

Declaration of Mona Dougherty

**Prosecution Team Case-in-Chief
Confusion Hill Bypass Project**

1 REED SATO, Director (SBN 87685)
2 CHRISTIAN CARRIGAN, Senior Staff Counsel (SBN 197045)
3 JULIE E. MACEDO, Senior Staff Counsel (SBN 211375)
4 State Water Resources Control Board
5 1001 I Street, 16th Floor
6 Sacramento, California 95814
7 Telephone: 916-323-6847
8 Fax: 916-341-5896
9 E-mail: jmacedo@waterboards.ca.gov

10 Attorney for Regional Water Quality Control Board,
11 North Coast Region

12 BEFORE THE CALIFORNIA WATER QUALITY CONTROL BOARD
13 NORTH COAST REGION

14 In the Matter of:)
15 California Department of Transportation,) ACLC Order No. R1-2007-0095
16 Confusion Hill Bypass Project,)
17 WDDID No. 1B05153WNME) DECLARATION OF MONA DOUGHERTY
18)

19 I, Mona Dougherty, declare as follows:

- 20 1. I am employed at the North Coast Regional Water Quality Control Board (Regional
21 Board) as a Water Resources Control Engineer, and have been employed here for ten
22 years. I graduated Humboldt State University in 2000 with a Bachelor of Science in
23 Environmental Resources Engineering and am a licensed Professional Engineer (License
24 No. 71250). I work primarily in municipal storm water and enforcement and have the
25 primary responsibility for oversight of the Caltrans storm water permit and program for the
26 Regional Board.
- 27 2. I was told a few times by people familiar with the Confusion Hill project that the
28 Resident Engineer, Ron Den Heyer, had been replaced and that one of the reasons for
his replacement was to ensure better compliance with permits. He was replaced by
Sebastian Cohen.

1 3. On March 6, 2008, the Regional Board adopted an administrative civil liability of
2 \$20,000 (ACL) that I presented to them. The ACL was issued to Caltrans for a discharge
3 of turbid wastewater and drilling spoils to the South Fork Eel River due to activities
4 associated with the Confusion Hill project and failure to submit a written report on time.
5 Staff brought an enforcement action to the Regional Board for permit violations related to
6 one specific event during the Confusion Hill project, planning to address the additional
7 violations related to the project in a later enforcement action. Staff planned the \$20,000
8 ACL to serve as a deterrent for further violations related to the project. A true and correct
9 copy of this ACLC is attached hereto as Exhibit A.
10

11 4. The Confusion Hill Project was required to comply with two water quality permits,
12 the Caltrans Storm Water Permit (Order No. 99 - 06 - DWQ) issued statewide, and the
13 Clean Water Act (CWA) section 401 permit (401 permit), issued for the project. These
14 permits allow project activities to proceed under certain conditions to protect water quality.
15 The Confusion Hill Project was mandated to comply with the more stringent requirements
16 of the two permits, usually the 401 permit.
17

18 5. The Regional Board staff has issued 401 permits as stringent or more stringent
19 that the Confusion Hill 401 permit to other Caltrans' projects that have not resulted in
20 necessary dewatering enforcement actions. 401 permits for the Russian River bridge
21 replacement, and three large 101 widening projects in Sonoma County did not allow
22 construction dewatering discharges to a sedimentation basin. Caltrans and their
23 contractors were required to dispose of construction dewatering flows in an alternate
24 manner. The Mad River Bridge replacement project did allow for a sediment basin, but
25 discharges were conducted properly into a filter fabric lined basin and did not result in
26 turbid discharges to the river. True and correct copies of the Mad River Bridge
27 sedimentation basin BMPs are attached hereto as Exhibit B.
28

1 6. Caltrans refers to "isolated pool b" throughout the project documents. This isolated
2 pool is not a sedimentation basin, but in fact a part of the South Fork Eel River, with the
3 associated beneficial uses, that has been isolated from the live channel during the dry
4 season low flow period. At no time should sediment laden water, let alone concrete
5 wastewater, have been discharged to this pool. DFG staff informed me that this pool
6 provided habitat for threatened amphibians and that the habitat was damaged by the
7 unauthorized discharges.

8 7. The industry standard for turbidity monitoring is laboratory testing of a sample or
9 field monitoring equipment with equivalent accuracy. The standard unit of measurement
10 for turbidity is an NTU. This is supported by the Construction General Permit and indeed
11 by Caltrans' own Construction Site Storm Water Quality Sampling Guidance Manual. A
12 true and correct excerpted page from this manual is attached hereto as Exhibit C, as well
13 as Section 2130 of Standard Methods cited in the Guidance Manual. Only these
14 methodologies provide data that is reliable, accurate and precise enough to verify
15 compliance with the Basin Plan turbidity water quality objective. Any attempt to
16 manufacture another method or scale of measurement to assess turbidity does not have
17 a scientific foundation and appears to be an attempt to obfuscate data and prevent
18 Regional Board staff from verifying compliance with permit requirements.

19 8. The amount of money spent on BMPs may not be a good indicator of their
20 adequacy. For example, if BMPs that are not appropriate for the site or activity are
21 selected, or not appropriate for the pollutant that they are intended to control (filter fabric
22 for sediment control is not effective for containing hydrocarbons), or BMPs are improperly
23 installed or maintained, they will be ineffective while still being expensive. In other words,
24 money spent on BMPs does not necessarily equate to adequate water quality protection.

25 9. In many cases during the Confusion Hill project, activities were conducted not only
26 without adequate BMPs, but in fact without BMPs at all.

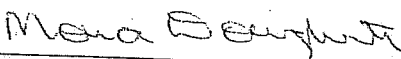
27 10. The Mad River Bridge replacement project used effective BMPs to control welding
28 slag discharge during welding, pier construction and demolition activities. True and

1 correct copies of the Mad River Bridge welding slag BMPs are attached hereto as Exhibit
2 D.

3 11. The Caltrans Storm Water Permit includes section H.2 under Construction
4 Program Management that requires all Caltrans construction sites to comply with the
5 State Board Construction General Permit. The Construction General Permit includes
6 section C.2 under Special Provisions for Construction Activity that requires dischargers to
7 develop and implement a storm water pollution prevention plan (SWPPP) and implement
8 controls to reduce pollutants in storm water discharges from their constructions sites.
9 Failure to implement BMPs in fueling operations and failure to provide containment on the
10 trestle above the river violated the Caltrans Storm Water Permit by failing to have these
11 controls in place.

