in 20	5	219	Updated 07/00	Lab generated	1 in 20	5	219	Updated 07/00	Lab generated	25	D

Parameter	Anal. Method	Matrix	LCS					Matrix Spikes					RPD	Rem-arks
			Fqcy	LCL	UCL	Status	Remarks	Fqcy	LCL	UCL	Status	Remarks		
Mevinphos	EPA8141A	Water	1 in 20	14	89	Updated 07/00	Lab generated	1 in 20	14	89	Updated 07/00	Lab generated	25	D
Naled	EPA8141A	Water	1 in 20	5	193	Updated 07/00	Lab generated	1 in 20	5	193	Updated 07/00	Lab generated	25	D
Parathion, methyl	EPA8141A	Water	1 in 20	22	133	Updated 07/00	Lab generated	1 in 20	22	133	Updated 07/00	Lab generated	25	D
Phorate	EPA8141A	Water	1 in 20	5	140	Updated 07/00	Lab generated	1 in 20	5	140	Updated 07/00	Lab generated	25	D
Ronnel	EPA8141A	Water	1 in 20	5	156	Updated 07/00	Lab generated	1 in 20	5	156	Updated 07/00	Lab generated	25	D
Stirofos	EPA8141A	Water	1 in 20	5	160	Updated 07/00	Lab generated	1 in 20	5	160	Updated 07/00	Lab generated	25	D
Tokuthion	EPA8141A	Water	1 in 20	5	179	Updated 07/00	Lab generated	1 in 20	5	179	Updated 07/00	Lab generated	25	D
Trichloronate	EPA8141A	Water	1 in 20	5	171	Updated 07/00	Lab generated	1 in 20	5	171	Updated 07/00	Lab generated	25	D
Triphenylphosphate (SS)	EPA8141A	Water	all	31	176	Updated 07/00	Lab generated							
Azinphos methyl	EPA8141A	Solid	1 in 20	44	219	Updated 07/00	Lab generated	1 in 20	44	219	Updated 07/00	Lab generated	25	D
Bolstar	EPA8141A	Solid	1 in 20	69	155	Updated 07/00	Lab generated	1 in 20	69	155	Updated 07/00	Lab generated	25	D
Chlorpyrifos	EPA8141A	Solid	1 in 20	63	152	Updated 07/00	Lab generated	1 in 20	63	152	Updated 07/00	Lab generated	25	D
Coumaphos	EPA8141A	Solid	1 in 20	36	241	Updated 07/00	Lab generated	1 in 20	36	241	Updated 07/00	Lab generated	25	D
Demeton-O	EPA8141A	Solid	1 in 20	5	151	Updated 07/00	Lab generated	1 in 20	5	151	Updated 07/00	Lab generated	25	D
Demeton-S	EPA8141A	Solid	1 in 20	14	197	Updated 07/00	Lab generated	1 in 20	14	197	Updated 07/00	Lab generated	25	D
Diazinon	EPA8141A	Solid	1 in 20	5	193	Updated 07/00	Lab generated	1 in 20	5	193	Updated 07/00	Lab generated	25	D
Dichlorvos	EPA8141A	Solid	1 in 20	33	220	Updated 07/00	Lab generated	1 in 20	33	220	Updated 07/00	Lab generated	25	D
Disulfoton	EPA8141A	Solid	1 in 20	5	182	Updated 07/00	Lab generated	1 in 20	5	182	Updated 07/00	Lab generated	25	D
Ethoprop	EPA8141A	Solid	1 in 20	77	159	Updated 07/00	Lab generated	1 in 20	77	159	Updated 07/00	Lab generated	25	D
Fensulfothion	EPA8141A	Solid	1 in 20	5	196	Updated 07/00	Lab generated	1 in 20	5	196	Updated 07/00	Lab generated	25	D
Fenthion	EPA8141A	Solid	1 in 20	60	171	Updated 07/00	Lab generated	1 in 20	60	171	Updated 07/00	Lab generated	25	D
Merphos	EPA8141A	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	25	D
Mevinphos	EPA8141A	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	25	D
Naled	EPA8141A	Solid	1 in 20	5	237	Interim	Not enough data	1 in 20	5	237	Interim	Not enough data	25	D
Parathion, methyl	EPA8141A	Solid	1 in 20	22	160	Updated 07/00	Lab generated	1 in 20	22	160	Updated 07/00	Lab generated	25	D
Phorate	EPA8141A	Solid	1 in 20	32	153	Updated 07/00	Lab generated	1 in 20	32	153	Updated 07/00	Lab generated	25	D
Ronnel	EPA8141A	Solid	1 in 20	50	180	Updated 07/00	Lab generated	1 in 20	50	180	Updated 07/00	Lab generated	25	D
Stirofos	EPA8141A	Solid	1 in 20	67	169	Updated 07/00	Lab generated	1 in 20	67	169	Updated 07/00	Lab generated	25	D
Tokuthion	EPA8141A	Solid	1 in 20	66	163	Updated 07/00	Lab generated	1 in 20	66	163	Updated 07/00	Lab generated	25	D
Trichloronate	EPA8141A	Solid	1 in 20	61	151	Updated 07/00	Lab generated	1 in 20	61	151	Updated 07/00	Lab generated	25	D
Triphenylphosphate (SS)	EPA8141A	Solid	all	70	130	Interim	Not enough data							
2,4-D	EPA8151A	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	25	D
Pentachlorophenol	EPA8151A	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	25	D
2,4,5-TP (Silvex)	EPA8151A	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	25	D
2,4,5-T	EPA8151A	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	25	D

Parameter	Anal. Method	Matrix	LCS					Matrix Spikes					RPD	Rem-arks
			Fqcy	LCL	UCL	Status	Remarks	Fqcy	LCL	UCL	Status	Remarks		
2,4-DB	EPA8151A	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	25	D
Dalapon	EPA8151A	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	25	D
Dicamba	EPA8151A	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	25	D
Dichloroprop	EPA8151A	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	25	D
Dinoseb	EPA8151A	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	25	D
MCPA	EPA8151A	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	25	D
MCPP	EPA8151A	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	25	D
2,4-dcaa (SS)	EPA8151A	Water	all	42	149	Updated 07/00	Lab generated							
2,4-D	EPA8151A	Solid	1 in 20	29	175	Updated 07/00	Lab generated	1 in 20	41	167	Updated 07/00	Lab generated	25	D
Pentachlorophenol	EPA8151A	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	50	77	Updated 07/00	Lab generated	25	D
2,4,5-TP (Silvex)	EPA8151A	Solid	1 in 20	34	142	Updated 07/00	Lab generated	1 in 20	23	143	Updated 07/00	Lab generated	25	D
2,4,5-T	EPA8151A	Solid	1 in 20	43	128	Updated 07/00	Lab generated	1 in 20	18	149	Updated 07/00	Lab generated	25	D
2,4-DB	EPA8151A	Solid	1 in 20	19	116	Updated 07/00	Lab generated	1 in 20	5	162	Updated 07/00	Lab generated	25	D
Dalapon	EPA8151A	Solid	1 in 20	43	132	Updated 07/00	Lab generated	1 in 20	28	112	Updated 07/00	Lab generated	25	D
Dicamba	EPA8151A	Solid	1 in 20	58	127	Updated 07/00	Lab generated	1 in 20	29	160	Updated 07/00	Lab generated	25	D
Dichloroprop	EPA8151A	Solid	1 in 20	42	145	Updated 07/00	Lab generated	1 in 20	10	161	Updated 07/00	Lab generated	25	D
Dinoseb	EPA8151A	Solid	1 in 20	41	112	Updated 07/00	Lab generated	1 in 20	5	128	Updated 07/00	Lab generated	25	D
MCPA	EPA8151A	Solid	1 in 20	36	120	Updated 07/00	Lab generated	1 in 20	5	180	Updated 07/00	Lab generated	25	D
MCPP	EPA8151A	Solid	1 in 20	35	117	Updated 07/00	Lab generated	1 in 20	5	179	Updated 07/00	Lab generated	25	D
2,4-dcaa (SS)	EPA8151A	Solid	all	42	149	Updated 07/00	Lab generated							
1,1,1-Trichloroethane	EPA8260B	Water	1 in 20	75	126	Updated 07/00	Lab generated							
1,1,2,2-Tetrachloroethane	EPA8260B	Water	1 in 20	61	128	Updated 07/00	Lab generated							
1,1,2-Trichloroethane	EPA8260B	Water	1 in 20	74	125	Updated 07/00	Lab generated							
1,1-Dichloroethane	EPA8260B	Water	1 in 20	73	129	Updated 07/00	Lab generated							
1,1-Dichloroethene	EPA8260B	Water	1 in 20	66	140	Updated 07/00	Lab generated	1 in 20	78	143	Updated 07/00	Lab generated	25	D
1,2-Dichloroethane	EPA8260B	Water	1 in 20	74	112	Updated 07/00	Lab generated							
1,2-Dichloropropane	EPA8260B	Water	1 in 20	78	126	Updated 07/00	Lab generated							
Benzene	EPA8260B	Water	1 in 20	74	122	Updated 07/00	Lab generated	1 in 20	80	126	Updated 07/00	Lab generated	25	D
Bromodichloromethane	EPA8260B	Water	1 in 20	76	125	Updated 07/00	Lab generated							
Bromomethane	EPA8260B	Water	1 in 20	69	131	Updated 07/00	Lab generated							
cis-1,2-Dichloroethene	EPA8260B	Water	1 in 20	72	120	Updated 07/00	Lab generated							
cis-1,3-Dichloropropene	EPA8260B	Water	1 in 20	73	128	Updated 07/00	Lab generated							
Carbon tetrachloride	EPA8260B	Water	1 in 20	74	130	Updated 07/00	Lab generated							
Bromoform	EPA8260B	Water	1 in 20	66	131	Updated 07/00	Lab generated							
Chloroform	EPA8260B	Water	1 in 20	70	120	Updated 07/00	Lab generated							

Parameter	Anal. Method	Matrix	LCS					Matrix Spikes					RPD	Rem-arks
			Fqcy	LCL	UCL	Status	Remarks	Fqcy	LCL	UCL	Status	Remarks		
Chlorobenzene	EPA8260B	Water	1 in 20	69	124	Updated 07/00	Lab generated	1 in 20	78	121	Updated 07/00	Lab generated	25	D
Dibromochloromethane	EPA8260B	Water	1 in 20	78	127	Updated 07/00	Lab generated							
Chloroethane	EPA8260B	Water	1 in 20	71	131	Updated 07/00	Lab generated							
Chloromethane	EPA8260B	Water	1 in 20	74	129	Updated 07/00	Lab generated							
Ethyl benzene	EPA8260B	Water	1 in 20	74	126	Updated 07/00	Lab generated							
Methylene chloride	EPA8260B	Water	1 in 20	68	129	Updated 07/00	Lab generated							
Tetrachloroethene	EPA8260B	Water	1 in 20	69	134	Updated 07/00	Lab generated							
Styrene	EPA8260B	Water	1 in 20	75	130	Updated 07/00	Lab generated							
trans-1,2-Dichloroethene	EPA8260B	Water	1 in 20	73	126	Updated 07/00	Lab generated							
trans-1,3-Dichloropropene	EPA8260B	Water	1 in 20	78	120	Updated 07/00	Lab generated							
Trichloroethene	EPA8260B	Water	1 in 20	71	137	Updated 07/00	Lab generated							
Toluene	EPA8260B	Water	1 in 20	74	122	Updated 07/00	Lab generated	1 in 20	76	123	Updated 07/00	Lab generated	25	D
Vinyl chloride	EPA8260B	Water	1 in 20	74	134	Updated 07/00	Lab generated	1 in 20	79	126	Updated 07/00	Lab generated	25	D
m/p-Xylenes	EPA8260B	Water	1 in 20	72	126	Updated 07/00	Lab generated							
o-Xylene	EPA8260B	Water	1 in 20	74	126	Updated 07/00	Lab generated							
1,2-Dichlorethane-d4 (SS)	EPA8260B	Water	all	71	136	Updated 07/00	Lab generated							
4-Bromofluorobenzene (SS)	EPA8260B	Water	all	76	131	Updated 07/00	Lab generated							
Toluene-d8 (SS)	EPA8260B	Water	all	80	122	Updated 07/00	Lab generated							
1,1,1-Trichloroethane	EPA8260B	Solid	1 in 20	65	126	Updated 07/00	Lab generated							
1,1,2,2-Tetrachloroethane	EPA8260B	Solid	1 in 20	71	118	Updated 07/00	Lab generated							
1,1,2-Trichloroethane	EPA8260B	Solid	1 in 20	75	116	Updated 07/00	Lab generated							
1,1-Dichloroethane	EPA8260B	Solid	1 in 20	77	123	Updated 07/00	Lab generated							
1,1-Dichloroethene	EPA8260B	Solid	1 in 20	81	117	Updated 07/00	Lab generated	1 in 20	86	135	Updated 07/00	Lab generated	25	D
1,2-Dichloroethane	EPA8260B	Solid	1 in 20	75	114	Updated 07/00	Lab generated							
1,2-Dichloropropane	EPA8260B	Solid	1 in 20	73	118	Updated 07/00	Lab generated							
Benzene	EPA8260B	Solid	1 in 20	71	127	Updated 07/00	Lab generated	1 in 20	74	137	Updated 07/00	Lab generated	25	D
Bromodichloromethane	EPA8260B	Solid	1 in 20	67	129	Updated 07/00	Lab generated							
Bromomethane	EPA8260B	Solid	1 in 20	70	122	Updated 07/00	Lab generated							
cis-1,2-Dichloroethene	EPA8260B	Solid	1 in 20	64	125	Updated 07/00	Lab generated							
cis-1,3-Dichloropropene	EPA8260B	Solid	1 in 20	69	122	Updated 07/00	Lab generated							
Carbon tetrachloride	EPA8260B	Solid	1 in 20	72	127	Updated 07/00	Lab generated							
Bromoform	EPA8260B	Solid	1 in 20	70	129	Updated 07/00	Lab generated							
Chloroform	EPA8260B	Solid	1 in 20	70	125	Updated 07/00	Lab generated							
Chlorobenzene	EPA8260B	Solid	1 in 20	71	117	Updated 07/00	Lab generated	1 in 20	67	123	Updated 07/00	Lab generated	25	D
Dibromochloromethane	EPA8260B	Solid	1 in 20	75	126	Updated 07/00	Lab generated							
Chloroethane	EPA8260B	Solid	1 in 20	74	116	Updated 07/00	Lab generated							

Parameter	Anal. Method	Matrix	LCS					Matrix Spikes					RPD	Remarks
			Fqcy	LCL	UCL	Status	Remarks	Fqcy	LCL	UCL	Status	Remarks		
Chloromethane	EPA8260B	Solid	1 in 20	69	127	Updated 07/00	Lab generated							
Ethyl benzene	EPA8260B	Solid	1 in 20	68	128	Updated 07/00	Lab generated							
Methylene chloride	EPA8260B	Solid	1 in 20	74	122	Updated 07/00	Lab generated							
Tetrachloroethene	EPA8260B	Solid	1 in 20	63	134	Updated 07/00	Lab generated							
Styrene	EPA8260B	Solid	1 in 20	68	123	Updated 07/00	Lab generated							
trans-1,2-Dichloroethene	EPA8260B	Solid	1 in 20	67	133	Updated 07/00	Lab generated							
trans-1,3-Dichloropropene	EPA8260B	Solid	1 in 20	68	123	Updated 07/00	Lab generated							
Trichloroethene	EPA8260B	Solid	1 in 20	77	126	Updated 07/00	Lab generated	1 in 20	64	131	Updated 07/00	Lab generated	25	D
Toluene	EPA8260B	Solid	1 in 20	68	128	Updated 07/00	Lab generated	1 in 20	69	133	Updated 07/00	Lab generated	25	D
Vinyl chloride	EPA8260B	Solid	1 in 20	75	119	Updated 07/00	Lab generated							
m/p-Xylenes	EPA8260B	Solid	1 in 20	65	131	Updated 07/00	Lab generated							
o-Xylene	EPA8260B	Solid	1 in 20	69	128	Updated 07/00	Lab generated							
1,2-Dichlorethane-d4 (SS)	EPA8260B	Solid	all	76	129	Updated 07/00	Lab generated							
4-Bromofluorobenzene (SS)	EPA8260B	Solid	all	85	131	Updated 07/00	Lab generated							
Toluene-d8 (SS)	EPA8260B	Solid	all	79	121	Updated 07/00	Lab generated							
1,2,4-Trichlorobenzene	EPA8270C	Water	1 in 20	36	108	Updated 07/00	Lab generated	1 in 20	35	111	Updated 07/00	Lab generated	30	D
1,4-Dichlorobenzene	EPA8270C	Water	1 in 20	36	75	Updated 07/00	Lab generated	1 in 20	38	76	Updated 07/00	Lab generated	30	D
2,4-Dinitrotoluene	EPA8270C	Water	1 in 20	47	113	Updated 07/00	Lab generated	1 in 20	48	115	Updated 07/00	Lab generated	30	D
2-Chlorophenol	EPA8270C	Water	1 in 20	54	102	Updated 07/00	Lab generated	1 in 20	27	126	Updated 07/00	Lab generated	30	D
4-Chloro-3-Methylphenol	EPA8270C	Water	1 in 20	44	147	Updated 07/00	Lab generated	1 in 20	26	148	Updated 07/00	Lab generated	30	D
4-Nitrophenol	EPA8270C	Water	1 in 20	11	89	Updated 07/00	Lab generated	1 in 20	8	93	Updated 07/00	Lab generated	30	D
Acenaphthene	EPA8270C	Water	1 in 20	37	106	Updated 07/00	Lab generated	1 in 20	23	124	Updated 07/00	Lab generated	30	D
N-Nitroso-di-n-propylamine	EPA8270C	Water	1 in 20	41	82	Updated 07/00	Lab generated	1 in 20	43	83	Updated 07/00	Lab generated	30	D
Pentachlorophenol	EPA8270C	Water	1 in 20	21	151	Updated 07/00	Lab generated	1 in 20	33	154	Updated 07/00	Lab generated	30	D
Phenol	EPA8270C	Water	1 in 20	21	56	Updated 07/00	Lab generated	1 in 20	15	62	Updated 07/00	Lab generated	30	D
Pyrene	EPA8270C	Water	1 in 20	28	132	Updated 07/00	Lab generated	1 in 20	17	133	Updated 07/00	Lab generated	30	D
2,4,6-Tribromophenol	EPA8270C	Water	all	59	110	Updated 07/00	Lab generated							
2-Fluorobiphenyl	EPA8270C	Water	all	25	121	Updated 07/00	Lab generated							
2-Fluorophenol	EPA8270C	Water	all	22	87	Updated 07/00	Lab generated							
Nitrobenzene-d5	EPA8270C	Water	all	41	99	Updated 07/00	Lab generated							
Phenol-d5	EPA8270C	Water	all	10	64	Updated 07/00	Lab generated							
Terphenyl-d14	EPA8270C	Water	all	26	139	Updated 07/00	Lab generated							
1,2,4-Trichlorobenzene	EPA8270C	Solid	1 in 20	24	121	Updated 07/00	Lab generated	1 in 20	26	114			30	D
1,4-Dichlorobenzene	EPA8270C	Solid	1 in 20	8	113	Updated 07/00	Lab generated	1 in 20	22	96			30	D
2,4-Dinitrotoluene	EPA8270C	Solid	1 in 20	21	123	Updated 07/00	Lab generated	1 in 20	29	118			30	D

Suzanne Butterfield

From: Carol Ramirez
Sent: Wednesday, September 03, 2003 2:31 PM
To: Suzanne Butterfield
Subject: RE: SSWA mtg tomorrow

The plan right now is to return all backwash water to the headworks of the plant and have zero discharge to the storm drain or sewer. This will mean it will be necessary to clean the ponds more frequently. There are three interrelated issues on this subject. First, if we were to continue our current practice of discharging pond effluent (3 months out of the year) to the storm drain it will soon fall under the requirements of needing a NPDES (National Pollution Discharge Elimination System) permit. This would require us to spend thousands of dollars in monitoring equipment, sample analysis, and permit fees. So the thought was, as long as we getting a sewer connection to the plant I would investigate the possibility of getting a second sewer connection to handle our pond effluent. I called Larry Bahr to find out if it was possible and he said that it would depend on what the water contained in regards to total suspended solids and biological oxygen demand. I also mentioned my idea to Richard Wirth since he was working on getting the sewer connection to the plant. So, the plant operators started collecting samples for analysis and Richard started working on the cost end of it. We found that the water was acceptable to the sewer plant but their price for taking it was unacceptable to us, 1 million to connect and 94K a year for service!
So, going back to the RWQCB requirement for a NPDES permit, it turns out that if we have a zero discharge all we have to do is file a "notice of non-applicability" before 12/31/03 and that's it. If we were to have an emergency release under the notice of non-applicability as long as the release were under 50,000 gallons with no chlorine residual we do not have to notify RWQCB. If it is excess of 50,000 gallons then we must notify RWQCB by phone and send a written report to them detailing the discharge within 5 days. The fine for emergency discharge will depend on the number of gallons discharged but will never be less than $1,000. This is by far the least expensive way to go, so that's our plan. The third issue that relates to pond discharge is the DHS "Filter Backwash Recycling Rule". This rule limits the amount of backwash water we can return to the headworks of the plant and also regulates the quality of this return. I feel if we perform better pond management we should have no problem meeting the DHS and the RWQCB requirements. But just to cover my bets I am looking into what it will cost to install a sludge press at the plant.

