URS

DOCKET
07-AFC-3
DATE JAN 22 2008
RECD. JAN 22 2008

January 22, 2008

Dockets Unit
California Energy Commission
1516 Ninth Street, MS 4
Sacramento, CA 95814

RE: CPV Sentinel Energy Project
Application for Certification 07-AFC-3

On behalf of CPV Sentinel, LLC, a limited liability company and the applicant for the above-referenced CPV Sentinel Energy Project, we are pleased to submit the enclosed documents:

- Twenty-five printed copies of the CPV Sentinel Energy Project Response to Data Requests (35, 38, 43, 50, 60, and 62 through 65)
- Fifty CDs containing the CPV Sentinel Energy Project Response to Data Requests (35, 38, 43, 50, 60, and 62 through 65)

These documents are being submitted to the CEC for docketing.

URS Corporation

Dale Shileikis
Vice President

Enclosures

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BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA

APPLICATION FOR CERTIFICATION FOR THE *CPV SENTINEL ENERGY PROJECT*
Power Plant Licensing Case

Docket No. 07-AFC-3
PROOF OF SERVICE
(Revised 10/15/07)

INSTRUCTIONS: All parties shall 1) send an original signed document plus 12 copies OR 2) mail one original signed copy AND e-mail the document to the web address below, AND 3) all parties shall also send a printed OR electronic copy of the documents that shall include a proof of service declaration to each of the individuals on the proof of service:

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 07-AFC-3
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DECLARATION OF SERVICE

I, Catherine Short , declare that on January 22, 2008 , I deposited copies of the attached *Responses to Data Requests (35, 38, 43, 50, 60, and 62 through 65)* in the United States mail at San Francisco, California with first-class postage thereon fully prepaid and addressed to those identified on the Proof of Service list above.

OR

Transmission via electronic mail was consistent with the requirements of California Code of Regulations, title 20, sections 1209, 1209.5, and 1210. All electronic copies were sent to all those identified on the Proof of Service list above.

I declare under penalty of perjury that the foregoing is true and correct.

C Short

Signature

Responses to Data Requests
(35, 38, 43, 50, 60, and 62 Through 65)

Application for Certification
(07-AFC-3)
for
CPV Sentinel Energy Project
Riverside County, California

January 22, 2008

Prepared for:

CPV Sentinel, LLC

Prepared by:

URS

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LIST OF ACRONYMS AND ABBREVIATIONS USED IN RESPONSES

AFC	Application for Certification
AFY	acre-feet per year
bgs	below ground surface
CEC	California Energy Commission
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
CPVS	CPV Sentinel Energy Project
CRA	Colorado River Aqueduct
CVWD	Coachella Valley Water District
°F	degrees Fahrenheit
DESCP	Drainage Erosion and Sediment Control Plan
DWA	Desert Water Agency
DWR	California Department of Water Resources
GE	General Electric
gpd/ft	gallons per day per foot
HPC	high-pressure compressor
lb/hr	pounds per hour
LPC	low-pressure compressor
MGD	million gallons per day
mg/L	milligrams per liter
MSWD	Mission Springs Water District
MW	megawatt
MWD	Metropolitan Water District
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
PG&E	Pacific Gas & Electric
PM_{10}	particulate matter less than 10 microns
RWQCB	Regional Water Quality Control Board
SO_2	sulfur dioxide
SO_X	sulfur oxides
SWP	State Water Project
SWRCB	State Water Resources Control Board
ton/hr	ton per hour
T	transmissivity
TDS	total dissolved solids
USGS	U.S. Geological Survey
UWMP	Urban Water Management Plan
VOC	volatile organic compounds
WWTP	Wastewater Treatment Plant
ZLD	zero liquid discharge

BACKGROUND

Construction and operation of the Sentinel Power Plant Project (the Project) may induce water and wind erosion in the construction area, transmission and pipeline corridors, and laydown and parking areas. The entire project area is currently undeveloped, except for an uninhabited residential building and associated garage and groundwater well within the construction area and a building and possible building materials within the laydown area. The residential building and garage are to be removed by the existing property owner. The groundwater well will apparently remain. Wells partially destroyed and later lost during construction can provide a direct route of contamination to aquifers. The status of the building and possible building materials in the laydown area is unknown. Also, in the project laydown area and pipeline corridor area are windmills that are part of a wind farm.

To determine the potential erosion impacts to water and soil resources from construction of the Project, the California Energy Commission (CEC) requires a draft Drainage Erosion and Sediment Control Plan (DESCP). The draft DESCP is to be updated and revised as the project moves from the preliminary to final design phases and is to be a separate document from the construction Storm Water Pollution Prevention Plan. The DESCP, submitted prior to site mobilization, must be developed and signed by a professional engineer/erosion control specialist. Please note that Section 7.14.4.2 of the AFC mentions that an approved Erosion Control Plan is discussed in Section 7.9.2 of the AFC. However, no such plan is referenced in Section 7.9.2 or is part of the AFC.

35. Please provide a copy of the Erosion Control Plan referenced in Section 7.14.4.2 of the AFC.

RESPONSE

The Draft Erosion Control Plan is included in Appendix A.

BACKGROUND

The State Water Resources Control Board's (SWRCB) policy on the Use and Disposal of Inland Waters Used for Power Plant Cooling (SWRCB Resolution 75-58) states fresh inland water should only be used for power plant cooling if other sources or other methods of cooling would be environmentally undesirable or economically unsound. The SWRCB policy requires that power plant cooling water should come from, in order of priority: wastewater being discharged to the ocean; ocean water; brackish water from natural sources or irrigation return flow; inland waste waters of low total dissolved solids (TDS); and other inland waters. Additionally, Water Code Section 13550 finds the use of potable water for industrial and irrigation uses is a waste or an unreasonable use of potable water within the meaning of Section 2 of Article X of the California Constitution if recycled water is available and meets certain conditions. The Energy Commission adopted a similar policy in the 2003 Integrated Energy Policy Report (CEC, 2003).

The Project proposes using groundwater for cooling operations for the power plant. The Mission Creek sub-basin groundwater will be accessed using onsite wells. The peak water usage is stated to be 1,100 acre-feet per year (AFY) with an average use of 550 AFY. According to the 2007 Desert Water Agency (DWA) Engineer's Report: *Ground Water Replenishment and Assessment Program for the Mission Creek Subbasin*, the sub-basin is already in a state of overdraft by 9,000 to 10,000 AF. If the sub-basin aquifers come to a state of extreme overdraft, the soil matrix can irreversibly collapse leading to land subsidence and lose of available aquifer volume. Comparing the existing groundwater overdraft to the expected yearly average and peak groundwater requirements of the project, an average of 5.5 to 6.1 percent and maximum 11 to 12.2 percent of the total overdraft volume annually is proposed to be used for plant cooling operations. In other words, the project is proposing to use annually between 5.5 to 12.5 percent of the water needed to recharge the over-drafted groundwater sub-basin.

The project, if approved, would require a number of complex water transfers and exchanges for groundwater replenishment. Each of these transfers or exchanges require either a will-serve letter or a letter of intent indicating: (1) that the purveyor is willing to serve the project; (2) that the purveyor has adequate water supplies available for the life of the project; and (3) any conditions or restrictions that apply to the provision of the water. Agencies and districts involved include the Mission Springs Water District (MSWD), DWA, Metropolitan Water District (MWD), and the California Department of Water Resources (DWR).

DATA REQUEST

38. Please provide a detailed discussion and analysis, and the supporting economic and environmental factors for the proposed use of groundwater for power plant cooling compared to other options/alternatives including air-cooled systems and inlet chiller systems. This discussion and analysis should include:

a) An explanation with supporting data of why the use of air-cooled systems are not considered economically feasible.

b) An analysis of the groundwater water supply for power plant cooling with an explanation of why it is considered technically/environmentally feasible in a over-drafted sub-basin with a limited and unreliable supply of recharge water.

c) A breakdown of estimated capital and operating costs for the use of water-cooled and air-cooled systems for the project.

d) Specific contact responses and other data that support the detailed evaluation and conclusions that water-cooling is the most feasible cooling method available.

RESPONSE

A response to Data Request 38 was provided in the previous November 5, 2007 submittal entitled *Responses to CEC Data Requests of October 4, 2007*. Table 38-4 provided in that response incorrectly listed the unit of measure for annual emission impacts as "per hour," rather than "per year." Table 38-4 in that submittal is superseded by Revised Table 38-4, below, which lists the correct unit of measure.

Revised Table 38-4
Expected Annual Emissions (All Operating Units)

Constituent	Wet-Cooled 8×	Dry Cooled 11×[3]	Difference (tons/yr)	Difference (%)
CO_2, metric ton/yr	1,126,997	1,178,943	51,946	4.6%
NO_X as NO_2, tons/yr	129.6	142.5	12.9	9.9%
CO, tons/yr	196.8	217.5	20.7	10.5%
SO_X as SO_2, tons/yr	7.6	7.9	0.31	4.1%
VOC as CH_4, tons/yr	34.5	37.7	3.18	9.2%
PM_{10}, tons/yr	72.8	91.0	18.20	25.0%

Notes:

1. The wet-cooled data is comparable to Table 7.1-17 in the Application for Certification. Consistent methodology was used for dry-cooled data.
2. Small differences are due to the updated General Electric performance model and rounding. However, these do not influence the comparison.
3. The dry-cooled data reflect additional combustion turbine(s) to maintain wet-cooled net power. See Table 38-1, previously submitted on November 5, 2007, for number and load.

CO_2 = carbon dioxide
ton/hr = ton per hour
NO_X = nitrogen oxides
NO_2 = nitrogen dioxide
lb/hr = pounds per hour
CO = carbon monoxide
SO_X = sulfur oxides
SO_2 = sulfur dioxide
VOC =volatile organic compounds
CH_4 = methane
PM_{10} = particulate matter less than 10 microns

BACKGROUND

According to the MSWD Urban Water Management Plan (UWMP) dated February 2006, the capacity to reduce overdraft conditions by continuing groundwater recharge of the sub-basin depends on the availability of future water from the Colorado River Aqueduct (CRA) water and the on MWD's exchange agreements with DWA. This water supply is a fixed amount set by the DWR. In addition, according to the DWA's April 2007 Engineer's Report, the sub-basin overdraft will continue until increased maximum State Water Project (SWP) water allocations are obtained. The U.S. Ninth Circuit Court, on August 31, 2007, ruled that surface water pumping, for the SWP and federal Central Valley Project, be reduced to protect the Delta Smelt, a small, endangered delta fish. This could result in a reduction of the water available to recharge the sub-basin by as much as 30 percent. In addition, in drought years or as other circumstances warrant, the DWR could substantially reduce the volume of SWP water available to the DWA.

DATA REQUEST

43. Please discuss in detail the supply of water available to the MSWD and the project. This detailed discussion should include:

a) The amount of water needed for the project.

b) The amount of recycled water that will be used in conjunction with the project and its source.

c) The monthly and annual deliveries representative of normal and critically dry single and multiple water years for MSWD's existing customers.

d) Since the project has only one source of water with no backup supply, please discuss the dependability of the water source.

e) The available historical data for any interruptions to the proposed water supply over the last 10 years.

f) A summary of MSWD's water supply rights, entitlements, and service contracts and commitments of its water supply to existing and planned customers, noting the: (1) priority for service; (2) maximum supply rate; (3) maximum annual volume; (4) maximum contractual deliveries for all months; and (5) the term of the agreements.

RESPONSE

a-d) This information was provided in the Applicant's November 5, 2007 submittal entitled *Responses to CEC Data Requests of October 4, 2007*.

e) According to MSWD, there have not been any interruptions at the Horton Wastewater Treatment Plant (WWTP) site in the past 10 years. Although effluent flows from the WWTP could experience short-term interruptions due to a treatment plant upset, the Regional Water Quality Control Board (RWQCB) requires redundancy on all treatment processes, and therefore the plant would be operational in a rather short period of time following an upset (Patneaude, 2007).

f) MSWD's water supply is all from groundwater from an unadjudicated basin. Therefore, there are no rights or entitlements. MSWD also has no "supply agreements" or commitments of its water supply. All existing customers are at the same level in their ability to obtain water from MSWD.

BACKGROUND

The Applicant discussed in the Application for Certification (AFC) the feasibility of installing wells at the property under existing property rights, negotiating conditions with the MSWD for extraction of groundwater, and paying a replenishment fee to the DWA. The Applicant also discussed in the AFC the feasibility of buying approximately 1,500 AFY of secondary or tertiary treated water from the MSWD Horton WWTP for groundwater recharge while also using groundwater via onsite wells.

DATA REQUEST

50. Please provide a description of the site-specific hydrologic and geologic conditions of the Horton WWTP percolation site. The purpose of this request is to obtain information necessary to assess the hydrologic effect of the percolation. Please include the following information:

a) Describe the MSWD and DWA recharge projects using SWP/CRA and reclaimed water. Include any available assessments of the recharge performance of these projects.

b) Outline the current and future service area of the WWTP on an appropriately scaled map.

c) Describe the source of wastewater treated at the Horton WWTP.

d) Discuss the legal authority of the MSWD to sell wastewater on a retail basis and for the project.

e) Include a surface map of an appropriate scale of the site(s) location and a description of current recharge rate, recharge capacity, hydrology, and hydrogeology.

f) Identify the underlying aquifer formations using geologic cross-section(s).

g) Describe layering and subsurface features that would affect groundwater recharge, for example, hardpans, lakebed deposits or faults.

h) Please describe the following: (1) Aquifer parameters including hydraulic conductivity and specific yield; (2) Depth to groundwater over the last 10 years, if available, and (3) descriptions and results of percolation tests or studies.

i) Total acreage of irrigation or percolation site.

j) Historical monthly irrigation records and/or average monthly irrigation rates (provide monthly breakdown of supply sources if reclaimed water is not sole source).

k) Please discuss the volume of wastewater expected to be produced during 2007 and 2008 and how much of that water will be used for groundwater recharge through percolation.

l) Average monthly potential evapotranspiration, along with evapotranspiration balance.

m) Please discuss how much freshwater use is required to make 1,500 AF of wastewater?

RESPONSE

Responses to items a, c, g, h, i, l, and m were provided in the Applicant's November 5, 2007 submittal entitled *Responses to CEC Data Requests of October 4, 2007*. The Applicant has now received information from MSWD for the remaining items as well as supplemental information for items a, c, i, and m. Responses are provided below.

a) **DWA's Mission Creek Recharge Basin**

See previously submitted responses. No additional information.

MSWD's Horton WWTP Percolation Ponds

According to MSWD, no service interruptions have occurred over the past 10 years, and because their water supply comes from groundwater, they do not expect any interruptions. Once reclaimed water comes on board as a source of supply to the District, flows from the WWTP could be temporarily interrupted in the event of a treatment plant upset. However, these would be short-term interruptions, as the RWQCB requires redundancy on all treatment processes, and the plant would operational in a rather short period of time following an upset. Additionally, there would be storage at the plant and some operational storage within the reclaimed water system that would likely be adequate to continue to serve reclaimed water to customers virtually without interruption (Patneaude, 2007).

b) The current and proposed future service areas of the WWTP are shown on Figures 50-1 and 50-2.

c) As previously described, the Horton WWTP currently provides secondary treatment to the sewerage generated by customers of the MSWD sanitary collection system, which serves approximately 6,000 developed parcels (URS, 2005) or approximately 8,000 people within the MSWD service area (PSOMAS, 2007b). Wastewater flows are generated by single-family residential, multi-family residential, commercial, hotel/spas, public, and industrial facilities. Almost 90 percent of the sewer connections in 2007 were to single-family residences.

d) The California Water Code covers the powers of a County Water District. The ability to sell recycled water is more specifically covered in Division 12, Sections 31020 – 31035.1 and 31100 – 31106.

e) Figure 50-3 shows the location of the Horton WWTP. Figure 50-4 shows the five existing percolation ponds. Figure 50-5 shows hydrologic and hydrogeologic features. Figure 50-6 shows depth to crystalline bedrock within the Mission Springs Subbasin, which represents the approximate base of the aquifer.

The MSWD percolation ponds at the Horton WWTP currently have an estimated ability to percolate 1 foot per day per acre, based on 4 net acres of percolation pond and a flow of 1.3 million gallons per day (MGD) (Earth Tech, Inc., 2007). MSWD indicates that a recent geotechnical percolation test at the ponds site indicates a percolation rate of approximately 62 gallons per square foot per day. This is a field test value and would need to be reduced to reflect actual operation conditions.

f) The Applicant requested this information from MSWD; however, no sections or boring information were provided to enable development of sections. The subsurface conditions in the vicinity of the Horton WWTP were previously described in the response to Data Request 50, item g, submitted on November 5, 2007.

g) See previously submitted responses. No additional information.

h) See previously submitted responses. No additional information.