12 12. I estimate that I spent approximately 180 hours since August 2010 in preparing for
13 the March 2011 administrative hearing. This time includes my deposition time, time spent
14 preparing for my deposition with counsel, reviewing documents after my deposition, and
15 assisting with drafting the Prosecution Team's Case in Chief.

16
17 Executed this 10th day of February, 2011, at Santa Rosa, California.

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20 

21 Mona Dougherty
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EXHIBIT

A

Declaration of Mona Dougherty

**Prosecution Team Case-in-Chief
Confusion Hill Bypass Project**

California Regional Water Quality Control Board
North Coast Region

Administrative Civil Liability Order No. R1-2008-0008

for

Violations of Clean Water Act, Section 401, Water Quality Certification
and Municipal Storm Water Permit

In the Matter of
California Department of Transportation
Confusion Hill Bypass Project
WDID No. 1B05153WNME

Mendocino County

The Executive Officer of the California Regional Water Quality Control Board, North Coast Region (hereinafter the Regional Water Board), hereby gives notice that:

1. On July 15, 1999, the State Water Resources Control Board (SWRCB) adopted a National Pollutant Discharge Elimination System (NPDES) Permit for Storm Water Discharges from the State of California, Department of Transportation Properties, Facilities and Activities, Order No. 99-06-DWQ (Storm Water Permit).
2. The Storm Water Permit covers all municipal storm water and construction activities that require permit coverage conducted by the California Department of Transportation (Caltrans) in California and, therefore, provides construction storm water permit coverage for the Confusion Hill Bypass project.
3. On February 16, 2006, the Regional Water Board Executive Officer issued a Clean Water Act, Section 401, Water Quality Certification (Water Quality Certification) to Caltrans for the Confusion Hill Bypass project.
4. The project is located on Highway 101 in Mendocino County, approximately 18.5 miles south of Garberville and eight miles north of Leggett. Highway 101 currently crosses an active landslide in the area known as Confusion Hill. The purpose of the project is to provide a reliable transportation route around the landslide area by relocating the highway from the east side of the South Fork Eel River to the west side. Relocating the highway requires construction of two new bridges and a new section of highway between the new bridges.
5. The project includes drilling and excavation activities that result in turbid wastewater and sediment that is transported from one side of the South Fork Eel River to the other for disposal through a two-inch diameter water pipe ("transport pipe").

6. On May 4, 2007, Caltrans' contractor dismantled the transport pipe and pulled it from one side of the river to the other. The pipe was not capped before dismantling and turbid wastewater was discharged below the ordinary high water mark of the South Fork Eel River (hereafter referred to as "the pipeline discharge").
7. The Regional Water Board received verbal notification of the pipeline discharge from Walt Dragolowski of Caltrans on May 4, 2007. Mr. Dragolowski reported that the pipe had not been flushed with clean water nor capped before being dismantled and pulled to the other side of the river. Mr. Dragolowski directed the contractor to clean the discharged wastewater from the rocks on the gravel bar by hand without mechanized equipment. In comments to the Administrative Civil Liability Complaint submitted on October 25, 2007, Caltrans reported that the clean up activities did not take place except in the area above the flood plain, which is presumably above the ordinary high water mark.
8. On May 14, 2007, the Regional Water Board received a fax from the Office of Emergency Services (OES) reporting the pipeline discharge. OES had received notification from Karen Maurer, a California Department of Fish and Game warden. Ms. Maurer reported that 170 gallons of gray slurry with sediment was discharged to the South Fork Eel River when the pipe was dismantled and dragged through the river.
9. On June 11, 2007, Regional Water Board staff (Staff) received the written notice of the pipeline discharge. The notice of discharge was written by Justin Porteous of MCM Construction, Inc. and submitted to the Regional Water Board by Caltrans personnel. Mr. Porteous estimated that 15 to 25 gallons of turbid wastewater and drilling spoils were discharged to the South Fork Eel River.
10. Staff received conflicting and confusing reports on the pipeline discharge. It is Caltrans' responsibility to provide information clearly and accurately, with events described in detail and impacts to water quality plainly identified. One of the primary conflicts in the reports is the location of the discharge. In comments submitted on October 25, 2007, Caltrans stated that turbid wastewater was discharged to the gravel bar and an isolated pool, rather than to the flowing water of the South Fork Eel River, as the river was in a low flow period.
11. The gravel bar and the isolated pool are below the ordinary high water mark of the South Fork Eel River and are therefore within waters of the United States, which are also waters of the State. Discharges to the gravel bar would likely be washed into the river after the next rainfall. Not only will the large isolated pool eventually commingle with the river during higher flow periods, but the isolated pool itself has beneficial uses on its own that must be protected from discharges of waste. The California Department of Fish and Game identified the isolated pool as containing fish and amphibians, including a sighting of a California red-

legged frog, an amphibian identified as threatened under the federal Endangered Species Act. The pipeline discharge, whether it occurred in the flowing water or on a gravel bar and isolated pool, was prohibited by the Water Quality Certification, as described in paragraph 12, below.

12. The following facts and applicable legal requirements are the basis for the alleged violations in this matter:
 - a. Caltrans' Water Quality Certification prohibits discharge of debris, soil, silt or other organic or earthen material to waters of the State, or discharge in which the wastes identified above may be washed by rainfall into waters of the State, unless specifically allowed by the Water Quality Certification. The conditions of the Water Quality Certification that were violated by the pipeline discharge include:
 - i. Additional Condition 7. Adequate best management practices for sediment and turbidity control shall be implemented and in place prior to, during, and after construction in order to ensure that no silt or sediment enters surface waters.
 - ii. Additional Condition 9. No debris, soil, silt, sand, bark, slash, sawdust, rubbish, cement or concrete washings, oil or petroleum products, or other organic or earthen material from any construction or associated activity of whatever nature, other than that authorized by this permit, shall be allowed to enter into or be placed where it may be washed by rainfall into waters of the State.
 - iii. Additional Condition 14. Project activities shall comply with provisions in the North Coast Region Water Quality Control Plan (Basin Plan).
 - b. The Water Quality Certification does not provide authorization for the May 4, 2007 pipeline discharge.
 - c. Conditions of the Storm Water Permit that were violated by the pipeline discharge include the following:
 - i. General Discharge Prohibition A.1. Any discharge from Caltrans rights-of-way or Caltrans properties, facilities, and activities within those rights-of-way that is not composed entirely of storm water to waters of the United States is prohibited unless authorized pursuant to Section B of the NPDES Permit.
 - ii. General Discharge Prohibition A.4. The dumping, deposition, or discharge of waste by Caltrans directly into waters of the State or adjacent to such waters in any manner that may allow its being

transported in the waters is prohibited unless authorized by the RWQCB¹.