-----Original Message-----
From: Suzanne Butterfield
Sent: Wednesday, September 03, 2003 10:49 AM
To: Carol Ramirez
Subject: SSWA mtg tomorrow

CArol will you also be prepared to give an update on how we plan to handle disposal of the backwash water? I would like to know ahead of the meeting what the latest plan is. Thank you.
Suzanne

From: Joe McGahan [jmcgahan@summerseng.com]
Sent: Wednesday, September 03, 2003 1:25 PM
To: Carol Ramirez; Bob Isaac; Suzanne Butterfield; Mike Messina
Cc: Brian Skaggs
Subject: RE: Cement Hill Operations Memo

This seems a little different than I had understood from the conference call. I will change the memo but it will not be as positive as we had discussed. Thanks Carol for pointing out that the Raw Water Pumps have VFD's. We could match the Main Pumps to the Raw Water Pumps by throttling or puting VFD's on the Mains. My memo just discussed the cost for the monitoring at this time. We would estimate the cost for pumps or reconfiguration of the clarifier or whatever we decided after the testing is done. Carol, Skip was very positive that we should know what to do after we have installed this equipment and analyzed the monitoring. Do you share that optimism?

-----Original Message-----
From: Carol Ramirez [mailto:RamirezC@SIDWater.org]
Sent: Wednesday, September 03, 2003 11:03 AM
To: Joe McGahan; Bob Isaac; Suzanne Butterfield; Mike Messina
Subject: RE: Cement Hill Operations Memo

Hi Joe, Just a couple of comments.

* 7.3 MGD is the highest amount of water the two plants have produced so far in one day, not what we had estimated as the plants overall capacity. We originally thought the plants would only produce about 8.5 MGD tops.

* The 9+ MGD figure we mentioned last week has not been tested against 100-110 degree days. On very hot days, which are also the days of highest demand, the algae population explodes and produce extremely high day time levels of dissolved oxygen. We feel these extreme levels of DO combined with a warmer water temperature is the reason for our severe upwelling in the clarifiers and shorter filter runs. The warmer the water, the less DO water can hold in solution.

Also we are looking into getting just two surface scatter 6 turbidimenters. We feel the best placement for these units will be on the settled water tanks and not on the clarifiers. We feel the tanks would be a better location for a couple of reasons, 1) it will give us a better idea of what is actually being put onto the filters and 2) we shouldn't get as many false readings from air intrained in the water, but we welcome your input on this.

Equipment costs are as follows:

* Two surface scatter 6 turbidimeters - $3,300 each, $6,600 if we go with just the two.
* The latest version of stream and current monitor - $9,000 each, $18,000 to replace both. We have already budgeted $2,500 this year to rebuild the existing monitors so we will have look very hard at whether they should be replaced or if we can get the data we need by just rebuilding the old ones.
* Dissolved oxygen /temperature meter - one at $2,500.
* Upgrading the raw pumps at plant 1 - $4,250 each, $12,750 for all three.
* We already have VFD's on the raw water pumps so I'm not really sure what needs to be done here.
* Reconfiguring the launders and changing the interior of the clarifiers and or installing tube settlers is something I can look into

but is probabally more up your alley.

These prices are for equipment only and do not include the costs associated for installation and programing.
Carol

> -----Original Message-----
> From: Joe McGahan [SMTP:jmcgahan@summerseng.com]
> Sent: Tuesday, September 02, 2003 4:34 PM
> To: Bob Isaac; Suzanne Butterfield; Mike Messina; Carol Ramirez
> Subject: Cement Hill Operations Memo
>
> Attached is the memo that came from our conference call last Friday. I have left a blank for the cost of the monitoring equipment. If you should have any suggestions or changes please let me know. Joe Mc.
>
> <<Cement Hill Operations Memo>> << File: Cement Hill Operations Memo >>

Parameter	Anal. Method	Matrix	LCS					Matrix Spikes					RPD	Rem-arks
			Fqcy	LCL	UCL	Status	Remarks	Fqcy	LCL	UCL	Status	Remarks		
2-Nitrotoluene	EPA8330	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	20	D
3-Nitrotoluene	EPA8330	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	20	D
4-Aminodinitrotoluene	EPA8330	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	20	D
4-Nitrotoluene	EPA8330	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	20	D
HMX	EPA8330	Water	1 in 20	21	155	Updated 07/00	Lab generated	1 in 20	21	155	Updated 07/00	Lab generated	20	D
Nitrobenzene	EPA8330	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	20	D
RDX	EPA8330	Water	1 in 20	24	138	Updated 07/00	Lab generated	1 in 20	24	138	Updated 07/00	Lab generated	20	D
Tetryl	EPA8330	Water	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	20	D
1,3,5-Trinitrobenzene	EPA8330	Solid	1 in 20	56	135	Updated 07/00	Lab generated	1 in 20	56	135	Updated 07/00	Lab generated	20	D
1,3-Dinitrobenzene	EPA8330	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	20	D
2,4,6-Trinitrotoluene	EPA8330	Solid	1 in 20	53	142	Updated 07/00	Lab generated	1 in 20	53	142	Updated 07/00	Lab generated	20	D
2,4-Dinitrotoluene	EPA8330	Solid	1 in 20	37	133	Updated 07/00	Lab generated	1 in 20	37	133	Updated 07/00	Lab generated	20	D
2,6-Dinitrotoluene	EPA8330	Solid	1 in 20	34	164	Updated 07/00	Lab generated	1 in 20	34	164	Updated 07/00	Lab generated	20	D
2-Aminodinitrotoluene	EPA8330	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	20	D
2-Nitrotoluene	EPA8330	Solid	1 in 20	56	156	Updated 07/00	Lab generated	1 in 20	56	156	Updated 07/00	Lab generated	20	D
3-Nitrotoluene	EPA8330	Solid	1 in 20	79	139	Updated 07/00	Lab generated	1 in 20	79	139	Updated 07/00	Lab generated	20	D
4-Aminodinitrotoluene	EPA8330	Solid	1 in 20	70	130	Interim	Not enough data	1 in 20	70	130	Interim	Not enough data	20	D
4-Nitrotoluene	EPA8330	Solid	1 in 20	56	174	Updated 07/00	Lab generated	1 in 20	56	174	Updated 07/00	Lab generated	20	D
HMX	EPA8330	Solid	1 in 20	68	147	Updated 07/00	Lab generated	1 in 20	68	147	Updated 07/00	Lab generated	20	D
Nitrobenzene	EPA8330	Solid	1 in 20	47	158	Updated 07/00	Lab generated	1 in 20	47	158	Updated 07/00	Lab generated	20	D
RDX	EPA8330	Solid	1 in 20	43	154	Updated 07/00	Lab generated	1 in 20	43	154	Updated 07/00	Lab generated	20	D
Tetryl	EPA8330	Solid	1 in 20	46	152	Updated 07/00	Lab generated	1 in 20	46	152	Updated 07/00	Lab generated	20	D
Total Organic Halides	SM5320B	Water	1 in 20	76	126	Updated 07/00	Lab generated	1 in 20	73	129	Updated 07/00	Lab generated	15	C
Total Organic Halides	EPA9020B	Water	1 in 20	73	125	Updated 07/00	Lab generated	1 in 10	73	129	Updated 07/00	Lab generated	20	A
Total Organic Halides	EPA9020B	Solid	1 in 20	81	117	Updated 07/00	Lab generated	1 in 10	68	125	Updated 07/00	Lab generated	20	A
Total Organic Carbon	SM5310C	Water	1 in 10	90	110	Final	Set at the lab	1 in 10	80	117	Updated 07/00	Lab generated	20	A
Perchlorate	EPA314	Water	1 in 20	85	115	Final	Mandatory limits	1 in 20	80	120	Final	Mandatory limits	15	C
Perchlorate	EPA314M	Solid	1 in 20	85	115	Final	Mandatory limits	1 in 20	65	122	Updated 07/00	Lab generated	20	D
NDMA	EPA1625M	Water	1 in 10	70	130	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	20	D

Parameter	Anal. Method	Matrix	LCS					Matrix Spikes						Rem-arks
			Fqcy	LCL	UCL	Status	Remarks	Fqcy	LCL	UCL	Status	Remarks		
Silver	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Arsenic	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Boron	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Barium	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Beryllium	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Calcium	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Cadmium	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Cobalt	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Chromium, total	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Copper	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Iron	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Potassium	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Lithium	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Magnesium	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Manganese	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Molybdenum	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Sodium	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Nickel	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Phosphorus	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Lead	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Antimony	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Selenium	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Silica	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Tin	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Titanium	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Thallium	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Vanadium	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Zinc	EPA200.7	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
[redacted]														
Silver	EPA200.8	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Aluminum	EPA200.8	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Arsenic	EPA200.8	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Barium	EPA200.8	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Beryllium	EPA200.8	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Cadmium	EPA200.8	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Cobalt	EPA200.8	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A

Parameter	Anal. Method	Matrix	LCS					Matrix Spikes						Rem-arks
			Fqcy	LCL	UCL	Status	Remarks	Fqcy	LCL	UCL	Status	Remarks		
Chromium, total	EPA200.8	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Copper	EPA200.8	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Manganese	EPA200.8	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Molybdenum	EPA200.8	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Nickel	EPA200.8	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Lead	EPA200.8	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Antimony	EPA200.8	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Selenium	EPA200.8	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Thallium	EPA200.8	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Vanadium	EPA200.8	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Zinc	EPA200.8	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	30	A
Selenium	200.8Hyd	Water	1 in 10	90	110	Final	Mandatory limits	1 in 10	90	110	Final	Mandatory Limits	10	A
Bromide	EPA300.0	Water	1 in 20	90	110	Final	Mandatory limits							
Chloride	EPA300.0	Water	1 in 20	90	110	Final	Mandatory limits	1 in 10	80	109	updated 07/00	Lab generated	20	A
Fluoride	EPA300.0	Water	1 in 20	90	110	Final	Mandatory limits	1 in 10	66	130	updated 07/00	Lab generated	20	A
Nitrate as NO3	EPA300.0	Water	1 in 20	90	110	Final	Mandatory limits	1 in 10	81	112	updated 07/00	Lab generated	20	A
Nitrite as NO2	EPA300.0	Water	1 in 20	90	110	Final	Mandatory limits	1 in 10	76	113	updated 07/00	Lab generated	20	A
o-Phosphate as PO4	EPA300.0	Water	1 in 20	90	110	Final	Mandatory limits	1 in 10	96	124	updated 07/00	Lab generated	20	A
Sulfate	EPA300.0	Water	1 in 20	90	110	Final	Mandatory limits	1 in 10	86	113	updated 07/00	Lab generated	20	A
Chlorate	EPA300.0	Water	1 in 20	90	110	Final	Mandatory limits	1 in 10	76	131	updated 07/00	Lab generated	20	A
Chlorite	EPA300.0	Water	1 in 20	90	110	Final	Mandatory limits	1 in 10	75	125	Interim	Not enough data	20	A
Bromate	EPA300.0	Water	1 in 20	90	110	Final	Mandatory limits	1 in 10	75	125	Interim	Not enough data	20	A
								1 in 10	75	125	Interim	Not enough data	20	A
Silver	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Arsenic	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Boron	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Barium	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Beryllium	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Calcium	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Cadmium	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Cobalt	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Chromium, total	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Copper	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Iron	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C

Parameter	Anal. Method	Matrix	LCS					Matrix Spikes						Rem-arks
			Fqcy	LCL	UCL	Status	Remarks	Fqcy	LCL	UCL	Status	Remarks		
Potassium	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	c
Lithium	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	c
Magnesium	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	c
Manganese	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	c
Molybdenum	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	c
Sodium	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	c
Nickel	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	c
Phosphorus	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	c
Lead	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	c
Antimony	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	c
Selenium	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	c
Silica	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	c
Tin	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	c
Titanium	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	c
Thallium	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	c
Vanadium	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	c
Zinc	EPA6010	Water	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	c
Silver	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	c
Arsenic	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	c
Boron	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	c
Barium	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	c
Beryllium	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	c
Calcium	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	c
Cadmium	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	c
Cobalt	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	c
Chromium, total	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	c
Copper	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	c
Iron	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	c
Potassium	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	c
Lithium	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	c
Magnesium	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	c
Manganese	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	c
Molybdenum	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	c
Sodium	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	c
Nickel	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	c
Phosphorus	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	c

Parameter	Anal. Method	Matrix	LCS					Matrix Spikes						Rem-
			Fqcy	LCL	UCL	Status	Remarks	Fqcy	LCL	UCL	Status	Remarks		arks
Lead	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Antimony	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Selenium	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Silica	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Tin	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Titanium	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Thallium	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Vanadium	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Zinc	EPA6010	Solid	1 in 20	75	125	Final	Mandatory limits	1 in 20	75	125	Final	Mandatory limits	20	C
Silver	EPA6020	Water	1 in 20	76	127	Updated 07/00	Lab generated	1 in 20	76	127	Updated 07/00	Lab generated	20	A
Aluminum	EPA6020	Water	1 in 20	83	116	Updated 07/00	Lab generated	1 in 20	83	116	Updated 07/00	Lab generated	20	A
Arsenic	EPA6020	Water	1 in 20	86	114	Updated 07/00	Lab generated	1 in 20	86	114	Updated 07/00	Lab generated	20	A
Barium	EPA6020	Water	1 in 20	80	116	Updated 07/00	Lab generated	1 in 20	80	116	Updated 07/00	Lab generated	20	A
Beryllium	EPA6020	Water	1 in 20	85	113	Updated 07/00	Lab generated	1 in 20	85	113	Updated 07/00	Lab generated	20	A
Cadmium	EPA6020	Water	1 in 20	86	115	Updated 07/00	Lab generated	1 in 20	86	115	Updated 07/00	Lab generated	20	A
Cobalt	EPA6020	Water	1 in 20	78	118	Updated 07/00	Lab generated	1 in 20	78	118	Updated 07/00	Lab generated	20	A
Chromium, total	EPA6020	Water	1 in 20	85	117	Updated 07/00	Lab generated	1 in 20	85	117	Updated 07/00	Lab generated	20	A
Copper	EPA6020	Water	1 in 20	78	120	Updated 07/00	Lab generated	1 in 20	78	120	Updated 07/00	Lab generated	20	A
Manganese	EPA6020	Water	1 in 20	75	125	Interim	Not enough data	1 in 20	75	125	Interim	Not enough data	20	A
Molybdenum	EPA6020	Water	1 in 20	85	113	Updated 07/00	Lab generated	1 in 20	85	113	Updated 07/00	Lab generated	20	A
Nickel	EPA6020	Water	1 in 20	78	119	Updated 07/00	Lab generated	1 in 20	78	119	Updated 07/00	Lab generated	20	A
Lead	EPA6020	Water	1 in 20	77	127	Updated 07/00	Lab generated	1 in 20	77	127	Updated 07/00	Lab generated	20	A
Antimony	EPA6020	Water	1 in 20	80	126	Updated 07/00	Lab generated	1 in 20	80	126	Updated 07/00	Lab generated	20	A
Selenium	EPA6020	Water	1 in 20	79	123	Updated 07/00	Lab generated	1 in 20	79	123	Updated 07/00	Lab generated	20	A
Strontium	EPA6020	Water	1 in 20	75	125	Interim	Not enough data	1 in 20	75	125	Interim	Not enough data	20	A
Tiitanium	EPA6020	Water	1 in 20	75	125	Interim	Not enough data	1 in 20	75	125	Interim	Not enough data	20	A
Thallium	EPA6020	Water	1 in 20	86	112	Updated 07/00	Lab generated	1 in 20	86	112	Updated 07/00	Lab generated	20	A
Vanadium	EPA6020	Water	1 in 20	78	117	Updated 07/00	Lab generated	1 in 20	78	117	Updated 07/00	Lab generated	20	A
Zinc	EPA6020	Water	1 in 20	81	121	Updated 07/00	Lab generated	1 in 20	81	121	Updated 07/00	Lab generated	20	A
Tin	EPA6020	Water	1 in 20	75	125	Interim	Not enough data	1 in 20	75	125	Interim	Not enough data	20	A
Tellurium	EPA6020	Water	1 in 20	75	125	Interim	Not enough data	1 in 20	75	125	Interim	Not enough data	20	A
Silver	EPA6020	Solid	1 in 20	76	127	Updated 07/00	Lab generated	1 in 20	72	137	Updated 07/00	Lab generated	20	A
Aluminum	EPA6020	Solid	1 in 20	83	116	Updated 07/00	Lab generated	1 in 20	75	125	Interim	Not enough data	20	A
Arsenic	EPA6020	Solid	1 in 20	86	114	Updated 07/00	Lab generated	1 in 20	80	114	Updated 07/00	Lab generated	20	A
Barium	EPA6020	Solid	1 in 20	80	116	Updated 07/00	Lab generated	1 in 20	62	135	Updated 07/00	Lab generated	20	A