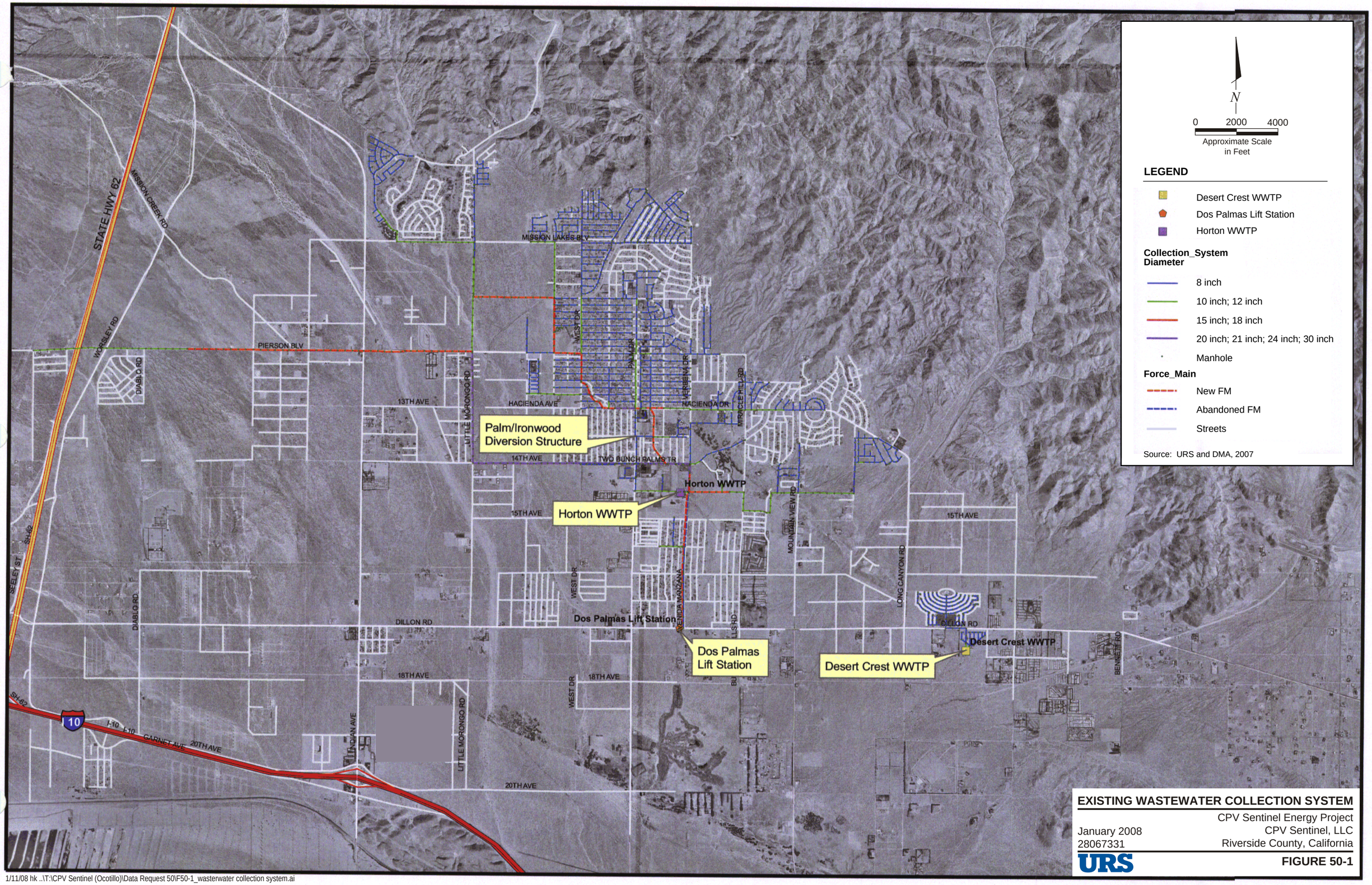
i) The previously submitted responses reported that the acreage of the existing Horton WWTP percolation ponds is approximately 5 acres, based on aerial photos. According to Earth Tech, Inc, (2007), the five existing percolation ponds have an infiltration area of approximately 4 acres (see Figure 50-4).

j) According to MSWD, there is no irrigation with recycled water at this time.

k) According to MSWD's Wastewater System Comprehensive Master Plan (URS and DMA, 2007), the projected wastewater collection flow for MSWD is 1.69 and 2.04 MGD for 2007 and 2008, respectively. Effluent from the WWTPs biological treatment process is conveyed to the five percolation basins. Solids removed from the treatment process are air-dried and transported to an offsite location. The Horton WWTP is currently permitted to discharge treated effluent to the percolation basins under RWQCB Order No. 01-020, dated May 9, 1990. The permitted discharge to the subsurface is 2.0 MGD. There is no discharge to surface waters. There are no irrigation applications, except at the plant itself. Therefore, all wastewater collected, minus biosolids and other treatment losses, is discharged to the percolation basins for disposal to the underlying aquifer.

l) See previously submitted responses. No additional information.

m) As presented in the previously submitted responses, approximately 35 percent of water supplied to customers is returned as wastewater. According to MSWD, this percentage is projected to increase to approximately 40 to 45 percent as recycled water use comes on line and as septic systems are converted to sanitary sewer systems (Patneaude, 2007).



EXISTING WASTEWATER COLLECTION SYSTEM

CPV Sentinel Energy Project
CPV Sentinel, LLC
Riverside County, California

January 2008
28067331

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FIGURE 50-1

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N

0 1

Approximate Scale in Mile

LEGEND

Proposed Interceptors

- 2007-2011
- 2012-2016
- 2017-2021
- 2022-2026
- Not Included

Existing Collection System Diameter

- 8" - 12"
- 15" - 30"
- Future Land Use
- Planned Developments
- Existing System Parcels
- Major
- MSWD Boundary

Force_Main

- New FM
- Existing FM
- Project Markers

Source: URS and DMA, 2007

HWWTP

DCWWTP

DPLS

RWWTP

15" 3-M

30" 3-C

Palm Springs Crest and West Palm Springs Village (southwest corner of district)

PROPOSED FUTURE WASTEWATER COLLECTION SYSTEM

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CPV Sentinel Energy Project
CPV Sentinel, LLC
Riverside County, California

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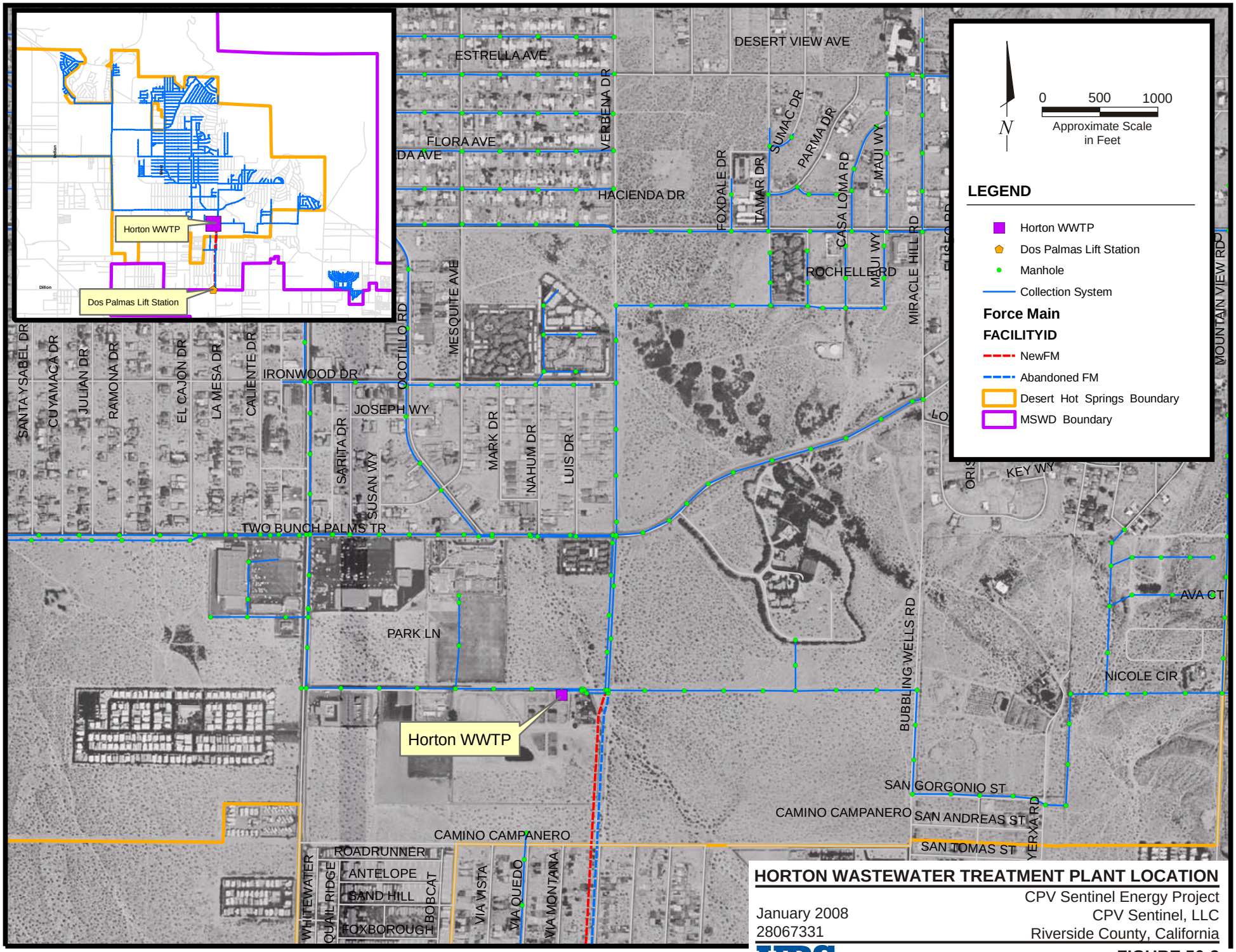
FIGURE 50-2

1/21/08 hk ..\T:\CPV Sentinel (Ocotillo)\Data Request 50\F50-2_future pipes.ai



HORTON WASTEWATER TREATMENT PLANT LOCATION

CPV Sentinel Energy Project
CPV Sentinel, LLC
Riverside County, California

January 2008
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FIGURE 50-3

1/21/08 hk ..\T:\CPV Sentinel (Ocotillo)\Data Request 50\F50-3_HWWTP.ai

LEGEND

- Existing Percolation Basins
- Potential Future Percolation Basins

N

0 50 100

Approximate Scale in Feet

Source: Earth Tech Inc., 2007

HORTON WASTEWATER TREATMENT PLANT PERCOLATION BASINS

CPV Sentinel Energy Project
CPV Sentinel, LLC
Riverside County, California

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FIGURE 50-4

File: L:\work\98564\work\05-Preliminary Design Report\AutoCAD Figures\Figure 5-4.dwg Time: Jun 08, 2007 - 10:06a.m

1/11/08 hk ..\T:\CPV Sentinel (Ocotillo)\Data Request 50\F50-4_HWWTP_PB.ai

EXPLANATION

- Contact (Dashed where approximately located, gradational or inferred
- Fault, showing dip (Dashed where approximately located, queried where uncertain, U, upthrown side; D, downthrown side)
- Concealed fault
- Fault, showing relative movement
- Strike and dip of beds
- Strike and dip of foliation
- Axis of syncline
- Axis of anticline
- Anticline showing direction of plunge
- Abandoned oil well site
- Landslump (on Whitewater Hill)
- 146 — Water well and water temperature (F°)
- No. 31 — Production wells within MSWD boundary

QUATERNARY

Recent
- Qs — Superficial Sand
- Qal — Alluvium

Upper Pliestocene
- Qt — Terrace Deposits
- Qc / Qo (ss) — Cabezon Fanglomerate and Ocotillo Formations

TERTIARY

Lower Pliestocene
- cg / Tph / b / Tpc / Tps — Painted Hill and Palm Springs Formations; Canebrake Conglomerate

Lower Pliocene
- Ti — Imperial Formation

Upper Miocene (?)
- Tcb / Tc / Ts — Coachella Fanglomerate and Split Mountain Formation

MAINLY PRE-MESOZOIC
- m / ls — Metamorphic Rocks of the San Jacinto Mountains
- bp / xe / sg / gr / di / qm — San Gorgonio Complex (Chuckwalla Complex)

Modified from:
R. J. Proctor, 1968, CDMG Special Report 94, Plate 1
and
Albert A. Webb Associates, 2001, Composite USGS Topographic Map compiled for Mission Springs Water District

0 N 6000 ft
Scale

AQUIFER FORMATIONS AND GROUNDWATER BARRIERS

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CPV Sentinel Energy Project
CPV Sentinel, LLC
Riverside County, California

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FIGURE 50-5

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EXPLANATION

Interpolated line of equal depth to bedrock

Station Location

0 N 1 mile

Scale

Depth to Bedrock, Feet

400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
4600
4800

INDICATED DEPTH TO CRYSTALLINE BEDROCK

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CPV Sentinel, LLC
Riverside County, California

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FIGURE 50-6

1/14/08 hk ..\T:\CPV Sentinel (Ocotillo)\Data Request 50\F50-6_crystal bed.cdr

BACKGROUND

The groundwater use was modeled in the AFC. The groundwater was modeled assuming that only the wells on the project site would be extracting groundwater, and did not account for potential impacts on other users of groundwater (i.e., other wells) or the loss of recharge water through absorption and evaporation while settling in percolation ponds at the Horton WWTP.

DATA REQUEST

60. Please discuss the safe yield of the sub-basin at the Project location, and include all assumptions and calculations for this estimation.

RESPONSE

A response to Data Request 60 was provided in the previous November 5, 2007 submittal entitled *Responses to CEC Data Requests of October 4, 2007*. In that response, the quantity of water that MSWD considers when evaluating the reliability of supply and demand was provided (40,000 AFY). As stated in MSWD's UWMP (PSOMAS, 2006):

> *"Given the large capacity of the Mission Creek Sub-Basin, it is not reasonable to assume the entire 1.4 MAF will be available to MSWD in any given year (primarily because of limitations on the District's well depths and pumping capacity). A reasonably conservative assumption of 40,000 AFY, which is less than 3 percent of the estimate of total storage within the sub-basin, has therefore been assumed as the supply capability."*

The UWMP does not define "safe yield" for the Mission Creek Subbasin. Todd (1980) defines the safe yield of a groundwater basin as the amount of water that can be withdrawn from it annually under specified operating conditions without producing an undesired result. Freeze and Cherry (1979) provides the following statement regarding "safe yield."

> *"Although the concept of safe yield has been widely used in groundwater resource evaluation, there has always been widespread dissatisfaction with it."*

The State of Arizona defines safe yield as the balance between the water that is naturally and artificially recharged to an aquifer and the groundwater that is pumped out. Unfortunately, the State of California does not define safe yield. A more conservative approach to the definition used by the State of Arizona is to define safe yield as the difference between the water that naturally inflows to the basin and the water that naturally outflows from the basin.

Even when using this more conservative definition of safe yield, there is a range of variables to consider when defining inflow and outflow. For example, subbasin inflow may include surface water inflow, subsurface inflow, and return flows from wastewater systems and irrigation. Subbasin outflow may include surface water outflow, subsurface outflow, and evapotranspiration. These variables are described in the responses to Data Requests 57 and 59, submitted to the CEC on November 5, 2007.

Previous studies have estimated values of inflow and outflow variables (Tyley, 1974; Krieger & Stewart, 2007; PSOMAS, 2004; PSOMAS, 2007a). These estimates range in value as described in the previous responses to Data Requests 57 and 59. Studies of the Mission Creek Subbasin indicate that natural inflow includes infiltration and percolation (approximately 3,500 AFY to approximately 6,834 AFY), subsurface inflow from the Desert Hot Springs Subbasin (approximately 3,080 AFY) and inflow from Mission Creek alluvium (approximately 3,979 AFY). For purposes of estimating a conservative value of safe yield, recharge from

domestic disposal systems and irrigation (see Response to Data Request 57) are excluded. Therefore, estimated natural inflow would range from approximately 10,600 AFY to approximately 13,900 AFY.

As described in the previous response to Data Request 59, estimates of natural outflow consider subsurface outflow (approximately 2,000 to 5,470 AFY), surface water outflow (approximately 70 AFY) and water lost due to evapotranspiration from plants (approximately 1,460 AFY). Therefore, estimated natural outflow would range from approximately 3,500 AFY to approximately 7,000 AFY.

Therefore, based on estimates of natural inflow and natural outflow, the estimated safe yield for the Mission Creek Subbasin would be on the order of approximately 3,600 AFY to 10,400 AFY.

BACKGROUND

These data requests replace previous Data Requests 44, 54, 55, and 61, with more focused questions. Answering the previous data requests would require extensive and complex modeling of the Mission Creek groundwater subbasin. The focus of these data requests is limited to identifying potential impacts to nearby wells by project pumping of the groundwater over the life of the project.

DATA REQUEST

62. Please provide assumptions, data, and calculations for estimating the drawdown and radius of influence of pumping groundwater at the project site over the life of the project. This information may already be available in the form of well pump tests already conducted near the project site.

