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BEFORE THE

CALIFORNIA WATER QUALITY CONTROL BOARD

FOR THE CENTRAL VALLEY REGION

In the Matter of:	DECLARATION OF
RECOLOGY, INC.	SARAH F. SCHOEMANN
Recology Yuba Sutter	
ACL Complaint No. R5-2015-0502	

I, Sarah (Sally) F. Schoemann, PE, declare as follows:

1. I am a senior consultant with Cardno Inc. I am a registered Professional Civil Engineer in California (CO47812, 1991) and have 28 years of experience in the field of environmental engineering, including soil, groundwater and surface water analyses. My curriculum is attached to this declaration.

2. I have personal knowledge of all facts stated herein and, if called as a witness, could and would testify competently under oath.

3. I prepared a technical report in this matter evaluating the potential for harm to beneficial uses and water quality in accordance with the factors outlined in the State Water Resources Control Board's 2010 Water Quality Enforcement Policy. My report is attached to this declaration.

4. My report evaluates the characteristics of the alleged non-discharge violations at the Feather River Organics composting facility at the Recology Yuba Sutter site, as presented in the Administrative Civil Liability Complaint No. R5-2015-0502 issued by staff of the Central Valley Regional Water Quality Control Board on January 20, 2015.

5. My report concludes that the potential for harm in this matter is "minor," which is defined under the Enforcement Policy as "The characteristics of the violation present a minor threat to beneficial uses, and/or the circumstances of the violation indicate a minor potential for harm." My report therefore finds that the contention in the ACL Complaint that the potential for harm is "moderate" is incorrect and unfounded.

6. The conclusion that the potential for harm is minor is based on an evaluation of the documented site conditions; prior technical studies, including a subsurface characterization of the compost pad at the Feather River Organics facility; historic groundwater quality data, which show that nitrate concentrations in groundwater have steadily decreased since composting operations began at the site; and an assessment of the potential fate and transport pathways for compost stormwater constituents to affect surface water and groundwater.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Dated: March 17, 2015

Sally Schoemann

Sarah (Sally) Schoemann

Evaluation of the Potential for Harm
Feather River Organics — Recology Yuba Sutter
Central Valley Regional Water Quality Control Board
Administrative Civil Liability Complaint R5-2015-0502

Prepared by: Sarah F. Schoemann, P.E., Senior Consultant, Cardno Inc.

Date: March 17, 2015

I. Introduction

This report is prepared on behalf of Recology Yuba Sutter (RYS) to evaluate the appropriate "potential for harm" associated with the alleged non-discharge violations at the Feather River Organics (FRO) composting facility, as presented in the Administrative Civil Liability Complaint No. R5-2015-0502 issued by staff of the Central Valley Regional Water Quality Control Board on January 20, 2015. The "potential for harm" is assessed by evaluating the potential for runoff or infiltration to cause impacts to beneficial uses of the waters of the United States or state of California. Based on historic and current groundwater data, an evaluation of site conditions, prior technical studies, and an evaluation of the overflow incidents that occurred on December 3 and December 11, 2014, this report concludes that a discharge from the site's compost runoff collection system onto the compost pad or into the Hog Farm area presents a minor threat to beneficial uses and therefore only a "minor" potential for harm under the State Water Resources Control Board's 2010 *Water Quality Enforcement Policy*, rather than a "moderate" potential for harm as alleged in the ACL Complaint.

II. Qualifications

This report is prepared by Sarah (Sally) Schoemann, a professional civil and environmental engineer, licensed to practice in the State of California since 1991. I am a senior consultant with Cardno Inc. and have 28 years of experience performing environmental investigations, hydrologic and hydrogeologic analysis and environmental remediation, including at numerous sanitary landfills and hazardous waste sites. I have served as engineer-of-record and water quality expert over my career to help resolve issues related to Regional Water Quality Control Board notices of violation and cleanup and abatement orders, including within the Central Valley region, and based on my education and experience I am qualified to prepare this report on behalf of Recology.

III. Distinction between Minor and Moderate Potential for Harm

The State Board's *Water Quality Enforcement Policy* distinguishes between a "minor" and "moderate" potential for harm using the following definitions:

> Minor – The characteristics of the violation present a minor threat to beneficial uses, and/or the circumstances of the violation indicate a minor potential for harm.