Parameter	Anal. Method	Matrix	LCS					Matrix Spikes						Rem-
			Fqcy	LCL	UCL	Status	Remarks	Fqcy	LCL	UCL	Status	Remarks		arks
Beryllium	EPA6020	Solid	1 in 20	85	113	Updated 07/00	Lab generated	1 in 20	77	116	Updated 07/00	Lab generated	20	A
Cadmium	EPA6020	Solid	1 in 20	86	115	Updated 07/00	Lab generated	1 in 20	78	116	Updated 07/00	Lab generated	20	A
Cobalt	EPA6020	Solid	1 in 20	78	118	Updated 07/00	Lab generated	1 in 20	69	120	Updated 07/00	Lab generated	20	A
Chromium, total	EPA6020	Solid	1 in 20	85	117	Updated 07/00	Lab generated	1 in 20	72	121	Updated 07/00	Lab generated	20	A
Copper	EPA6020	Solid	1 in 20	78	120	Updated 07/00	Lab generated	1 in 20	61	133	Updated 07/00	Lab generated	20	A
Manganese	EPA6020	Solid	1 in 20	75	125	Interim	Not enough data	1 in 20	75	125	Interim	Not enough data	20	A
Molybdenum	EPA6020	Solid	1 in 20	85	113	Updated 07/00	Lab generated	1 in 20	76	118	Updated 07/00	Lab generated	20	A
Nickel	EPA6020	Solid	1 in 20	78	119	Updated 07/00	Lab generated	1 in 20	67	120	Updated 07/00	Lab generated	20	A
Lead	EPA6020	Solid	1 in 20	77	127	Updated 07/00	Lab generated	1 in 20	71	124	Updated 07/00	Lab generated	20	A
Antimony	EPA6020	Solid	1 in 20	80	126	Updated 07/00	Lab generated	1 in 20	69	125	Updated 07/00	Lab generated	20	A
Selenium	EPA6020	Solid	1 in 20	79	123	Updated 07/00	Lab generated	1 in 20	75	117	Updated 07/00	Lab generated	20	A
Strontium	EPA6020	Solid	1 in 20	75	125	Interim	Not enough data	1 in 20	75	125	Interim	Not enough data	20	A
Tiltanium	EPA6020	Solid	1 in 20	75	125	Interim	Not enough data	1 in 20	75	125	Interim	Not enough data	20	A
Thallium	EPA6020	Solid	1 in 20	86	112	Updated 07/00	Lab generated	1 in 20	68	120	Updated 07/00	Lab generated	20	A
Vanadium	EPA6020	Solid	1 in 20	78	117	Updated 07/00	Lab generated	1 in 20	63	127	Updated 07/00	Lab generated	20	A
Zinc	EPA6020	Solid	1 in 20	81	121	Updated 07/00	Lab generated	1 in 20	72	126	Updated 07/00	Lab generated	20	A
Tin	EPA6020	Solid	1 in 20	75	125	Interim	Not enough data	1 in 20	75	125	Interim	Not enough data	20	A
Tellurium	EPA6020	Solid	1 in 20	75	125	Interim	Not enough data	1 in 20	75	125	Interim	Not enough data	20	A
Mercury	EPA245.1	Water	1 in 20	85	115	Final	Mandatory limits	1 in 10	70	130	Final	Mandatory limits	20	A
Mercury	EPA7070 A	Water	1 in 20	90	110	Final-(QCS)	Mandatory limits	1 in 20	79	124	Updated 07/00	Lab generated	20	D
Mercury	EPA7471 A	Solid	1 in 20	90	110	Final-(QCS)	Mandatory limit	1 in 20	67	130	Updated 07/00	Lab generated	20	D
Oil&Grease (HEM)	EPA1664 A	Water	1 in 20	78	114	Final (OPR)	Mandatory limits	1 in 20	78	114	Final	Mandagtory limits	--	
Oil&Grease (SGT-HEM)	EPA1664 A	Water	1 in 20	64	132	Final (OPR)	Mandatory limits	1 in 20	64	132	Final	Mandagtory limits	--	
Cyanide (colorimetric)	SM4500CN E	Water	1 in 10	78	123	Updated 07/00	Lab generated	1 in 10	78	123	Updated 07/00	Lab generated	20	A
Cyanide (electrode)	SM4500CN F	Water	1 in 10	80	109	Updated 07/00	Lab genrated	1 in 10	80	109	Updated 07/00	Lab generated	20	A
Cyanide (EPA 9010)	EPA 9010	Water	1 in 20	85	115	Final	Mandatory limits	1 in 20	70	130	Interim	Not enough data	20	C
Cyanide (EPA 9010)	EPA 9010	Solid	1 in 20	85	115	Final	Mandatory limits	1 in 20	70	130	Interim	Not enough data	20	C
Total Kjeldahl Nitrogen	SM4500NB	Water	1 in 20	69	116	Updated 07/00	Lab generated	—	—	—	Final	Not required	15	D

Parameter	Anal. Method	Matrix	LCS					Matrix Spikes						Rem- arks
			Fqcy	LCL	UCL	Status	Remarks	Fqcy	LCL	UCL	Status	Remarks		
Total Dissolved Solids	SM2540C	Water	1 in 20	93	105	Updated 07/00	Lab generated	--	--	--	Final	Not available	15	E
Total Suspended Solids	EPA160.2	Water	--	--	--	Final	Not available	--	--	--	Final	Not available		
Alkalinity	SM2320B	Water	1 in 20	94	111	Updated 07/00	Lab generated	--	--	--	Final	Not available	12	E
Ammonia	SM4500NH 3D	Water	1 in 20	79	119	Updated 07/00	Lab generated	--	--	--	Final	Not available	14	E
BOD	SM5210B	Water	1 in 20	85	115	Final (Glu:a)	Mandatory limits	--	--	--	Final	Not available	18	E
Chloride - titration	ASTMD512	Water	1 in 20	81	110	Updated 07/00	Lab generated	--	--	--	Final	Not required	15	D
Chlorine - residual	SM4500Cl G	Water	1 in 20	81	115	Updated 07/00	Lab generated	--	--	--	Final	Not required	12	E
COD	EPA410.4	Water	1 in 20	90	110	Final	Mandatory limits	1 in 10	90	110	Final	Mandatory limits	15	D
Chromium, hexavalent	EPA7196 A	Water	1 in 10	89	110	Updated 07/00	Lab generated	1 in 10	89	110	Updated 07/00	Lab generated	12	E
Chromium, hexavalent	SM3500CrD	Water	1 in 20	85	113	Updated 07/00	Lab generated	1 in 20	85	113	Updated 07/00	Lab generated	10	E
Chromium, hexavalent	3060/7196A	Solid	1 in 20	80	120	Final	Mandatory Limits	1 in 20	75	125	Final	Mandatory limits	20	C
conductivity	SM2510B	Water	1 in 20	96	102	Updated 07/00	Lab generated	--	--	--	Final	Not required	5	E
Hydrogen peroxide	FMC	Water	1 in 20	70	127	Updated 07/00	Lab generated	1 in 20	70	127	Updated 07/00	Lab generated	13	E
Surfactants	SM5540C	Water	1 in 20	79	124	Updated 07/00	Lab generated	--	--	--	Final	Not required	15	E
NID	SM5540D	Water	1 in 20	64	139	Updated 07/00	Lab generated	--	--	--	Final	Not required	20	D
Total Phosphorus	SM4500PD	Water	1 in 20	73	128	Updated 07/00	Lab generated	1 in 20	73	128	Updated 07/00	Lab generated	15	E
Phenolics	EPA420.1	Water	1 in 20	73	119	Updated 07/00	Lab generated	1 in 20	73	119	Updated 07/00	Lab generated	13	E
Turbidity	EPA180.1	Water	1 in 10	90	110	Final	Mandatory limits	--	--	--	Final	Not required	10	D
UV254	SM5910	Water	1 in 10	90	110	See SOP		--	--	--	Final	Not required	10	D

Parameter	Anal. Method	Matrix	LCS					Matrix Spikes						Rem-arks
			Fqcy	LCL	UCL	Status	Remarks	Fqcy	LCL	UCL	Status	Remarks		
o-Phosphate	EPA 365.3	Water	--	--	--			1 in 10	70	130	Interim	Not enough data	20	D
Hydrolixable po4	EPA 365.3	Water	1 in 10	70	130	Interim	Not enough data	--	--	--				
Thiosulfate	LACSD253	Water	1 in 10	70	130	Interim	Not enough data	--	--	--	Final	Not required	20	D
Odor		Water	--	--	--			--	--	--	Final	Not required	20	D
Color		Water	--	--	--			--	--	--	Final	Not required	20	D
Sulfide_dissolved		Water	1 in 10	70	130	Interim	Not enough data	--	--	--	Final	Not required	20	D
Flash Point	EPA1010	all	1 in 10	98	102	Final	Mandatory limits	--	--	--	Final	Not required	20	D
Residual Dissolved Solids		Water	--	--	--	Final	Not available	--	--	--	Final	Not available	15	D

A	Not specified in method
B	For LFB/LFB dup
C	Mandatory Limits
D	Set by the lab

APPENDIX 9

INITIAL DEMONSTRATION OF CAPABILITY

A demonstration of capability (DOC) is made prior to using any test method, and at any time there is a significant change in instrument type, personnel or test method.

All demonstrations are documented through the use of the form in this appendix.

The following steps are performed.

a) A quality control sample is obtained from an outside source. If not available, the QC sample is prepared by the laboratory using stock standards that are prepared independently from those used in instrument calibration.
b) The analyte(s) are diluted in a volume of clean matrix sufficient to prepare four aliquots at the concentration specified, or if unspecified, to a concentration approximately 10 times the laboratory-calculated detection limit.
c) Four aliquots are prepared and analyzed according to the test method either concurrently or over a period of days.
d) Using all of the results, the mean recovery and the standard deviation is calculated for each parameter of interest.
e) The calculated mean and standard deviation are compared to the corresponding acceptance criteria for precision and accuracy in the test method (if applicable) or in laboratory generated acceptance criteria (if there are not established mandatory criteria). If all parameters meet the acceptance criteria, the analysis of the actual samples may begin. If any one of the parameters does not meet the acceptance criteria, the analysis, the performance is unacceptable for that parameter.
f) When one or more of the tested parameters fail at least one of the acceptance criteria, the laboratory repeats the test for all parameters that failed to meet criteria. If repeated failure occurs, the laboratory will locate and correct the source of the problem and repeat the test for all compounds of interest beginning with c)

CERTIFICATION STATEMENT

The following certification statement is used to document the completion of each demonstration of capability. A copy of the certification statement is retained in the personnel records of each affected employee.

CERTIFICATION STATEMENT FOR METHOD VALIDATION

INITIAL DEMONSTRATION OF CAPABILITY CERTIFICATION STATEMENT

Date:____________

Weck Laboratories, Inc.
14859 E. Clark Avenue
City of Industry, CA 91745

Analyst Name:________________________________

Matrix:________________________________

Method and analyte:________________________________

We, the undersigned, CERTIFY that:
1. The analyst identified above, using the cited test method, which is in use at this facility for the analyses of samples under the National Laboratory Accreditation Program, have met the Initial Demonstration of Capability.
2. The test method was performed by the analyst identified on this certification.
3. A copy of the laboratory specific SOPs are available for all personnel on site.
4. The data associated with the initial demonstration of capability are true, accurate, complete and self-explanatory (1)
5. All raw data (including a copy of this certification form) necessary to reconstruct and validate these analyses have been retained at the facility, and, the associated information is well-organized and available for review by authorized inspectors.

____________________ ____________________ ____________
Technical Director's Name Signature Date

____________________ ____________________ ____________
QA Officer's name Signature Date

(1): True: Consistent with supporting data. Accurate: Based on good laboratory practices consistent with sound scientific principles/practices. Complete: Includes the results of all supporting performance testing. Self-explanatory: Data properly labeled and stored so that the results are clear and require no additional explanation.

APPENDIX 10

Corrective Action Report

QUALITY ASSURANCE IRREGULARITY REPORT

Date: ______________ Method: ______________________________

Sample ID Number(s) Involved: ______________________________

Nature of QA Irregularity: ______________________________

CORRECTIVE ACTION

Steps taken to investigate irregularity:

Explanation of probable cause irregularity:

Steps taken to prevent future occurrence, if applicable:

Comments:

Were samples reanalyzed and acceptable QC obtained: YES - NO

Were samples reported with qualifiers: YES - NO

Analyst name(s): ______________________

Signed: ______________________ Date: ____________

Analyst

Signed: ______________________ Date: ____________

QA Officer

APPENDIX 11

Laboratory Accreditations

- State of California ELAP #1132
- State of Oregon CA211
- Los Angeles County Sanitation Districts Industrial Wastewater Testing Number 10143
- South Coast Air Quality Management District Ambient air testing Certificate number 93LA107

APPENDIX 12

Flags used for Data Qualifiers

Use these codes to enter in the single-digit field "Flag" of the LIMS. For other QC qualifier use the case narrative field of the QC section.

B: Compound detected in the blank. Sample result equal or less than 10 times the concentration in the blank.

J: Estimated value, detected but below the reporting limit

H: Estimated value, concentration over the calibration range.

R: Result is suspect, LCS recovery greater than the upper control limit

L: Result is suspect, LCS recovery lower than the control limit

Q: QC result out of acceptance limits

T: Trace detection, detected but below the reporting limit

STATE OF CALIFORNIA
DEPARTMENT OF HEALTH SERVICES

ENVIRONMENTAL LABORATORY CERTIFICATION

is hereby granted to

WECK LABORATORIES, INC.

14859 EAST CLARK AVENUE
INDUSTRY, CALIFORNIA

to conduct analyses of environmental samples as specified in the "List of Approved Fields of Testing and Analytes" which accompanies this Certificate.

This Certificate is granted in accordance with provisions of Section 1010, et seq. (New Section 100825) of the Health and Safety Code.

Certificate No.: 1132

Expiration Date: 03/31/2002

Issued on: 03/01/2000
at Berkeley, California,
subject to forfeiture or revocation.

George C. Kulasingam, Ph.D.
Manager
Environmental Laboratory Accreditation Program

CA[illegible]RNIA DEPARTMENT OF HEALTH S[illegible]ICES
ENVIRONM[illegible]TAL LABORATORY ACCREDITA[illegible]N PROGRAM
List of Approved Fields of Testing and Analytes

WECK LABORATORIES, INC.
14859 EAST CLARK AVENUE
INDUSTRY, CA

PHONE No. (626) 336-2139
COUNTY LOS ANGELES

Certificate No. 1132
Expiration Date 03/31/2002

---

01 Microbiology of Drinking Water and Wastewater

01.01A	Total and Fecal Coliform in Drinking Water by Multiple Tube Fermentation
01.03	Total Coliform and E. coli in Drinking Water by Chromogenic/Fluorogenic Substrate
01.05	Heterotrophic Plate Count
01.06	Total Coliform in Wastewater by Multiple Tube Fermentation
01.07	Fecal Coliform in Wastewater by Multiple Tube Fermentation
01.12	Total Coliform in Source Water by Multiple Tube Fermentation
01.13	Fecal Coliform in Source Water by Multiple Tube Fermentation
01.16	Total Coliform in Source Water by Chromogenic/Fluorogenic Substrate

02 Inorganic Chemistry and Physical Properties of Drinking Water

02.01	Alkalinity
02.02	Calcium
02.03	Chloride
02.04	Corrosivity
02.05	Fluoride
02.06	Hardness
02.07	Magnesium
02.08	MBAS
02.09	Nitrate
02.10	Nitrite
02.11	Sodium
02.12	Sulfate
02.13	Total Filterable Residue and Conductivity
02.16	Phosphate, ortho
02.17	Silica
02.18	Cyanide
02.19	Potassium

03 Analysis of Toxic Chemical Elements in Drinking Water

03.01	Arsenic
03.02	Barium
03.03	Cadmium
03.04	Chromium, total
03.05	Copper
03.06	Iron
03.07	Lead
03.08	Manganese
03.09	Mercury
03.10	Selenium
03.11	Silver
03.12	Zinc
03.13	Aluminum
03.15	Antimony
03.16	Beryllium
03.17	Nickel
03.18	Thallium
03.19	Chromium (VI)

04 Organic Chemistry of Drinking Water by GC/MS

04.02	EPA Method 524.2
04.03	EPA Method 525.2
04.06	EPA Method 548.1 Endothall
04.07	EPA Method 524.2 Trihalomethanes only

05 Organic Chemistry of Drinking Water (excluding GC/MS)

05.06	EPA Method 504.1 EDB, DBCP
05.07	EPA Method 505
05.09	EPA Method 507 N,P Pesticides
05.10A	EPA Method 508
05.10B	EPA Method 508.1
05.11	EPA Method 508A PCBs Quantitation
05.13-2	EPA Method 515.2 Chlorophenoxy Herbicides
05.14-1	EPA Method 531.1 Carbamates
05.15-1	EPA Method 547 Glyphosate
05.16	EPA Method 548.1 Endothall by GC
05.17-1	EPA Method 549.1 Diquat and Paraquat
05.20A-1	EPA Method 551 Chlorinated Hydrocarbons
05.21A	EPA Method 552.1 Dalapon
05.26-1	EPA Method 552.2 Haloacetic Acids

09 Physical Properties Testing of Hazardous Waste

09.01	Ignitability by Flashpoint Determination
09.02	Corrosivity - pH Determination
09.03	Corrosivity - towards steel
09.04	Reactivity

10 Inorganic Chemistry and Toxic Chemical Elements of Hazardous Waste

10.01	Antimony
10.02	Arsenic
10.03	Barium
10.04	Beryllium
10.05	Cadmium
10.06	Chromium, total
10.07	Cobalt
10.08	Copper
10.09	Lead
10.10	Mercury
10.11	Molybdenum
10.12	Nickel
10.13	Selenium
10.14	Silver
10.15	Thallium
10.16	Vanadium
10.17	Zinc
10.18	Chromium (VI)
10.19	Cyanide
10.20	Fluoride
10.21	Sulfide
10.99	Others

