



Protecting and Restoring the Santa Barbara Channel and Its Watersheds

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April 24, 2008

Rich Chandler
Central Coast Regional Water Quality Control Board
895 Aerovista Place, Suite 101
San Luis Obispo, CA 93401
Via Electronic Mail: rhandler@waterboards.ca.gov

Re: Corrective Action Plan for Venoco (formerly Chevron) Oil and Gas Processing Facility at 5675 Carpinteria Avenue, Carpinteria, CA

Dear Mr. Chandler:

Please accept the following comments on the Corrective Action Plan proposed by Venoco, Inc. and Chevron Environmental Management Company for the Venoco (formerly Chevron) Oil and Gas Processing Facility at 5675 Carpinteria Avenue in Carpinteria, California, which are hereby submitted by Santa Barbara Channelkeeper. Santa Barbara Channelkeeper is a local non-profit organization dedicated to protecting and restoring the Santa Barbara Channel and its watersheds. Channelkeeper has several members who live in close proximity to the Carpinteria Oil and Gas Facility (COGF) at 5675 Carpinteria Avenue in Carpinteria and thus have a vested interest in the timely and thorough clean-up of contaminated soils on the property.

Channelkeeper has conducted an in-depth review of the public records documenting the protracted negotiation between the Central Coast Regional Water Quality Control Board (RWQCB) and Venoco, Inc. and Chevron Environmental Management Company, the responsible parties (RPs), to arrive at a clean-up plan for some of the contaminated soils at the COGF. Channelkeeper and the local community are frustrated by the length of time it has taken to finalize this clean-up plan, and by the numerous compromises and concessions made by the RWQCB in this negotiation as revealed in the public record. We find the proposed Technical Work Plan (TWP) to be deficient in numerous respects which we outline below, and trust that the RWQCB will correct these deficiencies in a timely fashion so that the site is cleaned up in short order to levels that are truly protective of the environment and public and aquatic health.

Geology/Hydrogeology

The TWP asserts on page 4 that water quality has not been impacted by the occurrence of DDX-impacted soils at the project site because chlorinated pesticides have not been detected in any surface water samples collected from the site. Since the TWP fails to specify how many samples have been collected, how often and under what circumstances (i.e. the amount of rainfall at the times of sampling, etc.), we take issue with this assertion. In fact, the RWQCB's

Cleanup or Abatement Order (CAO) concerning DDX discharge to surface water¹ found that water quality has indeed been impacted; the TWP would not be necessary if there were no such impact.

Project Site Remediation Plan

On page 5, the TWP asserts that fate and transport modeling completed by Geomega has demonstrated that “applicable water quality standards for DDX in stormwater runoff” will be achieved following the proposed soil removal activities and drainage controls, and therefore the straw bale berms and silt fences can and will be removed. This is problematic because first, the TWP fails to specify precisely which “applicable” water quality standards will purportedly be achieved. Second, Channelkeeper contends that the straw bale berms and silt fences should not be removed but should remain and be maintained; they provide an added level of protection to ensure that the contaminated soils that would remain after the proposed remediation will not erode to other onsite areas or migrate offsite. The RPs’ desire to remove them because they provide a visual reminder to the community of the remaining contamination at the site is a wholly inappropriate reason to permit the removal of measures already in place that will continue to provide for additional erosion and sediment control, at minimal cost to the RPs. Moreover, Channelkeeper recommends that an additional inner perimeter of hay bales and silt fencing be erected following clean-up around the remaining soils with the highest levels of DDX to prevent any further migration.

Channelkeeper notes that chemical analyses were completed for only 35 of the 72 soil samples collected from the Former Nursery Area (FNA) in May 2007; many of the samples collected from lower depths were not evaluated by the lab at the RPs’ request because the shallower samples from those same areas revealed lower DDX levels than the RPs’ proposed threshold of 394 µg/kg. It appears that the failure to analyze the other 37 samples was due to a supposition that chlorinated pesticide levels would be lower at increasing depths and if surface levels were sufficiently low, there was no need for analysis at lower depths. However, existing sampling results showed increases in concentrations at lower depths for some sample locations: 52107-3A / 3B and 52207-15B / 15C (see table below). This points to the need for analysis of the additional unanalyzed 37 soil samples, as they may reveal additional hot spots. If chemical analyses of these remaining samples reveal levels of DDX and other pesticides that exceed the appropriate remediation goals, soils in these additional areas must also be removed.

