

Public Consultation Meeting

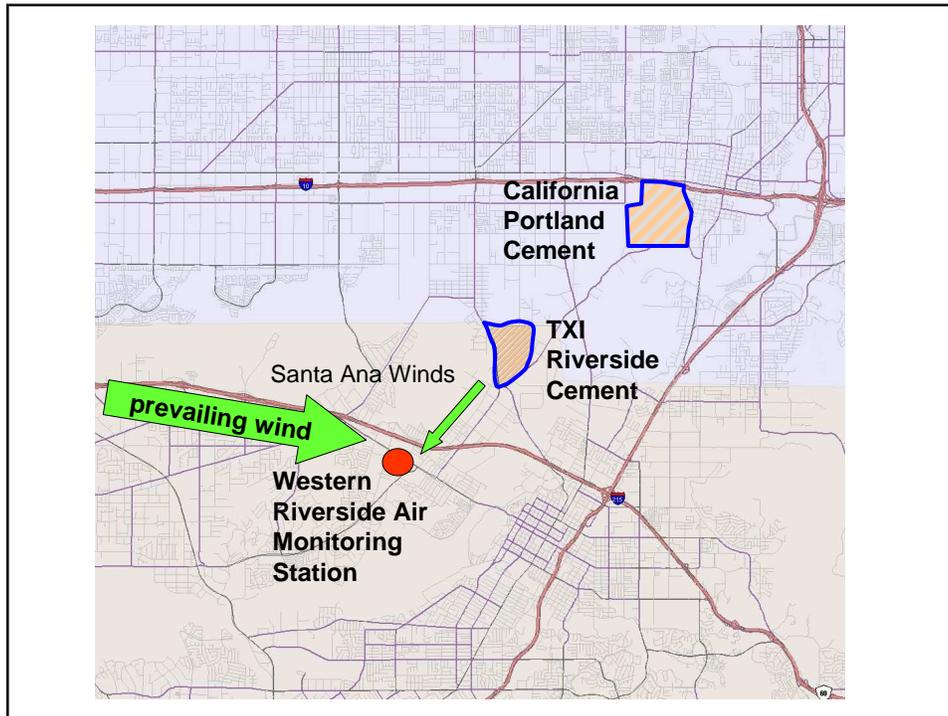
Proposed Amendments to Rule 1156 Further Reductions of Particulate Emissions from Cement Manufacturing Facilities

November 20, 2008



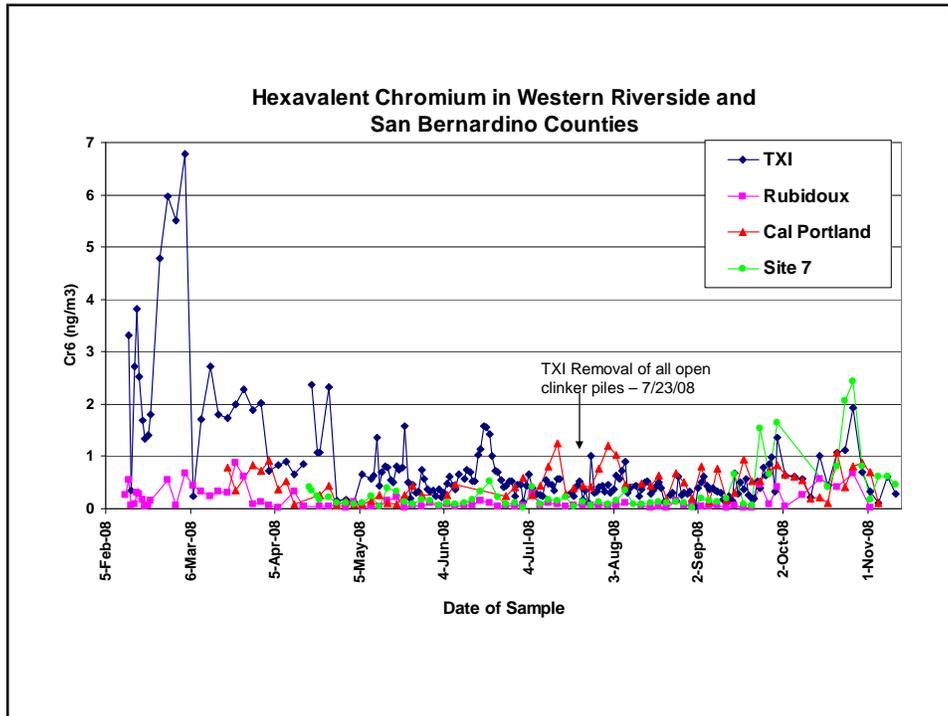
Background

- Rule 1156 adoption in November 2005
 - Achieved ~ 50% PM emission reduction (~2 tons/day)
- Elevated hexavalent chromium (Cr⁶⁺) levels seen at Rubidoux during MATES III monitoring
- Initial proposed amendments presented at public workshop – July 2, 2008