- iii. General Discharge Prohibition A.6. The discharge of sand, silt, clay, or other earthen materials from any activity, including land grading and construction, in quantities which cause deleterious bottom deposits, turbidity, or discoloration in waters of the State or which unreasonably affect or threaten to affect beneficial uses of such waters, is prohibited.
- iv. Program Evaluation and Reporting Provision K. The Storm Water Management Plan (SWMP), prepared by Caltrans as required by the Storm Water Permit, and Provision K.3.a of the Storm Water Permit require that Caltrans notify the Regional Water Board verbally within five days and with written follow-up within thirty days after discovery of violations. The Storm Water Permit requires Caltrans to implement the reporting program specified in its SWMP.

In the SWMP section 9.4.1., Noncompliance Reporting Plan for Municipal and Construction Activities, Caltrans identifies violations that must be reported according to the schedule above, as those discharges that result in violations of narrative and numeric prohibitions and limitations of the Storm Water Permit, and discharges that violate requirements of Clean Water Act, 404 permits and 401 water quality certifications.

Caltrans notified Staff verbally of the discharge the same day as the discharge occurred, however, the required written notification was not submitted in a timely manner. As the discharge occurred on May 4, 2007, to comply with the Storm Water Permit, Caltrans needed to submit written notification of the violation by June 3, 2007. Caltrans submitted the written notification on June 11, 2007.

- d. Provisions of the Basin Plan that are applicable to the project are as follows:

Discharge Prohibitions:

The discharge of soil, silt, bark, slash, sawdust, or other organic and earthen material from any logging, construction, or associated activity of whatever nature into any stream or watercourse in the basin in quantities deleterious to fish, wildlife, or other beneficial uses is prohibited.

¹ RWQCB is an acronym used by the State Water Resources Control Board to refer to the Regional Water Quality Control Boards.

The placing or disposal of soil, silt, bark, slash, sawdust, or other organic and earthen material from any logging, construction, or associated activity of whatever nature at locations where such material could pass into any stream or watercourse in the basin in quantities which could be deleterious to fish, wildlife, or other beneficial uses is prohibited.

13. California Water Code section 13385, subdivision (a)(1), (2), and (4) provides the basis for civil liability. Subdivision (a)(1) provides for civil liability against any person who violates California Water Code section 13376, which requires a person discharging pollutants or dredged or fill material into navigable waters of the United States to file a report of waste discharge. Subdivision (a)(2) provides for civil liability against any person who violates any NPDES permit or water quality certification. Subdivision (a)(4) provides for imposition of civil liabilities against any person who violates any Basin Plan prohibition issued pursuant to California Water Code section 13243 for a Basin Plan or order for administrative enforcement issued pursuant to Article 1 of Chapter 5 of Division 7 of the California Water Code. As detailed above, Caltrans violated the discharge prohibitions and requirements of the Water Quality Certification, Storm Water Permit, and Basin Plan.
14. California Water Code section 13385, subdivision (c) provides that the maximum amount of civil liability that may be imposed by the Regional Water Board is the sum of 1) \$10,000 for each day in which the violation occurs, and 2) where there is discharge in excess of 1,000 gallons that is not susceptible to cleanup or is not cleaned up, an additional liability of \$10 per gallon may be assessed. Although the Regional Water Board received conflicting reports of the volume of wastewater that was discharged on May 4, 2007, both wastewater volumes reported were well under 1,000 gallons, and, therefore, no additional liability beyond the maximum of \$10,000 per day could be assessed.
15. The maximum civil liability that could be imposed against Caltrans in this matter is calculated as follows:

Violation	Number of Days (at \$10,000/day)	Maximum Civil Liability
wastewater discharge	1 (May 4, 2007)	\$10,000
failure to submit written report due June 3, 2007	4 (June 5 – June 8, 2007)	\$40,000
Total Potential Civil Liability		\$50,000

16. In determining the amount of any civil liability, pursuant to California Water Code section 13385, subdivision (e), the Regional Water Board is required to take into account the nature, circumstances, extent, and gravity of the violation; and, with respect to the violator, the ability to pay, any prior history of violations, the degree

of culpability, economic benefit or savings, if any, resulting from the violation, and other matters that justice may require. The Regional Water Board is also required to consider the requirement in this section that states that, at a minimum, liability shall be assessed at a level that recovers the economic benefits, if any, derived from the acts that constitute the violation.

- a. **Nature, circumstances, extent and gravity of the violation:** The wastewater discharge could have been easily avoided through more careful draining and cleaning of the pipeline and capping the pipeline before it was pulled across the South Fork Eel River.

The United States Environmental Protection Agency established a total maximum daily load (TMDL) for the South Fork Eel River in 1999 for sediment and temperature. The TMDL confirmed the adverse effects to the beneficial uses of the South Fork Eel River from sediment and that discharges of sediment have a deleterious effect to the river.

The South Fork Eel River is within the habitat range of coho salmon (*Oncorhynchus kisutch*), Chinook salmon (*Oncorhynchus tshawytscha*) and steelhead (*Oncorhynchus mykiss*), each listed under the federal Endangered Species Act or the California Endangered Species Act. Populations of salmonids in California have declined substantially in the last century. Elevated sediment loads are known to adversely affect salmonids. Sediment delivery to watercourses is known to have substantially increased in this watershed as a result of human activities. Beneficial uses related to aquatic life, including salmonids, are the most sensitive to sediment discharges.

The Storm Water Permit and Caltrans' own SWMP require submittal of a written report of violations of permit conditions and of water quality certification conditions within thirty days of identification of the noncompliance. Caltrans discovered the pipeline discharge on May 4, 2007, but failed to submit the written report until June 11, 2007. Although a verbal report of the pipeline discharge was given by Caltrans on the day of its occurrence, information provided in the verbal notification was brief and incomplete. Staff needed the written report to evaluate the significance of water quality impacts from the pipeline discharge and to initiate enforcement, if needed. Staff contacted Caltrans personnel twice by email and several times by telephone requesting submittal of the written report. Staff requests for the written report began on May 4, 2007, and continued approximately at weekly intervals until the report was submitted over a month later. The reporting schedule in the Storm Water Permit is generous, but even with that and multiple requests from Regional Water Board staff, Caltrans failed to submit the report on time.

As recognized by the SWRCB Water Quality Enforcement Policy (Enforcement Policy), accurate, honest reporting of violations is a cornerstone to the State's water quality program. The Enforcement Policy states that:

"The foundation of the State's regulatory program relies on dischargers to accurately and honestly report information required by the Boards. Knowingly falsifying or knowingly withholding such information that would indicate violations of requirements contained in board orders, plans and policies, erodes the State's regulatory program and places the health of the public and the environment at risk. The SWRCB views these violations as very important and strongly encourages the RWQCBs to respond to any instance of falsification or withholding of required information in accordance with this policy."