BACKGROUND DISCUSSION FOR RESPONSES TO DATA REQUESTS 62 THROUGH 64

The Applicant requested that URS obtain the best possible data on the characteristics of the groundwater basin and examine the sensitivity that assumptions regarding those aquifer characteristics would have upon the potential for pumping at the CPV Sentinel Energy Project (CPVS) site to cause a significant impact to other wells in the basin. Moreover, URS was asked to examine possible sensitivities of the drawdown results to changes in assumptions regarding pumping rates and recharge. New groundwater modeling results were generated and are contained in Appendix B examining those sensitivities.

The most reliable estimates of the basin characteristics were obtained from the U.S. Geological Survey (USGS) assessment of the groundwater basin conducted in 1974 (Tyley, 1974). Those estimates are detailed in the prior Appendix R-1, submitted with the original AFC. Recognizing that those estimates have possible error, URS performed additional simulations assuming that the transmissivity (T) values were only one-half the values estimated by the USGS. This constitutes a very conservative set of assumptions, intended to comfortably bind the worst case values that might be obtained from more detailed aquifer test data not currently available.

As an additional effort to examine the possible worst-case drawdown that could occur in the basin from CPVS pumping, new pumping and recharge scenarios were examined. In these additional groundwater simulations, pumping rates for CPVS were examined at the maximum possible production rates of 1,100 AFY instead of the likely average production of 550 AFY, as simulated in the model submitted with the original AFC.

Prior simulations examined the potential for long-term pumping within the basin to cause a dewatering of the basin in the area of the pumping wells. It is recognized that instantaneous pumping has a theoretical potential to cause dynamic short-term changes in water levels that could also lead to impacts on other wells in the vicinity of the project wells. Therefore, additional simulations were performed to examine these potential dynamic effects based upon maximum instantaneous pumping rates for the project wells. Moreover, in order to ensure that these dynamic pumping effects were conservatively assessed, pumping at maximum instantaneous rates was simulated to occur continuously for 4 months to approximately equal the maximum production rate of 1,100 AFY. These pumping rates actually exceed the maximum potential pumping in a 4-month period, (under the power purchase agreement, maximum pumping could not occur in a shorter time frame than approximately 5½ months) but the higher rate was used to ensure that the monthly time-step of the model conservatively captured the maximum dynamic pumping effects that could occur.

The recharge of the groundwater basin would be increased to offset the pumping associated with the project. This mitigates the potential drawdown that might otherwise occur. CPV Sentinel is developing agreements to ensure that the recharge of the basin with imported water would, over the life of the project, exceed the pumping associated with the project. Thus, it is expected that all groundwater wells in the basin would experience a net benefit from the project pumping and recharge. However, in order to examine scenarios that are more conservative than the possible worst case, the additional simulations assume that net recharge with imported water would equal project pumping over the long term. Moreover, it is recognized that the timing after the recharge operation is outside the control of the project. Thus, to conservatively assess the possible mismatch in pumping rates at the project and the rates at which recharge actually occurs, scenarios were generated in which recharge may not occur for up to 5 years after project pumping. Consistent with that conservatism, possible dynamic effects of pumping at maximum rates were simulated with no recharge operations.

As detailed in the responses to Data Requests below and the attached Appendix B, the simulations showing the combined conservatism in pumping rates, recharge rates, and aquifer characteristics show that the project has no potential to cause a significant impact to any well in the basin. Examination of the dynamic simulations demonstrates that the project will not have a measurable impact at any well. Examination of the long-term simulations demonstrates that the project would cause an immeasurable impact at most wells in the basin, but could cause a measurable impact of a 2-foot lowering of the water level in the closest well to the project site if pumping at maximum rates occurs for 5 years with no recharge. This effect, while measurable, is far less than the natural fluctuation in water levels that would occur at these wells and cannot be deemed significant. Moreover, an effect of this magnitude does not have the potential to affect the production rates of these wells, which have screened intervals extending hundreds of feet below the top of the water table and would have a negligible effect on the pumping lift and associated energy use for pumping at the wells.

RESPONSE TO DATA REQUEST 62

Drawdown and radius of influence of pumping groundwater at the project site over the life of the project was estimated using a groundwater flow model. In June 2007, a three-dimensional groundwater flow model was constructed for the Mission Creek Subbasin to evaluate the potential impacts of pumping and percolation on the subbasin. This groundwater flow model was submitted to CEC as Appendix R-1 of the CPVS Application AFC in June 2007. Additional groundwater flow model scenarios were completed and are summarized in the *Technical Memorandum, Additional Groundwater Flow Model Scenarios, Proposed CPV Sentinel Energy Project, Mission Creek Sub-Basin, Riverside, California, January 2008,* attached as Appendix B to this response. As described in Appendix B, these additional model scenarios used the June 2007 model as a base model.

The assumptions and data used to construct the base model are described in the June 2007 Technical Memorandum. The assumptions and data used to construct the additional scenarios are described in Appendix B. As described in Appendix B, three additional groundwater flow model scenarios (Scenario 1, Scenario 2, and Scenario 3) were simulated:

- **Scenario 1** simulates project pumping at a rate of 1,100 AFY and an equivalent recharge rate at DWA basin. Recharge is applied to the DWA basin immediately, but reaches the water table, and hence is applied to the model, after 1 year. These conditions are simulated for 30 years.

- **Scenario 2** simulates project pumping at a rate of 1,100 AFY and DWA basin recharge at a rate of 5,500 AFY every 5 years. No recharge is applied to the DWA basin in other years. These conditions are simulated for 31 years. Hence, DWA basin recharge is applied to the model at the year 6, 11, 16, 21, 26, and 31.

- **Scenario 3** simulates project pumping at a rate of 2,059 gallons per minute, which represents the maximum project pumping rate. Pumping duration is simulated for 4 months, with a total volume pumped equal to 1,100 af, the same annual volume as in Scenarios 1 and 2. No recharge is applied to the DWA basin. These conditions are simulated using a monthly time-step for 1 year.

The hydraulic conductivity defined in the June 2007 model was based on literature T values provided in Tyley (1974). To evaluate the sensitivity of T values on model results, T values were reduced by 50 percent. Therefore, two cases (Case A and Case B) were simulated for each scenario. Case A assumes the T distribution in Tyley (1974) and Case B assumes the T values are halved throughout the domain. Case B preserves the relative distribution of geologic materials as defined by Tyley (1974), but assumes that the materials are half as permeable. In Case A, T values range from 2,000 gallons per day per foot (gpd/ft) to 200,000 gpd/ft, with a T value of 50,000 gpd/ft in the vicinity of the project pumping wells. In Case B, T values range from 1,000 gpd/ft to 100,000 gpd/ft, with a T value of 25,000 gpd/ft in the vicinity of the project pumping wells. The T distributions for Case A and Case B are shown in Appendix B on Figures 3 and 4, respectively.

There is an existing well on the project site, but pump test data are not available.

DATA REQUEST

63. Please identify the groundwater wells, if any, within the radius of influence.

RESPONSE

Groundwater flow model simulation results indicate that Mission Spring Water District (MSWD) Wells 22, 24, 27, 28, 29, 30, 31, and 31 and Coachella Valley Water District (CVWD) Wells are within the radius of influence of project pumping wells. However, as described in Appendix B, the drawdown at the MSWD wells and CVWD wells is insignificant.

DATA REQUEST

64. Please quantify the expected observed drawdown that would result from the project's pumping of groundwater over the life of the project at the wells within the radius of pumping influence.

RESPONSE

As shown on Table 1 in Appendix B, the maximum drawdown simulated by the model is 2.1 feet at MSWD Wells 27 and 31 in model Scenario 2B. In this Scenario, maximum potential project pumping occurs with 5 years of maximum pumping at the project site in the absence of percolation at the DWA basin, and reduced T values are simulated, which is a conservative assumption. Simulation results show that maximum drawdown is consistently observed at MSWD Wells 27 and 31 because they are the closest public pumping wells to the project pumping wells.

Considering the depth and length of MSWD and CVWD well perforated intervals, even the maximum simulated drawdown (2.1 feet) would have a negligible effect on the pumping wells. Most MSWD Wells have perforated intervals on the order of hundreds of feet. For example, MSWD Well 27 has a 200-foot perforated interval, from 180 to 380 feet below ground surface (bgs) and MSWD Well 31 has a 260-foot perforated interval over multiple depths, from 270 to 470, 650 to 670, 920 to 940, and 980 to 1,000 feet bgs (Richard C. Slade & Associates, 2000). MSWD well pump depths range from slightly above to well below the top of the perforated interval (Richard C. Slade & Associates, 2000). A worst-case scenario drawdown of approximately 2 feet caused by project pumping would not require deepening the pumps. Incremental pumping costs due to a 2-foot drop in water levels would also be negligible.

To put this in perspective, project-specific impacts would only be considered significant if project-specific induced drawdowns in nearby production wells were on the order of 50 or more feet. As indicated by the groundwater model results, project induced drawdowns are nowhere near that magnitude. More specifically, the impacts would only be realized if one or more of the following criteria were met with respect to nearby production wells:

1. Loss of production well capacity due to drawdown caused by the project pumping wells;
2. Increased energy costs would be assumed as a result of a declined water table and increased pump lifts (see note); and
3. The ability to install a production well near the project site would be compromised.

Based on these additional simulations, these criteria would not be met, and project pumping would not have an impact on MSWD and CVWD wells that could be even remotely construed as significant.

Note: A functional relationship between pumping cost and pumping lift as an incremental cost per acre-foot pumped per foot of groundwater elevation change, based on Pacific Gas & Electric (PG&E) rate AG-1, effective September 1, 2006, assuming an overall plant efficiency of 65 percent, was determined to be $0.292 per acre-foot per foot of groundwater elevation change.

BACKGROUND

Data Request 38 was only party answered in the "Reponses to Data Requests" dated October 4, 2007. Data Request 38 asked for a detailed discussion and analysis of the proposed use of groundwater for power plant cooling and a comparison with other options/alternatives. There were three subparts to this data request. Subparts (a) and (c) to this data request focused on air-cooling, and subpart (b) focused on the use of groundwater for power plant cooling. A detailed discussion and analysis of power plant cooling options/alternatives, other than air-cooling, was not provided.

65. Please provide a detailed discussion and analysis of alternative power plant cooling options. This discussion and analysis should focus on the economic feasibility and environmental soundness of the cooling options, and include those listed below. The applicant may be aware of options other than those listed below that are equally or more feasible and sound; if so, please provide an analysis of these alternatives.

- ***Use of the Desert Hot Springs Sub-Basin groundwater as a source of lower quality, high total dissolved solids (TDS) groundwater water.***
- ***Use of a different inlet and intercooling method, such as a mechanical air-chiller with air-cooling, instead of using a wet cooling tower.***

RESPONSE

DESERT HOT SPRINGS SUB-BASIN GROUNDWATER

The potential to use groundwater from the Desert Hot Springs Subbasin was evaluated in Section 8.6.2 of the AFC and determined to be infeasible. As requested, the Applicant is providing additional support for this conclusion with a focus on economic feasibility and environmental soundness.

Economic Feasibility

Groundwater in the Desert Hot Springs Subbasin has relatively poor water quality (highly mineralized and high temperatures). Water quality data for eighteen private wells within the Subbasin are summarized in a report prepared by Harding Lawson Associates (see Appendix B). In particular, the water quality of the groundwater in this subbasin is high in TDS, chloride, and pH. The water quality of this groundwater is significantly worse than the quality of reclaimed water that would be produced by the Horton WWTP. In addition, water temperatures in 34 wells studied by the DWR in the early 1960s ranged from 82 degrees Fahrenheit (°F) to 200°F, with an average temperature of approximately 118°F (URS, 2005).

The use of groundwater from the Desert Hot Springs Subbasin would have significant cost implications to the proposed CPVS project. It is anticipated that significant treatment of the water would be required to reduce the levels of TDS (on the order of 1,000 to 1,500 milligrams per liter [mg/L]) to meet the cooling tower design levels (approximately 500 mg/L). This would require a much larger makeup water treatment system or a reduction in the cooling tower cycles (from approximately six or seven cycles to approximately three cycles). In addition, the higher values of pH of this groundwater (pH values range from approximately 8.5 to 9.0) would increase the acid consumption used to maintain the circulating water pH at a lower range and increase the use of dispersant chemicals.

Use of the higher TDS and mineral content of the Desert Hot Springs Subbasin water directly in the cooling tower water used to cool the General Electric (GE) turbine intercooler would also cause the water quality to exceed the metallurgical limits set by GE for the copper-nickel intercooler. Therefore, a closed loop cooling loop would have to be added to the plant, consisting of a heat exchanger between the closed loop system and the cooling tower coolant, plus a closed loop piping and pumping system. The use of a closed loop cooling system also impacts the performance of the intercooler because the cooling of the hot gas from the turbine compressor would be affected by the intercooler's approach temperature. This performance impact is estimated to be approximately 5 percent, which would require an additional unit to meet the obligations under the power purchase agreement. Also, the zero liquid discharge (ZLD) system capacity would have to be increased to handle the higher blowdown rate and to process water with higher TDS and mineral content.

The use of Desert Hot Springs Subbasin groundwater for cooling tower makeup is estimated to cost approximately $28 million associated with the closed loop cooling system and heat exchanger and ZLD system capacity increases. In addition, to compensate for the approximately 5 percent performance impact, another unit would have to be purchased at an estimated $60 million (not including the purchase of additional land). Furthermore, installation of the 7-mile pipeline is estimated to cost another $5 million. Therefore, use of the groundwater from the Desert Hot Springs Subbasin is estimated to increase costs by at least $93 million.

The hot and highly mineralized water from the Desert Hot Springs Subbasin is used by numerous spa resorts and hotels within the city of Desert Hot Springs. The spa and hotel businesses are major contributors to the overall local economy. Therefore, any reduction in the availability of this water resource could also have negative impacts on the economy of the area.

Environmental Soundness

This water source is located more than 5 miles northeast of the proposed project site. A pipeline to convey the water to the proposed project site would likely be located within existing road right-of-way. Therefore, the length of pipeline would be at least 7 or more miles, depending on the location of the extraction wells. Construction of extraction wells and the delivery pipeline would increase the area temporarily disturbed by the proposed project. Resulting impacts from this additional disturbance could include:

- Fugitive dust emissions along the pipeline right-of-way during ground disturbing activities;
- Additional traffic, road, and noise impacts due to heavy construction equipment movement along the pipeline right-of-way;
- Potential adverse impacts to sensitive biological, cultural, and paleontology resources present along the pipeline right-of-way;
- Potential adverse impacts to surface water quality due to construction activities associated with drilling offsite wells and excavating pipe trenches.

In addition, unlike the Mission Creek Subbasin, there is no replenishment program for the Desert Hot Springs Subbasin. Therefore, extractions from this subbasin would not be offset by recharge, and water levels would decline.

Conclusion for Using Desert Hot Spring Subbasin Groundwater

The analysis demonstrates that using Desert Hot Springs Subbasin as a water supply source for the proposed project is considered economically infeasible and environmentally unsound.

INLET AND INTERCOOLING METHODS

CPV Sentinel has proposed using wet cooling towers to reject heat from the LMS100 intercoolers and evaporative/fog cooling of combustion turbine inlet air for performance enhancement. CPV Sentinel has considered alternatives for rejecting heat from the LMS100 intercoolers, described further below.

Background

The signature or defining feature of the LMS100 is the addition of intercooling to improve combustion turbine efficiency and performance. The LMS100 intercooling system takes compressed air from the low-pressure compressor (LPC), cools it to optimal temperatures, and then redelivers it to the high-pressure compressor (HPC). In providing a near constant stream of low temperature air to the HPC, the work of compression is reduced. The result is a higher pressure ratio (42:1) and increased mass flow (460 pounds/second). In simple-cycle applications, the LMS100 can achieve thermal efficiency in excess of 44 percent, which is nearly a 10-point improvement over every turbine in its size range.

GE's LMS100 design is based on (1) the intercooler reducing the temperature of the LPC outlet air to 100°F (T25 temperature) prior to the HPC; (2) a 10°F intercooler approach temperature, which means the cooling water supply to the intercooler should be 90°F; (3) cooling tower approach of 7.5°F (to wet bulb temperature) for wet-cooled applications; and (4) dry-cooler approach of 7°F (to dry bulb temperature) for dry-cooled applications. For wet-cooled applications, this means LMS100 performance will be adversely impacted when the wet bulb temperature exceeds 82.5°F, a condition expected to occur less than 0.02 percent of the time at the site. For dry-cooled applications, this means LMS100 performance will be adversely impacted when the dry bulb temperature exceeds 83°F, a condition expected to occur approximately 30 percent of the time at the site, and including the vast majority of expected run hours.

