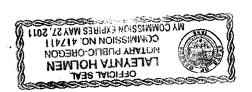
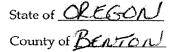
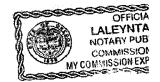
Elhihit B









On the 6th day of MARCH 20 09	_, personally appeared before me
JEREMIAH J. BISHOD	, whose identity I verified on
the basis of <u>VALID OR</u> DL	, and signed the attached
document freely and willingly.	

L N C MY COM

NOTARY PUBLIC

My commission expires: May 27 2011





AFFIDAVIT OF JEREMIAH J. BISHOP

STATE OF OREGON)
) ss.:
COUNTY OF BENTON)

Jeremiah J. Bishop, being duly sworn, deposes and says:

- My name is Jeremiah J. Bishop and I am employed with CH2M HILL's Applied Sciences Laboratories (ASL) as an SP03 – Associate Scientist. In this capacity I am the Group Leader and Lead GC/MS Semivolatile chemist. I hold a Bachelors of Science in Chemistry from Oregon State University and a Master of Science in Forensic Science (Chemistry) from The George Washington University. I have been in my current position since 2004 and have worked for CH2M HILL's ASL for over eight years.
- 2. In 2007, ASL was asked to perform pesticide testing of the effluent samples from the Sand Island and Honouliuli Waste Water Treatment Plants (WWTPs). Initially, testing was conducted as a split between CCH's laboratories and ASL laboratories. CCH laboratories were performing the analysis by method EPA 608, a gas chromatography electron capture detector (GC/ECD) method, and ASL was performing the analyses by methods SW8081, a GC/ECD method, and by an internally developed version of SW8270, using gas chromatography/mass spectrometry (GC/MS) selected ion monitoring (SIM) and large volume injection (LVI). The list of compounds requested for analysis at that time included dieldrin, and chlordane. This list was later expanded to include DDT. The use of GC/MS-SIM LVI was chosen for the analyses of these compounds due to the similar sensitivity to method E608 while providing increased selectivity from the use of the mass selective detector. The use of GC/MS-SIM LVI allowed for similar reporting limits as those typical from GC/ECD methods while still allowing for the ability to discriminate based on mass and retention time for the target compounds rather than just on retention time alone. The justification and method validation for the use of GC/MS-SIM LVI for the analysis of pesticides in the specific matrix involved is discussed in the memorandum "Organochlorine Pesticide Analysis by Large Volume Injection Gas Chromatography with Mass Spectrometric Detection Operating in Selected Ion Monitoring Mode" dated August 7, 2007.
- 3. At the time of these analyses ASL was certified by the State of Oregon, through NELAC, to perform GC/MS-SIM LVI analysis of pesticides by method SW8270C-SIM. For this reason all results were reported using this method. Method SW8270C is very similar to method E625. Both methods provide for the analysis of a wide range of semivolatile organic compounds that can be partitioned from client samples, in this case water, into an organic solvent and analyzed using GC/MS techniques. Included in the acceptable target compound lists for both of these methods are dieldrin, chlordane, and DDT. Method E625, as written, differs from method SW8270C in the following ways:
 - Method E625 prescribes the extraction of waters samples through sequential liquid-liquid extraction.
 - Method E625 prescribes the separation of the acid and the base/neutral fractions for analysis separately.



- Method F625 prescribes the use of a packed capillary column for the analysis of target compounds.
- 4. Method E625 may be changed to allow for the analysis and concentration of the acid and base/neutral fractions together using a capillary column, the second and third of these differences, under the flexibility to modify methods provisions included within the method and as prescribed under 40 CFR 136.
- 5. Method SW8270C allows for the extraction of method analytes using one of many possible methods dependent on the matrix of the sample. In the case of the samples submitted by the WWTPs, the samples were prepared using sequential liquid-liquid separatory funnel extraction since the samples were a water matrix. The extraction procedure set forth in Method E625 is also a sequential liquid-liquid extraction procedure since Method E625 is only applicable to the preparation and analysis of water samples. The extraction procedure as described in method E625 calls for the extraction at both acidic and basic pHs due to the wide range of compounds included in the potential target compound list. Since the target compounds for these WWTPs were neither acidic nor basic, a non-pH adjusted portion of the sample was extracted. This adjustment allowed the extraction to more closely resemble the method currently used by the CCH laboratories, Method E608. Additionally, this extraction and preparation procedure was validated by the acceptable performance of demonstrations of capabilities, batch quality control samples (these studies were documented in the memorandum "Organochlorine Pesticide Analysis by Large Volume Injection Gas Chromatography with Mass Spectrometric Detection Operating in Selected Ion Monitoring Mode" dated August 7, 2007), and performance evaluation studies.
- 6. In the response to the comments from the City and County of Honolulu, by EPA Region 9, the use of Method SW8270C for the analysis of pesticides is criticized due to the quoted statement from Method SW8270C that reads "In most cases, this method is not appropriate for the quantification of multicomponent analytes, e.g., Aroclors, Toxaphene, Chlordane, etc., because of limited sensitivity for those analytes. When these analytes have been identified by another technique, Method 8270 may be appropriate for confirmation of the identification of these analytes when concentration in the extract permits." However, this statement is not relevant to the analysis of dieldrin, since dieldrin (unlike all of the analytes cited) is not a multicomponent analyte. Method E625 which is considered an acceptable GC/MS method for the analysis of organochlorine pesticides also allows for the analysis of Aroclors, Toxaphene, and Chlordane and contains no such prohibition on the analysis of multicomponent analytes. Additionally, the statement in method SW8270 describes the inability to quantify these multicomponent analytes (Aroclors, Toxaphene, and Chlordane) due to a lack of sensitivity. These sensitivity concerns were removed through the use of SIM and LVI for the testing performed at ASL for these WWTPs.
- 7. In the response to the comments from the City and County of Honolulu, by EPA Region 9, it is also asserted that the modified Method 8270C used is not an appropriate alternative to Method E625, because the method employed for the analysis of the CCH samples included the use of SIM which is claimed to "provide a lesser degree of confidence." Method 8270C states "SIM may provide a lesser degree of confidence in the compound identification unless multiple ions are monitored for each compound." EPA,

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Method 8270C, Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS), § 7.5.5 (Revision 3, December 1996) (emphasis added). For the WWTP effluent testing that was conducted by ASL for CCH multiple ions were used to monitor all of the target compounds. For Dieldrin the three ions located at the following mass to charge ratio (m/z) were used for analysis: 79, 263, 81. Of these ions 79 and 263 are the prescribed ions for analysis in method E625.

OFFICIAL SEAL
EYNTA HOLMEN
ARY PUBLIC-OREGON
MISSION NO. 417411
SIGN EXPIRES MAY 27, 2011

Jeremiah J. Bishop

Sworn to before me this day of March, 2009

Notary Public