"The discharger is responsible for compliance with orders and reporting of required information, including violations, to the SWRCB or RWQCB. The discharger is also responsible for ensuring that any employees, agents, or contractors acting on its behalf report required information truthfully, accurately and on time."

"Enforcement of statutes pertaining to falsification or withholding of required information should be a high priority."

It is Caltrans' responsibility to provide information clearly and accurately, with events described in detail and impacts to water quality plainly identified. Not only was the report late, but it was difficult to determine the facts of the incident from the information provided by the report.

Caltrans has failed to report violations of Regional Water Board orders that occurred on other projects and these are discussed below. Staff has additionally discovered that Caltrans failed to report other violations that occurred at the Confusion Hill Bypass project previous to the violation addressed in this ACL Order and this is also discussed further in section d below. The Regional Water Board warned Caltrans in writing of the consequences of not complying with reporting requirements prior to the pipeline discharge, but has rarely taken more serious enforcement action on violations of reporting requirements.

- b. **Susceptibility to Cleanup or Abatement and Voluntary Cleanup Efforts Undertaken:** Caltrans personnel verbally reported to Staff that the contractor had been directed to clean any rocks on the gravel bar of sediment that could be cleaned by hand without mechanized equipment. In Caltrans comments submitted on October 25, 2007, however, it was reported that the only cleanup efforts occurred at a location above the flood plain, which is presumably outside of waters of the State.

- c. **Violator's ability to pay:** Staff understands that the Confusion Hill Bypass project will cost between \$70 million and \$77 million. The maximum potential civil liability is small in comparison to the cost of the project. Staff has no information to indicate that Caltrans would be unable to pay the administrative civil liability.
- d. **Prior history of violations:**

Confusion Hill Bypass Project Violations

On October 30, 2006, the Regional Water Board issued Caltrans the first notice of violation for the Confusion Hill Bypass project. The violations identified included turbid water discharges to the South Fork Eel River on August 29, and August 30, 2006, and a discharge of concrete wastewater to an unlined basin within waters of the State on September 29, 2006.

Additionally, the October 30, 2006, notice of violation described violations discovered by Staff on an inspection of the site on October 6, 2006, including a basin used routinely to settle turbid water within 100 feet of the active channel in violation of the Water Quality Certification. During the October 6, 2006 inspection, Staff was informed that the same unlined basin was routinely used to dispose of concrete wastewater, another violation of the Water Quality Certification. Also during the inspection, Staff witnessed welding and cutting activities occurring within waters of the State on the gravel bar and above waters of the State on the trestle bridge without the use of containment best management practices (BMPs). Steel cuttings, welding slag and other debris littered the gravel bar and were allowed to fall into the river from the trestle bridge. This violated Additional Condition nine of the Water Quality Certification. Finally, also in violation of the Water Quality Certification, Staff observed heavy equipment on the gravel bar leaking excessive fluid and without adequate BMPs to contain the unauthorized leakage.

On November 27, 2006, the Regional Water Board issued to Caltrans a combined notice of violation for violations of the Confusion Hill Bypass project Water Quality Certification and Storm Water Permit and California Water Code Section 13267 Order requiring submittal of a technical report. This second notice of violation included violations such as turbid discharges to the river, failure to report violations of the Water Quality Certification and Storm Water Permit, inadequate BMPs to control turbid discharges and the inappropriate uses of BMPs, for example using a silt fence within the flowing water of the river to control a turbid plume that appeared to be caused by heavy equipment pushing gravel and silt into the river.

The violations identified in the November 27, 2006, notice of violation came to Staff's attention through reports and photographs provided by the California Department of Fish and Game (CDFG). The violations had not been reported to the Regional Water Board by Caltrans.

The California Water Code Section 13267 Order required Caltrans to submit a technical report to the Regional Water Board regarding these violations and others. Staff had learned from CDFG staff of the existence of biological monitoring reports created for the project by a Caltrans contractor during the previous summer. Staff required their submittal within the California Water Code 13267 Order. The biological monitoring reports and other Caltrans documents submitted in response to the California Water Code 13267 Order identified many violations of the Water Quality Certification and Storm Water Permit that Caltrans had failed to report to the Regional Water Board. The types of violations that were not reported include sediment discharges, oil and other machinery fluid discharges, discharges of concrete wastewater and discharges of welding slag and cuttings to waters of the State.

Staff is currently evaluating these additional violations that are not included in this Order, and is drafting supplementary enforcement actions to address them.

Other Relevant Violations

On November 1, 2005, the Regional Water Board issued a Cleanup and Abatement Order to Caltrans for the Dry Creek Bridge replacement project. Caltrans violated the Water Quality Certification issued for the project by allowing equipment staging, material stockpiles and refuse disposal within waters of the State without a permit. Staff discovered the violations of the Water Quality Certification from a citizen complaint. Caltrans had not reported the violations.

On December 28, 2005, the Regional Water Board issued an Administrative Civil Liability Complaint to Caltrans for violations of the Van Duzen River Bridge replacement project Water Quality Certification. The violations included turbid discharges to the Van Duzen River, inadequate BMPs to protect water quality, leaks and spills of petroleum products within waters of the State, the unauthorized discharge of fill materials to waters of the State, failure to comply with the authorized work schedule required to protect wildlife and endangered species, and failure to report these violations as required by the Water Quality Certification. Caltrans paid an administrative civil liability of \$101,000.

On April 7, 2006, the Regional Water Board issued a California Water Code section 13267 Order to Caltrans to require the submittal of information related

to the disposal of landslide material into the South Fork Eel River at Confusion Hill. Caltrans failed to apply for a permit for these activities or to notify the Regional Water Board of the discharges until Staff discovered the sidecasting activities. The Regional Water Board received a complaint from a downstream water supply system that water quality monitoring revealed anomalous turbidity readings in the South Fork Eel River that may have been related to the sidecasting activities.

- e. **Degree of culpability:** Staff has worked closely with Caltrans on the Confusion Hill Bypass project, attempting to ensure compliance with the Water Quality Certification and the Storm Water Permit. Staff has spent considerable time providing assistance to Caltrans on the project by amending the Water Quality Certification at Caltrans' request, performing inspections, and providing guidance for compliance by email and telephone. Staff also issued two written notices of violation and a California Water Code Section 13267 Order to address previous violations associated with the project.