Dry-Cooled Intercooler (GE "Dry Secondary")

The Applicant discussed in detail in the response to Data Request 38, use of dry-cooled systems to reject heat from the LMS100 intercoolers would increase the cost of the project by an estimated $275 million and is clearly not economically feasible. The increased costs would result primarily from (1) offsetting severe adverse performance impacts (i.e., need to install additional units to deliver same power output); (2) acquiring a substantially larger parcel of land for the project (assuming it was available); and (3) acquiring additional emission offsets.

Dry-Cooled Intercooler with Humidification (GE "Dry Secondary with Humidification")

During the project's conceptual design, the Applicant asked GE about the possibility of dry secondary with augmentation of heat rejection using humidification. GE advised that they were not offering dry secondary with humidification at that time, adding:

> *"In regards to a humidified 'dry' secondary cooling tower - we looked into this on multiple iterations on a variety of Edison International and PG&E applications – you need a HIGH*

volume of demin quality water to spray on the fin-fan cooler – almost as much as you need in terms of make-up water for a wet cooling tower….

This type of configuration puts three strikes against the design immediately:

1. *Large footprint (as compared to a wet cooling tower)*
2. *Added parasitic load (cooling fans)*
3. *Large consumption of water."*

This alternative was eliminated from further consideration because it was not commercially available. Even if it were commercially available, the alternative would have been eliminated from further consideration because it significantly increased costs without a corresponding reduction in water use, and for the three reasons noted by GE above.

Intercooler Heat Rejection via Dry-Cooled Chillers

The Applicant explored use of dry-cooled mechanical chillers for intercooler heat rejection. Using mechanical chillers as the intercooler heat sink eliminates the severe adverse impact dry-cooling has on LMS100 gross output at elevated ambient temperatures, but requires an extraordinary amount of parasitic load, which results in a similar severe adverse impact on the plant net power output at elevated ambient temperatures. Parasitic load for the chillers is estimated at 110 megawatts (MW) at 107°F ambient and nearly 150 MW at 120°F ambient, which will require addition of two to three units to maintain the same power plant net power output. Resulting impacts and incremental costs, estimated at $292 million, are in the same order of magnitude as with the "standard" dry-cooled option driven by the same factors, which include (1) offsetting severe adverse performance impacts; (2) acquiring a substantially larger parcel of land for the project (assuming it was available); and (3) acquiring additional emission offsets.

This alternative is clearly not economically feasible and was rejected.

Dry-Cooled Intercooler Augmented with Mechanical Chillers

The Applicant also explored use of dry-cooled mechanical chillers to augment dry-coolers by further cooling the water coolant leaving the dry-coolers in an attempt to minimize the severe adverse performance impact dry-cooling has on the LMS100 performance at elevated ambient temperatures. To minimize dry-cooler impact on gross power output, the project would need enough chillers to reject the entire intercooler duty (e.g., chillers would have to reject approximately 30 percent of the heat at 100°F, 55 percent of the heat at 107°F, 66 percent of the heat at 110°F, and 100 percent of the heat at 120°F). As a result, this hybrid option does not offer any synergistic benefits, resulting in a combination of the worst impacts from stand-alone dry-cooling and stand-alone heat rejection via dry-cooled mechanical chillers. The capital cost impact will be higher than with either of the stand-alone alternatives, and the footprint will be significantly larger than either (nearly three times as large as proposed plant arrangement). More units, burning more fuel and requiring additional emission offsets, would be required.

This hybrid alternative is clearly not economically feasible and was rejected.

Inlet Air Chilling

During the project's conceptual design, CPV Sentinel also considered inlet chilling for the LMS100s with chiller heat rejection to the wet cooling towers as an option to the combustion turbine inlet evaporative/fog cooling. Inlet chilling was rejected for a number of reasons

including but not necessarily limited to, increased water consumption and marginal cost-benefits. With chiller duty rejected via the wet cooling towers, tower duty will be higher, with corresponding increases in water consumption. Water consumption for the chilled plant would be approximately 1 percent higher at 70°F, 3 percent higher at 80°F, 5 percent higher at 90°F, 8 percent higher at 100°F, 10 percent higher at 110°F, and 11 percent higher at 120°F. While chilling does provide a performance boost with the LMS100, the improvement provided is small compared to other combustion turbines. In particular, the improvement is less than with frame-type combustion turbines on which chilling is rarely considered, and substantially less than with aeroderivative combustion turbines (e.g., LM6000) on which chilling is commonly used.

With an LM6000 without any inlet cooling, generator gross power drops sharply with increasing ambient temperature. Power loss is 49 percent at 100°F. With frame-type combustion turbines, the drop-off is approximately half that of a LM6000. For example, with 7EA, power loss is 25 percent at 100°F; and with a 7FA, power loss is 22 percent at 100°F. Due to the unique benefits of the intercooler on LMS100, power loss is only 12 percent at 100°F. In effect, the intercooler significantly flattens the output versus ambient temperature characteristics. With less power lost as ambient temperature increases, benefits of the chilling inlet on an LMS100 are correspondingly reduced, as shown in following comparative example:

- An LM6000 loses from 27 percent to 60 percent of its gross output (relative to base) as ambient temperature ranges from 72°F to 120°F. From 69 percent to 86 percent of that lost gross is recoverable via chilling. If evaporative cooling/fogging is installed, lost gross recovery ranges from 39 percent to 44 percent, which is approximately half as much recovery as with chilling.

- An LMS100 loses from 4 percent to 17 percent of its gross output (relative to base) as ambient temperature ranges from 72°F to 120°F. All or virtually all of the lost gross is recoverable via chilling. If evaporative cooling/fogging is installed lost gross recovery ranges from 44 percent to 69 percent.

With chiller duty rejected via the wet cooling towers, tower duty will be higher, with corresponding increases in water consumption. Water consumption for the chilled plant would be approximately 1 percent higher at 70°F, 3 percent higher at 80°F, 5 percent higher at 90°F, 8 percent higher at 100°F, 10 percent higher at 110°F, and 11 percent higher at 120°F. These higher water consumption values are the net of the elimination of evaporative/fog cooling water consumption.

Chilling was eliminated from further consideration due to increased water consumption, marginal cost-benefits (as compared to use of chilling on other combustion turbines), and adverse impacts on the project's risk profile. No existing LMS100 project is chilled, and considering power purchase agreement requirements regarding 10-minute starts, reliability/availability and commercial penalties could be substantial.

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APPENDIX A

DRAFT EROSION CONTROL PLAN

CPV Sentinel Energy Project
Riverside County, CA

Erosion Control Plan
(ECP)

DRAFT

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January 2008

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LIST OF ACRONYMS AND ABBREVIATIONS USED IN RESPONSES

AB	Assembly Bill
ACM	asbestos-containing materials
AFC	Application for Certification
BACT	Best Available Control Technology
BMP	Best Management Practices
Btu/kwh	British thermal units per kilowatt hour
CASIO	California Independent System Operator
CASQA	California Stormwater Quality Association
CARB	California Air Resources Board
CCR	California Code of Regulations
CEC	California Energy Commission
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
CPUC	California Public Utilities Commission
CPVS	CPV Sentinel Energy Project
CTG	Combustion Turbine Generator
CVWD	Coachella Valley Water District
ºF	degrees Fahrenheit
DESCP	Drainage Erosion and Sediment Control Plan
dscf	dry standard cubic feet
DWA	Desert Water Agency
DWR	California Department of Water Resources
ECP	Erosion Control Plan
EGF	Electrical Generating Facility
E-I	Energy Industrial
ERC	emission reduction credit
ESA	Environmental Site Assessment
ETo	evapotranspiration
g/s	grams per second
GHG	greenhouse gases
gpm	gallons per minute
gr/100	scf grains per hundred standard cubic feet
GWP	global warming potential
ISO	Independent System Operator
kV	kilovolt
kw	kilowatt
lb/hr	pounds per hour
lb/MW-hr	pounds per megawatt-hour
lb/yr	pounds per year
LBP	lead-based paint
LGIA	Large Generator Interconnection Agreement
LHV	lower heating value
MGD	million gallons per day
µg/L	micrograms per cubic liter
MMBtu/hr	million British thermal units per hour
MSWD	Mission Springs Water District
MW	megawatt

MWD	Metropolitan Water District
NA	not applicable
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
OAL	Office of Administrative Law
PCBs	polychlorinated biphenyls
PM_{10}	particulate matter less than 10 microns
PUP	Public Use Permit
RH	relative humidity
RTCs	RECLAIM Trading Credits
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
scf	standard cubic feet
SCGC	Southern California Gas Company
SF	Sulfur hexafluoride
SO_2	sulfur dioxide
SO_X	sulfur oxides
SWP	State Water Project
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
ton/hr	ton per hour
UWMP	Urban Water Management Plan
VOC	volatile organic compounds
WWTP	Wastewater Treatment Plant

A.1 Overview

CPV Sentinel is leasing a 37-acre project site located in an already disturbed area that is primarily used for energy generation and just east of the Devers substation within unincorporated Riverside County. The 37-acre project site consists of parcels 1, 1A, 2 & 3 that are of moderately sloped rocky desert terrain that includes an older structure and well on parcel 3. Offsite linear facilities include a proposed transmission line connecting to SCE's Devers substation, a proposed natural gas pipeline extending from the Indigo Energy Facility and the existing Southern California Gas Company (SoCalGas) natural gas distribution system, a proposed potable water supply pipeline, and a proposed access road extending from the existing Dillon Road.

The Erosion Control Plan (ECP) is for monitoring the construction site of a nominally rated 850-megawatt (MW) quick-start peaking electrical generating facility in Riverside County. The proposed project site consists of 37 acres of land situated approximately 8 miles northwest of the center of the city of Palm Springs. The environmental setting of the site is optimal for a power plant. The site is located 700 feet east of the Devers substation, and 1.8 miles northwest of the Indigo Energy Facility. The site locale is an industrial portion of the unincorporated area of Riverside County, and is primarily dedicated to industrial and energy uses. The nearest residence to the site is situated 330 feet to the east; CPV Sentinel has an option to acquire this residential property which includes an existing well as a potential source of construction water supply and as a potential monitoring well. The general location of the site is shown in Section D Attachment A.

Construction of the power plant would occur over an 18-month period (from December 2008 to May 2010). Operation of the first five turbine units is planned to begin by March 2010, and the final three units are planned to begin operation in May 2010.

A.2 References

1. Application for Certification for C.P.V. Sentinel Power Plant, Desert Hot Springs, CA. Prepared for URS.

2. California Stormwater BMP Handbook, California Stormwater Quality Association, 2004.

Section B

Particulate Matter Over 10 Acres Application to Riverside County

B.1 PM-10 County Application

CPV SENTINEL POWER PLANT

APN: 668-130-005, 668-130-007, 668-140-001

Prepared for:
State of California Water Resources Control Board
1001 I Street
Sacramento, CA 95814
916-341-5537

CONTRACTOR:
Wintec Energy Ltd
1090 N. Palm Canyon Drive, Suite A
Palm Springs, CA 92262
760-323-9490
D&F Land CO, LLC

Project Location/Site Address:
62575 Powerline Road
Desert Hot Springs, CA 92240

Contractor's Pollution Prevention Manager:
TBD

Prepared by:
Stantec Consulting Ltd.
73733 Fred Waring Drive, Suite 100
Palm Desert, CA 92260
Dale C, Ross, Sr. Project manager

Preparation Date
January 2008

Estimated Project Dates:
Start of Construction: March 2008-May 2010

ALL PM 10 MEASURES WILL BE IN PLACE, INSPECTED AND APPROVED BY THE DEPARTMENT OF BUILDING AND SAFETY GRADING DEPARTMENT AT THE PRE-GRADING MEETING.

Please read and fill out this document appropriately. Even small projects must do their part. PMlO dust (powdery dust 10 microns or smaller diameter) has been identified as a potentially serious health threat. This fine dust can lodge deep in the lungs and has been associated with bronchitis and other respiratory illnesses. Desert Dust can be particularly unhealthful, being associated with "Desert Lung Syndrome" and lung infections caused by fungal spores carried in Desert Dust. Children, the elderly and persons with respiratory conditions are particularly sensitive to fine dust. Everyone is adversely affected by the relatively high levels of PMlO that occur in the Coachella Valley. Larger sand particles can be turned into this dust through the grinding action of tires on the roadways and through repetitive plowing and disking operations.

INCLUDE REFERENCE MAP

PROJECT DATA - BGR

DATE: January 16, 2008 PROJECT NAME: CPV Sentinel Energy Project
STREET ADDRESS / SITE LOCATION: 62575 Powerline Road, Desert Hot Springs, CA 92240

ADJOINING PROPERTY INFORMATION (For sensitivity, typical winds blow N.W. to S.E.)

Easterly: Industrial Wind Energy Developed
Southeasterly: Industrial Wind Energy Developed
Southerly: Industrial Wind Energy Developed
Southwesterly: Industrial Wind Energy Developed
Westerly: Industrial Substation Developed (Devers)
Northwesterly: Industrial Substation Developed (Devers)
Northerly: UNDEVELOPED
Northeasterly: Industrial Wind Energy Developed

CURRENT LAND USAGE: VACANT
PROPOSED LAND USAGE: POWER PLANT
LOT: TRACT / PM: LAND USE PERMIT NO:
ASSESSORS PARCEL NUMBER (A.P.N.): 668-130-005,668-130-007,668-140-001
PARCEL SIZE: 37 ACRES 1,611,720 SQ. FT.

EARTHWORK QUANTITIES ESTIMATE

TOTAL AREA TO BE DISTURBED: 37 ACRES 1,611,720 SQ. FT.
STRIPPING & SUBSIDENCE LOSSES: (TYP. 0.3' x AREA127 CF. / CY.) 14,923 CY
RAW CUT VOLUME: 260,800 C.Y. SHRINKAGE: 20% 55CY
RAW IMPORT VOLUME: 0 C.Y.
RAW EXPORT VOLUME:0 C.Y.
COMPACTED FILL VOLUME: 0 C.Y.
TOTAL YARDAGE CUT & FILL FOR THE SITE: 260,800 C.Y.
(See haul route detail on attached reference plan for import / export locations)

PHASING OF GRADING ACTIVITIES

The amount of active, disturbed area must be limited to what can be effectively watered 4 times per day by either sprinklers or water trucks. Typical 2000 gallon water truck can effectively water about 4 acres per hour during non-high wind conditions. Therefore, an 8 hour workday, divided by 4 waterings per day times 4 ac./hr. = 8 acres per truck during non-high wind conditions. For cut and fill activities, one 10,000-gallon water pull is estimated to be necessary for each 7,000 cubic yards of daily earth movement. The owner **must specify the number and m e of watering vehicles** available for dust control during each phase as well as during off hours and the availability of back-up water trucks if the site experiences dust control problems. Since water trucks are allowed to work 7 days a week, 24 hours a day, in some locations, up to 24 acres per truck may be achieved that way, with special permission. Larger projects must have more trucks, more hours, more sprinklers, or less disturbed area at any one time. Water towers are necessary for projects with more than 10 acres of active construction. Areas already graded or stockpiled must be stabilized with chemicals, hydro mulch or vegetation, before additional areas can be stripped for grading. The phasing pattern below shall be shown on the reference map. Driving routes through the project must be counted in all phases where they are only treated with water. It is better to treat them with an approved "oil" (like Envirokleen) or similar non-crusting dust palliative, to save water.