> Moderate – The characteristics of the violation present a substantial threat to beneficial uses, and/or the circumstances of the violation indicate a substantial potential for harm. Most incidents would be considered to present a moderate potential for harm.

IV. Summary of Prosecution Team's Analysis of Potential for Harm

The ACL Complaint and accompanying documentation acknowledge that although compost stormwater overflowed from the northern portion of the FRO composting area into the "Hog Farm" area of the RYS site on December 3 and December 11, 2014, there was no discharge to waters of the state or to waters of the United States. (Prosecution Team's Legal & Technical Analysis, ACLC R5-2015-0502, Feb. 27, 2015, at p. 10.) The ACL Complaint nevertheless contends that there is a "moderate" potential for harm that compost stormwater at the RYS site presents a substantial threat to beneficial uses. In particular, Attachment A to the ACL Complaint cites two concerns:

1. That the requirement to collect compost stormwater generated during rain events was included as part of the 2013 Cleanup & Abatement Order for the site in order to ensure that this water is separated from the underlying landfill closure cover of LF-1 to prevent the generation of landfill gas (LFG) affecting groundwater; and
2. That compost stormwater presents a "particular threat to beneficial uses."

In addition, the Draft Environmental Impact Report published by the State Water Resources Control Board in January 2015 for the draft General Waste Discharge Requirements for Composting Operations: identifies two primary water quality concerns in connection with composting operations: nitrate leaching

to groundwater, and excess nutrients and high oxygen demand materials entering surface waters through stormwater runoff.[1] The site-specific potential for harm posed at RYS is evaluated below.

VI. Overview of Analysis of Potential for Harm

Based on my professional assessment of the potential threat to beneficial uses posed at the site by the runoff of compost stormwater during rain events, and based on my evaluation of the overflow incidents that occurred at the site on December 3 and December 11, 2014, the potential for harm was minor: "The characteristics of the violation present a minor threat to beneficial uses, and/or the circumstances of the violation indicate a minor potential for harm." In my professional assessment, a finding of a moderate potential for harm is not appropriate because at no time during the alleged period of violation was there a substantial threat to beneficial uses, nor did the circumstances of the overflow incidents indicate any substantial potential for harm.

This professional opinion is based on a determination that there is low potential for compost stormwater that temporarily accumulates on the newly-improved compost pad surface at the FRO facility, or that runs off of this surface into the Hog Farm area of the RYS site, to reach waters of the United States or waters of the state, including surface water and groundwater resources. This potential was found to be low based on personal site visits over the last two years, professional assessment of documented site conditions including the Hog Farm, subsurface characterization of the compost pad, historic groundwater quality data, and evaluation of potential fate and transport pathways for compost stormwater constituents, as explained further below.

VII. Analysis of Potential Pathways to Waters of the State and Waters of the U.S.

As indicated above, on December 3 and 11, 2014, overflows occurred from the northern portion of the FRO composting area to the Hog Farm area of the RYS site. A site map for RYS shows surface water flow pathways from the northern FRO area on Figure 1. Evaluation of the site-specific conditions will yield a common understanding of the potential for harm issue presented in this matter.

A. No Direct Pathway To Surface Waters

As explained further below, site conditions are such that, except under extreme flood conditions, there is no direct pathway to surface waters from the northern end of FRO or the Hog Farm area. The Hog Farm is enclosed on all sides and the discharge culvert on the landfill levee is maintained in a closed position by

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[1] State Water Resources Control Board 2015. Draft Environmental Impact Report for draft *General Waste Discharge Requirements for Composting Operations*. January 6. Page 124.

a manually operated valve. More specifically, the Hog Farm is bounded to the northwest and southwest by flood control levees and on the northeast and southeast by closed landfill units, LF-2 and LF-3. The landfill levee is found at an elevation of approximately 86 feet mean sea level, an elevation greater than the 100 year flood waters of the Yuba River, which is reported by EMCON to be 85 feet mean sea level.[2] The landfill cells rise above this elevation. Thus, the Hog Farm is essentially a large stormwater retention area (approximately 28 acres) that will only discharge if the culvert is opened during extreme rainfall events, significantly larger than the rainfall from a 25-year, 24-hour storm. Accordingly, an overflow from the compost stormwater collection system into the Hog Farm has a very low potential to reach waters of the United States via surface flows.