11 Extraction Tests of Hazardous Waste

11.01	California Waste Extraction Test (WET)

11.02	Extraction Procedure Toxicity
11.03	Toxicity Characteristic Leaching Procedure (TCLP) All Classes

12 Organic Chemistry of Hazardous Waste by GC/MS

12.01	EPA Method 8240B Volatile Compounds
12.03	EPA Method 8270B
12.06	EPA Method 8260A

13 Organic Chemistry of Hazardous Waste (excluding GC/MS)

13.01	EPA Method 8010B Halogenated Volatiles
13.02	EPA Method 8015B Nonhalogenated Volatiles
13.04	EPA Method 8030A
13.05	EPA Method 8041 Phenols
13.06B	EPA Method 8061
13.07B	EPA Method 8081
13.08	EPA Method 8091 Nitroaromatics and Cyclic Ketones
13.09	EPA Method 8100 Polynuclear Aromatic Hydrocarbons
13.10B	EPA Method 8121 Chlorinated Hydrocarbons
13.11B	EPA Method 8141A
13.12B	EPA Method 8151
13.14A	EPA Method 632
13.14B	EPA Method 8318
13.15	Total Petroleum Hydrocarbons - Gasoline (LUFT)
13.16	Total Petroleum Hydrocarbons - Diesel (LUFT)
13.17	EPA Method 418.1 TRPH - Screening by IR
13.18	EPA Method 8011 EDB and DBCP
13.19	EPA Method 8021A
13.23	EPA Method 8330 Nitroaromatics and Nitramines
13.26	EPA Method 8031 Acrylonitrile
13.27	EPA Method 8032A Acrylamide
13.28	EPA Method 8316 Acrylamide, Acrylonitrile, Acrolein
13.29	EPA Method 8315A Carbonyl Compounds
13.31	EPA Method 8331 Tetrazene
13.99	Others

16 Wastewater Inorganic Chemistry, Nutrients and Demand

16.01	Acidity
16.02	Alkalinity
16.03	Ammonia
16.04	Biochemical Oxygen Demand
16.05	Boron
16.06	Bromide
16.07	Calcium
16.09	Chemical Oxygen Demand
16.10	Chloride
16.11	Chlorine Residual, total
16.12	Cyanide
16.13	Cyanide amenable to Chlorination
16.14	Fluoride
16.15	Hardness
16.16	Kjeldahl Nitrogen
16.17	Magnesium
16.18	Nitrate
16.19	Nitrite

16.20 Oil and Grease
16.21 Organic Carbon
16.22 Oxygen, Dissolved
16.23 pH
16.24 Phenols
16.25 Phosphate, ortho
16.26 Phosphorus, total
16.27 Potassium
16.28 Residue, Total
16.29 Residue, Filterable (Total Dissolved Solids)
16.30 Residue, Nonfilterable (Total Suspended Solids)
16.31 Residue, Settleable (Settleable Solids)
16.32 Residue, Volatile
16.33 Silica
16.34 Sodium
16.35 Specific Conductance
16.36 Sulfate
16.37 Sulfide (includes total & soluble)
16.38 Sulfite
16.39 Surfactants (MBAS)
16.40 Tannin and Lignin
16.41 Turbidity
16.44 Total Recoverable Petroleum Hydrocarbons by IR
16.45 Total Organic Halides

17 Toxic Chemical Elements in Wastewater

17.01 Aluminum
17.02 Antimony
17.03 Arsenic
17.04 Barium
17.05 Beryllium
17.06 Cadmium
17.07 Chromium (VI)
17.08 Chromium, total
17.09 Cobalt
17.10 Copper
17.11 Gold
17.13 Iron
17.14 Lead
17.15 Manganese
17.16 Mercury
17.17 Molybdenum
17.18 Nickel
17.20 Palladium
17.21 Platinum
17.22 Rhodium
17.24 Selenium
17.25 Silver
17.27 Thallium
17.28 Tin
17.29 Titanium
17.30 Vanadium
17.31 Zinc

18 Organic Chemistry of Wastewater by GC/MS

18.01	EPA Method 624
18.02	EPA Method 625

19 Organic Chemistry of Wastewater (excluding GC/MS)

19.01	EPA Method 601
19.02	EPA Method 602
19.03	EPA Method 603 Acrolein, Acrylonitrile
19.04	EPA Method 604
19.05	EPA Method 605 Benzidine
19.06	EPA Method 606 Phthalate Esters
19.07	EPA Method 607 Nitrosamines
19.08	EPA Method 608
19.09	EPA Method 609 Nitroaromatics and Cyclic Ketones
19.10	EPA Method 610
19.11	EPA Method 611 Haloethers
19.12	EPA Method 632 Carbamates
19.14	EPA Method 612 Chlorinated Hydrocarbons

Attachment D

Field Audit Checklist

Date(s) Completed:

Person Performing the Audit:

Plan	**Check here if Plan was Properly Followed**	**Check here if Corrections were made and Explain Below**
Proper Sampling Procedures Followed:		
Timing of Sampling		
Location of Sample Sites		
Frequency of Sampling		
Proper Sample Handling Procedures Followed:		
Refrigeration		
Protection from Contamination		
Speed of shipment to Lab		
Proper Packing for Shipment to Lab		
Proper Documentation:		
Field Sampling Forms		
Sample labels		
Master Sampling Logbook		
Chain-of-Custody Forms		

Explanation of Corrections Made:

Attachment E

Glossary of Certain Quality Control Terms[♦]

"Equipment Rinsate or Blank – A sample of analyte-free media which has been used to rinse the sampling equipment. It is collected after completion of decontamination and prior to sampling. This blank is useful in documenting adequate decontamination of sampling equipment."

"Field Blank – An aliquot of reagent water or other reference matrix that is placed in a sample container in the laboratory or the field, and treated as a sample in all respects, including exposure to sampling site conditions, storage, preservation and all analytical procedures. The purpose of the field blank is to determine if the field or sample transporting procedures and environments have contaminated the sample. This aliquot is a combined field/equipment blank if it is also used to rinse the sampling equipment."

"Field Duplicates – Independent samples that are collected as close as possible to the same point in space and time. They are two separate samples taken from the same source, stored in separate containers, and analyzed independently. These duplicates are useful in documenting the precision of the sampling process."

"Field Split Samples – One sample is taken in one container and split into two containers: one sent to the normal lab and one sent to another lab. If both labs turn in the same exact results then the proficiency of the lab normally used is proven."

"Matrix Spike – An aliquot of sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix."

[♦] Quoted items are from the Delaware River Basin Commission.

<u>End of Solano Irrigation District Interim NPDES Monitoring Plan</u>

Attachment F

Mitigation Measures of Potential Adverse Effects

Measures:

The application of aquatic herbicides to irrigation water may create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials however such hazards are substantially mitigated. Mitigation for the safe transport of aquatic herbicides: chemical transport vehicles are inspected regularly and a driver with a hazardous materials endorsement on his driver's license is used, as needed; Department of Transportation regulations are followed; and SID has an excellent record due to training and company wide efforts toward safety. Mitigation for the safe use of aquatic herbicides: yearly herbicide use training is conducted, only applicators holding a valid Qualified Applicator's Certificate apply the aquatic herbicides, herbicide labels are followed, applicable laws and regulations are followed, Pest Control Recommendations are used. All giving an excellent record regarding herbicide use. SID does not dispose of hazardous materials, but it does properly dispose of empty containers as per the Department of Pesticide Regulation laws and regulations.

The application of aquatic herbicides to irrigation water may create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment however such a hazard is substantially mitigated. This is because chemical transport vehicles are inspected regularly and a driver with a hazardous materials endorsement on his driver's license is used as needed; Department of Transportation regulations are followed; SID has an excellent driving and loading record due to training and company wide efforts toward safety; yearly herbicide use training is conducted; only applicators holding a valid Qualified Applicator's Certificate apply the aquatic herbicides; herbicide labels are followed; applicable laws and regulations are followed; Pest Control Recommendations are used; and herbicides are properly stored. The District's past history of safety has been excellent in the proper storage, proper transport, and proper application.

The addition of aquatic herbicides to irrigation water will exceed the California Toxic Rule standard within the canal to which applied for a short time period; however, because SID keeps treated water within its systems and minimizes charge water releases, and because SID follows FIFRA etc, any impact will be less than significant with these mitigations, and because we operate under the Interim NPDES Permit, and because we monitor any charge water releases under our Interim NPDES Permit and because we have had independent monitoring conducted by the San Francisco Estuary Institute (SFEI) these violations are adequately mitigated. (Please see SID Monitoring Plan attached as **Tab B**)

The application of aquatic herbicides to irrigation water could have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory however because of District's application protocol and monitoring plan (Please see SID Monitoring Plan attached as **Tab B)** the threat to these species is sufficiently mitigated.

The application of aquatic herbicides to irrigation water could have impacts that are individually limited, but cumulatively considerable ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects) however because of District's application protocol and monitoring plan (Please see SID Monitoring Plan attached as **Tab B**) the threat of these "cumulative effects to the environment is sufficiently mitigated.

The application of aquatic herbicides to irrigation water could have environmental effects which could cause substantial adverse effects on human beings, either directly or indirectly; however because the District notifies all local water treatment plants and follows precise treatment schedules of copper treatments the plants avoid taking treated water. SID follows all manufacturers labeling and FIFIRA requirements, the potential for such adverse effects on human beings are mitigated. In addition, due to the District's application protocol and monitoring plan (included as attached as **Tab B**), the threat to human beings is sufficiently mitigated.

Mitigated Negative Declaration Regarding Environmental Impact

1. ***Notice is Hereby Given*** that the project described below has been reviewed pursuant to the provisions of the California Environmental Quality Act of 1970 (Public Resources Code 21100, et seq.) and a determination has been made that it will not have a significant effect upon the environment.

2. ***Project Name:*** **Application of Aquatic Pesticides - Solano Irrigation District**

3. ***Description of Project:***

The Solano Irrigation District (SID) provides irrigation, and domestic water throughout Solano County for over 400,000 people from water stored in Lake Berryessa. In addition SID operates and maintains Monticello Dam, Putah Diversion Dam, and the Putah South Canal for the Solano County Water Agency.

Water travels from Lake Berryessa through Monticello Dam into Putah Creek and through Lake Solano from which it is diverted at the Putah Diversion Dam into the Putah South Canal (PSC). The PSC is owned by the federal government (United States Bureau of Reclamation) and contracted by the Solano County Water Agency (SCWA). Solano Irrigation District operates and maintains the PSC under a contract with SCWA. The flows in the PSC range from about 55 cubic feet/second (CFS) in the winter to as high as 800 CFS in the summer.

The 32.3 mile long concrete lined PSC is the "central hub" of the Solano County's water distribution system. The PSC is a distribution canal that provides water to the treatment plants of five cities and a State and County prison, and many seasonal use pipelines and earthen irrigation canals. Within the SID there are nine separate irrigation systems that total 112 miles in length and there are about 186 miles of pipeline. The District also maintains about 70 miles of drainage ditches. Much of the land SID serves is located in the western part of the Sacramento Valley south of Putah Creek SID also distributes water to land in Suisun Valley and Green Valley which lie west of the Sacramento Valley north and west of Fairfield. The irrigation water is delivered to the land via pipelines and canals and tail water from irrigated fields flows into drains and ultimately into flood channels.

The Solano Irrigation District primary beneficial use of the water in the irrigation canals and pipelines is the distribution of farmland irrigation water for about 55,000 acres and landscape and field irrigation water for some rural homeowners. Crops grown with Project water include tomatoes, field corn, alfalfa, soy beans, grapes, landscaping, ornamental plants, orchard fruit and nut crops. The gross value of the agricultural production in the area irrigated is estimated to be about $148 million. This production consists of food, feed and some ornamental landscape plants. Approximately 55,000 acres of irrigated land is serviced each year. The gross area of the District contains approximately 73,000 acres.

Aquatic Herbicide History at the Solano Irrigation District

During its 50 year history the Solano Irrigation District has employed several methods to combat aquatic weeds including: dewatering of canals, mechanical cleaning of various types, and chemicals including Magnicide H. In light of recent court decisions, SID switched from Magnacide H (acrolein) to chelated copper products for submerged aquatic weed and algae control in SID irrigation canals beginning in May of 2001.

The SID uses chemicals to maintain the functionality of its distribution system. The aquatic herbicides used currently by SID Clearigate and Nautique, increased its program costs by 50% but still provide fiscal economy when compared to mechanical or manual removal of aquatic plants. These products are necessary to ensure that design flows are maintained and at the same time these chelated products are safer to the environment than Magnicide H that was previously used.

Research has shown that unchecked algae growth can actually adversely affect water quality to the point of foul odors, undesirable tastes, livestock and wildlife poisonings and declines in invertebrate and fish populations (Mastin, Rodgers and Deardorff 2001). The District believes that copper based herbicides are a satisfactory alternative to mechanical cleaning or other herbicides for several reasons:

- Copper does not accumulate in the food chain.
- Copper is not a toxic metal because it is required for all or most of life to survive and/or exist.
- Copper is heavily bound in sediment that contains organic matter and, therefore, will not become biologically available through normal means. Bound copper will generally not cause adverse affects to aquatic life. Therefore, it takes more copper than previously thought to cause adverse affects in sediments and soils. It is also true that the amount of copper causing adverse affects varies depending upon what the sediment is composed of.
- Copper has a short lived residual in its biologically available form.
- Many past laboratory test had problematic results because the procedures followed did not even vaguely resemble real life situations (i.e. pH, alkalinity, ionic strength, exposure time, water hardness, organic matter, redox potential, etc.).
- Some scientists even question the validity of grouping a large number of elements into what is called the "heavy metals." Some heavy metals have much higher atomic weights (tin = 118.7, tungsten = 183.8, and lead = 207.19) than copper (63.5). The properties of copper do not fully coincide with many of the other heavy metals in this group.
- It is due to all of the above that researchers are starting to question the accuracy of copper being listed as a priority pollutant.

  During its history, SID has never caused any fish kill or known environmental damage within its system nor has SID had any known fish kill in any of the receiving waters which are outside our irrigation canal systems.

Existing Methodology for the Successful Application of Aquatic Herbicides

In order to successfully apply aquatic herbicides in a manner that controls the growth of aquatic plants and protects the environment, SID has sought to limit to the greatest degree possible the amount of herbicide treated water that leaves the SID system and returns to the environment. During the 2002 irrigation season the District implemented its plan to keep treated water from leaving SID irrigation systems. With the full support of the SID Board of Directors, the District enlisted the help of our customers as well as our staff to implement its plan.

SID sent a treatment schedule letter to more than 900 customers. In that letter we explained that the District was attempting to minimize the discharge of herbicide treated water into the environment. We communicated the need for our customers to not shut down their irrigation without advanced notification. SID received good cooperation and support from our customers and our Board of Directors.

For 2003 SID increased its efforts to control herbicide carrying discharge. Staff fine tuned procedures by considering all possible ways that treated water can leave each of the systems. On treatment days, SID personnel who operate the irrigation canal and pipeline systems are now authorized to curtail water deliveries to customers who might cause even a small amount of water to leave District controlled systems.

SID's Participation in the NPDES General Permit CAG990003 Process

Since early 2002, SID has operated under the NPDES General Permit CAG990003. As part of the permit SID has submitted the required Notices of Intent (NOI) (for RWQCB Regions 2 and 5), prepared monitoring plans, completed the required monitoring and submitted Monthly Use Reports. The Annual Report was completed for 2002.

Early on SID management, with the full support of District Counsel, joined the Aquatic Pesticide Monitoring Program (APMP) Steering Committee. SID participated in meetings in Sacramento and also attended a side meeting with other members of the Association of California Water Agencies (ACWA). The Aquatic Pesticides Monitoring Program began in 2002 and is funded by the California State Water Resources Control Board. The APMP was formed as a result of the ruling by the Ninth Circuit Court of Appeals that registration and labeling of aquatic pesticides under the federal pesticide law (Federal Insecticide, Fungicide, and Rodenticide Act, or FIFRA) does not preclude the requirement to obtain coverage under a National Pollutant Discharge Elimination System (NPDES) prior to discharging such pesticides into waters of the United States. Following the ruling, the State Water Resources Control Board (SWRCB) now issues a general permit for dischargers of aquatic pesticides.

Entities that have applied for a general permit include irrigation districts, municipal water supply districts, and mosquito vector control districts. The San Francisco Estuary Institute (SFEI) is the entity designated to implement the Aquatic Pesticide Monitoring Program. SFEI is administering the program under a contract with the State Water Resources Control Board.

The criteria of the Aquatic Pesticide Monitoring Program are to implement comprehensive monitoring and special studies to evaluate the water quality impacts associated with the application of aquatic pesticides. This will include providing funds for demonstration projects to document promising non-chemical control methods. The primary focus shall be to provide information to the SWRCB and the Regional Water Quality Control Boards (RWQCBs) to enable SWRCB and RWQCBS to choose appropriate sampling methods and develop water quality criteria for effective regulation of discharges of aquatic pesticides to surface waters.

The Solano Irrigation District has volunteered to have its facilities field tested by San Francisco Estuary Institute. Sampling sites have been selected by SFEI from throughout the state with the intention of covering sufficient geographical areas and different end uses to provide a distribution of the range of aquatic environments and different types of pesticides which are applied. Sites will generally be visited prior to and multiple times following pesticide applications. Some sites will be revisited on subsequent reapplications of pesticide to evaluate potential cumulative effects. The scope of the program currently is not sufficient to cover all aquatic pesticide use categories in all regions of the state, but the primary objective of the program is to serve as a demonstration for the development and evaluation of more comprehensive state-wide monitoring schemes and establishment of appropriate water quality criteria for aquatic pesticides. Sites will be monitored during the period from July 2002 to October 2003.

SID has had several monitoring visits by SFEI during canal treatments. SID enjoys participating in the monitoring program and enthusiastically believes that such monitoring will produce better management practices for the benefit of agriculture and the environment.

Water quality standards for receiving waters that may be affected by the application of aquatic pesticides is generally established by the California Toxics Rule (CTR). SID believes that its NPDES Monitoring Plan, which also outlines its aquatic pesticide application protocol, will result in SID meeting water quality standards for receiving waters; however, in the unlikely event that a water quality exceedence does occur, SID requests an exception to the CTR pursuant to the Surface Inland Water Plan (SIP) based upon the project analysis in this mitigated negative declaration.

4. *Location of Project:* **Solano County California**

5. *Name and Address of Project Proponents:*
Solano Irrigation District
508 Elmira Road
Vacaville, Ca 95687

6. *Mitigation Measures:*

A. The application of aquatic herbicides to irrigation water could, without mitigation, create a significant hazard to the public or the environment, however the potential for such hazards are substantially mitigated as summarized below, and discussed fully in the District's Monitoring Plan and application protocol attached.

1) **Mitigation for the safe transport of aquatic herbicides**: Chemical transport vehicles are inspected regularly and a driver with a hazardous materials endorsement on his driver's license is used, as needed; Department of Transportation regulations are followed; and SID has an excellent record due to training and company wide efforts toward safety.

2) **Mitigation for the safe use of aquatic herbicides**: Yearly herbicide use training is conducted; only applicators holding a valid Qualified Applicator's Certificate apply the aquatic herbicides; herbicide label instructions are followed; applicable laws and regulations controlling the application of herbicides are followed; Pest Control Recommendations are used. SID has an excellent record regarding herbicide use. SID does not dispose of hazardous materials, but it does properly dispose of empty containers as per the Department of Pesticide Regulation laws and regulations.

B. The application of aquatic herbicides to irrigation water could, without mitigation, create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment; however, the potential for such hazards are substantially mitigated as summarized below, and discussed fully in the District's Monitoring Plan and application protocol attached.