Reducing Cr⁶⁺ Levels

- Settlement agreement with TXI
 - No more clinker storage and handling in the open
 - Not allowed to have open clinker storage and handling in the future
- Recent activities at TXI
 - White cement kilns shut down
 - Finish mill shut down
 - Restart unknown
- On-going ambient monitoring in Rubidoux



Initial Proposed Amendments (July 2008)

- Require total enclosure of all clinker storage and handling
- Modify exemption for non-clinker materials
 - 90% of pile mass with material larger than ½ inch
- Clarifying changes
 - Opacity observations
 - Enclosed conveyors & transfer points vented to air pollution control device

Initial Proposed Amendments (July 2008)

- Emission reduction of 0.07 tpd PM10
- Capital cost: \$9.5M - \$24M
- Comments received citing intense financial hardship, including facility shutdown

Revised Staff Proposal

- Approximately 60% of emissions reduction at 15% to 30% of cost compared to initial proposal
- Still health protective

Current Proposed Amendments

- Clinker storage and handling within 1,000 ft from property line
 - Total enclosure
- Clinker storage and handling more than 1,000 ft from property line
 - 3-sided barrier covered with roof and wind fence for barn-type storage; and
 - Tarp and barrier/wind fence for other outside, active piles; and
 - Tarp only for inactive, outside piles

Proposed Amendments (cont.)

- Hourly wind monitoring
 - 24-hr halt on clinker handling if instantaneous wind speeds (gusts) exceed 25 mph
- PM10 ambient monitoring
 - Real-time and continuous monitoring

Proposed Amendments (cont.)

- Cr⁺⁶ ambient monitoring
 - 1-in-3-day sampling at fence line
 - 1-in-6-day sampling if no exceedance for 24 months
 - 30-day or 90-day rolling average, respectively, not to exceed 0.7 ng/m³ (~100-in-1-million cancer risk at nearest receptor)
 - If triggered, incremental, total enclosure over 4 years

Proposed Amendments (cont.)

- Key Compliance dates
 - 2 months from rule adoption for Compliance Monitoring Plan submittal
 - 6 months from rule adoption for other requirements
 - 12 months from violation to start enclosure
- Emissions Reduction
 - 0.04 tpd additional PM10 reduction
- Projected present value of control cost: \$2.6M - \$3.2M

Proposed Amendments (cont.)

- Unit costs:
 - Wind fence: \$15/ft²
 - Tarp: \$0.12/ft²
 - PM10 monitoring: \$23,000 each
 - Cr⁺⁶ monitoring: \$21,000 each
 - Wind monitoring: \$10,000 each
- Cr⁺⁶ analysis cost: \$60 - \$70/sample
- Cost-effectiveness
 - \$9,000 - \$11,000 per ton of PM10 reduced

Proposed Amendments (cont.)

- Retain exemption for non-clinker materials
- Remove changes on opacity limits
- Other clarifying changes

Schedule

- Public Consultation Meeting – Nov. 20, 2008
 - Dec 12, 2008 – Close of Comment
- Evening Town Hall Meeting
 - Dec. 3, 2008 – Rubidoux High School
- Rely on previously certified Final EA (Oct. 13, 2005)
- Socioeconomic available 30 days before Public Hearing
- Set Public Hearing – Jan. 9, 2009
- Public Hearing – Feb. 6, 2009

Potential Sources of Cr⁶⁺ for Cement

- Cr⁶⁺ can originate from:
 - Raw materials or fuel
 - Magnesia-chrome kiln refractory brick (not used locally)
 - Wear of metal from raw mill grinding
 - Gypsum, pozzolans, cement kiln dust, mineral components
- Kiln and finish mill operational conditions can influence Cr⁶⁺ formation
 - Favorable conditions for oxidation increase Cr⁶⁺
- At TXI, Cr⁶⁺ found in gray clinker brought into the Basin from Oro Grande
- At Cal Portland Cement (CPCC), Cr⁶⁺ comes primarily from limestone conversion in kiln

Treatment of Cr⁶⁺ in Cement European Standard-Finished Product

- Use of reducing agents
 - Ferrous sulfate
 - May affect cement quality
 - Give mixed results
- Dosing and mixing process can influence effectiveness
- CPCC advises that reducing agents are not feasible

Other Potential Toxic Elements in Cement Dust

- Other toxics and markers analyzed
- Lead, arsenic, cadmium, cobalt may be contained within the material
- However, hexavalent chromium is primary toxic of concern based on District lab analysis of raw materials and ambient/fall-out samples