Sample ID	Depth	DDX	Dieldrin	Lindane	Chlordane
5207-3A	0-6	1,160	210	29	64
5207-3B	6-12	2,080	320	47	160
52207-15B	6-12	82.7	8.2	ND	ND
52207-15C	12-18	412	24	ND	ND

Neighboring residents have brought it to Channelkeeper's attention that soils in the FNA have recently been disturbed by the installation of irrigation pipes at depths in excess of four feet. A comparison of the contamination maps with the location of the recently installed irrigation pipes indicates the possibility that DDX-contaminated areas were disturbed and the soil spread over a greater area. We highly recommend that resampling be done on a closely spaced random basis in these areas since the distribution of disturbed soil is likely to be unknown.

¹ California Regional Water Quality Control Board Central Coast Region (CCRWQCB) Cleanup or Abatement Order No. R3-2004-0081 Concerning Chevron Environmental Management Company and Venoco Inc. at Carpinteria Oil and Gas Facility and Associated Lands Except the Former Carpinteria Burn Dump, 5675 Carpinteria Avenue, Carpinteria, California, Santa Barbara County, California Regarding DDT/DDE/DDD Discharge to Surface Water.

Proposed Remedial Actions

Removal of Detectable DDX from On-Site Waters of the State

The TWP should include removal of all detectable pesticides from on-site waters of the State, not just DDX.

Railroad Drainage Ditch Removal

The TWP indicates that “shallow” pesticide-contaminated soil in the Railroad Drainage Ditch will be removed, but fails to specify the depth of soil to be removed. This needs to be clearly articulated in the TWP.

Channelkeeper also recommends that additional sampling be done in areas immediately downstream of the Railroad Drainage Ditch that are heavily used by the public, including Tar Pits park and the outfall of Higgins Creek into the Pacific Ocean, to determine whether site discharges have impacted water and sediment quality in these areas. If analyses of these samples reveal additional contamination, removal of these additional contaminated soils must be added to the TWP.

Removal of Detectable DDX from Drainage Area 4

The TWP must include the removal of all detectable pesticides (not just DDX) in Drainage Area 4 and the Buffer Zone Area (BZA) within the North South Drainage Swale. In addition, the TWP lacks necessary specifics regarding the depth of soil to be removed in these areas; it currently states that soil removal and disposal activities will “likely” consist of the removal of the upper 6-12 inches of soil, which is inadequate. Also inadequate is the TWP’s assertion that if verification soil samples indicate detectable DDX concentrations, then requirements for additional excavation to depths of greater than 12 inches “will be *discussed* in the field with the RWQCB” (emphasis added). The TWP must include a commitment by the RPs to a concrete removal plan in the event that verification samples indicate detectable pesticides (again, not just DDX) rather than a non-committal reference to a discussion with the RWQCB. Given how long the RPs’ discussion with the RWQCB over the subject TWP has dragged on, we urge that actions be specified in the TWP in relation to any additional remediation that may be necessary due to the results of verification samples.

Removal of DDX and Other Pesticides from Project Site

This proposed remedial action is deficient in numerous respects. For one, the levels to which other (non-DDX) chlorinated pesticides will be removed from FNA and BZA must be specified, and in this instance, industrial Preliminary Remediation Goals (PRGs) are not the appropriate criteria. PRGs are intended to assist risk assessors in initial screening-level evaluations of environmental measures; they are guidelines, not legally enforceable standards nor *de facto* cleanup standards, and should not be used as such.² The CAO clearly states that industrial PRGs are not protective of water quality and have little relevance to water quality protective soil standards.³ Appropriate standards to use include those in the California Toxics Rule (CTR). The TWP’s use of 394 µg/kg as the remediation level for DDX in the FNA and BZA is highly questionable. The public record indicates that RWQCB staff repeatedly asserted that a target cleanup level of 394 µg/kg would not be adequate to protect public and ecosystem health because it could result in exceedences of CTR standards by the dissolved fraction alone and it fails to address solubility and the additive toxicity of dissolved fractions of DDT, DDE and DDD. Calculations made by RWQCB staff found that the dissolved DDX fraction discharged to waters