1) Chemical transport vehicles are inspected regularly and a driver with a hazardous materials endorsement on his driver's license is used as needed; and Department of Transportation regulations are closely followed;
2) SID has an excellent driving and loading record due to training and company wide efforts toward safety;
3) Yearly herbicide use training is conducted; only applicators holding a valid Qualified Applicator's Certificate apply the aquatic herbicides;
4) Herbicide labels are followed and applicable laws and regulations are followed. Pest Control Recommendations are used and herbicides are properly stored. The record is clear that the District has an unparalleled history of safety in connection with the use of aquatic pesticides, including in the proper storage, transport, and application of such materials.
5) The District has discontinued use of Magnacide H and Acrolein, and has substituted a less toxic herbicide.

C. The addition of aquatic herbicides to irrigation water may exceed the California Toxic Rule standard within the canal to which applied for a short time period; however, because SID keeps treated water within its systems and minimizes charge water releases, and because SID follows the labeling instructions pursuant to FIFRA, the potential for any environmental impact from a temporary exceedence of the CTR will be mitigated to a level of less than significant. (Please see SID Monitoring Plan attached as **Tab B**.)

1) SID applies aquatic pesticides pursuant to a NPDES Permit issued by the State Water Resources Control Board. The District monitors any charge water releases in accordance with the NPDES Permit.
2) The District, also, has cooperated with, and allowed for independent monitoring by the San Francisco Estuary Institute (SFEI), which is working for the SWRCB to develop water quality data in connection with use of aquatic pesticides. SFEI independent monitoring has not disclosed any adverse environmental impact resulting from the District's use of aquatic

pesticides in its canals.

D. The canal systems should not be considered "habitat" because they are either seasonally dried up or cleaned of silt on a two year schedule. Their gates and many check structures would not, of course allow normal fish movement. Vegetative growth next to canal water has always been kept at the lowest possible levels in order to keep weed seed out of the irrigated farmland. Submerged aquatic weeks have also always been kept at very low levels otherwise they would restrict flow and plug pumps and screens of different types. All this means that SID canals have never been suitable habitat.

And while the addition of certain aquatic herbicides to irrigation water may have the potential to degrade the quality of the environment in the channels outside SID's systems, this potential is mitigated to a level of less than significant as summarized below and discussed fully in the District's Monitoring Plan and application protocol attached.

1) Deliveries of water are not made outside a treated canal system on its treatment day. The watertenders are notified of treatments so that they can make extra efforts to keep the treated water in their systems. Structures where water can leave a SID delivery system are locked. Furthermore, farmers are each sent a copy of SID's treatment schedule so that the affected farmers can understand why certain deliveries of water will have to be curtailed on treatment days.
2) SID has an NPDES Permit and a Monitoring Plan for application of aquatic herbicides pursuant to which SID carefully controls all herbicide applications and monitors water quality after applications. (See attached).
3) SID has switched from using acrolein to the less acutely toxic chelated copper products (Clearigate and Nautique), and no adverse environment incidents of harm have been seen in the past, even when Acrolein was being used.
4) The District follows herbicide label directions.
5) The District's canal personnel are on duty seven days per week (starting at 6 a.m. and ending at 6 p.m.) and are on call 24 hours per day. (See attached).

E. The application of aquatic herbicides will not substantially reduce the habitat of fish and wildlife species nor will it cause the fish or wildlife population to drop below self-sustaining levels. Nor will the application threaten to eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered plant or animal.

1) While the application of aquatic herbicides to irrigation water could have impacts that are individually limited, but cumulatively considerable ("cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects); however, because of District's application protocol and monitoring plan, (please see SID Monitoring Plan attached as **Tab B**) the potential for such cumulative effects to the environment is substantially mitigated as discussed fully in the District's Monitoring Plan and application protocol attached, to a level of less than

significant.

F. The application of aquatic herbicides to irrigation water without mitigation could cause substantial adverse effects on human beings, either directly or indirectly; however, because the District notifies all local water treatment plants and follows precise treatment schedules of copper treatments, the water treatment plants avoid taking treated water at these times. Furthermore, the District follows all manufacturers labeling and FIFRA requirements, and follows the procedures outlined in the District's Monitoring Plan. These mitigations reduce the potential for any adverse effects on human beings to a level of less than significant.

Furthermore, SID follows the Draft Operations and Maintenance Manual for the Solano County Water Agency (SCWA) service area and the Interim Measures for Use of Pesticides in Solano County for the use of aquatic herbicides. This further results in mitigation to levels of less than significant.

7. ***A copy of the Initial Study regarding the environmental effect of this project is on file at:***

Solano Irrigation District
508 Elmira Road
Vacaville, California 95687

This study was:

_____ Adopted as presented.

_____ Adopted with changes. Specific modifications and supporting reasons are attached.

8. A public hearing on this Negative Declaration was held by the District Board of Directors of the Solano Irrigation District on **October 20, 2003**.

9. ***Determination:***
On the basis of the Initial Study of Environmental Impact, the information presented at hearings, comments received on the proposal and our own knowledge and independent research:

_____ We find the proposed project **COULD NOT** have a significant effect on the environment, and a **NEGATIVE DECLARATION** is hereby adopted.

X **We find that the project COULD have a significant effect on the environment but will not in this case, because of attached mitigation measures described in Item 6 above which are by this reference made conditions of project approval. A MITIGATED NEGATIVE**

DECLARATION is hereby adopted.

Date: 9-3-03

Robert L. Isaac, Secretary-Manager
Solano Irrigation District

FILED
Sept. 8, 2003
Michael D. Johnson, Clerk of the Board of Supervisors of the County of Solano, State of California
By Myra Chavila, deputy

Notice of Preparation of Negative Declaration

Project Title: Application of Aquatic Herbicides

Project Location: Solano County, California

Project Description:
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THIS DOCUMENT POSTED FROM 9-8-03 TO NOV 15 2003
Deputy
[illegible] OF THE BOARD

Aquatic Herbicide History at the Solano Irrigation District

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various types, and chemicals including Magnicide H. In light of recent court decisions, SID switched from Magnacide H (acrolein) to chelated copper products for submerged aquatic weed and algae control in SID irrigation canals beginning in May of 2001.

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degree possible the amount of herbicide treated water that leaves the SID system and returns to the environment. During the 2002 irrigation season the District implemented its plan to keep treated water from leaving SID irrigation systems. With the full support of the SID Board of Directors, the District enlisted the help of our customers as well as our staff to implement its plan.

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Entities that have applied for a general permit include irrigation districts, municipal water supply districts, and mosquito vector control districts. The San Francisco Estuary Institute (SFEI) is the entity designated to implement the Aquatic Pesticide Monitoring Program. SFEI is administering the program under a contract with the State Water Resources Control Board.

The criteria of the Aquatic Pesticide Monitoring Program are to implement comprehensive monitoring and special studies to evaluate the water quality impacts associated with the application of aquatic pesticides. This will include providing funds for demonstration

projects to document promising non-chemical control methods. The primary focus shall be to provide information to the SWRCB and the Regional Water Quality Control Boards (RWQCBs) to enable SWRCB and RWQCBS to choose appropriate sampling methods and develop water quality criteria for effective regulation of discharges of aquatic pesticides to surface waters.

The Solano Irrigation District has volunteered to have its facilities field tested by San Francisco Estuary Institute. Sampling sites have been selected by SFEI from throughout the state with the intention of covering sufficient geographical areas and different end uses to provide a distribution of the range of aquatic environments and different types of pesticides which are applied. Sites will generally be visited prior to and multiple times following pesticide applications. Some sites will be revisited on subsequent reapplications of pesticide to evaluate potential cumulative effects. The scope of the program currently is not sufficient to cover all aquatic pesticide use categories in all regions of the state, but the primary objective of the program is to serve as a demonstration for the development and evaluation of more comprehensive state-wide monitoring schemes and establishment of appropriate water quality criteria for aquatic pesticides. Sites will be monitored during the period from July 2002 to October 2003.

SID has had several monitoring visits by SFEI during canal treatments. SID enjoys participating in the monitoring program and enthusiastically believes that such monitoring will produce better management practices for the benefit of agriculture and the environment.

Mitigation Measures:
The application of aquatic herbicides to irrigation water may create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials however such hazards are substantially mitigated. Mitigation for the safe transport of aquatic herbicides: chemical transport vehicles are inspected regularly and a driver with a hazardous materials endorsement on his driver's license is used, as needed; Department of Transportation regulations are followed; and SID has an excellent record due to training and company wide efforts toward safety. Mitigation for the safe use of aquatic herbicides: yearly herbicide use training is conducted, only applicators holding a valid Qualified Applicator's Certificate apply the aquatic herbicides, herbicide labels are followed, applicable laws and regulations are followed, Pest Control Recommendations are used. All giving an excellent record regarding herbicide use. SID does not dispose of hazardous materials, but it does properly dispose of empty containers as per the Department of Pesticide Regulation laws and regulations.

The application of aquatic herbicides to irrigation water may create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment however such a hazard is substantially mitigated. This is because chemical transport vehicles are inspected regularly and a driver with a hazardous materials endorsement on his driver's license is used as needed; Department of Transportation regulations are followed; SID has an excellent driving and loading record due to training and company wide efforts toward safety; yearly herbicide

use training is conducted; only applicators holding a valid Qualified Applicator's Certificate apply the aquatic herbicides; herbicide labels are followed; applicable laws and regulations are followed; Pest Control Recommendations are used; and herbicides are properly stored. The District's past history of safety has been excellent in the proper storage, proper transport, and proper application.

The addition of aquatic herbicides to irrigation water will exceed the California Toxic Rule standard within the canal to which applied for a short time period; however, because SID keeps treated water within its systems and minimizes charge water releases, and because SID follows FIFRA etc, any impact will be less than significant with these mitigations, and because we operate under the Interim NPDES Permit, and because we monitor any charge water releases under our Interim NPDES Permit and because we have had independent monitoring conducted by the San Francisco Estuary Institute (SFEI) these violations are adequately mitigated. (Please see SID Monitoring Plan attached as **Tab B**.)

The canal systems themselves should not be considered "habitat" because they are either seasonally dried up or cleaned of silt on a two year schedule. Their gates and many check structures would not, of course allow normal fish movement. Vegetative growth next to canal water has always been kept at the lowest possible levels in order to keep weed seed out of the irrigated farmland. Submerged aquatic weeks have also always been kept at very low levels otherwise they would restrict flow and plug pumps and screens of different types. All this means that SID canals have never been suitable habitat.

The addition of certain aquatic herbicides to irrigation water may have the potential to degrade the quality of the environment in the channels outside SID's systems. This "potential" is mitigated by the following: deliveries are not made outside a treated canal system on its treatment day, the watertenders are notified of treatments so that they can make extra efforts to keep the treated water in their systems, structures where water can leave an SID system are locked as required, farmers are each sent a copy of SID's treatment schedule so that the affected farmers can understand why certain deliveries of water will have to be curtailed on treatment days, SID has an NPDES Permit and a Monitoring Plan for application of aquatic herbicides pursuant to which SID carefully controls all herbicide applications and monitors water quality after applications, SID has switched from using accrolein to the less acutely toxic chelated copper products (Clearigate and Nautique), and no incidents of harm have been seen in the past, herbicide label directions are strictly followed, and canal personnel are on duty seven days per week (starting at 6 a.m. and ending at 6 p.m.) and are on call 24 hours per day.

The application of aquatic herbicides will not substantially reduce the habitat of fish and wildife species nor will they cause a fish or wildlife population to drop below self-sustaining levels, nor will they threaten to eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered plant or animal.

The application of aquatic herbicides to irrigation water could have impacts that are individually limited, but cumulatively considerable ("Cumulatively considerable" means that

the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects) however because of District's application protocol and monitoring plan (Please see SID Monitoring Plan attached as **Tab B.**) the threat of these "cumulative effects to the environment is sufficiently mitigated.

The application of aquatic herbicides to irrigation water could have environmental effects which could cause substantial adverse effects on human beings, either directly or indirectly; however because the District notifies all local water treatment plants and follows precise treatment schedules of copper treatments the plants avoid taking treated water. SID follows all manufacturers labeling and FIFIRA requirements, the potential for such adverse effects on human beings are mitigated. In addition, due to the District's application protocol and monitoring plan (included as **Tab B**), the threat to human beings is sufficiently mitigated.

SID has had several monitoring visits by SFEI during canal treatments. SID enjoys participating in the monitoring program and enthusiastically believes that such monitoring will produce better management practices for the benefit of agriculture and the environment.

Water quality standards for receiving waters that may be affected by the application of aquatic pesticides is generally established by the California Toxics Rule (CTR). SID believes that its NPDES Monitoring Plan, which also outlines its aquatic pesticide application protocol, will result in SID meeting water quality standards for receiving waters; however, in the unlikely event that a water quality exceedence does occur, SID requests an exception to the CTR pursuant to the Surface Inland Water Plan (SIP) based upon the project analysis in this mitigated negative declaration.

Pursuant to the CEQA Guidelines adopted by Solano Irrigation District, a proposed Mitigated Negative Declaration on the above named project has been prepared. Final adoption of the Mitigated Negative Declaration will be considered at the **October 20, 2003** District Board of Directors meeting. Any appeals to this action may be made to the District in writing at any time prior to said Board meeting, or verbally during said Board meeting.

Mailing Address: Robert L. Isaac, Chairman
Environmental Review Committee
Solano Irrigation District
508 Elmira Road
Vacaville, California 95687
(707) 448-6847 or (800) 675-3833

Notice of Determination

To: County Clerk
County of Solano
Fairfield, California 94533

Project Title: Application of Aquatic Herbicides

State Clearinghouse Number (If submitted to State Clearinghouse): 2003092013

Contact Person: Michael J. Messina, Director of Operations and Maintenance
Solano Irrigation District
508 Elmira Road
Vacaville, California 95687
(707) 448-6847 or (800) 675-3833

Project Location: Solano County, California

Project Description:

The Solano Irrigation District (SID) provides irrigation, and domestic water throughout Solano County for over 400,000 people from water stored in Lake Berryessa. In addition SID operates and maintains Monticello Dam, Putah Diversion Dam, and the Putah South Canal for the Solano County Water Agency.

Water travels from Lake Berryessa through Monticello Dam into Putah Creek and through Lake Solano from which it is diverted at the Putah Diversion Dam into the Putah South Canal (PSC). The PSC is owned by the federal government (United States Bureau of Reclamation) and contracted by the Solano County Water Agency (SCWA). Solano Irrigation District operates and maintains the PSC under a contract with SCWA. The flows in the PSC range from about 55 cubic feet/second (CFS) in the winter to as high as 800 CFS in the summer.

The 32.3 mile long concrete lined PSC is the "central hub" of the Solano County's water distribution system. The PSC is a distribution canal that provides water to the treatment plants of five cities and a State and County prison, and many seasonal use pipelines and earthen irrigation canals. Within the SID there are nine separate irrigation systems that total 112 miles in length and there are about 186 miles of pipeline. The District also maintains about 70 miles of drainage ditches. Much of the land SID serves is located in the western part of the Sacramento Valley south of Putah Creek SID also distributes water to land in Suisun Valley and Green Valley which lie west of the Sacramento Valley north and west of Fairfield. The irrigation water is delivered to the land via pipelines and canals and tail water from irrigated fields flows into drains and ultimately into flood channels.

The Solano Irrigation District primary beneficial use of the water in the irrigation canals and pipelines is the distribution of farmland irrigation water for about 55,000 acres and landscape and field irrigation water for some rural homeowners. Crops grown with Project water include tomatoes, field corn, alfalfa, soy beans, grapes, landscaping, ornamental plants, orchard fruit and nut crops. The gross value of the agricultural production in the area irrigated is estimated to be about $148 million. This production consists of food, feed and some ornamental landscape plants. Approximately 55,000 acres of irrigated land is serviced each year. The gross area of the District contains approximately 73,000 acres.

Aquatic Herbicide History at the Solano Irrigation District

During its 50 year history the Solano Irrigation District has employed several methods to combat aquatic weeds including: dewatering of canals, mechanical cleaning of various types, and chemicals including Magnicide H. In light of recent court decisions, SID switched from Magnacide H (acrolein) to chelated copper products for submerged aquatic weed and algae control in SID irrigation canals beginning in May of 2001.

The SID uses chemicals to maintain the functionality of its distribution system. The aquatic herbicides used currently by SID Clearigate and Nautique, increased its program costs by 50% but still provide fiscal economy when compared to mechanical or manual removal of aquatic plants. These products are necessary to ensure that design flows are maintained and at the same time these chelated products are safer to the environment than Magnicide H that was previously used.

Research has shown that unchecked algae growth can actually adversely affect water quality to the point of foul odors, undesirable tastes, livestock and wildlife poisonings and declines in invertebrate and fish populations (Mastin, Rodgers and Deardorff 2001). The District believes that copper based herbicides are a satisfactory alternative to mechanical cleaning or other herbicides for several reasons:

- Copper does not accumulate in the food chain.
- Copper is not a toxic metal because it is required for all or most of life to survive and/or exist.
- Copper is heavily bound in sediment that contains organic matter and, therefore, will not become biologically available through normal means. Bound copper will generally not cause adverse affects to aquatic life. Therefore, it takes more copper than previously thought to cause adverse affects in sediments and soils. It is also true that the amount of copper causing adverse affects varies depending upon what the sediment is composed of.
- Copper has a short lived residual in its biologically available form.
- Many past laboratory test had problematic results because the procedures followed did not even vaguely resemble real life situations (i.e. pH, alkalinity, ionic strength, exposure time, water hardness, organic matter, redox potential, etc.).
- Some scientists even question the validity of grouping a large number of elements into what is called the "heavy metals." Some heavy metals have much higher atomic weights

(tin = 118.7, tungsten = 183.8, and lead = 207.19) than copper (63.5). The properties of copper do not fully coincide with many of the other heavy metals in this group.
- It is due to all of the above that researchers are starting to question the accuracy of copper being listed as a priority pollutant.

During its history, SID has never caused any fish kill or known environmental damage within its system nor has SID had any known fish kill in any of the receiving waters which are outside our irrigation canal systems.

Existing Methodology for the Successful Application of Aquatic Herbicides

In order to successfully apply aquatic herbicides in a manner that controls the growth of aquatic plants and protects the environment, SID has sought to limit to the greatest degree possible the amount of herbicide treated water that leaves the SID system and returns to the environment. During the 2002 irrigation season the District implemented its plan to keep treated water from leaving SID irrigation systems. With the full support of the SID Board of Directors, the District enlisted the help of our customers as well as our staff to implement its plan.

SID sent a treatment schedule letter to more than 900 customers. In that letter we explained that the District was attempting to minimize the discharge of herbicide treated water into the environment. We communicated the need for our customers to not shut down their irrigation without advanced notification. SID received good cooperation and support from our customers and our Board of Directors.

For 2003 SID increased its efforts to control herbicide carrying discharge. Staff fine tuned procedures by considering all possible ways that treated water can leave each of the systems. On treatment days, SID personnel who operate the irrigation canal and pipeline systems are now authorized to curtail water deliveries to customers who might cause even a small amount of water to leave District controlled systems.