B. Limited Potential for Infiltration into Groundwater in the Hog Farm Area

Relative to groundwater resources, infiltration of water from the Hog Farm area into groundwater (which is a water of the state) is limited by the presence of subsurface interbedded silty and sandy clays. Compared to a more sandy material, silts and clays transmit water more slowly, allowing evaporation and transpiration to reduce the volume of recharge. These lower permeability materials are found to begin at a depth of approximately 8 feet below ground surface in the Hog Farm at monitoring well MW-9, which is well situated on the west side of the Hog Farm to monitor potential impacts to groundwater from FRO compost operations. The boring log and well construction diagram for MW-9 are presented on Figure 2. MW-9 is screened from approximately 28 to 38 feet below ground surface in a sandy clay/clayey sand (SC/CL). The presence of lower permeability materials below the site is well documented by Golder Associates and others.[3] The lower permeability layers limit the potential impacts to groundwater resources by compost constituents, as documented further in the discussion of historic groundwater quality below.

C. Limited Potential for Infiltration into Groundwater through the Compost Pad

One Water Board concern is the generation of landfill gas or leachate due to infiltration of compost water into LF-1. Infiltration through the compost pad into LF-1 during the two cited December storm events or in the future, is unlikely since the compost pad was improved in the dry season of 2014 with crushed concrete and an aggregate base to make it less permeable, with improved collection and transfer system to

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[2] EMCON. 1989. Water Quality Solid Waste Assessment Test. Yuba-Sutter Disposal, Inc. Sanitary Landfill. Prepared for Yuba-Sutter Disposal, Inc. June.

[3] Golder 2012. Engineering Feasibility Study and Amended Report of Waste Discharge, South Area Landfill LF-1. Yuba Sutter Disposal, Inc. Landfill, Yuba County, California. June 29.

EMCON. 1988. Report of Waste Discharge. Yuba-Sutter Disposal, Inc. Sanitary Landfill, Marysville, CA. Prepared for Yuba-Sutter Disposal, Inc. September.

the on-site storage tanks, per the requirements in the August 2013 Cleanup and Abatement Order. The low permeability pad surface is a minimum of 6 inches thick and is also sloped (3%) to drain. Indeed, the runoff from the pad during the December 3 and 11 storms was observed at a greater rate than anticipated, which in part led to the overflows in the first place.[4]

Even prior to the improvements to the compost pad in 2014, during the winter of 2013, Golder performed engineering tests on the compost pad, including the area where the compost stormwater collection tanks are located. The testing results indicate that not only were compaction and moisture content specifications met in the area of concern (i.e. the north portion of the compost operation), but also that, after a prolonged period of precipitation, the moisture content in soils underlying the compost pad were similar to the moisture content in the LF-1 areas without a pad.[5] Based on all of these factors, my professional opinion is that there is minimal potential for generation of landfill gas or leachate due to infiltration to the LF-1 cover or the underlying landfill as a result of any temporary ponding on the pad surface that could result from an overflow of the storage tanks.

VIII. Evaluation of Long-Term Potential Impacts to Groundwater Resources from Composting Operations at Feather River Organics

The past and potential future impacts to groundwater by FRO may be evaluated through review of nitrate water quality data collected at monitoring well MW-9, located in the Hog Farm and below the drainage pathway from FRO (See Figure 1 for location; Figure 2 for boring log). These data indicate that composting operations at FRO have not had a negative impact on groundwater resources.

Historical nitrate data at MW-9 are shown on Figure 3 and presented in Table 1. Composting began at the FRO facility in approximately 1998 as shown in the aerial photo on Figure 4. Figure 3 shows the effects on nitrate levels in groundwater from FRO operations.[6] The chart reveals that nitrate concentrations in groundwater were not appreciably different before and after compost operations began, and that, in general, a consistent downward trend in nitrate concentrations is observed, with concentrations since 2008

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[4] Ken Haskell, Golder Associates. Personal Communication with S. Schoemann 5 March 2015. Technical Report for Water Code Order 13267 for the Feather River Organics Composting Operation, Recology Yuba Sutter Facility. 2014. Letter to P. Graham, Recology from K. Haskell, Golder Associates. 16 December.