² <http://www.epa.gov/region09/waste/sfund/prg/index.html>

³ Finding 19, CCRWQCB, CAO No. R3-2004-0081.

of the State from soils with more than 132 µg/kg would exceed CTR standards.⁴ Staff also noted that reducing the soil clean-up level from 394 to 132 µg/kg would not require excavation of much additional soil since there is not much soil onsite with DDX levels between these two concentrations. The record does not contain any evidence that contravenes these conclusions. Therefore, Channelkeeper urgently calls on the RWQCB to require the RPs to remediate soils in the FNA and BZA to the 132 µg/kg level.

Better yet, Channelkeeper suggests that a human health risk assessment and an ecological risk assessment be completed to fully evaluate potential future risk to construction and industrial workers at the site (given the likelihood of future site development), and to fully evaluate the human health and ecological risks of DDX and other pesticides to the entire aquatic food web, including potential impacts on sediment invertebrates and the potential for biomagnification in the food web (which are currently not evaluated). Once risks are adequately determined, then appropriate cleanup levels can be developed from the risk assessments. PRGs for ecological receptors indicate that the Probable Effects Levels and Effects Range – Medium levels (ER-M) (for DDE) for impacts to sediment invertebrates are 0.052 mg/kg, 0.0078 mg/kg, and 0.027 mg/kg for DDT, DDD, and DDE, respectively,⁵ indicating that there could be ecological risks from soils that are transported offsite to the ocean. Failure to evaluate ecological risks and to adequately remediate the site could result in residual injury to natural resources, which could require initiation of a Natural Resource Damage Assessment by relevant agencies.

While we understand that conducting these risk assessments would create further delay in getting the site cleaned up, we believe it is incumbent upon the RWQCB to require a level of clean-up that is sufficiently protective of human health and the environment, not the inadequate, lower level of clean-up that is being offered by the RPs and that has been found by your own staff to be insufficiently protective. One alternative to avoid greater delay would be to use the PRGs for ecological receptors as the clean-up goals without doing the risk assessment.

With regard to the amount and depth of soil to be removed, the TWP as currently worded states that “removal and disposal activities *may* consist of the removal of the *top 1-2 feet* of soil at areas containing soils with *DDX* concentrations in excess of 394 µg/kg” (emphases added). This is inadequate because it fails to commit to a firm removal depth and to removal of detectable pesticides other than DDX. Moreover, as noted above, discussion in the field with the RWQCB about additional excavation is not a sufficient course of action or commitment to additional necessary remediation in the event that verification sampling reveals remaining contamination.

Also, to reiterate, Channelkeeper strongly recommends that, for added protection, the existing erosion control perimeter (hay bales and silt fences) surrounding all DDX-containing soils remain in place and be maintained, and that an additional internal erosion control perimeter be installed and maintained around the soils with the highest remaining DDX concentrations.

⁴ See also Findings 29 and 30 of CCRWQCB CAO, May 5, 2004, and CHEVRON-VENOCO CARPINTERIA DDX CONTAMINATED SOIL 9-6-06 Schwartzbart Response to Dave Craig 8-21-06, 11:30 Email (Craig Email).

⁵ R.A. Efroymsen, G.W. Suter II, B.E. Sample, and D.S. Jones. 1997. Preliminary Remediation Goals for Ecological Endpoints. Prepared for U.S. Department of Energy. Oak Ridge National Laboratory. ES/ER/TM-162/R2. August; D.D. MacDonald, MacDonald Environmental Services Ltd. 1994. Approach to the Assessment of Sediment Quality in Florida Coastal Waters. Vol. 2 - Application of the Sediment Quality Assessment Guidelines and Vol. 3 - Supporting Documentation: Biological Effects Database for Sediments. Florida Department of Environmental Protection, Office of Water Policy, Tallahassee, Florida. November; and E.R. Long, D.D. MacDonald, S.L. Smith, and F.D. Calder. 1995. Incidence of adverse biological effects within ranges of chemical concentrations in marine and estuarine sediments. Environmental Management 19(1): 81-97.