The violations included in this Order were easily avoidable through the use of adequate BMPs and timely reporting of the violation. Caltrans had been warned by the two previous notices of violation that many of the BMPs utilized at Confusion Hill were inadequate and had resulted in violations of the Water Quality Certification and Storm Water Permit.

Staff contacted Caltrans at least two times by email and three times by telephone to request submittal of the written notification of the May 4, 2007 pipeline discharge required by the Storm Water Permit. Even though the report was prepared by the contractor on May 7, 2007, it was not submitted until June 11, 2007.

- f. **Economic benefit:** Staff assumes that Caltrans or its contractor received economic benefit by failing to implement adequate BMPs, but that the economic benefit gained was small. Staff estimates the economic benefit gained by the violations to be \$300 for staff time and equipment to properly flush and cap the pipeline before dismantling.
- g. **Other matters that justice may require:** Staff has expended and continues to expend considerable time attempting to bring the Confusion Hill Bypass project into compliance with the Water Quality Certification and Storm Water Permit and address violations. Staff costs for this enforcement action are estimated to be \$7,437.

- 17. On July 17, 2007, the Regional Water Board Assistant Executive Officer issued an Administrative Civil Liability Complaint in response to the pipeline discharge.

On October 25, 2007, Caltrans requested a hearing on this Order. The hearing has been properly noticed.

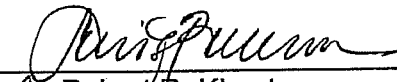
18. The adoption of this Order is an enforcement action to protect the environment and is, therefore, exempt from provisions of the California Environmental Quality Act (Public Resources Code sections 21000 et seq.) pursuant to title 14, California Code of Regulations, sections 15308 and 15321, subdivision (a)(2).

THEREFORE, IT IS HEREBY ORDERED, pursuant to California Water Code Section 13385, that:

1. Caltrans shall be assessed a total civil liability of \$20,000 in this matter, \$10,000 for the pipeline discharge and \$10,000 for failing to report on time. The civil liability shall be paid to the State Water Pollution Cleanup and Abatement Account within 30 days of the adoption of this Order.
2. Notwithstanding the adoption of this Order, the Regional Water Board shall retain the authority to assess supplementary penalties for additional violations of Caltrans' Water Quality Certification, Storm Water Permit, and the Basin Plan.

Certification

I, Robert R. Klamt, Interim Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, North Coast Region on March 6, 2008.



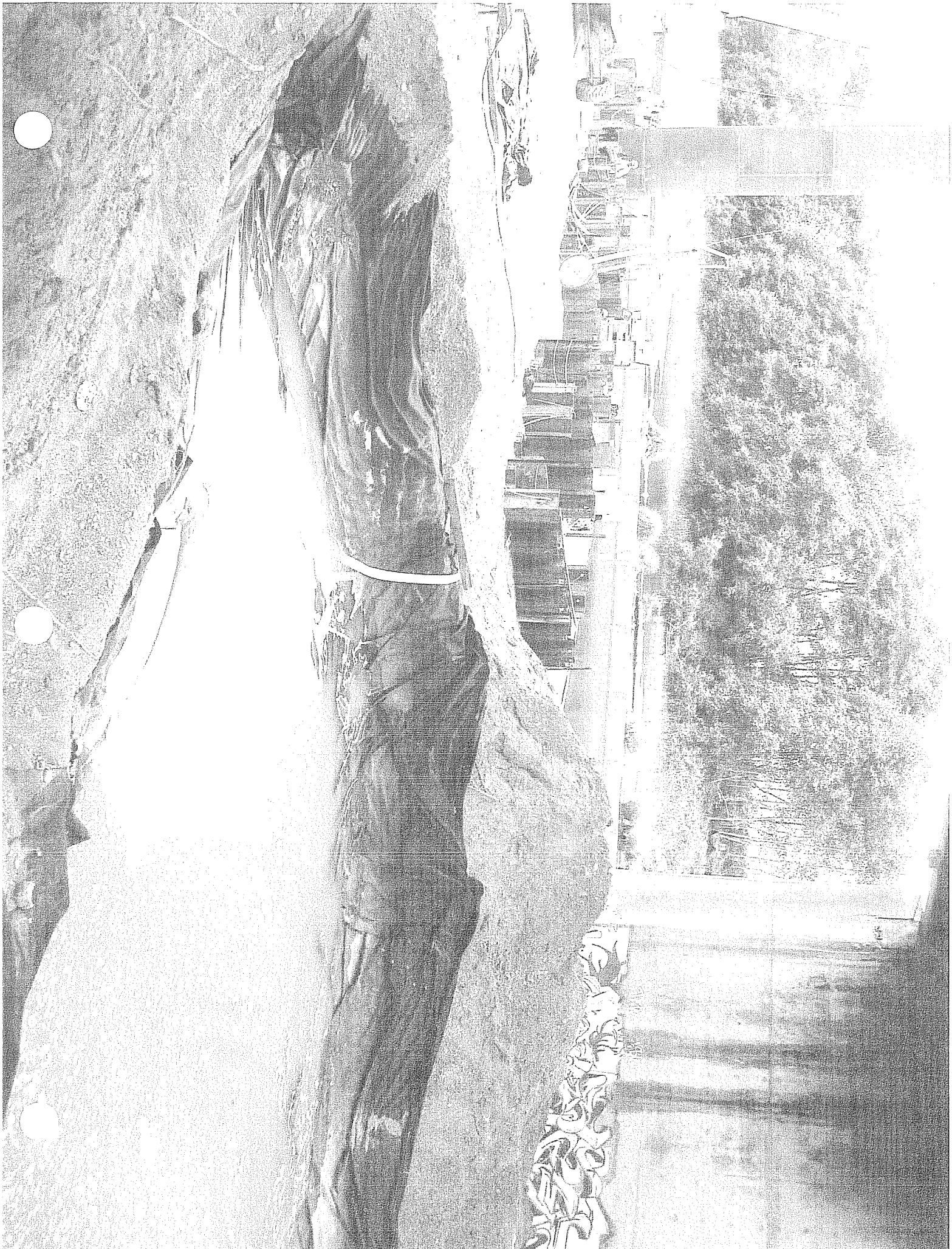
for Robert R. Klamt
Interim Executive Officer

EXHIBIT

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Declaration of Mona Dougherty