PHASE "A" SUB-PHASE APPROX. DATE / DISTURB AC / SPRINKLER AC / WATER TRK AC #/ # OF TRKS
A1 – PREWATERING USING A TEMPORARY ONSITE IRRIGATION SYSTEM OR (5) 2000 Gal Water Trucks
A2 – INSTALL PERIMETER FENCING & LOCATE STAGING AND PARKING AREAS
A3- INSTALL TEMPORARY ACCESS ROAD AND TRACK OUT DEVICE
PHASE "B" – SUB-PHASE APPROX. DATE / DISTURB AC / SPRINKLER AC / WATER TRK AC # / # OF TRKS
B1 – CONTINUE ON-SITE WATERING
B2 – CONSTRUCT RETENTION BASIN
B3 – STORAGE PILE STABILIZATION
PHASE "C" – N/A SUB-PHASE APPROX. DATE *1* DISTURB AC *1* SPRINKLER AC / WATER TRK AC # / # OF TRKS
C1- STABILIZE SOIL WITH WATER FOLLOWING COMPLETION OF TRENCHING ACTIVITIES.
C2- WATERING BY AUTOMATED PORTABLE IRRIGATION SYSTEM OR BY MEANS OF WATER TRUCKS.
C3- PAVED IMMEDIATELY UPON COMPLETION OF INSTALLING UNDERGROUND UTILITIES
C4 - STAGING AREA TO REMAIN AT DESIGNATED LOCATION UNTIL PROJECT IS COMPLETED
PHASE "D"- N/A SU B-PHASE APPROX. DATE / DISTURB AC / SPRINKLER AC / WATER TRK AC # / # OF TRKS
D1- DAILY WATERING BY MEANS OF WATER TRUCKS OR USING A PORTABLE SPRINKLER SYSTEM
D2 - WATERING AS NECESSARY USING A PORTABLE USING A PORTABLE SPRINKLER SYSTEM
D3

FUGITIVE PM 10 DUST CONTROL MEASURES

HERE IS THE SUMMARIZED MATRIX OF REQUIRED DUST MITIGATION MEASURES IDENTIFIED
BY PHASE:

A	B	C	D	
X	/	/	/	PRE-GRADING SITE WATERING
x	/ x	/	/	SIGNS POSTED ON SITE WITH 24 HR. PHONE #'S FOR DUST CONTROLLER
x	/	/	/	WIND FENCING (ON ALL SIDES OF PROJ. LACKING MASONRY WALLS)
x	/ x	/	/	SITE WATERING 7 DAYS A WEEK (IRRIGATION SYSTEM, OR BY WATER TRKS, MIN. 4 TIMES PER 24 HRS, 1 TRK / 8 ACRE)
	/	/	/	PERIMETER SPRINKLER SYSTEM (ALL SIDES, CONT. NIGHT WATERING WHEN WINDY)
x	/	/ x	/ x	GRAVEL (MIN. 1.5" - 3" DIAM ROCK X ***6"*** D X 20' W 100' L, TRACK OUT)
	/	/	/	RUMBLE STRIPS (AT ALL GATES EXITING SITE ONTO PAVED SURFACE - TO BE INCORPORATED WITH GRAVEL TRACK-OUT AREAS)
	/ x	/ x	/ x	INACTIVE AREA SOIL STABILIZERS (ADVISE GRDG DEPT OF STABILIZER)
	/ x	/ x	/ x	ACTIVE AREA SOIL STABILIZERS (ADVISE GRDG. DEPT. OF STABILIZER)
	/	/	/	TOP ALL VEHICLE ACTIVITY EXCEPT WATER TRUCKS WHEN WIND SPEEDS EXCEED 25 MHP
	/	/	/	STREET SWEEPING, ONCE A WEEK AND WHENEVER NEEDED
	/	/	/	PERMANENT VEGETATION
	/	/	/	BLOCK WALLS
	/ X	/ x	/	ROAD PAVING
	/	/	/	24 HOUR ON-SITE ENVIRONMENTAL OBSERVER

NOTE: These control methods are discussed in detail in the "Coachella Valley Fugitive Dust Control Handbook" from the South Coast Air Quality Management District, available from the S.C.A.Q.M.D and Riverside County Ordinance 742.1.

PROJECT RECORD KEEPING/REPORTS: Record all activities, contracts and materials purchases associated with blow sand/fugitive dust program. Weekly reports shall be submitted to the County of Riverside Building Department for review. This "feedback" will eventually help the County to determine what methods of dust control are most cost effective in both short and long term situations. See the report form that's available from the County or in the aforesaid document.

CERTIFICATE OF COMPLETION: The owner or owners representative, authorized dust controller and foreman, or like, for the contractor and sub-contractors on site that have the possibility of generating fugitive dust, must attend the S.C.A.Q.M.D. Coachella Valley Fugitive Dust Control Class prior to beginning work on this site and become certified. Copies of each person's certification cards will be kept with this permit on site. At least one person for each contractor falling within this criteria, will be on site at all times during their phase of construction.

FUGITIVE PM 10 DUST CONTROL PROGRAM DETAILS:

Each mitigation measure or control program will be described in detail below as necessary. Please utilize a Dust Control Plan Exhibit, a drawing laying out dust control measures to be used, and attached, to indicate the location of on-site water availability, staging areas, temporary irrigation lines, truck/wheel washers, temporary sand/wind fencing, construction phasing, worker's parking areas, graveled entrance/exit, rumble strips and other things as needed.

PHASE "A":

GENERAL REQUIREMENTS

1. Written and notarized permission letters will be submitted to the Building and Safety Department from any adjacent land owners whose property will be used in any manner for construction, staging, access, etc., prior to any such usage. The owner and authorized dust controller for this project will be responsible for the dust control on any off-site disturbed areas as well as on this project.

2. Wind fencing, of the fabric type, will be installed on the temporary construction fencing around the perimeter of the project on all sides that do not have existing masonry walls or similar solid fencing or hedges. This serves the multiple purposes of: catching some windblown dust, reducing wind speeds on the project perimeter and restricting vehicular access points into the project. This restricted access helps reduce damage to any "crust" of stabilized soil on the project, and allows placing of the exit where "track-out" can be stopped per ***#5*** below.

3. Pre-watering will commence at least …14 days prior to actual grading using a temporary on-site irrigation system. Connection to any existing water system will be done in compliance with municipal water district. Temporary water lines will be installed with a minimal disturbance of any off-site areas they pass through. When the grading begins, a sprinkler system will be placed around the perimeter of the project, with frequent watering, especially in the typically windy evenings. Placing the perimeter sprinklers on the wind fencing keeps them safe and effective. Water trucks will provide watering for areas not covered by the sprinklers. (One truck per 8 acres for 8-hour workdays. See above.)

4. Activity areas such as: Equipment storage area, materials storage area, temporary office trailers and employee parking will be located, on site, as indicated on the site reference map. In lieu of existing paving, a soil stabilizer that does not require constant watering, such as a washed gravel or "biodegradable oil" will be used in the initial staging area. Any chemicals used must be cleared with the County and the Regional Water Quality Control Board.

5. The tires of vehicles being used on-site will be inspected, and washed if necessary, to stop tracking of dirt onto public streets. If extensive export or import is to be done, a paved or graveled wheel washing area at least 20' wide by 100' long will be provided at the exit to facilitate the inspection and cleaning of tires. "Rumble Strips" made from lumber, railroad track or similar materials will help reduce the mud from getting onto the public streets. Street sweeping and washing is still required, but may be reduced by proper use of a "wheel washing area" like this. This is required on projects over 5 acres or with over 5,000 cubic yards of import or export.

6. A standard sign with the following information MUST be posted on the site, at least one sign per fronting street. The sign must include: the Grading Permit Number, the Project Name, Map Number if appropriate, the Authorized Dust Controller's Phone Number(s), the County Phone Number and the South Coast Air Quality Management District (S.C.A.Q.M.D.) Phone Number. It is the responsibility of the property owner 1 developer 1 dust controller to have these signs made and maintained so they remain visible to the traveling public and adjacent property owners throughout the entirety of this project. (See attached sign requirements and layout.)

7. Vehicles traveling on dirt and/or on unpaved roads will restrict their speed to 15 M.P.H. maximum. Signs to that effect will be placed at the project entrance and on the interior of the project to improve compliance. This is a must on projects 5 acres and over.

8. When wind speeds exceed 25 M.P.H., by continuous anemometer reading or in gusts at least twice within a thirty minute period, measured on the site, all activity on the site will cease, either voluntarily or by the County or A.Q.M.D. Inspector notification, except for the water trucks and sprinkler-tending vehicles, if any. When operating under these conditions, the water trucks will maintain a schedule of 24 hours a day 7 days a week until such time that the winds calm down and fugitive blow sand no longer crossing property lines. In the event that the project has been stabilized and the resulting fugitive blow sand is transitional, the project owner/developer is still responsible for the maintenance of that transitional blow sand once it has settled onto the subject property.

SITE SPECIFIC DETAILS:

(Please describe any specific or additional control measures proposed)

1. Pre-Watering Method: BY MEANS OF FIVE (5) WATER TRUCKS OR TEMPORARY ON SITE IRRIGATION

2. Water Availability, Initial Stage: Specify water source and available flow rates (glm): WATER IS AVAILABLE ON SITE FROM EXISTING WELL.

3**.** Off-Site Work Permission Needed: NO OFFSITE WORK

4. Access Will Be Controlled By: Specify location(s): FENCING

5. Initial Staging Area: Equipment Storage: TEMPORARY AREA ON SITE

Temporary Office: ON-SITE Employee Parking: TEMPORARY LOT ON-SITE

6. Wheel Washing Provisions: LOCATED AT POINT OF INGRESS AND EGRESS WHEEL SHAKER.SPREADING DEVICE CONSISTING OF RAISED 3” TALL DIVIDERS, 6” APART PLACED AT THE CONSTRUCTION ENTRANCE.

7. Speed Restriction Sign Location(s): N/A

8. Number of Posted "Dust Control Sign(s)" and Location(s):INSTALL DUST CONTROL SIGN AT SITE ENTRANCE

9. Preliminary Work:

PHASE "B":

GENERAL REQUIREMENTS

1. Hauling Procedures - All vehicles going from dirt areas onto paved streets will have tires and wheels inspected and washed if necessary to avoid "tracking-out" dirt.
   Trucks hauling dirt on paved streets will maintain at least a half foot "Freeboard" from rim to dirt and have all dirt and dusty debris loads covered with an appropriate tarp.
   The haul route is shown hereon or on an attached sheet, and shall be cleared with the County Transportation Department for any applicable transport permits prior to its use. All hauling trucks will have a copy of these provisions with them at all times.
   The import/export site MUST have a valid grading permit also and will comply with all appropriate dust mitigation measures also. When practical, trucks and equipment should shut off engines rather than idling for extended periods to minimize exhaust emissions and noise. This becomes more critical as the numbers of vehicles increase.

2. Vehicles traveling on dirt and/or on unpaved roads will restrict their speed to 15 M.P.H. maximum. Signs to that effect will be placed at the project entrance and other appropriate spots throughout the project to improve compliance.

3. All stripped, graded or otherwise disturbed areas will be stabilized by some appropriate means. Areas, actively being graded, can usually be stabilized by applying large amounts of water. Disturbed areas not actively being worked may be effectively treated with some more durable soil stabilizer, such as hydro mulch, to avoid constant watering. The preferred method of site watering is by sprinkler, if they do not interfere with the grading vehicles.

4. If perimeter block walls are to be built, they will be given a high priority since they will help to catch the blow sand and can thereby reduce the amount of street sweeping required.

SITE SPECIFIC DETAILS:

(Please describe any specific or additional control measures proposed)

1. Hauling Procedures: NO OFFSITE HAULING

2. Speed Restriction Sign Location(s): Install speed sign at the Entrance

3. Soil Stabilization Methods: SITE WILL BE WATERED DAILY DURING GRADING

Active Area Water Schedule: OPERATIONS BY MEANS OF TEMPORARY ON-SITE IRRIGATION SYSTEM OR USING FIVE (5) WATER TRUCKS. SITE WILL BE WATERED DURING WEEKENDS

Weekend Watering Schedule: 4 TIMES PER DAY OR AS NECESSARY TO MAINTAIN VISIBLE MOISTURE OR TO DEVELOP A CRUST.

Inactive Area Stabilization Method(s): CONTINUOSLY OR CHEMICALLY STABILIZED.

Inactive Area Stabilization Schedule: N/A

4. Perimeter Block Wall Schedule: N/A

5. Other: IN THE EVENT THAT PRESCRIBED MEASURES ARE INEFFECTIVE, THE CONSTRUCTION SUPERVISOR WILL IDENTIFY THE SOURCE OF POLLUTION AND IMPLEMENT ANY NECESSARY ACTION(S) TO CONTROL POLLUTION OR STOP DUST GENERATING ACTIVITY UNTIL A SUITABLE CONTROL MEASURE CAN BE IDENTIFIED.

PHASE *"C":*

GENERAL REQUIREMENTS

1. Dirt stockpiled next to utility trenches shall be kept watered or otherwise stabilized or covered to help counteract their high profile exposure to the wind.

2. All previously rough graded areas, that are or will be inactive in this phase, will be treated with a durable soil stabilizer or ground cover system. If a vegetated ground cover is utilized, it is only necessary to get it initially established.

3. For tracts, multiple parcels and extensive commercial sites, paved access to the building sites will be required prior to framing of the buildings. The construction stage usually indicates an increase in the numbers of workers and their vehicles. Also, the paved access is recommended for the fire fighting purposes. If paving is desired before all the utilities and/or laterals are installed, the base lift of asphalt is sufficient for access. The A.C. can be "capped" later, leaving a final surface that is free of utility cuts and patches.

4. As paved access is extended, the staging area can be moved closer to the building sites. The storage, office trailer, equipment and employee parking can be moved onto paved portions of the site.

SITE SPECIFIC DETAILS:

(Please describe any specific or additional control measures proposed)

1. Trench Stockpile Treatment: STABILIZE SOIL WITH WATER FOLLOWING COMPLETION OF TRENCHING ACTIVITIES.
2. Inactive Area Treatment: WATERING BY AUTOMATED PORTABLE IRRIGATION SYSTEM OR BY MEANS OF WATER TRUCKS.
3. Street Paving Schedule: PAVED IMMEDIATELY UPON COMPLETION OF INSTALLING UNDERGROUND UTILITIES.
4. Stage Area Movement: STAGING AREA TO REMAIN AT DESIGNATED LOCATION UNTIL PROJECT IS COMPLETED
5. Other:

PHASE "D":

GENERAL REQUIREMENTS

1. All inactive areas will have been stabilized by this stage. If previously covered, the actual building pads may now need to be stripped, scarified and recompacted for the building pad compaction and elevation certifications. Dust will be kept down by watering, usually by temporary sprinklers.

2. Trenching for building utilities, drywell construction, pools and the tennis court construction form the bulk of earthwork after the pads have been certified. Temporary sprinklers may still be used on the pad site for dust control prior to the beginning of framing. Treatment with a biodegradable "oil" approved for dust control is recommended where it is difficult to water.

3. Establishing the landscape and sprinkler system around the perimeter of large projects will be done at this stage. Plantings around the perimeter serves as a wind buffer and collection system for dust and sand. It is good to have dust and sand well under control prior to the building phase for the sake of certain gluing and painting processes that can be ruined by blow sand or dust.

4. Disturbed areas around the buildings will be watered by hand for dust control until such time that a sprinkler system is fully functional and ground cover and/or landscaping is established. If watering is difficult due to building interference, chemical or mulch treatments are available that can stabilize the soil without frequent watering.

5. Construction dust such as from cement, plaster, paint over spray, woodcuttings, grinding operations, etc., will be minimized also. A perimeter barrier of sprinklers and plantings can serve to catch some of this potentially hazardous material as well as natural dust and blow sand. Concentrations of construction dusts can result from washing of equipment and should be properly disposed of before they can dry out and blow or be washed across the project boundaries.

6. Note that the County, prior to the setting of permanent ground cover or other plants, will inspect the swales.

SITE SPECIFIC DETAILS:

(Please describe any specific or additional control measures proposed)

1. Building Pad Watering: (Hand watering twice daily around building site) DAILY WATERING BY MEANS OF WATER TRUCKS OR USING A PORTABLE SPRINKLER SYSTEM

2. Formwork and Trench Watering: (By hand watering twice daily) WATERING AS NECESSARY USING A PORTABLE USING A PORTABLE SPRINKLER SYSTEM

3. Perimeter Landscape Schedule: (As soon as possible) N/A

4. Other: N/A

Abatement of Dust Mitigation Failure

An irrevocable license is hereby granted to the County of Riverside official(s), to permit the entry upon the site under the following circumstances:

A. In the event that wind speeds in excess of 25 mph are forecast to occur by the South Coast Air Quality Management District (SCAQMD) for a particular day.
B. In the event of an on-site anemometer that conforms to all SCAQMD standards registering 2 wind gusts in excess of 25 mph within a consecutive 30 minute period; or
C. In the event fugitive dust emissions are visible for a distance of 50 feet fiom any boundary line; and
D. The County is unable, by telephone, to establish a personal contact with the general contractor after a 60 minute consecutive period which shall commence with the first telephone call, whether answered or not; then the County will undertake to initiate one or all of the below listed actions:
    1) The County will cease the cessation of any on-site activity, including but not limited to earth moving, construction, demolition or vehicular movement and maneuvering.
    2) In the event that an on-site irrigation system is not installed andfor operational, the County will cause the site to be watered. In any contract between the general contractor and any water providing vendor, such as a watering truck operations or irrigation system provider/operator, the County shall be named as an authorized agent for the purpose of ordering or calling out a water truck or causing an irrigation system to be made operational. Should the general contractor not have such a contract or have failed to designate the County as an agent or not informed the County of the contractor's name, address and telephone number, or the County is unable to contact the contractor after a reasonable effort is made to do so, the County may authorize any other vendor as its agent for purposes of entry upon the site to attempt to mitigate any potential dust control problems.
    3) In the event an on-site irrigation system is installed, the County will cause the irrigation system to operate. The general contractor shall take all necessary steps to ensure that the County has the means to access the site and the valves of the irrigation system; that is, the key to any and all locks shall be provided to the County (Building Department Official) by the end of the workday following the installation of any such lock(s). Each key shall be plainly and clearly marked with the project name and corresponding lock (main gate, south irrigation system, etc.).
    4) If, in the opinion of the Building Department Official or his designee, the intensity, frequency or duration of fugitive dust emissions from the site constitutes a hazard to the safety of the public, by intrusion beyond the project boundaries, the official or his designee or agent may immediately enter the site and/or take other actions as may be necessary to remedy the hazard, such as, but not limited to commencing watering on the site and/or ordering the cessation of any emission generating activity occurring on the site.
    5) Any of the above actions may be construed as an abatement for which the County will "Back-Charge" the general contractor, developer and/or the owner, as the County shall deem appropriate.