Residents from adjacent properties have experienced flooding from the BZA. As such, we recommend that sampling be conducted on the adjacent properties for contaminants identified in the BZA and that remedies be required to address any contamination and to remove the potential for any future flooding of adjacent properties.

Finally, excavated areas must be capped or covered with clean fill and landscaping to prevent dust and wind erosion in light of the windy conditions in this area and the close proximity to residential neighborhoods.

Sediment Filter and Gate Valve

The cursory description of the sediment filter and gate valve in Appendix B is inadequate. The TWP fails to provide necessary information about the sediment filter to be installed at the southwest corner, including design specifics and performance (i.e. type of system and intended applications, percent soil retention rate, ability to retain fine particles, the sediment carrying capacity of fiber rolls compared to the site's estimated erosion rate, flow rates, the role of "thru ports," etc.) and the frequency of maintenance recommended by the manufacturer. Moreover, the proposed inspection schedule is insufficient; the sediment filter should be inspected more than just once a year and after *significant* rain events ("significant" is undefined) *as necessary* (emphases added); inspections and necessary repairs should be conducted after storms of 0.25 inches (see justification below under Monitoring Plan section) and before all predicted rain events of this magnitude or greater.

In addition, the public record notes that the soil retention rate for the sediment filter is only 90% under perfect conditions, suggesting that at least 10% of potentially contaminated soil could pass through the filter. We ask the RWQCB to require a more substantial filtration treatment system (including pumps, valves, piping, filter structures and media, episodic flow storage, etc.), because the intended application of the type of filtration system proposed is to serve as a partial control for temporary needs such as construction sites and as a mechanism to reduce clean sedimentation, not to treat or remove toxic sediment, as is the case here. We are also concerned about the RPs' ability and commitment to maintain the sediment filter. When we visited the site to collect samples during rain events in January and April of 2007, the silt fence had collapsed and failed. We therefore recommend the addition of a reporting requirement pertaining to sediment filter maintenance.

Finally, more specificity is needed with regard to the closing of the gate valve to ensure that contaminated water is not discharged from the site for an extended period of time. The length of time between sample collection, receipt of sampling results and closure of the gate valve must be clearly articulated in the TWP and monitoring plan, with a commitment to close the gate valve immediately upon receipt of sampling results that show detectable levels of any pesticides. Finally, if and when the gate valve is closed, the TWP must include a commitment to *immediately* remove impounded water to ensure that contaminated water does not percolate to groundwater.

Monitoring Plan

Table 1 on page 15 that Geomega's modeling suggests it takes at least 3-4 inches of rain to generate enough runoff to produce a discharge from the site. This suggestion again calls Geomega's modeling into serious question, because on the two occasions (January 28, 2007 and April 20, 2007) that Santa Barbara Channelkeeper collected samples of a discharge from the southwest corner of the site, Santa Barbara County official daily rainfall records from the Carpinteria Fire Station indicate 2.25 inches of rain on January 28, 2007 with 0.08 inches on the

preceding day, and 0.31 inches of rain on April 20, 2007 with no rain on the preceding day,⁶ significantly less than Geomega's modeling assumption. The proposed monitoring plan contradicts the modeling as well, in that it assumes collection of surface water runoff during "substantial" rain events, which are defined as a minimum of 0.5 inches of rainfall. If the Geomega modeling is accurate, no discharge would occur with this level of rainfall and thus no samples could be collected.

The gross inaccuracy in Geomega's modeling of rainfall-runoff patterns at the site suggests that its assertions regarding the runoff and sediment transport potential at the site may also be seriously flawed (see above discussion of the questionability of the proposed 394 µg/kg clean-up level). In fact, RWQCB staff called into question Geomega's flow path and sediment transport modeling in several internal memos that Channelkeeper obtained through Public Records Act requests. These concerns were not addressed in the record, underscoring the need for the RWQCB to require substantial revision to the TWP's proposed clean-up levels to ensure adequate protection of public health and the environment.