**Prosecution Team Case-in-Chief
Confusion Hill Bypass Project**





EXHIBIT

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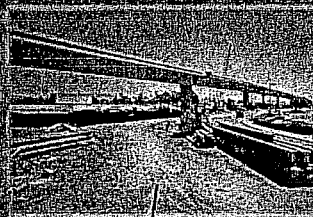
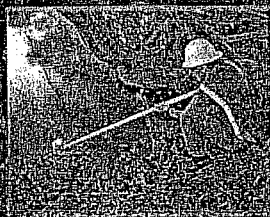
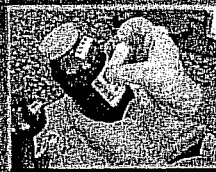
Declaration of Mona Dougherty

**Prosecution Team Case-in-Chief
Confusion Hill Bypass Project**



Construction Site
Storm Water Quality Sampling
Guidance Manual

December 2003



State of California
Department of Transportation

CTSW-RT-03-116.3 1.30

www.dot.gov/hq/construc/stormwater/SamplingGuidanceManual.pdf

Field Duplicates. Field duplicates are used to assess variability attributable to collection, handling, shipment, storage and/or laboratory handling and analysis. For grab samples, duplicate samples are collected by the sampling crew simultaneously filling two grab sample bottles at the same location. If intermediate containers are used, first pour an incremental amount into one sample bottle and then pour a similar amount into the second. Continue going back and forth until both bottles are full. Field duplicate samples should be submitted to the laboratory "blind" (i.e. not identified as a QC sample, but labeled with a different site identification than the regular sample). A field duplicate sample should be collected at one station once every 10 samples.

Laboratory Duplicates. Laboratory duplicates (also called laboratory splits) are used to assess the precision of the analytical method and laboratory handling. For the laboratory duplicate analysis the analytical laboratory will split one sample into two portions and analyze each one. When collecting samples to be analyzed for laboratory duplicates, typically double the normal sample volume is required. This requires filling a larger size sample bottle, or filling two normal size sample bottles, labeling one with the site name and the second with the site name plus "laboratory duplicate." Laboratory duplicate samples are collected, handled, and delivered to the analytical laboratory in the same manner as environmental samples. Enough extra sample volume for the laboratory to create a duplicate should be collected at a frequency of one for every 10 samples.

A QC sample schedule should be developed, included in the SAP, and followed closely by sampling personnel. The project QC sample schedule should meet the minimum QC sample frequency criteria over the term of the project.

2.3.5 Laboratory Sample Preparation and Analytical Methods

This section describes the steps to be taken by analytical laboratories to prepare for monitoring events, and the procedures laboratories will use for sample analyses. The following topics are discussed:

- Laboratory Selection and Contracting
- Pre-Sampling Preparations
- Sample Storage and Handling Prior to Analysis
- Reporting Limit Requirements
- Analytical Methods
- Laboratory Data Package Deliverables

Samples will be analyzed for one or more of the constituents presented in Table 2-1. Required analytical method, sample bottle type, target reporting limit, volume required for analysis, sample preservation, and maximum holding time are also presented in Table 2-1. The importance of these elements is incorporated into many of the following discussions.

Table 2-1
Sample Collection, Preservation and Analysis for Monitoring Sedimentation/Siltation and/or Turbidity

Constituent	Analytical Method	Sample Preservation	Minimum Sample Volume	Sample Bottle Type	Maximum Holding Time	Reporting Limit	Estimated Cost
(a) Suspended Sediment Concentration (SSC)	ASTM D3977-97 (A, B, or C)	Store at 4°C (39.2°F)	500 mL	Polyethylene plastic or glass	7 days	1 mg/L	\$15-30
(b) Settleable Solids (SS)	EPA 160.5 Std Method 2540(f)	Store at 4°C (39.2°F)	1000 mL	Polyethylene plastic or glass	48 hours	0.1 mL/L/hr	\$15
(c) Total Suspended Solids (TSS)	EPA 160.2 Std Method 2540(d)	Store at 4°C (39.2°F)	100 mL	Polyethylene plastic or glass	7 days	1 mg/L	\$15
(d) Turbidity	EPA 180.1 Std Method 2130(b)	Store at 4°C (39.2°F)	50 mL	Polyethylene plastic or glass	48 hours	0.1 NTU	\$10

Notes: Adapted from Table 600-1 of the SSWPPP/WPCP Preparation Manual (March 2003)

ASTM	— American Society for Testing and Materials	mg/L	— Milligrams per liter
°C	— Degrees Celsius	mL	— Milliliters
°F	— Degrees Fahrenheit	NTU	— Nephelometric Turbidity Unit
EPA	— U.S. Environmental Protection Agency	Std Method	— Per the <i>Standard Methods for the Examination of Water and Wastewater</i> , 20 th Edition, American Water Works Association
L	— Liter		
mL/L/hr	— Milliliters per liter per hour		

diante method. The method has been described by Allen et al.,² who include work sheets and worked examples.

5. References

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- Wyszecki, G. & W.S. Stiles. 1967. *Color Science*. John Wiley & Sons, New York, N.Y. (See Tables 6.4, A, B, C, pp. 462-467.)

2130 TURBIDITY*

2130 A. Introduction

1. Sources and Significance

Clarity of water is important in producing products destined for human consumption and in many manufacturing operations. Beverage producers, food processors, and potable water treatment plants drawing from a surface water source commonly rely on fluid-particle separation processes such as sedimentation and filtration to increase clarity and insure an acceptable product. The clarity of a natural body of water is an important determinant of its condition and productivity.

Turbidity in water is caused by suspended and colloidal matter such as clay, silt, finely divided organic and inorganic matter, and plankton and other microscopic organisms. Turbidity is an expression of the optical property that causes light to be scattered and absorbed rather than transmitted with no change in direction or flux level through the sample. Correlation of turbidity with the weight or particle number concentration of suspended matter is difficult because the size, shape, and refractive index of the particles affect the light-scattering properties of the suspension. When present in significant concentrations, particles consisting of light-absorbing materials such as activated carbon cause a negative interference. In low concentrations these particles tend to have a positive influence because they contribute to turbidity. The presence of dissolved, color-causing substances that absorb light may cause a negative interference. Some commercial instruments may have the capability of either correcting for a slight color interference or optically blanking out the color effect.

* Approved by Standard Methods Committee, 1994.

ment error than small differences in instrument design. Turbidimeters of nonstandard design, such as forward-scattering devices, may be more sensitive than nephelometers to the presence of larger particles. While it may not be appropriate to compare their output with that of instruments of standard design, they still may be useful for process monitoring.

An additional cause of discrepancies in turbidity analysis is the use of suspensions of different types of particulate matter for instrument calibration. Like water samples, prepared suspensions have different optical properties depending on the particle size distributions, shapes, and refractive indices. A standard reference suspension having reproducible light-scattering properties is specified for nephelometer calibration.