[5] Golder Associates, 2013. Subsurface Characterization of the Compost Pad at the Recology Yuba-Sutter Facility, Marysville, California. Letter from Ken Haskell, PE Golder Associates to Mr. Bryan Clarkson, Recology. February 13.

[6] Note that samples were analyzed for Nitrate + Nitrite as Nitrogen. This discussion assumes that the samples are primarily composed of nitrate as would be expected in groundwater and surface waters because nitrite is easily oxidized to nitrate.

falling below 1 mg/l. Summarized below are the average groundwater concentrations in the MW-9 Hog Farm monitoring well before and after compost operations began, as well as over the most recent 5 year period.

Date Range	Nitrate Concentration (mg/l)
pre-1998 average	3.6
post-1998 average	2.0
last 5 years (2010-2014) average	0.54

Note that over the last five years, an examination of groundwater quality in the Hog Farm that would measure any potential impact from FRO compost runoff shows that nitrate is found at a concentration far below the EPA drinking water standard of 45 mg/l as NO_3, and also less than the EPA stormwater benchmark for Nitrate + Nitrite Nitrogen of 0.68 mg/l.[7]

These data support my conclusion that runoff from FRO into the Hog Farm over the last sixteen years of operation of the FRO compost facility has not significantly impacted groundwater resources. These data further show that over the last five years, nitrate in groundwater is found within the Hog Farm groundwater at low levels that are not a substantial threat to beneficial uses of the groundwater. The data serve to illustrate that the potential for harm resulting from compost stormwater in this matter is minor.

Further, while the State Board's *Enforcement Policy* indicates that "most incidents would be considered to present a moderate potential for harm," the circumstances at FRO are not like most incidents. First, there is no complete transport pathway to surface water (other than through groundwater). Second, nitrate concentrations in groundwater were higher before compost operations began, perhaps as a result of prior land use, and these concentrations have significantly declined after more than 16 years of runoff from FRO operations. Third, over the last five years, nitrate concentrations are found below drinking water standards and EPA stormwater benchmarks. In summary, the data and evidence indicate that the current threat to beneficial uses of groundwater and the potential for harm to water quality are minor.

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[7] California State Water Resources Control Board Industrial General Permit 2014-0057-DWQ (Effective July 1, 2015), Table 2.

IX. Evaluation of Short-Term Potential Impacts to Groundwater Resources from Overflow Incidents on December 3 and December 11, 2014

In addition to the analysis above, this report evaluates the specific potential for harm as a result of the overflow incidents on December 3 and December 11, 2014. This evaluation further confirms that the potential for harm is minor in this matter.

On December 3, the data measured by FRO staff and reported to the Regional Board indicate that there was an overflow into the Hog Farm area of around 17,000 to 25,000 gallons. On December 5, approximately 16,530 gallons of this water was pumped back into the compost stormwater collection system.[8] Thus, the maximum infiltration to the subsurface as a result of the December 3 overflow is approximately 8,000 to 9,000 gallons, although the actual figure is likely less.

For perspective, assuming the area of the Hog Farm is 28.3 acres, and given the recorded 24-hour rainfall total of 1.83 inches, 1.4 million gallons 4.3 acre-feet) of rainfall fell directly on the hydraulically isolated Hog Farm watershed. The maximum 8,000 to 9,000 gallons of infiltration as a result of the collection system overflow is estimated to be approximately 0.6 percent of the total water to enter the area during this rain event. This factor—combined with the low potential for infiltration to groundwater through the Hog Farm area and the fact that nitrate levels in Hog Farm groundwater have actually decreased since composting began at the site—suggest a very low potential for harm due to the December 3 overflow into the Hog Farm. Further, as discussed above, there is a low potential for infiltration into groundwater of temporarily ponded water over the newly improved compost pad surface, and thus low potential for landfill leachate or gas to be generated.

With respect to the overflow that occurred on December 11, 2014, this overflow was captured within a plastic lined temporary containment area in the Hog Farm. As a result, the overflow did not actually reach the ground surface of the Hog Farm and, accordingly, there was no potential impact to beneficial uses.

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[8] Technical Report for Water Code Order 13267 for the Feather River Organics Composting Operation, Recology Yuba Sutter Facility. 2014. Letter to P. Graham, Recology from K. Haskell, Golder Associates. 16 December.