Application Consent

Application for approval of a Local Air Quality Management Plan (LAQMP) hereby made to the Riverside County Building Department Official or his designee, as part of a grading permit application, subject to the conditions and restrictions set forth herein.

1) Each person upon whose behalf this application is made and each person at whose request and for whose benefit work is performed under and pursuant to any permit issued as a result of this application, agrees to, and shall indemnify and hold harmless the County of Riverside, its officers, agents and employees.

2) Any permit issued as a result of this application becomes null and void if work is not commenced within six months of the date of issuance of such permit.

3) The Applicant, owner, contractor(s), sub-contractor(s) or other agents, heirs or assignee shall conform to the attached dust control plan as approved by the County. Said plan includes notes and/or drawings of temporary or permanent control methods or devises proposed to be used. This LAQMP shall be considered an addendum to, and a necessary part of, and grading, stockpile, improvement or demolition plan otherwise required for County permits.

4) By agreeing to conform to this plan as approved by the County, the owner and grading contractor(s) do also agree to abide by the provisions of the abatement procedures as shown above.

Licensed Contractor's Declaration:

I hereby affirm that I am licensed under the provisions of Chapter 9 (Commencing with Section 7000 of Division 3 of the Business and Professions Code) and that my license is in full force and effect.

License Class ……No……..

Contractor Name……

Company Name ……

Company Address……

Contact Name……...

Phone ……Cell……Pager……

Responsible for dust control during construction activities no yes
Responsible for dust control during off-hours no yes

Contractor's Signature …….. S. C.A.Q.M.D. Certificate No. ……
Date ……..

Owner's Certification:
I certify that the information contained herein is true and correct. I agree to comply with the County of Riverside ordinances relating to grading operations. I authorize representatives of the County of Riverside to enter the above-mentioned property of inspection and/or abatement purposes, and I agree to hold harmless the County of Riverside and its representatives from liability for any actions related to this permit.

Owner's Name:……..
Address:……
City, ……..State ……, Zip Code:……
Phone Number:

Owner's or Representative's Signature……..
Date……

24 **HOUR - 7 DAYS A WEEK CONTACT FOR THIS PROJECT IS:**

Name ……..**S** .C.A.Q.M.D. Certificate No……

24-hour number ……

(This number is required to be a 24 hr. 17 days a week manned number. No answering machines will be allowed. Answering services are acceptable.)

SIGNAGE RECOMMENDATIONS

Permit holder shall post signage at specified locations on the subject property in accordance with Riverside County Ordinance No. 742.1 and Rule 403 and 403.1, with the standards specified below. These signs shall be posted within 50 feet of the curb on all four (4) corners of the subject property.
For each Dust Control Plan, the County recommends the following:

I. The applicant shall install a sign on such property which is visible to the public that meets the following requirements:

(a) Such sign shall measure at least four (4) feet wide by eight (8) feet high or eight (8) feet wide by four (4) feet high and conform to the specifications below.

THE SIGN SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:

1. The signboards shall be constructed with materials capable of withstanding the environment in which they are placed.

The County recommends the following:

I. Size of the signboard shall be 4' x 8' or 8' x 4'
II. 3/4" to 1" A/C laminated plywood board
III. I11 Two (2) 4" x 4" posts
IV. The posts should be attached to the 4 edges of the plywood board with at least two (2) carriage bolts on each post.
V. The front surface of the signboard should be painted in the contrasting color of a white background with black lettering.
VI. The size of the TEXT lettering shall be ***2"*** in height, no smaller

The size of the 24 HOUR CONTACT NAME AND NUMBER lettering shall be 3 1/2" in height, no smaller

The size of the STATEMENT lettering shall be in BOLD LETTERS, 4 1/2" in height, no smaller

2. The signboard shall contain the following information:
   a. County of Riverside BGR number (grading permit number)
   b. The Developers name
   c. The Project name
   d. The statement "IF YOU SEE DUST COMING FROM THIS PROJECT CALL" (this statement MUST be in large, bold letters)
   e. The name and phone number of the 24 hour contact responsible for dust control matters
   f. Subcontractors name and phone number (this is an optional requirement)

g. The County of Riverside 24 hour number (this is provided for you on the layout handout included with this packet)
h. South Coast Air Quality Management District and their number (also provided on the handout)

3. The sign board shall be installed and maintained in a condition such that members of the public can easily view, access and read the sign at all times until the expiration date of the Dust Control plan.

The County recommends the following:

I. The lower edge of the signboard should be mounted at least 2' above the existing ground surface to facilitate ease of viewing.
II. The posts should be set in a hole at least 3' deep with concrete footings to preclude downing by high winds.
III. On the construction site, the sign should be positioned so that nothing obstructs the public view from the primary street access point.
IV. For construction projects that are developed in phases, the sign should be moved to the area that is under active construction.
V. In situations where all phases of the construction project are completed on a property prior to expiration of the Dust Control Plan, a written request for cancellation of the Dust Control Plan must be submitted to the County with a Certificate of Occupancy for such property.

(THE PMlO PLAN MUST BE SHOWN TO THE COUNTY GRADING DEPARTMENT PRIOR TO OBTAINING GIWDING PERMIT AND MUST BE IN PLACE PRIOR TO BEGINNING THE GRADING OPERATION)

RIVERSIDE COUNTY PERMIT NO.
BGR…….

THE DEVELOPERS NAME GOES HERE

THE PROJECT NAMEGOES HERE

IF YOU SEE DUST COMING FROM THIS PROJECT CALL

(24 HR. CONTACT NAME) (24 HR. CONTACT PHONE #)

IF YOU DO NOT GET A RESPONSE WITHIN ONE HOUR,
PLEASE CALL RIVERSIDE CO. AT (760) 427-9989
AND REPORT THE BGR# AND PHONE # ABOVE.

AND

CALL A.Q.M.D. AT 1-800-CUT-SMOG (1-800-288-7664)

Filename: CPV County PM10 Application .rtf
Directory: C:\Documents and Settings\mweiss\Desktop\Cpv Ocotillo Wintec\Section B- PM-10 County
Template: C:\Documents and Settings\mweiss\Application Data\Microsoft\Templates\Normal.dot
Title: ALL PM 10 MEASURES WILL BE IN PLACE, INSPECTED AND APPROVED BY THE
Subject:
Author: mweiss
Keywords:
Comments:
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Section C
Particulate Matter Over 10 Acres Application to SCAQMD

C.1 AQMD PM-10 Application

CPV SENTINEL POWER PLANT
APN: 668-130-005, 668-130-007, 668-140-001

Prepared for:
County of Riverside
4080 Lemon Street
Riverside, CA 92501
951-955-1000

CONTRACTOR:
Wintec Energy Ltd
1090 N. Palm Canyon Drive, Suite A
Palm Springs, CA 92262
760-323-9490
D&F Land CO, LLC

Project Location/Site Address:
62575 Powerline Road
Desert Hot Springs, CA 92240

Contractor's Pollution Prevention Manager:
TBD

Prepared by:
Stantec Consulting Ltd.
73733 Fred Waring Drive, Suite 100
Palm Desert, CA 92260
Dale C, Ross, Sr. Project manager

Preparation Date
January 2008

Estimated Project Dates:
Start of Construction: March 2008-May 2010

Fugitive Dust Control Plan Application Form
(Form A - Page 1 of 4)

Please print in ink or type. Blank spaces must be completed for the application to be processed. If an item is not applicable, please enter N/A.

1. Form Preparer: Property Owner ☐ Developer ☐ Prime Contractor XX ☐ Other ☐*
*(If Other, attach Owner Designee Form [Page 3-8]) *

CONTACT PERSON NAME	
COMPANY NAME	Wintec Energy Ltd.
COMPANY ADDRESS	1090 North Palm Canyon Drive Suite A
CITY, STATE, ZIP CODE	Palm Springs, CA 92262
TELEPHONE NUMBER	760-323-9490
FACSIMILE NUMBER	
24-HOUR, MANNED AFTER HOURS PHONE NUMBER	
AQMD DUST CLASS CERTIFICATE #	

2. Project Address or Location

PROJECT NAME	CPV Sentinel Energy Project
PROJECT ADDRESS	62575 Powerline Road
CITY, STATE, ZIP CODE	Desert Hot Springs, CA 92240
NEAREST MAJOR CROSS STREETS	Dillon Road/ Karen Avenue
PARCEL NUMBERS	APN: 668-130-005,668-130-007,668-140-001

Fugitive Dust Control Plan Application Form
(Form A - Page 2 of 4)

3. Project Acreage (total land to be disturbed)

(include project site and associated unpaved access roads, stockpiles, and staging areas)

PROJECT SIZE (ACRES)	37 Acres
WATER SOURCE (GPM)	Onsite Existing Well ( ) GPM

4. Project Owner (if Fugitive Dust Control Plan preparer is not the property owner)

NAME	
COMPANY NAME (IF APPLICABLE)	D&F Land CO. LLC
ADDRESS (INCLUDE CITY, STATE, & ZIP CODE)	
TELEPHONE NUMBER	
FACSIMILE NUMBER	

5. The Person(s) responsible for dust control measures and to whom official notices should be sent if necessary

RESPONSIBLE PERSON	
COMPANY NAME	
ADDRESS (INCLUDE CITY, STATE, & ZIP CODE)	
TELEPHONE NUMBER	
24-HOUR, MANNED AFTER-HOURS TELEPHONE NUMBER	
FACSIMILE NUMBER	
AQMD DUST CLASS CERTIFICATE #	

Fugitive Dust Control Plan Application Form
(Form A - Page 3 of 4)

6. On-Site Superintendent/Supervisor/Foreman contact

NAME	
COMPANY NAME	
ADDRESS (INCLUDE CITY, STATE, & ZIP CODE)	
TELEPHONE NUMBER	
24-HOUR, MANNED AFTER-HOURS TELEPHONE NUMBER	
AQMD DUST CLASS CERTIFICATE #	

7. Site Mapping

Provide a map showing the vicinity of the project clearly identifying the closest major cross streets or other landmarks and the project location. Label this map "**Vicinity Map**". Required map size is 8 ½ by 11".

Provide an 8 ½ by 11" or larger **Assessor Parcel Map** for the property(s) on which the project will be occurring. Outline or highlight the affected parcels. Identify location of site entrances, internal unpaved haul routes, wind fencing, areas to be chemically stabilized and other proposed and required dust control mitigations. Projects that are only installing or constructing linear features such as roads, pipelines or other utilities that boarder or cross more than one Assessor's parcel do not require Assessor's Parcel Maps, but must provide a detailed vicinity map adequately depicting the entire project area. If the project is divided into construction phases (separate physical project areas), provide a map clearly identifying the phases.

8. Attach a Fugitive Dust Control Plan

- ✓ Projects with less than 10 acres of disturbed surfaces must complete and attach a Fugitive Dust Control Plan (Form DCP) or equivalent.

- ✓ Projects with 10 acres or more of disturbed surfaces must complete and attach a Site-Specific Fugitive Dust Control Plan. Guidance for preparation of a Site-Specific Fugitive Dust Control Plan is included later in this Chapter.

Fugitive Dust Control Plan Application Form
(Form A - Page 4 of 4)

9. Project notifications

For projects with 10 acres or more of disturbed surfaces, the dust control ordinance requires notification to the local permitting authority and to the AQMD prior to project initiation and at project completion. (Refer to Chapter 4 of this Handbook for specific requirements and forms).

10. Project Signage

Construction signage must be installed on-site prior to construction. Guidelines for construction signage are found in Chapter 5 of this Handbook.

11. Owner Agreement

The signatory on this application constitutes an agreement by the owner to be the person with authority to enforce compliance by all contractors and subcontractors of the Dust Control Ordinance, Fugitive Dust Control Plan conditions, and any supplements identified by the permitting authority. Once approved, this application is incorporated by reference and becomes apart of the approved site grading plan.

Owner Signature _____ Date _____

Printed Name _____ Title and Company _____

AQMD Coachella Valley Fugitive Dust Control Class Certificate # _____

Ownership Designee Form
(Form OD)

An owner's designee form is required if a Fugitive Dust Control Plan is not prepared/implemented by the property owner, developer or prime contractor.

Complete owner designee

PROJECT INFORMATION	PLEASE ENTER INFORMATION BELOW
DESIGNEE'S NAME	
COMPANY NAME	
ADDRESS/LOCATION	
PHONE NUMBER	
AFTER-HOURS PHONE NUMBER	
AQMD DUST CLASS CERTIFICATE #	

PROPERTY OWNER INFORMATION	PLEASE ENTER INFORMATION BELOW
PROPERTY OWNER'S NAME	Wintec Energy Ltd
ADDRESS/LOCATION	1090 North Palm Canyon Drive, Suite A Palm Springs, CA 92262
PHONE NUMBER	760-323-9490
24-HOUR, MANNED AFTER-HOURS PHONE NUMBER	

OWNER STATEMENT

I hereby authorize the person listed as my designee to act on my behalf in all matters regarding the issuance and requirements of the Fugitive Dust Control Plan for construction activities. The designee is responsible for project duration. The designee has successfully completed the AQMD Coachella Valley Fugitive Dust Control Class. Furthermore, the designee is responsible for ensuring the contractor(s), subcontractor(s), and all other persons associated with the project are in compliance with the approved Fugitive Dust Control Plan, dust control ordinance requirements, and AQMD regulations.

Owner's Signature _____ Date _____

Printed Name _____

FUGITIVE DUST CONTROL PLAN PREPARATION GUIDANCE FOR SMALLER CONSTRUCTION PROJECTS (LESS THAN 10 ACRES)

The following instructions have been prepared to assist project operators in preparing a Fugitive Dust Control Plan for construction activities with less than 10 acres of disturbed surfaces. Submitting a complete Fugitive Dust Control Plan is essential in expediting the process, so please read and follow the instructions carefully.

Fugitive Dust Control Plan Guidance

Use the attached pages (Form DCP) to describe the dust control actions to be implemented on-site. Separate the actions to be implemented during the various project phases (e.g., clearing/grubbing and mass grading, finish grading, and site construction, etc.). If applicable, describe the additional control actions to be implemented on-site.

Please remember the following when preparing a Fugitive Dust Control Plan:

A complete copy of the Fugitive Dust Control Plan and all maps must be on-site prior to beginning construction activity and must be retained on-site at all times during project construction.

Construction signage must be installed on-site prior to construction. Guidelines for construction signage are found in Chapter 5 of this Handbook.

Dust control is required 24 hours a day, 7 days a week for the duration of the project regardless of wind conditions or construction project status.

Daily recordkeeping of dust control actions is required to be compiled and retained during project duration and for three years after project completion.

Grading plans must include a statement that incorporates the approved fugitive dust control plan into the approved grading plan.

Project Initiation Form
For Projects ≥ 10 Acres
(Form PI)

The dust control ordinance requires notification at least 24-hours prior to initiating earth-moving activities (includes clearing and grubbing). Submittal of the form to the local permitting authority and the AQMD satisfies this requirement.

PROJECT INFORMATION	PLEASE ENTER INFORMATION BELOW
PLAN/PERMIT NUMBER	
CONSTRUCTION PROJECT NAME	CPV Sentinel Energy Project
PROJECT ADDRESS/LOCATION	62575 Powerline Road Desert Hot Springs, CA 92262
OWNER NAME	Wintec Energy Ltd
PHONE NUMBER	760-323-9490
24-HOUR, MANNED AFTER-HOURS PHONE NUMBER	

OWNER (DESIGNEE) STATEMENT

Earth-moving activities for the above entitled project will commence on the following dates:

Clearing and/or grubbing: _____
(If Applicable) _____
_____
_____

Earth-moving _____
_____
_____
_____

Owner (Designee) Signature _____

Date _____

Project Completion Form

For Projects ≥ 10 Acres
(Form PC)

The dust control ordinance requires submittal of the following form to the local permitting authority and the AQMD within 10 days of establishment of final elevations or at the conclusion of the finished grading inspection, whichever is first.