Finally, the annual soil sample that is to be collected upstream of the sediment filter should be analyzed for all pesticides, not just DDX. A sample should also be collected immediately downstream of the sediment filter and analyzed to assess the efficacy of the filter. The annual report submitted to the RWQCB should include not only the findings of the surface water sampling, but also the sediment sampling.

Construction of Second Surface Water Discharge Conveyance

Channelkeeper fails to see the need for the construction of a second surface water conveyance and discharge point for Dump Road runoff, and we are concerned about the implications of creating a new and separate discharge point in light of the DDX issues and in the context of the entire COGF (i.e. discharges from Basin 861). Moreover, Dump Road is the private property of Venoco, not a public roadway, and its runoff to surface water should be regulated as a Venoco discharge. This new discharge should therefore be included in Venoco's existing site permit, along with the usual monitoring, maintenance and reporting requirements.

Sand Blast Area

Water samples collected by Channelkeeper at the Sand Blast Area on April 20, 2007 contained levels of chromium, copper, lead, nickel and zinc between 3.2 and 18.8 times the maximum Ocean Plan standards. The TWP states that metals will be cleaned up to either the industrial PRGs or naturally occurring background levels, and that soil removal and disposal activities will consist of the removal of the *approximate top 1-2 feet* of soil contained within the area of the temporary straw bales (emphases added). This is inappropriate. The industrial PRGs for metals are not designed to address risks to marine mammals and their environment. Soils should be cleaned up to naturally occurring background levels to minimize ecological risks associated with soils that are transported offsite to the ocean and to the seal haulout area immediately downstream of the Sand Blast Area. A commitment to additional excavation must also be included in the TWP in the event that verification samples reveal that the appropriate clean-up goal has not been met. Finally, since this area is in close proximity to the harbor seal sanctuary, precautions should be taken to ensure that noise from clean-up activities does not disturb the harbor seals.

⁶ Santa Barbara County Flood Control District Official Daily Rainfall Record, <http://www.countyofsb.org/pwd/water/downloads/hydro/208dailys.pdf>

Compliance Point Objectives

The TWP must note that the compliance standard is non-detection of pesticides or levels that are determined to cause no human health or ecological risk on- and off-site.

Interim Remediation and Deed Restriction

The TWP as currently proposed would leave soils containing DDX exposed to erosion and solution on certain portions of the site and would not fully prevent the onsite movement of these soils. Additionally, the sediment filtration system will likely provide only partial sediment removal, therefore leaving open the possibility that DDX-contaminated sediment could be discharged to waters of the State. Furthermore, according to the public record, the RPs failed to demonstrate economic infeasibility of remediation to a background condition, yet they propose on-site disposal/containment that relies on such a demonstration, in violation of State Water Resources Control Board Resolution No. 92-49. As such, this cannot be deemed a permanent solution.

Channelkeeper therefore strongly urges the RWQCB to deem the subject TWP an interim measure; to maintain enforcement authority over the site by not rescinding Cleanup and Abatement Order No. R3-2004-0081 and undertake a substantial enforcement action if the interim measure fails; and to require a permanent remediation based on human health and ecological risk assessments within five years or when the site is developed, whichever comes first. If the RWQCB does not opt to deem this an interim clean-up plan, then the RWQCB must alternatively:

- direct the RPs to include as part of the TWP the application of a property deed restriction to permanently protect water quality, public health and safety, and the environment;
- conduct an economic analysis of remediation options;
- permanently stabilize the site and contain DDX and other pesticides; and
- require other measures as appropriate.

Thank you for the opportunity to comment on Corrective Action Plan for contaminated soils at the COGF. Channelkeeper looks forward to working with the RWQCB to ensure that a clean-up action that is embraced by the community and is fully protective of human health and the environment can move forward in a timely manner. Please do not hesitate to contact me should you have any questions regarding the above comments.

Sincerely,



Kira Redmond
Executive Director