

CENTRAL VALLEY REGIONAL WATER QUALITY CONTROL BOARD

INSPECTION REPORT

FACILITY: Del Mar Farms

LOCATION & COUNTY: Westley, Stanislaus County
JT Crow Road, east of Hwy 33

INSPECTION DATE: 06 July 2011

INSPECTED BY: Terry Bechtel and Wes Ouimette, CVRWQCB

ACCOMPANIED BY: Lt. Phil McKay, CA Dept. of Fish and Game

**ACL Complaint R5-2012-0515
Attachment E
06 July 2012 Inspection Report**

OBSERVATIONS AND COMMENTS:

Wes Ouimette and I responded to a complaint regarding sediment laden water flowing down a drain along JT Crow Road. We arrived at the location at approximately noon. We observed tailwater with significant sediment flowing from cropland into an underground drain on the north side of JT Crow Road east of Hwy 33 (see map). Because this drain line discharges into the San Joaquin River I contacted the CA Department of Fish and Game (DF&G). When DF&G Lt. Phil McKay arrived, we continued the inspection to determine the source and nature of the discharge.

There were several tomato fields on the north side of JT Crow Road, south of Orestimba Creek, and east of Hwy 33 in various stages of irrigation and drainage. A number of them were currently being furrow irrigated using siphon pipes. We observed that field drainage from multiple tomato fields was flowing into a drain on the north side of JT Crow Road, in the southeast corner of the field complex (see map). The drain went into an underground pipe.

We contacted a neighbor who said that the field drain goes via an underground pipe, crosses under JT Crow Road to the south. He said that it connects to the underground pipe, "Amaral Line" on the south side of JT Crow Road. He explained that the Amaral Line was put in many years ago, and delivers irrigation water from the Central California Irrigation District (CCID) Main Canal to the cropland in this area, but is not a CCID line. It also picks up field drainage from neighboring fields and often is redistributed down the system. It eventually drains into the San Joaquin River.

We then checked the perimeter of the tomato fields on the north side of JT Crow Road to locate the source of the supply water. There were multiple locations that could supply irrigation water to these fields, with the original source coming from the CCID Main Canal. At the time, the primary irrigation water source we identified was from a canal on the north side of the fields. The supply water nephelometric turbidity units (NTU) ranged from 64.2 NTU in the canal, to 111 NTU in the supply ditch on the north side of the cropland. The cropland field drainage water was 668 NTU at 13:00 hours and 584 NTUs at 14:25 hours.

Approved		
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At 13:00 hrs. the flow rate from the tomato fields into the drain was measured at 28 seconds to travel approximately 48 feet (16 paces) in a ditch approximately 3 foot wide on the top, and estimated 1.6 feet wide on the bottom of the ditch, by 1 ft deep. The estimated cross section is 2.35 ft². Reducing the dimensions of each cross section measurement to 70 percent to allow for potential field measurement variability, and adjusting the flow velocity by a 0.66 friction coefficient, the adjusted flow volume was 572.31 gallons per minute (34,339 gal/hr).

We found a nearby corn field that was currently being irrigated in a similar manner (row crop, furrow irrigated, and from the same irrigation supply source) to compare the turbidity of the tailwater (see the “Corn” samples in the table below. The NTUs from the corn field was checked in two locations with turbidity results of 84.6 and 141 NTUs compared to the tomato field of 668 and 584 NTUs.

Lab Data Summary Table

Location	Turbidity NTU	S µg/L	K µg/L	Total P mg/L	TDS mg/L	T. Suspended Solids mg/L	NO ₃ as N mg/L
1) Field Drainage – 13:00 hrs	668	15,400	8,230	0.27	216	1220	0.70
2) Box	739	15,100	10,200	0.17	191	1840	0.71
3) N. Side Supply	111	14,700	2,810	0.14	179	108	0.68
4) Supply near RR	107	14,000	2,750	0.15	182	239	0.61
5) Canal	64.2	13,500	3,050	0.13	185	135	0.82
6) Field Drain -14:25 hrs	584	14,800	9,620	0.16	200	486	0.67
Up-river		6,310	1,420	0.11	84	40	0.27
Outfall		10,000	3,840	0.34	160	434	0.57
Down River		6,450	1,730	0.11	89	63	0.27
1) Corn	141						
2) Corn	84.5						

SUMMARY:

A sediment discharge from furrow irrigated tomato field was investigated. The turbidity and total suspended solids from the tomato fields was significantly (approximately 6 times higher) higher than the irrigation supply water to the fields. A nearby furrow irrigated corn field was checked to compare a similar irrigation method. The corn field was similar to the background supply water.

Basin Plan NTU Limits:

Where natural turbidity is between 0 and 5 NTUs, increases shall not exceed 1 NTU

Where natural turbidity is between 5 and 50 NTUs, increases shall not exceed 20%

Where natural turbidity is between 50 and 100 NTUs, increases shall not exceed 10 NTUs

Where natural turbidity is between greater than 100 NTUs, increases shall not exceed 10%