PROJECT INFORMATION	PLEASE ENTER INFORMATION BELOW
PLAN/PERMIT NUMBER	
CONSTRUCTION PROJECT NAME	CPV Sentinel Energy Project
PROJECT ADDRESS/LOCATION	62575 Powerline Road Desert Hot Springs, CA 92262
OWNER/DESIGNEE NAME	
PHONE NUMBER	760-323-9490
24-HOUR, MANNED AFTER-HOURS PHONE NUMBER	

OWNER (DESIGNEE) STATEMENT

I certify that all exterior construction activity has ceased on all of the land area subject to the approved Fugitive Dust Control Plan. No further soil disturbing activity will be occurring. All soil areas have been stabilized to prevent wind erosion of soil by the following method(s):

_____ landscaping
_____ chemical dust suppressants
_____ gravel cover
_____ buildings covering entire surface
_____ paving
_____ other method *(describe)*

Owner Signature _____ Date _____

Inspection Results

An inspection by a representative of the City (County) of _____ has been performed with the following results noted:

_____ Construction has ceased and the entire site has been adequately treated for long-term stabilization
_____ Construction has ceased, but portions of the site have not been adequately treated for long-term stabilization *(Attach additional stabilization requirements)*

Enforcement Officer _____ Date _____

Section C
Particulate Matter Over 10 Acres Application to SCAQMD

C.2 AQMD Plan Drawing

CPV SENTINEL POWER PLANT
APN: 668-130-005, 668-130-007, 668-140-001

Prepared for:
County of Riverside
4080 Lemon Street
Riverside, CA 92501
951-955-1000

CONTRACTOR:
Wintec Energy Ltd
1090 N. Palm Canyon Drive, Suite A
Palm Springs, CA 92262
760-323-9490
D&F Land CO, LLC

Project Location/Site Address:
62575 Powerline Road
Desert Hot Springs, CA 92240

Contractor's Pollution Prevention Manager:
TBD

Prepared by:
Stantec Consulting Ltd.
73733 Fred Waring Drive, Suite 100
Palm Desert, CA 92260
Dale C, Ross, Sr. Project manager

Preparation Date
January 2008

Estimated Project Dates:
Start of Construction: March 2008-May 2010

PLEASE READ AND FILL OUT THIS DOCUMENT APPROPRIATELY. EVEN SMALL PROJECTS MUST DO THEIR PART. PM_{10} DUST (POWDERY DUST OF 10 MICRONS OR SMALLER DIAMETER) HAS BEEN IDENTIFIED AS A POTENTIALLY SERIOUS HEALTH THREAT. THIS FINE DUST CAN LODGE DEEP IN THE LUNGS AND HAS BEEN ASSOCIATED WITH BRONCHITIS AND OTHER RESPIRATORY ILLNESSES. DESERT DUST CAN BE PARTICULARLY UNHEALTHFUL, BEING ASSOCIATED WITH "DESERT LUNG SYNDROME" AND LUNG INFECTIONS CAUSED BY FUNGAL SPORES CARRIED IN DESERT DUST. CHILDREN, THE ELDERLY, AND PERSONS WITH RESPIRATORY CONDITIONS, ARE PARTICULARLY SENSITIVE TO FINE DUST, BUT EVERYONE IS ADVERSELY AFFECTED BY THE RELATIVELY HIGH LEVELS OF PM_{10} THAT OCCUR IN THE COACHELLA VALLEY. LARGER SAND PARTICLES CAN BE TURNED INTO THIS DUST THROUGH THE GRINDING ACTION OF TIRES ON ROADWAYS AND THROUGH REPETITIVE PLOWING AND DISKING OPERATIONS.

PROJECT DATA (SEE ATTACHED PLAN ALSO)

DATE: JAN. 2008 PROJECT NAME: C.P.V. SENTINEL POWER PLANT
STREET ADDRESS / SITE LOCATION: 62575 POWERLINE ROAD, COUNTY OF RIVERSIDE, CA

ADJOINING PROPERTY INFO. (FOR SENSITIVITY, TYP. WINDS TEND E. OR S.E.)
EASTERLY VACANT
SOUTHEASTERLY VACANT
SOUTHERLY VACANT
SOUTHWESTERLY VACANT
WESTERLY VACANT
NORTHWESTERLY VACANT
NORTHERLY VACANT
NORTHEASTERLY VACANT

CURRENT LAND USAGE: VACANT
PROPOSED LAND USAGE: ENERGY/INDUSTRIAL
LOT: ____ TRACT/PM: 1, 1A, 2 & 3 LAND USE PERMIT NO.: ____
A.P.N. SEE LIST AT RIGHT PARCEL SIZE: 37 ACRES 1,611,720 SQ. FT.

EARTHWORK QUANTITIES ESTIMATE (BALANCED SITE PREFERRED)

TOTAL AREA TO BE DISTURBED 37 ACRES 1,611,720 SQ. FT.
STRIPPING & SUBSIDENCE LOSSES (TYP. 0.20' X AREA/27CF./CY.) 11,939 C.Y.
RAW CUT VOLUME: 260,800 C.Y. SHRINKAGE (20%): 0 C.Y.
RAW IMPORT VOLUME: 0 C.Y.

RAW EXPORT VOLUME: 0 C.Y. COMPACTED IMPORT VOL.: 0 C.Y.
(SEE HAUL ROUTE DETAIL ON ATTACHED PLAN IF ANY IMPORT OR EXPORT, EXCEPT TRASH.)
* NOTE: TO BE BALANCED ON SITE

PHASING OF GRADING ACTIVITIES (SEE ATTACHED PLAN ALSO)

PHASE — TYPICAL DESCRIPTION (ADD SPECIFIC CHANGES IF ANY)

ROUGH GRADING "A" (ESTABLISHING INITIAL STAGING AREA AND ACCESS)
- A1 – PRE-WATERING USING A TEMPORARY ON-SITE IRRIGATION SYSTEM OR FIVE (5) 2000 GAL. WATER TRUCKS
- A2 – IINSTALL PERIMETER FENCING & LOCATE STAGING AND PARKING AREAS
- A3 – INSTALL TEMPORARY ACCESS ROAD AND TRACK-OUT DEVICE
- A4 – PLACE DUST CONTROL SIGN AT SITE ENTRANCE

ROUGH GRADING-PHASE 'B'
- B1 – CONTINUE ON-SITE WATERING USING TEMPORARY IRRIGATION SYSTEM OR FIVE (5) 2000 GAL. WATER TRUCKS 4 TIMES/DAY
- B2 – CONSTRUCT RETENTION BASIN
- B3 – STORAGE PILE STABILIZATION

ESTIMATED GRADING DATES

(BE AWARE THAT SPRING AND FALL ARE TYPICALLY WINDIER AND MAY REQUIRE MORE PRECAUTIONS AGAINST BLOWING DUST FOR PHASES THAT TEND TO STIR UP DUST, LIKE "B" AND "C" ABOVE.)

PHASE	AREA (AC.)	DATES: FROM	TO
ROUGH GRADING A			
ROUGH GRADING B			

FUGITIVE PM_{10} DUST GENERATION CALCULATION

THE FOLLOWING FORMULA PROVIDES AN ESTIMATE OF THE POTENTIAL TO GENERATE FUGITIVE DUST AT YOUR DEVELOPMENT SITE. COMPLETING THE FORMULA PROVIDES THE BASIS FOR MEASURING THE EFFECTIVENESS OF CONTROL MEASURES. NOTE THAT THIS IS NOT AN ESTIMATE OF LARGER SAND PARTICLE MOVEMENT, WHICH MAY EXCEED SEVERAL TONS PER ACRE-DAY, BUT WHICH ALSO TEND TO STAY CLOSE TO THE GROUND.

GENERATION FACTOR 110 LBS./ACRE/WORKING DAY
X DISTURBED AREA 37 (AC.)
TOTAL POTENTIAL DUST EMISSIONS 4,070 LBS./DAY

NOTE: TOTAL REPRESENTS UNMITIGATED EMISSIONS POTENTIAL. THE EMISSION OF FUGITIVE DUST IS PROHIBITED SUCH THAT NO DUST WHICH REMAINS VISIBLE IN THE ATMOSPHERE SHALL CROSS BEYOND THE PROPERTY LINES OF THE EMISSION SOURCE.

FUGITIVE PM_{10} DUST CONTROL MEASURES

NOTE: ALL SELECTED MITIGATION MEASURES SHALL BE IDENTIFIED AS PART OF THE MITIGATION MONITORING PLAN.

INSTRUCTIONS
CHECK ALL OF THE DUST AND BLOWSAND CONTROL MEASURES TO BE USED DURING SITE CLEARING, GRADING, CONSTRUCTION AND OPERATION AT THE PROJECT SITE. INDICATE EACH MEASURE UNDER THE PHASE (ROUGH OR FINISH GRADING, CONSTRUCTION, OPERATION) TO BE IMPLEMENTED AND LENGTH OF TIME EACH MEASURE IS EXPECTED TO BE USED.

- _X_ A. PRE-GRADING SITE WATERING (IRRIGATION SYSTEM)
- _X_ B. SITE WATERING (TRUCK)
- _X_ C. SITE WATERING (IRRIGATION SYSTEM)
- _X_ D. SAND FENCE (UP WIND AND/OR DOWN WIND)
- _X_ E. SAND FENCE (AROUND PROPERTY)
- ___ F. SOIL STABILIZERS (GRADED AREAS)
- ___ G. SOIL STABILIZERS (ACTIVITY AREAS)
- _X_ H. TRUCK/WHEEL WASHERS
- ___ I. VEGETATION (SEEDED HYDROMULCH) → COMMON AREAS AND GOLF COURSE WILL BE LANDSCAPED AND IRRIGATED.
- ___ J. VEGETATION (PLANTINGS)
- _X_ K. ROAD BASE (AGGREGATE)
- _X_ L. ROAD PAVING
- ___ M. STREET SWEEPING
- ___ N. BLOCK WALLS
- _X_ O. OTHER (DESCRIBE) USED SOIL STABILIZERS WHEN APPLICABLE, ANY WIND FENCING USED MUST PROVIDE LESS THAN 50% POROSITY

NOTE: THESE CONTROL METHODS ARE DISCUSSED IN DETAIL IN THE "DEVELOPER'S MANUAL FOR THE PREPARATION OF PROJECT SPECIFIC LOCAL AIR QUALITY MANAGEMENT PLANS TO CONTROL PM10 AND OTHER HARMFUL EMISSIONS" AVAILABLE THROUGH THE COUNTY OF RIVERSIDE.

PROJECT RECORDKEEPING/REPORT: RECORD ALL ACTIVITES, CONTRACTS AND MATERIALS PURCHASES ASSOCIATED WITH BLOWSAND/FUGITIVE DUST PROGRAM. WEEKLY REPORTS SHOULD BE SUBMITTED TO THE COUNTY ENGINEERING DEPARTMENT FOR REVIEW. THIS "FEEDBACK" WILL EVENTUALLY HELP US TO DETERMINE WHAT METHODS OF DUST CONTROL ARE MOST COST EFFECTIVE IN BOTH SHORT TERM AND LONG TERM SITUATIONS. SEE THE REPORT FORM THAT'S AVAILABLE FROM THE COUNTY OR IN THE AFORESAID MANUAL.

FUGITIVE PM_{10} DUST CONTROL PROGRAM DETAILS

EACH MITIGATION MEASURE OR CONTROL PROGRAM SHALL BE DESCRIBED IN DETAIL BELOW AND ON ADDITIONAL SHEETS AS NECESSARY. PLEASE USE THE REQUIRED DUST CONTROL PLAN EXHIBIT (AT RIGHT OR ATTACHED) TO INDICATE THE LOCATION OF ON-SITE WATER AVAILABILITY, STAGING AREAS, TEMPORARY IRRIGATION LINES, TRUCK/WHEEL WASHERS, TEMPORARY SAND FENCING, CONSTRUCTION PHASING, WORKMEN'S PARKING AREAS, AND OTHER AREAS OR CONTROL METHOD LOCATIONS.

ROUGH GRADING "A": SITE PREP. & MOBILIZATION

GENERAL REQUIREMENTS
1. PRE-WATERING SHALL COMMENCE AT LEAST THREE (3) DAYS PRIOR TO ACTUAL GRADING USING A TEMPORARY ON-SITE IRRIGATION SYSTEM. CONNECTION TO ANY EXISTING WATER SYSTEM SHALL BE DONE IN COMPLIANCE WITH C.V.W.D. TEMPORARY WATER LINES SHALL BE INSTALLED WITH A MINIMAL DISTURBANCE OF ANY OFF-SITE AREAS THEY PASS THROUGH.
2. WRITTEN AND NOTARIZED PERMISSION LETTERS SHALL BE SUBMITTED TO THE COUNTY ENGINEERING DEPT. FROM ANY ADJACENT LAND OWNERS WHOSE PROPERTY WILL BE USED IN ANY MANNER FOR CONSTRUCTION, STAGING, ACCESS, ETC.
3. PUBLIC ACCESS TO THE GRADING SITE SHALL BE RESTRICTED AS MUCH AS POSSIBLE, TO REDUCE AND CONTROL VEHICULAR ACTIVITY, AND TO REDUCE THE POTENTIAL FOR VANDALISM AND/OR INJURY.
4. ACTIVITY AREAS SUCH AS: EQUIPMENT STORAGE AREA, MATERIALS STORAGE AREA, TEMPORARY OFFICE TRAILERS, AND EMPLOYEE PARKING, SHOULD BE LOCATED IF POSSIBLE ON EXISTING PAVED SURFACES, IF TRAFFIC WOULD NOT BE AFFECTED. IN LIEU OF EXISTING PAVING, A SOIL STABILIZER THAT DOES NOT REQUIRE CONSTANT WATERING, SUCH AS AN AGGREGATE BASE OR GRAVEL COULD BE USED FOR INITIAL STAGING AREA.

ROUGH GRADING "A" CONTINUED:
5. THE TIRES OF VEHICLES BEING USED ON-SITE SHOULD BE INSPECTED AND WASHED IF NECESSARY TO MINIMIZE TRACKING OF DIRT ONTO PUBLIC STREETS. IF EXTENSIVE EXPORT OR IMPORT OF DIRT IS TO BE DONE, A PAVED WHEEL WASHING AREA AT LEAST 24' WIDE BY 50' LONG SHOULD BE PROVIDED AT THE EXIT, TO FACILITATE THE INSPECTION AND CLEANING OF TIRES. THE COST OF THIS PAVING SHOULD BE WEIGHED AGAINST THE COST OF INCREASED STREET SWEEPING PROVIDED BY THE DEVELOPER.

SITE SPECIFIC DETAILS:
(PLEASE DESCRIBE ANY SPECIFIC OR ADDITIONAL CONTROL MEASURE PROPOSED.)
1. PRE-WATERING METHOD: BY MEANS OF FIVE (5) WATER TRUCKS OR TEMPORARY ON-SITE IRRIGATION SYSTEM
   WATER AVAILABILITY, INITIAL STAGE WATER IS AVAILABLE ON SITE FROM EXISTING WELL
2. OFF-SITE WORK PERMISSION NEEDED: NO OFF SITE WORK
3. ACCESS WILL BE CONTROLLED BY: FENCING
4. INITIAL STAGING AREA: ____
   EQUIPMENT STORAGE TEMPORARY AREA ON-SITE
   TEMPORARY OFFICE ON-SITE
   EMPLOYEE PARKING TEMPORARY LOT ON-SITE
5. WHEEL WASHING PROVISIONS: LOCATED AT POINT OF INGRESS AND EGRESS WHEEL SHAKER/SPREADING DEVICE CONSISTING OF RAISED 3" TALL DIVIDERS, 6" APART PLACED AT THE CONSTRUCTION ENTRANCE.
6. OTHER PRELIMINARY WORK: INSTALL DUST CONTROL SIGN AT SITE ENTRANCE

ROUGH GRADING "B": MASS GRADING, PERIMETER WALLS

GENERAL REQUIREMENTS
1. HAULING PROCEDURES:
   ALL VEHICLES GOING FROM DIRT AREAS ONTO PAVED STREETS SHALL HAVE TIRES AND WHEELS INSPECTED AND WASHED IF NECESSARY TO AVOID "TRACKING-OUT" DIRT.
   TRUCKS HAULING DIRT ON PAVED STREETS SHALL MAINTAIN AT LEAST A HALF FOOT "FREEBOARD" FROM RIM TO DIRT, AND COVER ALL DIRT OR DUSTY DEBRIS LOADS WITH AN APPROPRIATE TARP.
   THE HAUL ROUTE SHOULD BE SHOWN HEREON OR ON AN ATTACHED SHEET, AND SHALL BE CLEARED WITH THE COUNTY ENGINEER FOR ANY APPLICABLE TRANSPORT PERMITS PRIOR TO ITS USE. ALL HAULING TRUCKS SHALL HAVE A COPY OF THESE PROVISIONS WITH THEM AT ALL TIMES.
   THE IMPORT OR EXPORT SITE MUST HAVE A VALID GRADING PERMIT ALSO, AND SHOULD BE COMPLYING WITH ALL APPROPRIATE DUST MITIGATION MEASURES ALSO.
   WHEN PRACTICAL, TRUCKS AND EQUIPMENT, SHOULD SHUT OFF ENGINES RATHER THAN IDLING FOR EXTENDED PERIODS, TO MINIMIZE EXHAUST EMISSIONS AND NOISE. THIS BECOMES MORE CRITICAL AS THE SIZE AND NUMBERS OF VEHICLES INCREASES.
2. VEHICLES TRAVELING ON DIRT AND/OR ON UNPAVED ROADS SHOULD RESTRICT THEIR SPEED TO 15 M.P.H. MAXIMUM. SIGNS TO THAT EFFECT SHOULD BE PLACED AT THE PROJECT ENTRANCE OR OTHER APPROPRIATE SPOT TO IMPROVE COMPLIANCE.
3. ALL STRIPPED, GRADED OR OTHERWISE DISTURBED AREAS SHALL BE STABILIZED BY SOME APPROPRIATE MEANS. AREAS ACTIVELY BEING GRADED CAN USUALLY BE STABILIZED BY APPLYING LOTS OF WATER. DISTURBED AREAS NOT ACTIVELY BEING WORKED MAY BE EFFECTIVELY TREATED WITH SOME MORE DURABLE SOIL STABILIZER, SUCH AS HYDROMULCH, TO AVOID CONSTANT WATERING. THE PREFERRED METHOD OF SITE WATERING IS BY SPRINKLER, IF THEY DO NOT INTERFERE WITH THE GRADING VEHICLES.
4. IF PERIMETER BLOCK WALLS ARE TO BE BUILT THEY SHOULD BE GIVEN A HIGH PRIORITY SINCE THEY WILL HELP TO CATCH BLOWSAND AND COULD THEREBY REDUCE THE AMOUNT OF STREET SWEEPING REQUIRED.