Its precision, sensitivity, and applicability over a wide turbidity

1. General Discussion

a. Principle: This method is based on a comparison of the intensity of light scattered by the sample under defined conditions with the intensity of light scattered by a standard reference suspension under the same conditions. The higher the intensity of scattered light, the higher the turbidity. Formazin polymer is used as the primary standard reference suspension. The turbidity of a specified concentration of formazin suspension is defined as 4000 NTU.

b. Interference: Turbidity can be determined for any water sample that is free of debris and rapidly settling coarse sediment. Dirty glassware and the presence of air bubbles give false results. "True color," i.e., water color due to dissolved substances that absorb light, causes measured turbidities to be low. This effect usually is not significant in treated water.

2. Apparatus

a. Laboratory or process nephelometer consisting of a light source for illuminating the sample and one or more photoelectric detectors with a readout device to indicate intensity of light scattered at 90° to the path of incident light. Use an instrument designed to minimize stray light reaching the detector in the absence of turbidity and to be free from significant drift after a short warmup period. The sensitivity of the instrument should permit detecting turbidity differences of 0.02 NTU or less in the lowest range in waters having a turbidity of less than 1 NTU. Several ranges may be necessary to obtain both adequate coverage and sufficient sensitivity for low turbidities. Differences in instrument design will cause differences in measured values for turbidity even though the same suspension is used for calibration. To minimize such differences, observe the following design criteria:

- 1) Light source—Tungsten-filament lamp operated at a color temperature between 2200 and 3000°K.
- 2) Distance traversed by incident light and scattered light within the sample tube—Total not to exceed 10 cm.
- 3) Angle of light acceptance by detector—Centered at 90° to the incident light path and not to exceed ±30° from 90°. The detector and filter system, if used, shall have a spectral peak response between 400 and 600 nm.

range make the nephelometric method preferable to visual methods. Report nephelometric measurement results as nephelometric turbidity units (NTU).

3. Storage of Sample

Determine turbidity as soon as possible after the sample is taken. Gently agitate all samples before examination to ensure a representative measurement. Sample preservation is not practical; begin analysis promptly. Refrigerate or cool to 4°C, to minimize microbiological decomposition of solids, if storage is required. For best results, measure turbidity immediately without altering the original sample conditions such as temperature or pH.

2130 B. Nephelometric Method

b. Sample cells: Use sample cells or tubes of clear, colorless glass or plastic. Keep cells scrupulously clean, both inside and out, and discard if scratched or etched. Never handle them where the instrument's light beam will strike them. Use tubes with sufficient extra length, or with a protective case, so that they may be handled properly. Fill cells with samples and standards that have been agitated thoroughly and allow sufficient time for bubbles to escape.

Clean sample cells by thorough washing with laboratory soap inside and out followed by multiple rinses with distilled or deionized water; let cells air-dry. Handle sample cells only by the top to avoid dirt and fingerprints within the light path.

Cells may be coated on the outside with a thin layer of silicone oil to mask minor imperfections and scratches that may contribute to stray light. Use silicone oil with the same refractive index as glass. Avoid excess oil because it may attract dirt and contaminate the sample compartment of the instrument. Using a soft, lint-free cloth, spread the oil uniformly and wipe off excess. The cell should appear to be nearly dry with little or no visible oil.

Because small differences between sample cells significantly impact measurement, use either matched pairs of cells or the same cell for both standardization and sample measurement.

3. Reagents

a. Dilution water: High-purity water will cause some light scattering, which is detected by nephelometers as turbidity. To obtain low-turbidity water for dilutions, nominal value 0.02 NTU, pass laboratory reagent-grade water through a filter with pore size sufficiently small to remove essentially all particles larger than 0.1 µm; the usual membrane filter used for bacteriological examinations is not satisfactory. Rinse collecting flask at least twice with filtered water and discard the next 200 mL.

Some commercial bottled demineralized waters have a low turbidity. These may be used when filtration is impractical or a good grade of water is not available to filter in the laboratory. Check turbidity of bottled water to make sure it is lower than the level that can be achieved in the laboratory.

* Nuclepore Corp., 705 Commerce Court, Pleasanton, Calif., or equivalent.

5. Interpretation of Results

Report turbidity readings as follows:

Turbidity Range NTU	Report to the Nearest NTU
0-1.0	0.05
1-10	0.1
10-40	1
40-100	5
100-400	10
400-1000	50
>1000	100

When comparing water treatment efficiencies, do not estimate turbidity more closely than specified above. Uncertainties and discrepancies in turbidity measurements make it unlikely that results can be duplicated to greater precision than specified.

6. Reference

1. U.S. ENVIRONMENTAL PROTECTION AGENCY. 1993. Methods for Determination of Inorganic Substances in Environmental Samples.

2150. ODOR*

2150 A. Introduction

1. Discussion

Odor, like taste, depends on contact of a stimulating substance with the appropriate human receptor cell. The stimuli are chemical in nature and the term "chemical senses" often is applied to odor and taste. Water is a neutral medium, always present on or at the receptors that perceive sensory response. In its pure form, water cannot produce odor or taste sensations. Man and other animals can avoid many potentially toxic foods and waters because of adverse sensory responses. These senses often provide the first warning of potential hazards in the environment.

Odor is recognized as a quality factor affecting acceptability of drinking water (and foods prepared with it), tainting of fish and other aquatic organisms, and esthetics of recreational waters. Most organic and some inorganic chemicals contribute taste or odor. These chemicals may originate from municipal and industrial waste discharges, from natural sources such as decomposition of vegetable matter, or from associated microbial activity, and from disinfectants or their products.

The potential for impairment of the sensory quality of water has increased as a result of expansion in the variety and quantity of waste materials, demand for water disposal of captured air pollutants, and increased reuse of available water supplies by a growing population. Domestic consumers and process industries such as food, beverage, and pharmaceutical manufacturers require water essentially free of tastes and odors.

* Approved by Standard Methods Committee, 1991.

ard shows that their turbidity value has changed. In some cases, the secondary standard should be simply relabeled with the new turbidity value. Always follow the manufacturer's directions.

4. Procedure

- a. *General measurement techniques:* Proper measurement techniques are important in minimizing the effects of instrument variables as well as stray light and air bubbles. Regardless of the instrument used, the measurement will be more accurate, precise, and repeatable, if close attention is paid to proper measurement techniques.

Measure turbidity immediately to prevent temperature changes and particle flocculation and sedimentation from changing sample characteristics. If flocculation is apparent, break up aggregates by agitation. Avoid dilution whenever possible. Particles suspended in the original sample may dissolve or otherwise change characteristics when the temperature changes or when the sample is diluted.