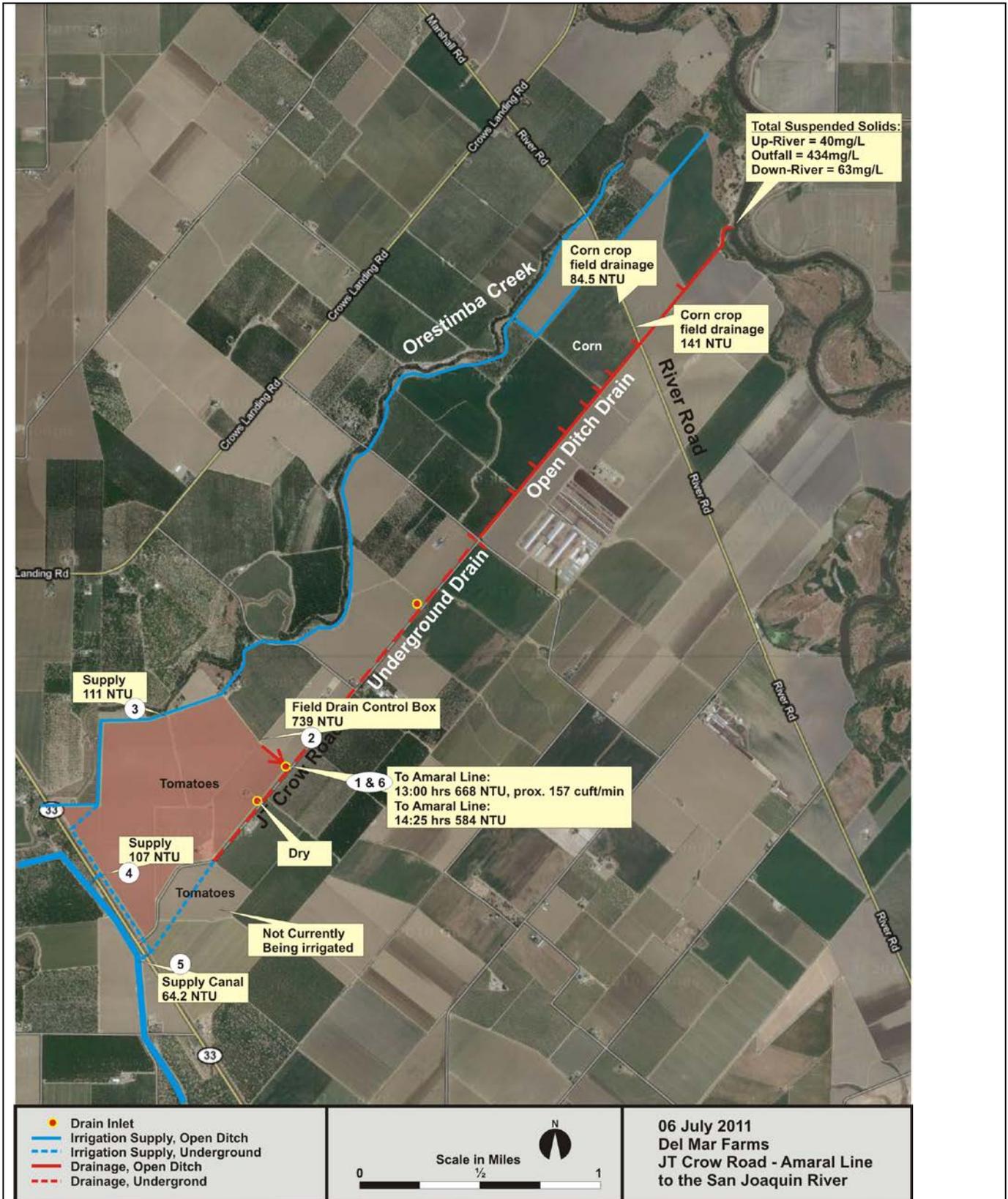




Photo 1: Looking north from JT Crow Road toward the tomato cropland and cropland drainage. The field tailwater was flowing from the cropland, into the underground drainage system (Amaral Line)



Photo 2: Close-up of the cropland tailwater drain in Photo 1. Turbidity = 668 NTU at 13:00 hrs and 585 NTU at 14:25 hrs. The flow rate at 13:00 hrs was approximately 157 cuft/min.



Photo 3: Looking west along JT Crow Road at the drain inlet. The water flows into the underground pipe, then south under JT Crow Road to the Amaral Line.



Photo 4: From Photo 3, the drainage flows east in an underground pipe along the south side of JT Crow Road toward the San Joaquin River. The field drain water mixes with Central California Irrigation Dist (CCID) supply water via the Main Canal. It is then used by other downstream users. The surplus flows into the San Joaquin River.



Photo 5: Looking south from the cropland toward JT Crow Road and the field drain.



Photo 6: CCID irrigation supply water on the north side of the tomato cropland. Turbidity = 111 NTU



Photo 7: The supply water then flowed to the cropland in the areas seen in the photo. It also continued east to the other cropland (see Photo 8).



Photo 8: Irrigation supply water continued east toward the other tomato cropland and other water users.



Photo 9: The supply water came from CCID via the Main Canal. It was distributed via the control box shown in this photo, as well as other turnouts from the canal to the north (see map)



Photo 10: Looking downstream from the outfall (discharge outfall) of the Amaral Line flowing into the San Joaquin River.



Photo 11: The sediment plume was significant and was still flowing at the time the inspection was completed at 13:30 hrs.

Up-river: Total Suspended Solids = 40mg/L

Outfall: Total Suspended Solids = 434mg/L



Photo 12: Looking north (downstream) at the San Joaquin River.

Down-River: Total Suspended Solids = 63mg/L



Photo 13: Photo of samples. Left to right
#1) Field drain – 13:00 hrs, NTU 668
#2) Field drain control box, NTU 739
#3) Supply water north side, NTU 111
#4) Supply water near railroad tracks, NTU 107
#5) Supply water from Main Canal, NTU 64.2
#6) Field drain – 14:25 hrs, NTU 584



Photo 14: Photo of other furrow irrigated cropland drainage in the area. Left to right:
#1) Corn drainage, NTU 141
#2) Corn drainage, NTU 84.5