X. Conclusion

Based on historic and current groundwater data, an evaluation of site conditions, prior technical studies, and an evaluation of the overflow incidents that occurred on December 3 and December 11, 2014, this report concludes that a discharge from the temporary compost runoff collection system onto the compost pad or into the Hog Farm area presents a minor threat to beneficial uses and therefore only a "minor" potential for harm under the State Water Resources Control Board's 2010 *Water Quality Enforcement Policy*, rather than a "moderate" potential for harm as alleged in the ACL Complaint.

Respectfully Submitted,

Sally Schoemann

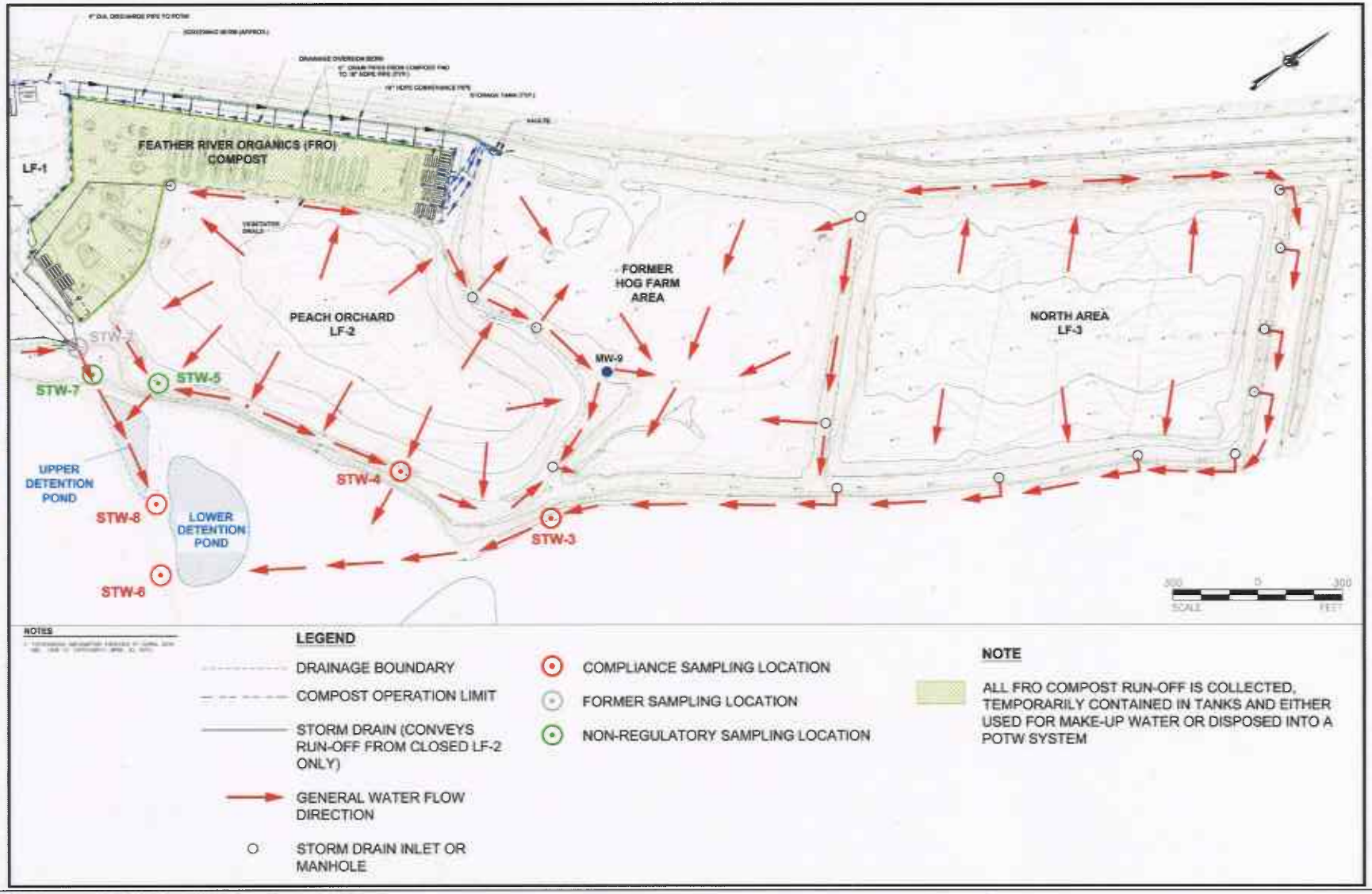
Sarah F. Schoemann, P.E.
March 17, 2015

Table 1. Historical Nitrate Data at MW-9, Recology Yuba Sutter, Marysville, CA.