SID's Participation in the NPDES General Permit CAG990003 Process

Since early 2002, SID has operated under the NPDES General Permit CAG990003. As part of the permit SID has submitted the required Notices of Intent (NOI) (for WQCB Regions 2 and 5), prepared monitoring plans, completed the required monitoring and submitted Monthly Use Reports. The Annual Report was completed for 2002.

Early on SID management, with the full support of District Counsel, joined the Aquatic Pesticide Monitoring Program (APMP) Steering Committee. SID participated in meetings in Sacramento and also attended a side meeting with other members of the Association of California Water Agencies (ACWA). The Aquatic Pesticides Monitoring Program began in 2002 and is funded by the California State Water Resources Control Board. The APMP was formed as a result of the ruling by the Ninth Circuit Court of Appeals that registration and labeling of aquatic pesticides under the federal pesticide law (Federal Insecticide, Fungicide, and Rodenticide Act, or FIFRA) does not preclude the requirement to obtain coverage under a National Pollutant Discharge Elimination System (NPDES) prior to discharging such pesticides into waters of the United States. Following the ruling, the State Water Resources Control Board (SWRCB) now issues a general permit for dischargers of aquatic pesticides.

Entities that have applied for a general permit include irrigation districts, municipal water supply districts, and mosquito vector control districts. The San Francisco Estuary Institute (SFEI) is the entity designated to implement the Aquatic Pesticide Monitoring Program. SFEI is administering the program under a contract with the State Water Resources Control Board.

The criteria of the Aquatic Pesticide Monitoring Program are to implement comprehensive monitoring and special studies to evaluate the water quality impacts associated with the application of aquatic pesticides. This will include providing funds for demonstration projects to document promising non-chemical control methods. The primary focus shall be to provide information to the SWRCB and the Regional Water Quality Control Boards (RWQCBs) to enable SWRCB and RWQCBS to choose appropriate sampling methods and develop water quality criteria for effective regulation of discharges of aquatic pesticides to surface waters.

The Solano Irrigation District has volunteered to have its facilities field tested by San Francisco Estuary Institute. Sampling sites have been selected by SFEI from throughout the state with the intention of covering sufficient geographical areas and different end uses to provide a distribution of the range of aquatic environments and different types of pesticides which are applied. Sites will generally be visited prior to and multiple times following pesticide applications. Some sites will be revisited on subsequent reapplications of pesticide to evaluate potential cumulative effects. The scope of the program currently is not sufficient to cover all aquatic pesticide use categories in all regions of the state, but the primary objective of the program is to serve as a demonstration for the development and evaluation of more comprehensive state-wide monitoring schemes and establishment of appropriate water quality criteria for aquatic pesticides. Sites will be monitored during the period from July 2002 to October 2003.

Mitigation Measures:

The application of aquatic herbicides to irrigation water may create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials however such hazards are substantially mitigated. Mitigation for the safe transport of aquatic herbicides: chemical transport vehicles are inspected regularly and a driver with a hazardous materials endorsement on his driver's license is used, as needed; Department of Transportation regulations are followed; and SID has an excellent record due to training and company wide efforts toward safety. Mitigation for the safe use of aquatic herbicides: yearly herbicide use training is conducted, only applicators holding a valid Qualified Applicator's Certificate apply the aquatic herbicides, herbicide labels are followed, applicable laws and regulations are followed, Pest Control Recommendations are used. All giving an excellent record regarding herbicide use. SID does not dispose of hazardous materials, but it does properly dispose of empty containers as per the Department of Pesticide Regulation laws and regulations.

The application of aquatic herbicides to irrigation water may create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment however such a hazard is substantially mitigated. This is because chemical transport vehicles are inspected regularly and a driver with a hazardous materials endorsement on his driver's license is used as needed;

Department of Transportation regulations are followed; SID has an excellent driving and loading record due to training and company wide efforts toward safety; yearly herbicide use training is conducted; only applicators holding a valid Qualified Applicator's Certificate apply the aquatic herbicides; herbicide labels are followed; applicable laws and regulations are followed; Pest Control Recommendations are used; and herbicides are properly stored. The District's past history of safety has been excellent in the proper storage, proper transport, and proper application.

The addition of aquatic herbicides to irrigation water will exceed the California Toxic Rule standard within the canal to which applied for a short time period; however, because SID keeps treated water within its systems and minimizes charge water releases, and because SID follows FIFRA etc, any impact will be less than significant with these mitigations, and because we operate under the Interim NPDES Permit, and because we monitor any charge water releases under our Interim NPDES Permit and because we have had independent monitoring conducted by the San Francisco Estuary Institute (SFEI) these violations are adequately mitigated. (Please see SID Monitoring Plan attached as **Tab B.**)

The canal systems themselves should not be considered "habitat" because they are either seasonally dried up or cleaned of silt on a two year schedule. Their gates and many check structures would not, of course allow normal fish movement. Vegetative growth next to canal water has always been kept at the lowest possible levels in order to keep weed seed out of the irrigated farmland. Submerged aquatic weeks have also always been kept at very low levels otherwise they would restrict flow and plug pumps and screens of different types. All this means that SID canals have never been suitable habitat.

The addition of certain aquatic herbicides to irrigation water may have the potential to degrade the quality of the environment in the channels outside SID's systems. This "potential" is mitigated by the following: deliveries are not made outside a treated canal system on its treatment day, the watertenders are notified of treatments so that they can make extra efforts to keep the treated water in their systems, structures where water can leave an SID system are locked as required, farmers are each sent a copy of SID's treatment schedule so that the affected farmers can understand why certain deliveries of water will have to be curtailed on treatment days, SID has an NPDES Permit and a Monitoring Plan for application of aquatic herbicides pursuant to which SID carefully controls all herbicide applications and monitors water quality after applications, SID has switched from using accrolein to the less acutely toxic chelated copper products (Clearigate and Nautique), and no incidents of harm have been seen in the past, herbicide label directions are strictly followed, and canal personnel are on duty seven days per week (starting at 6 a.m. and ending at 6 p.m.) and are on call 24 hours per day.

The application of aquatic herbicides will not substantially reduce the habitat of fish and wildife species nor will they cause a fish or wildlife population to drop below self-sustaining levels, nor will they threaten to eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered plant or animal.

The application of aquatic herbicides to irrigation water could have impacts that are individually

limited, but cumulatively considerable ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects) however because of District's application protocol and monitoring plan (Please see SID Monitoring Plan attached as **Tab B**) the threat of these "cumulative effects to the environment is sufficiently mitigated.

The application of aquatic herbicides to irrigation water could have environmental effects which could cause substantial adverse effects on human beings, either directly or indirectly; however because the District notifies all local water treatment plants and follows precise treatment schedules of copper treatments the plants avoid taking treated water. SID follows all manufacturers labeling and FIFIRA requirements, the potential for such adverse effects on human beings are mitigated. In addition, due to the District's application protocol and monitoring plan (included as **Tab B**), the threat to human beings is sufficiently mitigated.

SID has had several monitoring visits by SFEI during canal treatments. SID enjoys participating in the monitoring program and enthusiastically believes that such monitoring will produce better management practices for the benefit of agriculture and the environment.

Water quality standards for receiving waters that may be affected by the application of aquatic pesticides is generally established by the California Toxics Rule (CTR). SID believes that its NPDES Monitoring Plan, which also outlines its aquatic pesticide application protocol, will result in SID meeting water quality standards for receiving waters; however, in the unlikely event that a water quality exceedence does occur, SID requests an exception to the CTR pursuant to the Surface Inland Water Plan (SIP) based upon the project analysis in this mitigated negative declaration.

This is to advise that the **SOLANO IRRIGATION DISTRICT** approved the above described project on **October 20, 2003**, after complying with CEQA, and has made the following determinations regarding the above described project:

1. The project ____ **WILL** <u>X</u> **WILL NOT**, have a significant effect on the environment.

2. ____ An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA.

<u>X</u> A Mitgated Negative Declaration was prepared for this project pursuant to the provisions of CEQA. The Mitigated Negative Declaration and record of project approval may be examined at:

Solano Irrigation District
Engineering Department
508 Elmira Road
Vacaville, California 95687.

3. Mitigation Measures X **WERE** ____ **WERE NOT** made a condition of the approval of the project.

4. A statement of Overriding Considerations ______ **WAS** X **WAS NOT** adopted for this project.

Date: October 20, 2003

Robert L. Isaac, Secretary-Manager
Solano Irrigation District

RESOLUTION NO. 03-62

RESOLUTION OF THE BOARD OF DIRECTORS OF THE SOLANO IRRIGATION DISTRICT ADOPTING A MITIGATED NEGATIVE DECLARATION OF ENVIRONMENTAL IMPACT FOR THE APPLICATION OF AQUATIC PESTICIDES PROJECT

WHEREAS, In order to continue the application of aquatic herbicides to maintain the irrigation ditches of the Solano Irrigation District and to maintain the Putah South Canal for the Solano County Water Agency, a National Pollution Discharge Elimination System (NPDES) Permit must be obtained; and

WHEREAS, the District must first comply with the California Environmental Quality Act (CEQA) requirements; and

WHEREAS, an Initial Study was prepared which determined that although the project may have effects on the environment, the negative impacts will be mitigated to an acceptable level, and a Mitigated Negative Declaration of Environmental Impact was prepared in accordance with the requirements of the California Environmental Quality Act; and

WHEREAS, the Environmental Initial Study and Mitigated Negative Declaration were circulated through the State Clearinghouse (SCH# 2003092013) which circulation did not generate any substantial evidence of an environmental impact; and

WHEREAS, on October 20, 2003, the Board of Directors conducted a public hearing on the ratification of the Mitigated Negative Declaration of Environmental Impact relating to the application of aquatic pesticides, which public hearing did not generate any substantial evidence of an environmental impact;

NOW THEREFORE, BE IT RESOLVED that the Board of Directors of the Solano Irrigation District hereby ratifies the Mitigated Negative Declaration of Environmental Impact for the application of aquatic pesticides project.

PASSED AND ADOPTED THIS 20th OF OCTOBER 2003 BY THE FOLLOWING VOTE:

AYES: Bishop, Colla, Currey, Hansen, Maginnis

NOES: None

ABSTAIN: None

ABSENT: None

Marion Maginnis, President of the
Board of Directors of the
Solano Irrigation District

ATTEST:

I hereby certify that the foregoing Resolution was duly made, seconded and adopted by the Board of Directors of Solano Irrigation District at a regular meeting of this Board held October 20, 2003.

Robert L. Isaac, Secretary of the
Board of Directors of the
Solano Irrigation District

California Environmental Protection Agency

ate Water Resources Control Boa

Attachment A to Water Quality Order No. 2001-12-DWQ

Gray Davis
Governor

ORIGINAL

NOTICE OF INTENT

TO COMPLY WITH THE TERMS OF THE STATEWIDE GENERAL NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE AQUATIC PESTICIDES FOR DISCHARGES OF AQUATIC PESTICIDES TO SURFACE WATERS OF THE UNITED STATES

GENERAL PERMIT NO. CAG990003

FORM A

I. NOTICE OF INTENT STATUS (see instructions)

MARK ONLY ONE ITEM 1. ☒ New Applicator 2. ☐ Change of Information for WDID#

II. PESTICIDE APPLICATOR INFORMATION

Name/Agency: Solano Irrigation District

Contact Person: Mark Veil

Mailing Address: 508 Elmira Road

Title: Pest Control Specialist

City: Vacaville

County: Solano

State: CA

Zip: 95687

Phone: (707) 448-6847

III. RECEIVING WATER INFORMATION

A. Do wastes and pesticide residues discharge to (check all that apply):

1. ☒ Canals, Ditches, or other constructed conveyance facilities owned and controlled by Applicator?
2. ☒ Other conveyance systems? - Enter owner's name: US Bureau of Reclamation (for the Putah South Canal)
3. ☐ Directly to waters of U.S. (e.g., river, lake, creek, stream, bay, ocean, etc.)?

B. Regional Water Quality Control Board(s) where application sites are located (REGION 1,2,3,4,[✓ 5],6,7,8, or 9): REGION 5S
(List all regions where pesticide application is proposed.)

C. Name of receiving water: (river, lake, creek, stream, bay, ocean): Flood channels including the new Ulatis Channel, Sweeney Creek Channel, New Alamo Channel, McCune Creek, Horse Creek Channel, and new Gibson Canyon Channel (if waters were released from our canals).

IV. PESTICIDE APPLICATION INFORMATION

A. Target Organism: X Algae (X) Aquatic Weeds (surface) X Aquatic Weeds (submerged) ____ Mosquitoes and other Vectors
____ OTHER (identify):

B. Pesticides Used: List Name and Active ingredients - See attachment

C. Period of Application: Start Date ____ End Date ____
For Copper Products: normally April or May through Sept. or October. Glyphosate and the adjuvants with it may not be used by us for aquatic applications in this region, or we may use them for only 1 or 2 weeks in early Spring.

FOR OFFICE USE ONLY Date Received ____ Date Sent To Regions ____

V. VICINITY MAP AND FEE

Have you included vicinity map(s) with this submittal?
Separate vicinity maps must be submitted for each Region where a proposed discharge will occur. ☒ YES ☐ NO

Have you included payment of the annual fee with this submittal? ☒ YES ☐ NO

VI. MONITORING AND REPORTING REQUIREMENTS

This permit includes a requirement to develop and implement an individual Pesticide Monitoring Plan or participate in a Regional Pesticide Monitoring Program. Check the applicable Box or Boxes

I will develop an individual Pesticide Monitoring Plan in accordance with the permit requirements. ☒

I will participate in a Regional Pesticide Monitoring Program developed in accordance with the permit requirements. ☒

We may attempt this if we can find interested parties which would work well in such a group.

VII. CERTIFICATION

"I certify under penalty of law that this document and all attachments were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment. Additionally, I certify that the provisions of the permit, including developing and implementing a monitoring program, will be complied with."

Printed Name: Michael J. Messina

Signature:

Title: Director of Operations and Maintenance **Date:** NOV, 18, 2003

VIII. FORM A SUBMITTAL INFORMATION

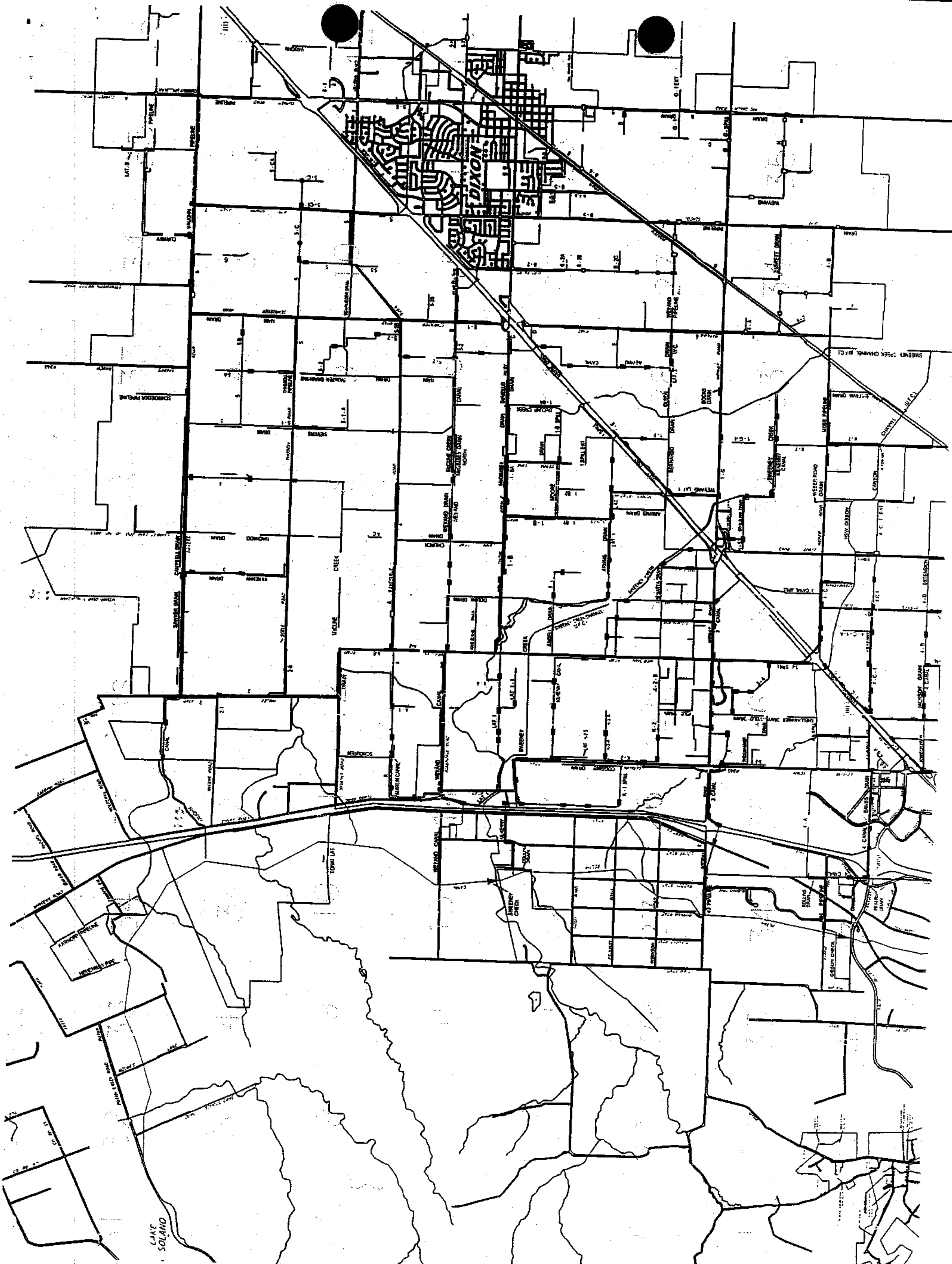
A. Send the completed and signed Form A along with the annual fee and vicinity map(s) to:

