

WASTE DISCHARGE REQUIREMENTS ORDER NO.R5-2007-XXXX
FOR
CITY OF ATWATER
WASTEWATER TREATMENT FACILITY
MERCED COUNTY

ATTACHMENT E
STANDARD MONITORING WELL PROVISIONS

Prior to installation of groundwater monitoring wells, the Discharger shall submit a workplan containing at least the information specified in this document. Wells may be installed after the Executive Officer's approval of the work plan. Upon installation of the monitoring wells, the Discharger shall submit a report of results, as described below. A registered geologist, certified engineering geologist, or civil engineer registered or certified by the State of California must sign all workplans and reports.

Monitoring Well Installation Workplan

A. General Information:

- Monitoring well locations and rationale
- Survey details
- Equipment decontamination procedures
- Health and safety plan
- Topographic map showing any existing monitoring wells, proposed wells, waste handling facilities, utilities, and other major physical and man-made features.

B. Drilling Details: describe drilling and logging methods

C. Monitoring Well Design:

Casing diameter	Type of well cap
Borehole diameter	Size of perforations and rationale
Depth of surface seal	Grain size of sand pack and rationale
Well construction materials	Thickness and position of bentonite seal and sand pack
Diagram of well construction	Depth of well, length and position of perforated interval

D. Well Development:

- Method of development to be used
- Method of determining when development is complete
- Method of development water disposal

E. Surveying Details: discuss how each well will be surveyed to a common reference point

F. Soil Sampling (if applicable):

Cuttings disposal method	Number of soil samples and rationale
Analyses to be run and methods	Location of soil samples and rationale
Sample collection and preservation method	QA/QC procedures
Intervals at which soil samples are to be collected	

G. Well Sampling:

Minimum time after development before sampling (48 hours)
Well purging method and amount of purge water
Sample collection and preservation method
QA/QC procedures

H. Water Level Measurement:

The reference point and ground surface elevations at each monitoring well shall be determined within 0.01 foot. Method and time of water level measurement shall be specified.

I. Proposed time schedule for work.

Monitoring Well Installation Report of Results

A. Well Construction:

Number and depth of wells drilled

Date(s) wells drilled

Description of drilling and construction

Approximate locations relative to WWTF and discharge area(s)

A well construction diagram for each well containing the following details:

Monitoring well number	Depth to top of bentonite seal ¹
Location	Thickness of bentonite seal
Date drilled	Thickness of concrete grout
Total depth drilled ¹	Boring diameter
Depth of open hole ^{1,2}	Casing diameter
Footage of hole collapsed	Casing material
Length of slotted casing installed	Size of perforations
Depth of bottom of casing ¹	Well elevation at top of casing
Depth to top of sand pack ¹	Date of water level measurement
Number of bags of sand	Depth to which water was first found ¹
Thickness of sand pack	Depth to which water was found after perforating ¹

¹ From ground surface

² Same as total depth if no caving appears

B. Well Development:

Date(s) of development of each well

Method of development

Volume of water purged from well

How well development completion was determined

Method of effluent disposal

Field notes from well development should be included in report

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C. Well Surveying: provide for each well

- Reference elevation (feet above mean sea level to within 0.01 foot)
- Ground surface elevation (feet above mean sea level to within 0.01 foot)
- Horizontal geodetic location, where the point of beginning shall be described by the California State Plane Coordinate System, 1983 datum
- Surveyor's notes

D. Water Sampling:

- | | |
|---|-----------------------------------|
| Date(s) of sampling | Sample identification |
| How well was purged | Analytical methods used |
| How many well volumes purged | Laboratory analytical data sheets |
| Levels of temperature, EC, and pH at stabilization | Water level elevation(s) |
| Sample collection, handling, and preservation methods | Groundwater contour map |

E. Soil Sampling (if applicable):

- Date(s) of sampling
- Sample collection, handling, and preservation method
- Sample identification
- Analytical methods used
- Laboratory analytical data sheets