Sample ID	Date	Nitrate+Nitrite as Nitrogen	Method Detection Limit
MW-9/32742	8/22/1989	2.1	0.1
MW-9/32822	11/10/1989	8	0.1
MW-9/32912	2/ 8/1990	3	0.1
MW-9/33009	5/16/1990	8.2	0.1
MW-9/33101	8/16/1990	3.9	0.1
MW-9/33198	11/21/1990	2.9	0.1
MW-9/33277	2/ 8/1991	0.1	0.1
MW-9/33368	5/10/1991	2.8	0.1
MW-9/33481	8/31/1991	2.8	0.1
MW-9/33547	11/ 5/1991	2.6	0.1
MW-9/33661	2/27/1992	2.9	0.1
MW-9/33752	5/28/1992	2.5	0.1
MW-9/33826	8/10/1992	4.1	0.1
MW-9/33918	11/10/1992	4.1	0.1
MW-9/34011	2/11/1993	6.5	0.1
MW-9/34099	5/10/1993	4.9	0.1
MW-9/34166	7/16/1993	5.4	0.1
MW-9/34277	11/ 4/1993	5	0.1
MW-9/34388	2/23/1994	2	0.1
MW-9/34464	5/10/1994	2	0.1
MW-9/34555	8/ 9/1994	4.3	0.1
MW-9/34646	11/ 8/1994	4.7	0.1
MW-9/34732	2/ 2/1995	4.5	0.1
MW-9/34793	4/ 4/1995	4.1	0.1
MW-9/34892	7/12/1995	4.2	0
MW-9/34990	10/18/1995	3.4	0.03
MW-9/35075	1/11/1996	3	0.03
MW-9/35165	4/10/1996	3.4	0.03
MW-9/35247	7/ 1/1996	2.9	0.03
MW-9/35355	10/17/1996	0.6	0.03
MW-9/35438	1/ 8/1997	3.2	0.03
MW-9/35541	4/21/1997	2.9	0.03
MW-9/35690-i	9/17/1997	3.46	0.1
MW-9/35747	11/13/1997	3.39	0.1
MW-9/35905	4/20/1998	3.43	0.1
MW-9/36083	10/15/1998	2.95	0.1
MW-9/36256	4/ 6/1999	5.55	0.05
MW-9/36446	10/13/1999	2.74	0.05

Table 1. Historical Nitrate Data at MW-9, Recology Yuba Sutter, Marysville, CA.

Sample ID	Date	Nitrate+Nitrite as Nitrogen	Method Detection Limit
MW-9/36629	4/13/2000	2.79	0.05
MW-9/36825	10/26/2000	3.57	0.05
MW-9/36986	4/ 5/2001	2.89	0.05
MW-9/37188	10/24/2001	3	0.05
MW-9/37391	5/15/2002	3.2	0.05
MW-9/37546	10/17/2002	2.3	0.05
MW-9/37720	4/ 9/2003	3	0.05
MW-9/37917	10/23/2003	2.2	0.05
MW-9/38131	5/24/2004	2.9	0.05
MW-9/38323	12/ 2/2004	2.6	0.05
MW-9/38477	5/ 5/2005	2.4	0.1
MW-9/38715	12/29/2005	3.4	1
MW-9/38880	6/12/2006	3.3	1
MW-9/39056	12/ 5/2006	2.6	2
MW-9/39255	6/22/2007	2.2	0.25
MW-9/39435	12/19/2007	2.2	0.05
MW-9/39610	6/11/2008	2	0.05
MW-9/39785	12/ 3/2008	1.3	0.05
MW-9/39981	6/17/2009	1	0.05
MW-9/40149	12/ 2/2009	0.7	0.01
MW-9/40353	6/24/2010	0.5	0.01
MW-9/40519	12/ 7/2010	0.44	0.01
MW-9/40704	6/10/2011	0.37	0.01
MW-9/40893	12/16/2011	0.42	0.01
MW-9/41072	6/12/2012	0.32	0.01
MW-9/41264	12/21/2012	0.58	0.017
MW-9/41443	6/18/2013	0.54	0.017
MW-9/41620	12/12/2013	0.58	0.017
MW-9/41813	6/23/2014	0.71	0.014
MW-9/41988	12/15/2014	0.96	0.014



Adapted from Gollier Associates, March 2015. Storm Water Pollution Prevention Plan, Figure 5.