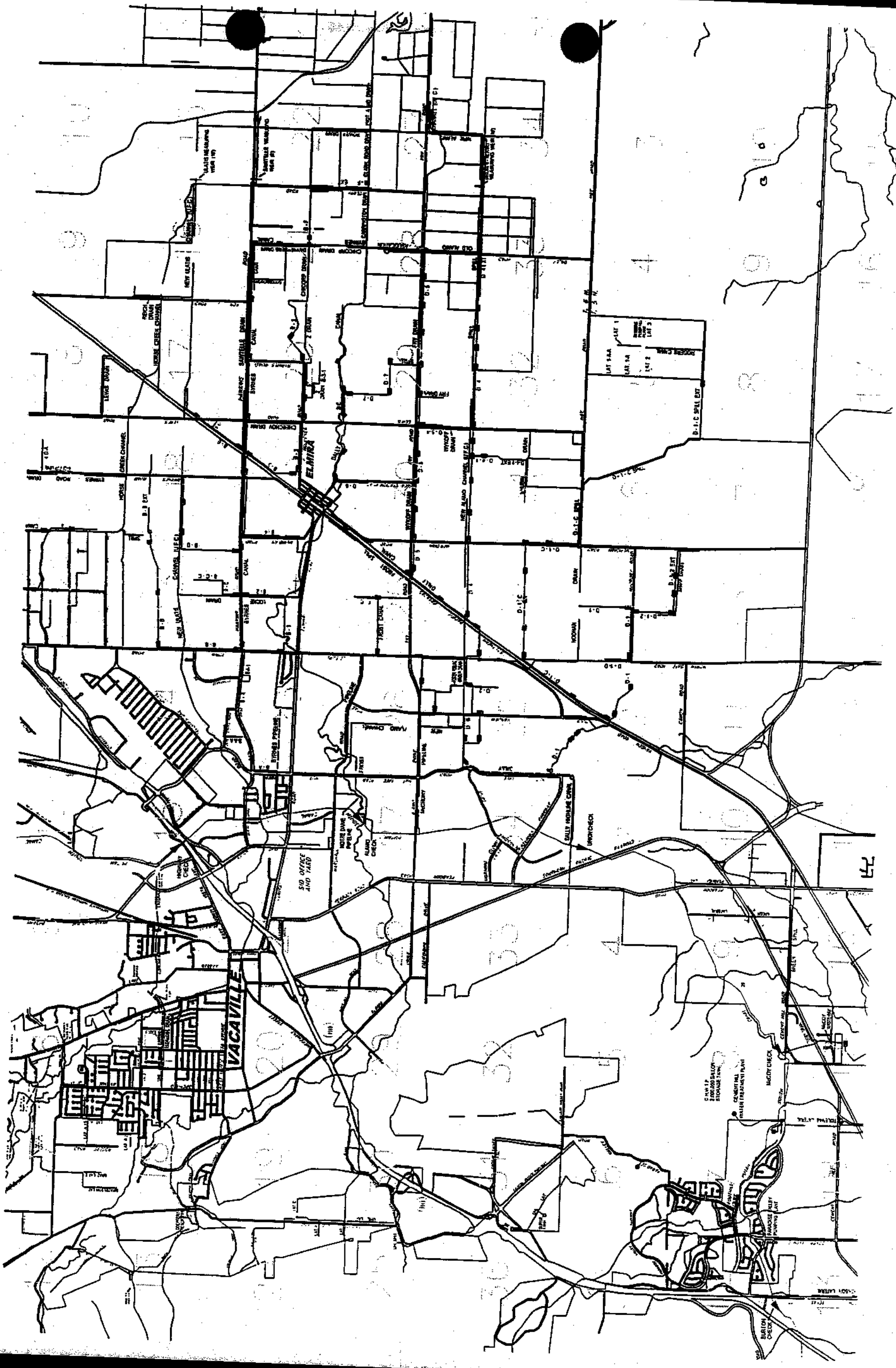
State Water Resources Control Board
Division of Water Quality
Regulations Unit
P.O. Box 100
Sacramento, CA 95812-0100

REVISED

IV.B. Pesticides used including surfactants:

NAME	ACTIVE INGREDIANT
Rodeo, Aqua Master, Glypro, or Eagre	Glyphosate
Copper Sulfate	Copper Sulfate Pentahydrate
R-11	Alkyl Aryl Polyethoxylates, compounded silicone, and linear alcohol
LI 700	Phosphatidylcholine, methylacetic acid and alkyl polyoxyethylene ether
Cutrine Ultra	Copper as elemental
Clearigate	Copper as elemental
Sonar	Fluridone
Nautique	Copper Carbonate


DIXON
LAKE SOLANO
SCHROEDER PIPELINE
SWEENEY CREEK CHANNEL (I.F.C.)
SWEENEY CREEK
TOMAH LAT
WEYAND CANAL
SCHROEDER
SWEENEY
CREEK


ELMIRA
VACAVILLE
SID OFFICE AND YARD
NOTRE DAME PIPELINE
ALAMO CHECK
BYRNES PIPELINE
HORSE CREEK CHANNEL
NEW ULATIS
DALLY HIGHLINE CANAL
UNION CHECK
OLD ALAMO
D-1-C SPILL EXT
McCOY CHECK
CEMENT HILL WATER TREATMENT PLANT
C.H.W.T.P. 1,000,000 GALLON STORAGE TANK
PARADISE VALLEY PUMPING PLANT
BURTON CHECK
CEMENT HILL ROAD
McCOY WASTEWAY
TOLENAS LATERAL
CORDELIA
NOONAN
FRY DRAIN
CANAL
DRAIN
LAT 1
LAT 2
D-1
D-1-C
33
20
32

California
Environmental
Protection Agency

State Water Resources Control Board

**Attachment A
to Water Quality Order
No. 2001-12-DWQ**

Gray Davis
Governor

ORIGINAL

NOTICE OF INTENT
TO COMPLY WITH THE TERMS OF THE STATEWIDE GENERAL NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE AQUATIC PESTICIDES FOR DISCHARGES OF AQUATIC PESTICIDES TO SURFACE WATERS OF THE UNITED STATES GENERAL PERMIT NO. CAG990003

FORM A

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MARK ONLY ONE ITEM 1. ☒ New Applicator 2. ☐ Change of Information for WDID# ______

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Name/Agency: Solano Irrigation District
Contact Person: Mark Veil
Mailing Address: 508 Elmira Road
Title: Pest Control Specialist
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County: Solano
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Phone: (707) 448-6847

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1. ☒ Canals, Ditches, or other constructed conveyance facilities owned and controlled by Applicator? ______
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3. ☐ Directly to waters of U.S. (e.g., river, lake, creek, stream, bay, ocean, etc.)? ______

B. Regional Water Quality Control Board(s) where application sites are located (REGION 1 [✓ 2] 3,4,5,6,7,8, or 9): REGION 2
(List all regions where pesticide application is proposed.)

C. Name of receiving water: (river, lake, creek, stream, bay, ocean): A Reclamation District #2034 Drain, Dan Wilson Creek, Laural Creek, Ledgewood Creek, and Green Valley Creek (only if waters were released from our canals which for most of these creeks is only rarely done in an emergency).

IV. PESTICIDE APPLICATION INFORMATION

A. Target Organism: X Algae (X) Aquatic Weeds (surface) X Aquatic Weeds (submerged) ____ Mosquitoes and other Vectors
____ OTHER (identify): ______

B. Pesticides Used: List Name and Active ingredients - See attachment

C. Period of Application: Start Date Yearly as needed End Date ______
For Copper Products: normally April or May through Sept. or October. Glyphosate and the adjuvants with it may not be used by us for aquatic applications in this region, or we may use them for only 1 or 2 weeks in early Spring.

FOR OFFICE USE ONLY Date Received ______ Date Sent To Regions ______

V. VICINITY MAP AND FEE

Have you included vicinity map(s) with this submittal? ☒ YES ☐ NO
Separate vicinity maps must be submitted for each Region where a proposed discharge will occur.

Have you included payment of the annual fee with this submittal? ☒ YES ☐ NO

VI. MONITORING AND REPORTING REQUIREMENTS

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We may attempt this if we can find interested parties which would work well in such a group.

VII. CERTIFICATION

"I certify under penalty of law that this document and all attachments were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment. Additionally, I certify that the provisions of the permit, including developing and implementing a monitoring program, will be complied with."

Printed Name: Michael J. Messina

Signature:

Date: NOV. 13, 2003

Title: Director of Operations and Maintenance

VIII. FORM A SUBMITTAL INFORMATION

A. Send the completed and signed Form A along with the annual fee and vicinity map(s) to:

State Water Resources Control Board
Division of Water Quality
Regulations Unit
P.O. Box 100
Sacramento, CA 95812-0100

REVISED

IV.B. Pesticides used including surfactants:

NAME	ACTIVE INGREDIANT
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Copper Sulfate	Copper Sulfate Pentahydrate
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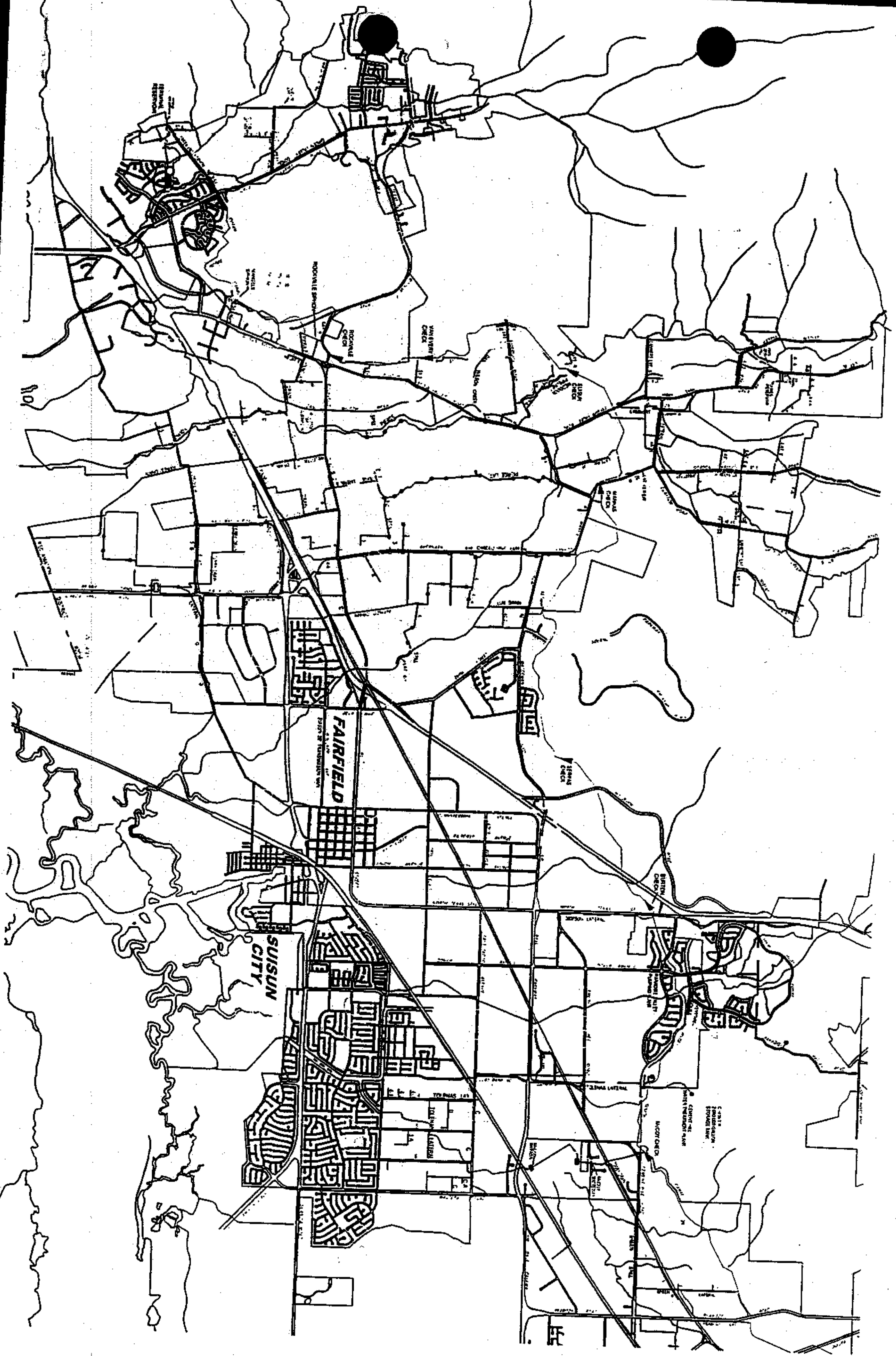
LI 700	Phosphatidylcholine, methylacetic acid and alkyl polyoxyethylene ether
Cutrine Ultra	Copper as elemental
Clearigate	Copper as elemental
Sonar	Fluridone
Nautique	Copper Carbonate


FAIRFIELD
SUISUN CITY

Mitigated Negative Declaration
Regarding Environmental Impact

1. ***Notice is Hereby Given*** that the project described below has been reviewed pursuant to the provisions of the California Environmental Quality Act of 1970 (Public Resources Code 21100, et seq.) and a determination has been made that it will not have a significant effect upon the environment.

2. ***Project Name:*** **Application of Aquatic Pesticides - Solano Irrigation District**

3. ***Description of Project:***

The Solano Irrigation District (SID) provides irrigation, and domestic water throughout Solano County for over 400,000 people from water stored in Lake Berryessa. In addition SID operates and maintains Monticello Dam, Putah Diversion Dam, and the Putah South Canal for the Solano County Water Agency.

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Aquatic Herbicide History at the Solano Irrigation District

During its 50 year history the Solano Irrigation District has employed several methods to combat aquatic weeds including: dewatering of canals, mechanical cleaning of various types, and chemicals including Magnicide H. In light of recent court decisions, SID switched from Magnacide H (acrolein) to chelated copper products for submerged aquatic weed and algae control in SID irrigation canals beginning in May of 2001.

The SID uses chemicals to maintain the functionality of its distribution system. The aquatic herbicides used currently by SID Clearigate and Nautique, increased its program costs by 50% but still provide fiscal economy when compared to mechanical or manual removal of aquatic plants. These products are necessary to ensure that design flows are maintained and at the same time these chelated products are safer to the environment than Magnicide H that was previously used.

Research has shown that unchecked algae growth can actually adversely affect water quality to the point of foul odors, undesirable tastes, livestock and wildlife poisonings and declines in invertebrate and fish populations (Mastin, Rodgers and Deardorff 2001). The District believes that copper based herbicides are a satisfactory alternative to mechanical cleaning or other herbicides for several reasons:

- Copper does not accumulate in the food chain.
- Copper is not a toxic metal because it is required for all or most of life to survive and/or exist.
- Copper is heavily bound in sediment that contains organic matter and, therefore, will not become biologically available through normal means. Bound copper will generally not cause adverse affects to aquatic life. Therefore, it takes more copper than previously thought to cause adverse affects in sediments and soils. It is also true that the amount of copper causing adverse affects varies depending upon what the sediment is composed of.
- Copper has a short lived residual in its biologically available form.
- Many past laboratory test had problematic results because the procedures followed did not even vaguely resemble real life situations (i.e. pH, alkalinity, ionic strength, exposure time, water hardness, organic matter, redox potential, etc.).
- Some scientists even question the validity of grouping a large number of elements into what is called the "heavy metals." Some heavy metals have much higher atomic weights (tin = 118.7, tungsten = 183.8, and lead = 207.19) than copper (63.5). The properties of copper do not fully coincide with many of the other heavy metals in this group.
- It is due to all of the above that researchers are starting to question the accuracy of copper being listed as a priority pollutant.

  During its history, SID has never caused any fish kill or known environmental damage within its system nor has SID had any known fish kill in any of the receiving waters which are outside our irrigation canal systems.

Existing Methodology for the Successful Application of Aquatic Herbicides

In order to successfully apply aquatic herbicides in a manner that controls the growth of aquatic plants and protects the environment, SID has sought to limit to the greatest degree possible the

amount of herbicide treated water that leaves the SID system and returns to the environment. During the 2002 irrigation season the District implemented its plan to keep treated water from leaving SID irrigation systems. With the full support of the SID Board of Directors, the District enlisted the help of our customers as well as our staff to implement its plan.

SID sent a treatment schedule letter to more than 900 customers. In that letter we explained that the District was attempting to minimize the discharge of herbicide treated water into the environment. We communicated the need for our customers to not shut down their irrigation without advanced notification. SID received good cooperation and support from our customers and our Board of Directors.

For 2003 SID increased its efforts to control herbicide carrying discharge. Staff fine tuned procedures by considering all possible ways that treated water can leave each of the systems. On treatment days, SID personnel who operate the irrigation canal and pipeline systems are now authorized to curtail water deliveries to customers who might cause even a small amount of water to leave District controlled systems.

SID's Participation in the NPDES General Permit CAG990003 Process

Since early 2002, SID has operated under the NPDES General Permit CAG990003. As part of the permit SID has submitted the required Notices of Intent (NOI) (for RWQCB Regions 2 and 5), prepared monitoring plans, completed the required monitoring and submitted Monthly Use Reports. The Annual Report was completed for 2002.

Early on SID management, with the full support of District Counsel, joined the Aquatic Pesticide Monitoring Program (APMP) Steering Committee. SID participated in meetings in Sacramento and also attended a side meeting with other members of the Association of California Water Agencies (ACWA). The Aquatic Pesticides Monitoring Program began in 2002 and is funded by the California State Water Resources Control Board. The APMP was formed as a result of the ruling by the Ninth Circuit Court of Appeals that registration and labeling of aquatic pesticides under the federal pesticide law (Federal Insecticide, Fungicide, and Rodenticide Act, or FIFRA) does not preclude the requirement to obtain coverage under a National Pollutant Discharge Elimination System (NPDES) prior to discharging such pesticides into waters of the United States. Following the ruling, the State Water Resources Control Board (SWRCB) now issues a general permit for dischargers of aquatic pesticides.

Entities that have applied for a general permit include irrigation districts, municipal water supply districts, and mosquito vector control districts. The San Francisco Estuary Institute (SFEI) is the entity designated to implement the Aquatic Pesticide Monitoring Program. SFEI is administering the program under a contract with the State Water Resources Control Board.

The criteria of the Aquatic Pesticide Monitoring Program are to implement comprehensive monitoring and special studies to evaluate the water quality impacts associated with the application of aquatic pesticides. This will include providing funds for demonstration projects to document promising non-chemical control methods. The primary focus shall be to provide information to the SWRCB and the Regional Water Quality Control Boards (RWQCBs) to

enable SWRCB and RWQCBS to choose appropriate sampling methods and develop water quality criteria for effective regulation of discharges of aquatic pesticides to surface waters.

The Solano Irrigation District has volunteered to have its facilities field tested by San Francisco Estuary Institute. Sampling sites have been selected by SFEI from throughout the state with the intention of covering sufficient geographical areas and different end uses to provide a distribution of the range of aquatic environments and different types of pesticides which are applied. Sites will generally be visited prior to and multiple times following pesticide applications. Some sites will be revisited on subsequent reapplications of pesticide to evaluate potential cumulative effects. The scope of the program currently is not sufficient to cover all aquatic pesticide use categories in all regions of the state, but the primary objective of the program is to serve as a demonstration for the development and evaluation of more comprehensive state-wide monitoring schemes and establishment of appropriate water quality criteria for aquatic pesticides. Sites will be monitored during the period from July 2002 to October 2003.

SID has had several monitoring visits by SFEI during canal treatments. SID enjoys participating in the monitoring program and enthusiastically believes that such monitoring will produce better management practices for the benefit of agriculture and the environment.

Water quality standards for receiving waters that may be affected by the application of aquatic pesticides is generally established by the California Toxics Rule (CTR). SID believes that its NPDES Monitoring Plan, which also outlines its aquatic pesticide application protocol, will result in SID meeting water quality standards for receiving waters; however, in the unlikely event that a water quality exceedence does occur, SID requests an exception to the CTR pursuant to the Surface Inland Water Plan (SIP) based upon the project analysis in this mitigated negative declaration.