Remove air or other entrained gases in the sample before measurement. Preferably degas even if no bubbles are visible. Degas by applying a partial vacuum, adding a nonfoaming-type surfactant, using an ultrasonic bath, or applying heat. In some cases, two or more of these techniques may be combined for more effective bubble removal. For example, it may be necessary to combine addition of a surfactant with use of an ultrasonic bath for some severe conditions. Any of these techniques, if misapplied, can alter sample turbidity; use with care. If degassing cannot be applied, bubble formation will be minimized if the samples are maintained at the temperature and pressure of the water before sampling.

Do not remove air bubbles by letting sample stand for a period of time because during standing, turbidity-causing particulates may settle and sample temperature may change. Both of these conditions alter sample turbidity, resulting in a nonrepresentative measurement.

Condensation may occur on the outside surface of a sample cell when a cold sample is being measured in a warm, humid environment. This interferes with turbidity measurement. Remove all moisture from the outside of the sample cell before placing the cell in the instrument. If fogging recurs, let sample warm slightly by letting it stand at room temperature or by partially immersing it in a warm water bath for a short time. Make sure samples are again well mixed.

b. *Nephelometer calibration:* Follow the manufacturer's operating instructions. Run at least one standard in each instrument range to be used. Make certain the nephelometer gives stable readings in all sensitivity ranges used. Follow techniques outlined in §§ 2b and 4a for care and handling of sample cells, degassing, and dealing with condensation.

c. *Measurement of turbidity:* Gently agitate sample. Wait until air bubbles disappear and pour sample into cell. When possible, pour well-mixed sample into cell and immerse it in an ultrasonic bath for 1 to 2 s or apply vacuum degassing, causing complete bubble release. Read turbidity directly from instrument display. d. *Calibration of continuous turbidity monitors:* Calibrate continuous turbidity monitors for low turbidities by determining turbidity of the water flowing out of them, using a laboratory model nephelometer, or calibrate the instruments according to manufacturer's instructions with formazin primary standard or appropriate secondary standard.

b. Stock primary standard formazin suspension:

1) Solution 1: Dissolve 1.000 g hydrazine sulfate, (NH₂)₂H₂SO₄, in distilled water and dilute to 100 mL in a volumetric flask. CAUTION: Hydrazine sulfate is a carcinogen, avoid inhalation, ingestion, and skin contact. Formazin suspensions can contain residual hydrazine sulfate.

2) Solution 2: Dissolve 10.00 g hexamethylenetetramine, (CH₂)₆N₄, in distilled water and dilute to 100 mL in a volumetric flask.

3) In a flask, mix 5.0 mL Solution 1 and 5.0 mL Solution 2. Let stand for 24 h at 25±2 °C. This results in a 4000-NTU suspension. Transfer stock suspension to an amber glass or other UV-light-blocking bottle for storage. Make dilutions from this stock suspension. The stock suspension is stable for up to 1 year when properly stored.

c. *Dilute turbidity suspensions:* Dilute 4000 NTU primary standard suspension with high-quality distilled water. Prepare immediately before use and discard after use.

d. *Secondary standards:* Secondary standards are standards that the manufacturer (or an independent testing organization) has certified will give instrument calibration results equivalent (within certain limits) to the results obtained when the instrument is calibrated with the primary standard, i.e., user-prepared formazin. Various secondary standards are available including commercial stock suspensions of 4000 NTU formazin, commercial suspensions of microspheres of styrene-divinylbenzene copolymer, and items supplied by instrument manufacturers, such as sealed sample cells filled with latex suspension or with metal oxide particles in a polymer gel. The U.S. Environmental Protection Agency designates user-prepared formazin, commercial stock formazin suspensions, and commercial styrene-divinylbenzene suspensions as "primary standards," and reserves the term "secondary standard" for the sealed standards mentioned above.

Secondary standards made with suspensions of microspheres of styrene-divinylbenzene copolymer typically are as stable as concentrated formazin and are much more stable than diluted formazin. These suspensions can be instrument-specific; therefore, use only suspensions formulated for the type of instrument being used. Secondary standards provided by the instrument manufacturer (sometimes called "permanent" standards) may be necessary to standardize some instruments before each reading and in other instruments only as a calibration check to determine when calibration with the primary standard is necessary.

All secondary standards, even so-called "permanent" standards, change with time. Replace them when their age exceeds this shelf life. Deterioration can be detected by measuring the turbidity of the standard after calibrating the instrument with a fresh formazin or microsphere suspension. If there is any doubt about the integrity or turbidity value of any secondary standard, check instrument calibration first with another secondary standard and then, if necessary, with user-prepared formazin. Most secondary standards have been carefully prepared by their manufacturer and should, if properly used, give good agreement with formazin. Prepare formazin primary standard only as a last resort. Proper application of secondary standards is specific for each make and model of nephelometer. Not all secondary standards have to be discarded when comparison with a primary standard.

† AMCO-AEPA: Standard, Advanced Polymer Systems, 3606 Haven Ave., Redwood City, Calif., or equivalent.

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Some substances, such as certain inorganic salts, produce taste without odor and are evaluated by taste testing (Section 2160). Many other sensations ascribed to the sense of taste actually are odors, even though the sensation is not noticed until the material is taken into the mouth. Because some odorous materials are detectable when present in only a few nanograms per liter, it is usually impractical and often impossible to isolate and identify the odor-producing chemical. The ultimate odor-testing device is the human nose. Odor tests are performed to provide qualitative descriptions and approximate quantitative measurements of odor intensity. The method for intensity measurement presented here is the *threshold odor test*, based on a method of limits.² This procedure, while not universally preferred,³ has definite strengths.

Sensory tests are useful as a check on the quality of raw and finished water and for control of odor through the treatment process. They can assess the effectiveness of different treatments and provide a means of tracing the source of contamination.

Section 6040b provides an analytical procedure for quantifying several organic odor-producing compounds including geosmin and methylisoborneol.

2. References

1. U.S. ENVIRONMENTAL PROTECTION AGENCY. 1973. Proposed Criteria for Water Quality. Vol. 1, Washington, D.C.
2. AMERICAN SOCIETY FOR TESTING AND MATERIALS COMMITTEE E-18. 1968. STP 433. Basic principles of sensory evaluation; STP 434. Method on sensory testing methods; STP 440. Correlation of subjective

EXHIBIT

D

Declaration of Mona Dougherty

**Prosecution Team Case-in-Chief
Confusion Hill Bypass Project**