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RECOLOGY YUBA SUTTER

Figure 1

Current Stormwater Site Plan

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Figure 2. MW-9 Boring Log

LOG OF EXPLORATORY BORING

PROJECT NUMBER 174-02.07 BORING NO. MW-9

PROJECT NAME YUBA SUTTER SANITARY LANDFILL PAGE 1 OF 2

BY SPEAKER DATE 1/18/89 SURFACE ELEV. 83.13 ft

RECOVERY (FT/FT)		PENETRATION (BLWS/6")	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
							SAND (SP), light yellowish brown (10YR,6/4); fine to medium grained; subround to subangular; loose; weak iron oxide staining on grains; damp.	
1.5/1.5		8 10 14		5			@3': trace fine to coarse, round quartz gravel; sand is loose to medium dense; damp.	
1.5/1.5		7 13 22		10			CLAY (CL), pale brown (10YR,6/3); vegetative debris; strong iron oxide staining; low plasticity; moist. SANDY SILT-SILTY SAND-INTERBEDDED (ML-SM), light yellowish brown (10YR,6/4); very fine grain sand; medium dense; strong iron oxide staining; vegetative debris; moist to wet.	
.95/.95		21 50/5.5"		15			SANDY SILT (ML), strong brown (7.5YR,4/6); 15% very fine sand; strong iron oxide staining; damp to moist.	
.95/.95		40 50/5.5"		20			SILTY SAND (SM), STRONG BROWN (7.5YR,5/6); 10-15% fines; fine to medium sand; dense to very dense; strong iron oxide staining; damp.	

EMCON ASSOCIATES

REMARKS

BORING DRILLED WITH 6.5-INCH DIAMETER HOLLOW-STEM AUGERS AND REAMED TO 10". SOIL SAMPLES FOR LOGGING WERE COLLECTED WITH A MODIFIED SPLIT-SPOON SAMPLER. CONVERTED TO 4.5-INCH DIAMETER GROUND-WATER MONITORING WELL.

LOG OF EXPLORATORY BORING

PROJECT NUMBER 174-02.07 BORING NO. MW-9

PROJECT NAME YUBA SUTTER SANITARY LANDFILL PAGE 2 OF 2

BY SPEAKER DATE 1/18/89 SURFACE ELEV. 83.13 ft

RECOVERY (FT/FT)		PENETRATION (BLWS/6")	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
							SILTY SAND (SM) continued.	
1.4/1.4		16 33 50/5"	1/19/89	25			SAND (SP), yellowish brown (10YR,5/6); 5% fines; fine to medium sand; weak iron oxide staining on some grains; wet. CLAYEY SAND (SC), yellowish brown (10YR,5/4); 15% slightly plastic clay; fine sand; wet. SANDY CLAY (CL), very pale brown (10YR,5/4); 10% fine sand; weak iron oxide staining; wet to damp.	
.95/.95		40 50/5.5"		30			CLAYEY SAND (SC), light yellowish brown (10YR,6/4); 15% low plasticity clay; fine to medium sand; dense to very dense; wet. SANDY CLAY (CL), light yellowish brown (10YR,6/4); 15% fine to medium sand; dense to hard; wet. CLAYEY SAND (SC), light yellowish brown (10YR,6/4); 15% low plasticity clay; fine to medium sand; dense to very dense; wet.	
.75/.75		40 50/3"		35			SAND (SP), yellowish brown (10YR,5/4); fine sand; dense; wet. SILTY CLAY (CL), light yellowish brown (10YR,6/4); 5% fine sand; hard; wet to moist.	
1.25 FT		23 35 50/3"		40			CLAY (CL), pale brown (10YR,6/3); stiff; wet. CLAYEY SILT (ML), pale brown (10YR,6/3); very dense; moist. BORING TERMINATED AT 39.5'.SEE WELL CONSTRUCTION DETAILS.	