4. ***Location of Project:*** **Solano County California**

5. ***Name and Address of Project Proponents:*** **Solano Irrigation District**
508 Elmira Road
Vacaville, Ca 95687

6. ***Mitigation Measures:***

A. The application of aquatic herbicides to irrigation water could, without mitigation, create a significant hazard to the public or the environment, however the potential for such hazards are substantially mitigated as summarized below, and discussed fully in the District's Monitoring Plan and application protocol attached.

1) **Mitigation for the safe transport of aquatic herbicides**: Chemical transport vehicles are inspected regularly and a driver with a hazardous materials endorsement on his driver's license is used, as needed; Department of Transportation regulations are followed; and SID has an excellent record due to training and company wide efforts toward safety.

2) **Mitigation for the safe use of aquatic herbicides**: Yearly herbicide use training is conducted; only applicators holding a valid Qualified Applicator's Certificate apply the aquatic herbicides; herbicide label instructions are followed; applicable laws and regulations controlling the application of herbicides are followed; Pest Control Recommendations are used. SID has an excellent record regarding herbicide use. SID does not dispose of hazardous materials, but it does properly dispose of empty containers as per the Department of Pesticide Regulation laws and regulations.

B. The application of aquatic herbicides to irrigation water could, without mitigation, create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment; however, the potential for such hazards are substantially mitigated as summarized below, and discussed fully in the District's Monitoring Plan and application protocol attached.

1) Chemical transport vehicles are inspected regularly and a driver with a hazardous materials endorsement on his driver's license is used as needed; and Department of Transportation regulations are closely followed;
2) SID has an excellent driving and loading record due to training and company wide efforts toward safety;
3) Yearly herbicide use training is conducted; only applicators holding a valid Qualified Applicator's Certificate apply the aquatic herbicides;
4) Herbicide labels are followed and applicable laws and regulations are followed. Pest Control Recommendations are used and herbicides are properly stored. The record is clear that the District has an unparalleled history of safety in connection with the use of aquatic pesticides, including in the proper storage, transport, and application of such materials.
5) The District has discontinued use of Magnacide H and Acrolein, and has substituted a less toxic herbicide.

C. The addition of aquatic herbicides to irrigation water may exceed the California Toxic Rule standard within the canal to which applied for a short time period; however, because SID keeps treated water within its systems and minimizes charge water releases, and because SID follows the labeling instructions pursuant to FIFRA, the potential for any environmental impact from a temporary exceedence of the CTR will be mitigated to a level of less than significant. (Please see SID Monitoring Plan attached as **Tab B.**)

1) SID applies aquatic pesticides pursuant to a NPDES Permit issued by the State Water Resources Control Board. The District monitors any charge water releases in accordance with the NPDES Permit.
2) The District, also, has cooperated with, and allowed for independent monitoring by the San Francisco Estuary Institute (SFEI), which is working for the SWRCB to develop water quality data in connection with use of aquatic pesticides. SFEI independent monitoring has not disclosed any adverse environmental impact resulting from the District's use of aquatic

pesticides in its canals.

D. The canal systems should not be considered "habitat" because they are either seasonally dried up or cleaned of silt on a two year schedule. Their gates and many check structures would not, of course allow normal fish movement. Vegetative growth next to canal water has always been kept at the lowest possible levels in order to keep weed seed out of the irrigated farmland. Submerged aquatic weeks have also always been kept at very low levels otherwise they would restrict flow and plug pumps and screens of different types. All this means that SID canals have never been suitable habitat.

And while the addition of certain aquatic herbicides to irrigation water may have the potential to degrade the quality of the environment in the channels outside SID's systems, this potential is mitigated to a level of less than significant as summarized below and discussed fully in the District's Monitoring Plan and application protocol attached.

1) Deliveries of water are not made outside a treated canal system on its treatment day. The watertenders are notified of treatments so that they can make extra efforts to keep the treated water in their systems. Structures where water can leave a SID delivery system are locked. Furthermore, farmers are each sent a copy of SID's treatment schedule so that the affected farmers can understand why certain deliveries of water will have to be curtailed on treatment days.
2) SID has an NPDES Permit and a Monitoring Plan for application of aquatic herbicides pursuant to which SID carefully controls all herbicide applications and monitors water quality after applications. (See attached).
3) SID has switched from using acrolein to the less acutely toxic chelated copper products (Clearigate and Nautique), and no adverse environment incidents of harm have been seen in the past, even when Acrolein was being used.
4) The District follows herbicide label directions.
5) The District's canal personnel are on duty seven days per week (starting at 6 a.m. and ending at 6 p.m.) and are on call 24 hours per day. (See attached).

E. The application of aquatic herbicides will not substantially reduce the habitat of fish and wildlife species nor will it cause the fish or wildlife population to drop below self-sustaining levels. Nor will the application threaten to eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered plant or animal.

1) While the application of aquatic herbicides to irrigation water could have impacts that are individually limited, but cumulatively considerable ("cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects); however, because of District's application protocol and monitoring plan, (please see SID Monitoring Plan attached as **Tab B**) the potential for such cumulative effects to the environment is substantially mitigated as discussed fully in the District's Monitoring Plan and application protocol attached, to a level of less than

significant.

F. The application of aquatic herbicides to irrigation water without mitigation could cause substantial adverse effects on human beings, either directly or indirectly; however, because the District notifies all local water treatment plants and follows precise treatment schedules of copper treatments, the water treatment plants avoid taking treated water at these times. Furthermore, the District follows all manufacturers labeling and FIFRA requirements, and follows the procedures outlined in the District's Monitoring Plan. These mitigations reduce the potential for any adverse effects on human beings to a level of less than significant.

Furthermore, SID follows the Draft Operations and Maintenance Manual for the Solano County Water Agency (SCWA) service area and the Interim Measures for Use of Pesticides in Solano County for the use of aquatic herbicides. This further results in mitigation to levels of less than significant.

7. ***A copy of the Initial Study regarding the environmental effect of this project is on file at:***

Solano Irrigation District
508 Elmira Road
Vacaville, California 95687

This study was:

______ Adopted as presented.

______ Adopted with changes. Specific modifications and supporting reasons are attached.

8. A public hearing on this Negative Declaration was held by the District Board of Directors of the Solano Irrigation District on **October 20, 2003.**

9. ***Determination:***
On the basis of the Initial Study of Environmental Impact, the information presented at hearings, comments received on the proposal and our own knowledge and independent research:

______ We find the proposed project **<u>COULD NOT</u>** have a significant effect on the environment, and a **NEGATIVE DECLARATION** is hereby adopted.

<u>X</u> **We find that the project COULD have a significant effect on the environment but will not in this case, because of attached mitigation measures described in Item 6 above which are by this reference made conditions of project approval. A MITIGATED NEGATIVE**

DECLARATION is hereby adopted.

Date: 9-3-03

Robert L. Isaac, Secretary-Manager
Solano Irrigation District

STATE WATER RESOURCES CONTROL BOARD
INVOICE
Annual Fee for Waste Discharge Requirements Required by SECTION 13260 of the California Water Code

Facility ID (WDID): 5A48NP00007
Facility Name: SOLANO ID-AQUATIC PESTICIDES

SOLANO COUNTY, CA

Invoice No: 0304630
Billing Period: 07/01/03-06/30/04
Invoice Date: 11/07/03

☞ **Total Amount Due by 12/07/03** **$1,185**

SOLANO ID
ATTN: MARK VEIL
508 ELMIRA RD
VACAVILLE, CA 95687

Acct #
84502 40%
53902 60%

Invoice details are shown on the back

STATE WATER RESOURCES CONTROL BOARD
Annual Fee for Waste Discharge Requirements Required by SECTION 13260 of the California Water Code

Facility ID: **5A48NP00007** Billing Period: **07/01/03-06/30/04**

Invoice No **0304630** Amount Due: **$1,185** Due By: **Sunday, December 7 2003**

PLEASE REMIT YOUR PAYMENT ON OR BEFORE THE DUE DATE SHOWN ABOVE. LATE PAYMENT COULD RESULT IN PENALTIES UNDER PROVISIONS OF THE WATER CODE SECTION 13261. THESE ACTIONS COULD INCLUDE DAILY PENALTIES IN ADDITION TO YOUR FEE, OR OTHER ACTIONS DEEMED APPROPRIATE BY THE REGIONAL BOARD.

☞ **Make your check payable to SWRCB FEES**

If you have any questions about this invoice, please call your Regional Water Quality Control Board at (916) 255-1834

✂ **Retain this portion for your records**
Please detach and return this portion with your payment

☐ CHECK HERE FOR ADDRESS CORRECTION ON THE BACK

Invoice No: 0304630
☞ PLEASE PRINT THIS NUMBER ON CHECK OR MONEY ORDER

SOLANO ID
ATTN: MARK VEIL
508 ELMIRA RD
VACAVILLE, CA 95687
(707) 448-6847

SWRCB ACCOUNTING OFFICE
ATTN: AFRS
P. O. Box 1888
SACRAMENTO, CA 95812-1888

AMOUNT DUE: $1,185
BILLING PERIOD: 07/01/03-06/30/04
DUE BY: 12/07/03
FACILITY ID (WDID): 5A48NP00007
FACILITY NAME: SOLANO ID-AQUATIC PESTICIDES

SOLANO COUNTY, CA

State Water Resources Control Board

Division of Administrative Services
1001 I Street • Sacramento, California 95814 • (916) 341-5247 • FAX (916) 341-5248
Mailing Address: P.O. Box 1888 • Sacramento, California 95812-1888
Internet Address: http://www.swrcb.ca.gov

Winston H. Hickox
Secretary for Environmental Protection

Gray Davis
Governor

To Holders of Waste Discharge Requirements:

FISCAL YEAR (FY) 2003-04 INVOICE FOR WASTE DISCHARGE REQUIREMENT FEES

The California Regional Water Quality Control Board (RWQCB) for your area has notified us that it has issued a waste discharge requirement (WDR) order to you or your company. As the holder of a WDR order, State law requires that you pay an annual fee to the State Water Resources Control (SWRCB) for each WDR order, whether or not you have been, or will be, discharging wastes.

Fee Amount: The state budget act for FY 2003/04 requires the State Water Resources Control Board (SWRCB) to **increase fees** to offset a reduction in support from the State's General Fund. The SWRCB recently adopted regulations changing the way Waste Discharge fees are calculated. The **new fee schedules adopted by the Board on September 30, 2003 are retroactive to July 1, 2003**. Details regarding the new fee schedules can be found on the SWRCB Internet site at www.swrcb.ca.gov. All invoices for annual fees, beginning July 1, 2003, will be billed at the new rate. Enclosed is the brochure entitled "Some Frequently Asked Questions About WDR Fees" that briefly explains the fee regulations.

When, Where, and How to Make Your Payment: Please detach the bottom portion (along the dotted line) of the enclosed invoice, and send it with your fee payment in the enclosed envelope. Please write your invoice number on the front of your check or money order.

The **due date is shown on the invoice**. All outstanding fees will be considered **delinquent thirty (30) days after the date of the invoice**. Failure to pay the required fee is a misdemeanor and will result in the RWQCB seeking collection of the fee through the enforcement provisions of the California Water Code.

If You Have Questions: Your local RWQCB has all of the records pertaining to your WDR order. Questions should be addressed to the appropriate RWQCB, either in writing or by telephone. The telephone number is listed on the right side of the invoice, above the dotted line. A map showing RWQCB jurisdictions, mailing addresses, and telephone numbers is shown on the reverse side of this letter.

Thank you for your prompt payment of the FY 2003-04 WDR fee.

Sincerely,

Bill Brown

Bill Brown, Chief
Division of Administrative Services

Attachments

State Water Resources Control Board

Winston H. Hickox
Secretary for Environmental Protection

Division of Water Quality
1001 I Street • Sacramento, California 95814 • (916) 341-5455
Mailing Address: P.O. Box 100 • Sacramento, California • 95812-0100
FAX (916) 341-5463 • Internet Address: http://www.swrcb.ca.gov

Gray Davis
Governor

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our website at http://www.swrcb.ca.gov.

October 19,2001

2 of 5

Mark Veil
Pest Control Specialist
Solano Irrigation District
508 Elmira Road
Vacaville, CA 95687

2

Dear Aquatic Pesticide Applicator:

NOTIFICATION OF RECEIPT OF NOTICE OF INTENT (NOI) TO COMPLY WITH THE TERMS OF THE STATEWIDE GENERAL PERMIT NO. CAG990003

This letter acknowledges receipt by the State Water Resources Control Board (SWRCB) of the NOI and the $400 annual filing fee that you submitted for coverage under the Aquatic Pesticides General Permit. Regulation under the General Permit of discharges described in the NOI became effective upon the submittal of the NOI and annual fee. SWRCB staff has conducted a preliminary review of the NOI to assure that vicinity maps and other information has been provided and that the applicable signatory requirement has been met.

The NOI has been forwarded to the Regional Board(s) indicated in the NOI, Section III.B. Information on the Regional Board contacts is attached.

The Regional Board will further review the NOI and has authority to accept the NOI, request additional information, issue a Notice of Exclusion to terminate authorization to discharge under the General Permit, or request that you submit an application for an individual NPDES Permit. We have enclosed a copy of the permit package, which includes the fact sheet, General Permit No. CAG990003, the Monitoring and Reporting Program, and Standard Provisions. The monitoring program includes the requirements to submit monthly Pesticide Use Reports and to prepare and submit a monitoring plan by March 1, 2002. If you have any questions please phone the Regional Board representative for your region that is listed in the attachment.

Sincerely,

Larry F. Nash
Water Resources Control Engineer

Enclosure: copy of permit package
cc: Regional Board 2

California
Environmental
Protection Agency

State Water Resources Control Board

ATTACHMENT A

Gray Davis
Governor

02app0002

DRAFT

RECEIVED
AUG 09 2001
SWRCB
FORM A

NOTICE OF INTENT

TO COMPLY WITH THE TERMS OF THE STATEWIDE GENERAL NATIONAL POLLUTANT DICHARGE ELIMINATION SYSTEM (NPDES) PERMIT FOR DISCHARGES OF AQUATIC PESTICIDES TO SURFACE WATERS OF THE UNITED STATES (GENERAL PERMIT)

I. NOTICE OF INTENT STATUS (see instructions)

MARK ONLY ONE ITEM 1. ☒ New Applicator 2. ☐ Change of information for WDID#

II. PESTICIDE APPLICATOR INFORMATION

Name/Agency: Solano Irrigation District
Contact Person: Mark Veil
Mailing Address: 508 Elmira Rd
Title: Pest Control Specialist
City: Vacaville
State: Ca
Zip: 95687
Phone: 707 448-6847

III. RECEIVING WATER INFORMATION

A. Do wastes and pesticide residues discharge to (check all that apply):

1. ☒ Canals, Ditches, or other constructed conveyance facilities owned and controlled by Applicator?
2. ☒ Other conveyance systems? - Enter owner's name: U.S. Bureau of Reclamation (for Putah South Canal and Terminus Reservoir)
3. ☐ Directly to waters of U.S. (e.g., river, lake, creek, stream, bay, ocean, etc.)?

B. Regional Water Quality Control Board(s) where application sites are located (REGION 1,2,3,4,5,6,7,8, or 9): (List all regions where pesticide application is proposed.) REGION 2

C. Name of receiving water: (river, lake, creek, stream, bay, ocean): A Reclamation District #2034 Drain, Dan Wilson Creek, Laural Creek, Ledgewood Creek, and Green Valley Creek (only if waters were released from our canals, which for most of these creeks is only rarely done in an emergency).

IV. PESTICIDE APPLICATION INFORMATION

A. Target Organism: X Algae (X) Aquatic Weeds (surface) X Aquatic Weeds (submerged) ___ Mosquitoes and other Vectors
___ OTHER (Identify): ___

B. Pesticides Used: List Name and Active ingredients - (See chart)

C. Period of Application: Start Date Yearly as needed End Date ___

For Copper Sulfate normally April or May through October.
Glyphosate and the adjuvants with it may not be used by us for aquatic applications in this region, or we may only use them for 1 or 2 weeks in early Spring.

FOR OFFICE USE ONLY Date Received ___ Date Sent To Regions AUG 17 2001

V. VICINITY MAP AND FEE

Have you included vicinity map(s) with this submittal? Separate vicinity maps must be submitted for each Region where a proposed discharge will occur. ☒ YES ☐ NO

Have you included payment of the annual fee with this submittal? ☒ YES ☐ NO

VI. MONITORING AND REPORTING REQUIREMENTS

This permit includes a requirement to develop and implement an Individual Pesticide Monitoring Plan or participate in a Regional Pesticide Monitoring Program. Check the applicable Box or Boxes

I will develop an individual Pesticide Monitoring Plan in accordance with the permit requirements ☒

I will participate in a Regional Pesticide Monitoring Program developed in accordance with the permit requirements. ☒

(We may attempt this if we can find interested parties which would work well in such a group.)

VII. CERTIFICATION

"I certify under penalty of law that this document and all attachments were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment. Additionally, I certify that the provisions of the permit, including developing and implementing a monitoring program, will be complied with."

Printed Name: Michael J. Messina

Signature:

Title: Director of Operations and Maintenance. Date: 8-7-01

VIII. FORM A SUBMITTAL INFORMATION

A. Send the completed and signed Form A along with the annual fee and vicinity map(s) to:

Larry Nash
Regulations Unit
Division of Water Quality
State Water Resources Control Board
P.O. Box 100
Sacramento, CA 95812-0100

FOR OFFICE USE ONLY Date Received________ Date Sent To Regions________

REVISED

IV.B. Pesticides used including surfactants:

NAME	ACTIVE INGREDIANT
Rodeo, Aqua Master, Glypro, or Eagre	Glyphosate
Copper Sulfate	Copper Sulfate Pentahydrate
R-11	Alkyl Aryl Polyethoxylates, compounded silicone, and linear alcohol
LI 700	Phosphatidylcholine, methylacetic acid and alkyl polyoxyethylene ether
Cutrine Ultra	Copper as elemental
Clearigate	Copper as elemental
Sonar	Fluridone
Nautique	Copper Carbonate

OLANO IRRIGATION DISTRICT — VACAVILLE, CALIFORNIA

No. 052501

DATE	INVOICE AND DESCRIPTION	INVOICE AMT.	DISCOUNT	NET DUE
7/23/01	Chk. Req. Notice Of Intent Filing	400.00	.00	400.00
	*** TOTALS ***	400.00	.00	400.00

LEASE DETACH TOP PORTION - KEEP FOR YOUR RECORDS VEND#: 024285

SOLANO IRRIGATION DISTRICT
508 ELMIRA ROAD
VACAVILLE, CALIFORNIA 95687-4999

90-515
1212

FIRST NORTHERN BANK
OF DIXON
195 NORTH FIRST STREET
DIXON, CA 95620

No. 052501

PAY ***400 DOLLARS AND 0 CENTS***

TO THE ORDER OF:

State Wtr. Resources Ctrl. Brd
Regulations Unit
P. O. Box 100
Sacramento, CA 95812-0100

CHECK NO.	DATE	AMOUNT
52501	07/25/01	**400.00**

⑈052501⑈ ⑆121105156⑆01 04500 3⑈