REMARKS

EMCON ASSOCIATES

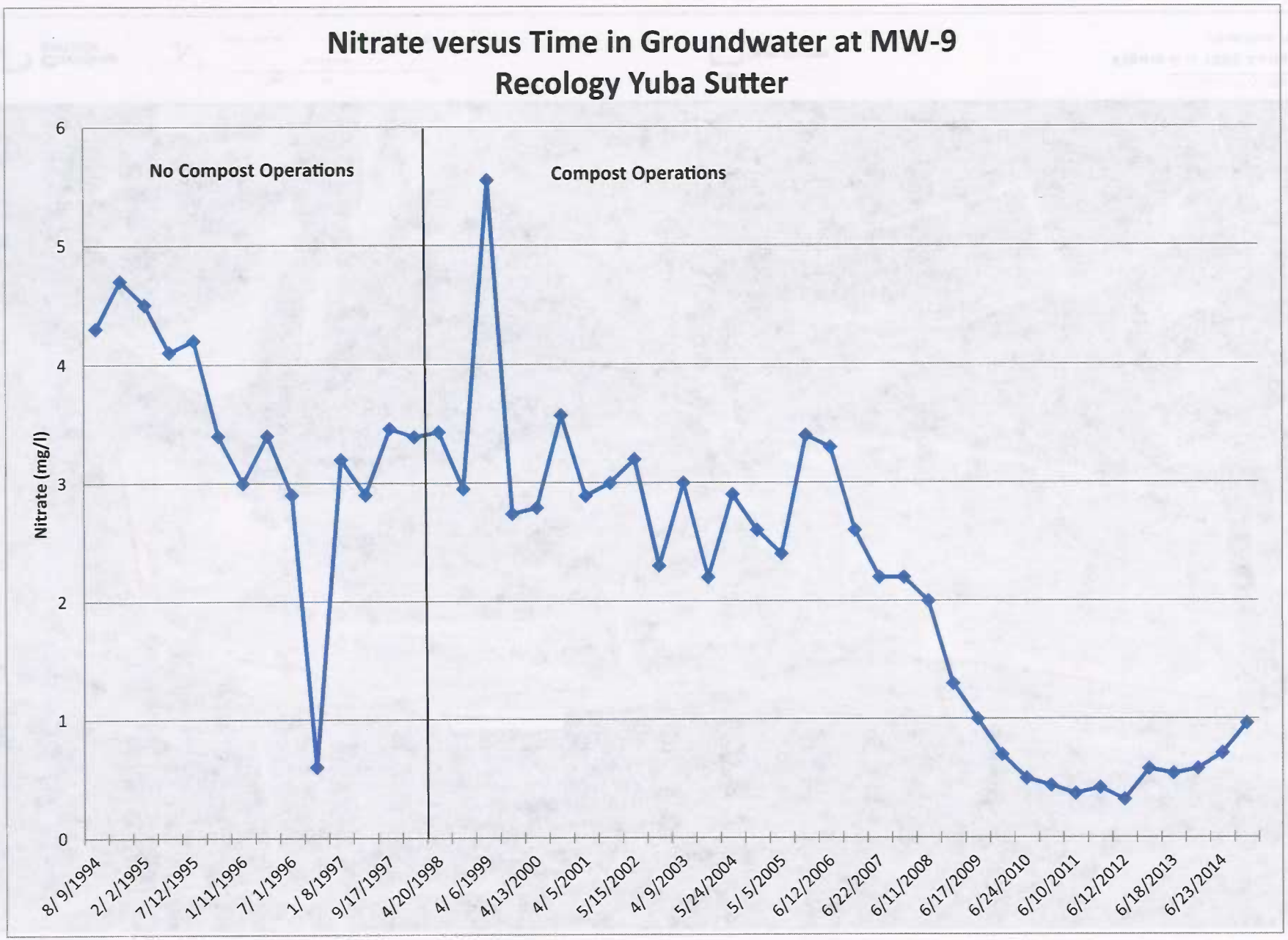

Figure 3. Nitrate versus Time in Groundwater at MW-9

Cardno ENTRIX

0 250 500 1,000
Scale in Feet

1 inch = 425 feet

Photo Date: 08-20-1998

Legend

Project Boundary

RECOLOGY YUBA SUTTER

Figure 4 -- 1998 Aerial Photo

Aerial Photo, August 1998