SITE SPECIFIC DETAILS:
(PLEASE DESCRIBE ANY SPECIFIC OR ADDITIONAL CONTROL MEASURE PROPOSED.)
1. HAULING PROCEDURES: SITE WILL BALANCE ON SITE – NO OFF SITE HAULING
2. SPEED RESTRICTION SIGN LOCATION: INSTALL SPEED SIGN AT SITE ENTRANCE
3. SOIL STABILIZATION METHODS:
   ACTIVE AREA WATER SCHEDULE: SITE WILL BE WATERED DAILY DURING GRADING OPERATIONS BY MEANS OF TEMPORARY ON-SITE IRRIGATION SYSTEM OR USING FIVE (5) WATER TRUCKS.
   WEEKEND WATERING SCHEDULE: SITE WILL BE WATERED DURING WEEKENDS 4 TIMES PER DAY OR AS NECESSARY TO MAINTAIN VISIBLE MOISTURE OR TO DEVELOP A CRUST.
   INACTIVE AREA STABILIZATION METHOD(S): INACTIVE AREAS WILL BE WATERED CONTINUOSLY OR CHEMICALLY STABILIZED.
4. PERIMETER BLOCK WALL SCHEDULE: N/A
5. OTHER: IN THE EVENT THAT PRESCRIBED MEASURES ARE INEFFECTIVE, THE CONSTRUCTION SUPERVISOR WILL IDENTIFY THE SOURCE OF POLLUTION AND IMPLEMENT ANY NECESSARY ACTION(S) TO CONTROL POLLUTION OR STOP DUST GENERATING ACTIVITY UNTIL A SUITABLE CONTROL MEASURE CAN BE IDENTIFIED.

ROUGH GRADING "C": UTILITY & STREET CONST.

GENERAL REQUIREMENTS:
1. DIRT STOCKPILED NEXT TO UTILITY TRENCHES SHALL BE KEPT WATERED OR OTHERWISE STABILIZED OR COVERED TO HELP COUNTERACT THEIR HIGH PROFILE EXPOSURE TO THE WIND.
2. ALL PREVIOUSLY ROUGH GRADED AREAS THAT WILL BE INACTIVE IN THIS PHASE SHOULD BE TREATED WITH A DURABLE SOIL STABILIZER OR GROUND COVER SYSTEM. IF A VEGETATED GROUND COVER IS UTILIZED IT IS ONLY NECESSARY TO GET IT INITIALLY ESTABLISHED. THE ROOT SYSTEM AND TOP STUBBLE MAY BE SUFFICIENT TO HOLD THE DUST EVEN IF WATERING IS DISCONTINUED.
3. FOR TRACTS, MULTIPLE PARCELS, AND EXTENSIVE COMMERCIAL SITES, PAVED ACCESS TO THE BUILDING SITES WILL BE REQUIRED PRIOR TO FRAMING OF THE BUILDINGS. THIS CONSTRUCTION STAGE USUALLY INDICATES AN INCREASE IN THE NUMBERS OF WORKERS AND THEIR VEHICLES. ALSO, THE PAVED ACCESS IS RECOMMENDED FOR FIRE FIGHTING PURPOSES. IF PAVING IS DESIRED BEFORE ALL UTILITIES AND/OR LATERALS ARE INSTALLED, THE BASE LIFT OF ASPHALT IS SUFFICIENT FOR ACCESS. THE A.C. CAN BE "CAPPED" LATER, LEAVING A FINAL SURFACE THAT IS FREE OF UTILITY CUTS AND PATCHES.
4. AS PAVED ACCESS IS EXTENDED, THE STAGING AREA CAN BE MOVED CLOSER TO THE BUILDING SITES. THE STORAGE AND OFFICE TRAILERS, EQUIPMENT, AND EMPLOYEE PARKING CAN BE MOVED ONTO PAVED PORTIONS OF THE SITE.

SITE SPECIFIC DETAILS:
(PLEASE DESCRIBE ANY SPECIFIC OR ADDITIONAL CONTROL MEASURE PROPOSED.)
1. TRENCH STOCKPILE TREATMENT: STABILIZE SOIL PRE-WATERING WHERE TRENCHING EQUIPMENT WILL OPERATE. STABILIZE SOIL WITH WATER FOLLOWING COMPLETION OF TRENCHING ACTIVITIES.
2. INACTIVE AREA TREATMENT: WATERING BY AUTOMATED PORTABLE IRRIGATION SYSTEM OR BY MEANS OF WATER TRUCKS.
3. STREET PAVING SCHEDULE: PAVED IMMEDIATELY UPON COMPLETION OF INSTALLING UNDERGROUND UTILITIES.
4. STAGING AREA MOVEMENT SCHEDULE: STAGING AREA TO REMAIN AT DESIGNATED LOCATION UNTIL PROJECT IS COMPLETED
5. OTHER: ____

FINISH GRADING: BLDG. UTILITIES, PERIM. LANDSCAPING

GENERAL REQUIREMENTS:
1. ALL INACTIVE AREAS SHOULD HAVE BEEN STABILIZED BY THIS STAGE. IF PREVIOUSLY COVERED, THE ACTUAL BUILDING PADS MAY NOW NEED TO BE STRIPPED, SCARIFIED, AND RECOMPACTED FOR BUILDING PAD COMPACTION AND ELEVATION CERTIFICATIONS. DUST WOULD BE KEPT DOWN BY WATERING, USUALLY BY TEMPORARY SPRINKLERS.
2. TRENCHING FOR BUILDING UTILITES, DRYWELL CONSTRUCTION, POOLS, AND TENNIS COURT CONSTRUCTION FORM THE BULK OF EARTHWORK AFTER THE PADS HAVE BEEN CERTIFIED. TEMPORARY SPRINKLERS MAY STILL BE USED ON THE BUILDING SITE FOR DUST CONTROL PRIOR TO THE BEGINNING OF FRAMING.
3. ESTABLISHING THE LANDSCAPE AND SPRINKLER SYSTEM AROUND THE PERIMETER OF LARGE PROJECTS SHOULD BE DONE AT THIS STAGE. PLANTINGS AROUND THE PERIMETER SERVE AS A WIND BUFFER AND COLLECTION SYSTEM FOR DUST AND SAND. IT IS GOOD TO HAVE DUST AND SAND WELL UNDER CONTROL PRIOR TO THE BUILDING PHASE FOR THE SAKE OF CERTAIN GLUING AND PAINTING PROCESSES THAT CAN BE RUINED BY BLOWSAND OR DUST.

SITE SPECIFIC DETAILS:
(PLEASE DESCRIBE ANY SPECIFIC OR ADDITIONAL CONTROL MEASURE PROPOSED.)
1. BUILDING PAD WATERING: DAILY WATERING BY MEANS OF WATER TRUCKS OR USING A PORTABLE SPRINKLER SYSTEM
2. FORMWORK AND TRENCH WATERING: WATERING AS NECESSARY USING A PORTABLE SPRINKLER SYSTEM
3. PERIMETER LANDSCAPE SCHEDULE: N/A
4. OTHER: ____

BUILDING CONSTRUCTION: SWALES, SITE LANDSCAPING, ETC.

GENERAL REQUIREMENTS:
1. DISTURBED AREAS AROUND BUILDINGS SHOULD BE WATERED BY HAND FOR DUST CONTROL UNTIL SUCH TIME THAT THE SPRINKLER SYSTEM IS FULLY FUNCTIONAL AND GROUND COVER AND/OR LANDSCAPING IS ESTABLISHED.
2. CONSTRUCTION DUST SUCH AS FROM CEMENT, PLASTER, PAINT OVERSPRAY, WOOD CUTTING, GRINDING OPERATIONS, ETC., SHOULD BE MINIMIZED ALSO. A PERIMETER BARRIER OF SPRINKLERS AND PLANTINGS CAN SERVE TO CATCH SOME OF THIS POTENTIALLY HAZARDOUS MATERIAL AS WELL AS NATURAL DUST AND BLOWSAND. CONCENTRATIONS OF CONSTRUCTION DUSTS CAN RESULT FROM WASHING OF EQUIPMENT AND SHOULD BE PROPERLY DISPOSED OF BEFORE THEY CAN DRYOUT AND BLOW OR BE WASHED ACROSS PROJECT BOUNDARIES.

SITE SPECIFIC DETAILS:
(PLEASE DESCRIBE ANY ADDITIONAL CONTROL MEASURES PROPOSED.)
3. OTHER: ____

ABATEMENT OF DUST MITIGATION FAILURE

AN IRREVOCABLE LICENSE IS HEREBY GRANTED OR CAUSED TO BE GRANTED TO PERMIT THE ENTRY UPON THE SITE UNDER THE FOLLOWING CIRCUMSTANCES:

A. IN THE EVENT THAT WIND SPEEDS IN EXCESS OF 25 M.P.H. ARE FORECAST TO OCCUR BY THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (SCAQMD) FOR A PARTICULAR DAY;
B. IN THE EVENT OF AN ON-SITE ANEMOMETER THAT CONFORMS TO ALL SCAQMD STANDARDS REGISTERING 2 WIND GUSTS IN EXCESS OF 25 M.P.H. WITHIN A CONSECUTIVE 30 MINUTE PERIOD; OR
C. IN THE EVENT FUGITIVE DUST EMISSIONS ARE VISIBLE FOR A DISTANCE OF 50 FEET FROM ANY BOUNDARY LINE; AND
D. THE COUNTY IS UNABLE, BY TELEPHONE, TO ESTABLISH A PERSONAL CONTACT WITH THE GENERAL CONTRACTOR AFTER A 60 MINUTE CONSECUTIVE PERIOD WHICH SHALL COMMENCE WITH THE FIRST TELEPHONE CALL, WHETHER ANSWERED OR NOT; THEN THE COUNTY WILL UNDERTAKE TO INITIATE ONE OR ALL OF THE BELOW LISTED ACTIONS:
   1. THE COUNTY WILL CAUSE THE CESSATION OF ANY ON-SITE ACTIVITY, INCLUDING BUT NOT LIMITED TO EARTH MOVING, CONSTRUCTION, DEMOLITION OR VEHICULAR MOVEMENT AND MANEUVERING.
   2. IN THE EVENT THAT AN ON-SITE IRRIGATION SYSTEM IS NOT INSTALLED AND/OR OPERATIONAL, THE COUNTY WILL CAUSE THE SITE TO BE WATERED. IN ANY CONTRACT BETWEEN THE GENERAL CONTRACTOR AND ANY WATER-PROVIDING VENDOR, SUCH AS A WATERING TRUCK OPERATIONS OR IRRIGATION SYSTEM PROVIDER/OPERATOR, THE COUNTY SHALL BE NAMED AS AN AUTHORIZED AGENT FOR PURPOSES OF ORDERING OR CALLING-OUT A WATER TRUCK OR CAUSING AN IRRIGATION SYSTEM TO BE MADE OPERATIONAL. SHOULD THE GENERAL CONTRACTOR NOT HAVE SUCH A CONTRACT OR HAVE FAILED TO DESIGNATE THE COUNTY AS AN AGENT OR NOT INFORMED THE COUNTY OF THE CONTRACTOR'S NAME, ADDRESS AND PHONE NUMBER, OR THE COUNTY IS UNABLE TO CONTACT THE CONTRACTOR AFTER A REASONABLE EFFORT IS MADE TO DO SO, THE COUNTY MAY AUTHORIZE ANY OTHER VENDOR AS ITS' AGENT FOR PURPOSES OF ENTRY UPON THE SITE TO ATTEMPT TO MITIGATE ANY POTENTIAL DUST CONTROL PROBLEMS.
   3. IN THE EVENT AN ON-SITE IRRIGATION SYSTEM IS INSTALLED, THE COUNTY WILL CAUSE THE IRRIGATION SYSTEM TO OPERATE. THE GENERAL CONTRACTOR SHALL TAKE ALL NECESSARY STEPS TO ENSURE THAT THE COUNTY HAS THE MEANS TO ACCESS THE SITE AND THE VALVES OF THE IRRIGATION SYSTEM; THAT IS, THE KEYS TO ANY AND ALL LOCKS SHALL BE PROVIDED TO THE COUNTY (COUNTY ENGINEER) BY THE END OF THE NEXT WORK DAY FOLLOWING THE INSTALLATION OF ANY SUCH LOCK. EACH KEY SHALL BE PLAINLY AND CLEARLY MARKED WITH THE PROJECT NAME AND CORRESPONDING LOCK (MAIN GATE, SOUTH IRRIGATION SYSTEM, ETC.).

E. IF, IN THE OPINION OF THE COUNTY ENGINEER OR HIS DESIGNEE, THE INTENSITY, FREQUENCY OR DURATION OF FUGITIVE DUST EMISSIONS FROM THE SITE CONSTITUTES A HAZARD TO THE SAFETY OF THE PUBLIC, BY INTRUSION BEYOND THE PROJECT BOUNDARY, THE DIRECTOR OR HIS DESIGNEE OR AGENT MAY IMMEDIATELY ENTER UPON THE SITE OR IMMEDIATELY TAKE OTHER SUCH ACTION AS MAY BE NECESSARY TO REMEDY THE HAZARD, SUCH AS, BUT NOT LIMITED TO COMMENCING WATERING ON THE SITE OR ORDERING THE CESSATION OF ANY EMISSION-GENERATING ACTIVITY OCCURRING ON-SITE.
F. ANY OF THE ABOVE ACTIONS MAY BE CONSTRUED AS AN ABATEMENT FOR WHICH THE COUNTY WILL "BACK CHARGE" THE GENERAL CONTRACTOR, DEVELOPER, AND/OR THE OWNER AS THE COUNTY SHALL DEEM APPROPRIATE.

APPLICATION CONSENT

APPLICATION FOR APPROVAL OF A LOCAL AIR QUALITY MANAGEMENT (LAQMP) PLAN IS HEREBY MADE TO THE COUNTY ENGINEER OR HIS DESIGNEE, AS PART OF A GRADING PERMIT APPLICATION, SUBJECT TO THE CONDITIONS AND RESTRICTIONS SET FORTH HEREIN:

1. EACH PERSON UPON WHOSE BEHALF THIS APPLICATION IS MADE AND EACH PERSON AT WHOSE REQUEST AND FOR WHOSE BENEFIT WORK IS PERFORMED UNDER AND PURSUANT TO ANY PERMIT ISSUED AS A RESULT OF THIS APPLICATION AGREES TO, AND SHALL INDEMNIFY AND HOLD HARMLESS THE COUNTY OF RIVERSIDE, ITS OFFICERS, AGENTS AND EMPLOYEES.
2. ANY PERMIT ISSUED AS A RESULT OF THIS APPLICATION BECOMES NULL AND VOID IF WORK IS NOT COMMENCED WITHIN 90 DAYS FROM THE DATE OF ISSUANCE OF SUCH PERMIT.
3. THE APPLICANT, OWNER, CONTRACTOR(S), SUBCONTRACTOR(S) OR OTHER AGENTS, HEIRS OR ASSIGNEES SHALL CONFORM TO THE ATTACHED DUST CONTROL PLAN AS APPROVED BY THE COUNTY. SAID PLAN INCLUDES NOTES AND/OR DRAWINGS OF TEMPORARY OR PERMANENT CONTROL METHODS OR DEVICES PROPOSED TO BE USED. THIS LAQMP SHALL BE CONSIDERED AN ADDENDUM TO, AND A NECESSARY PART OF, ANY GRADING, STOCKPILE, IMPROVEMENT, OR DEMOLITION PLAN OTHERWISE REQUIRED FOR COUNTY PERMITS.
4. BY AGREEING TO CONFORM TO THIS PLAN AS APPROVED BY THE COUNTY, THE OWNER AND GRADING CONTRACTOR(S) DO ALSO AGREE TO ABIDE BY THE PROVISIONS OF THE ABATEMENT PROCEDURES AS SHOWN ABOVE.

LICENSED CONTRACTOR'S DECLARATION:

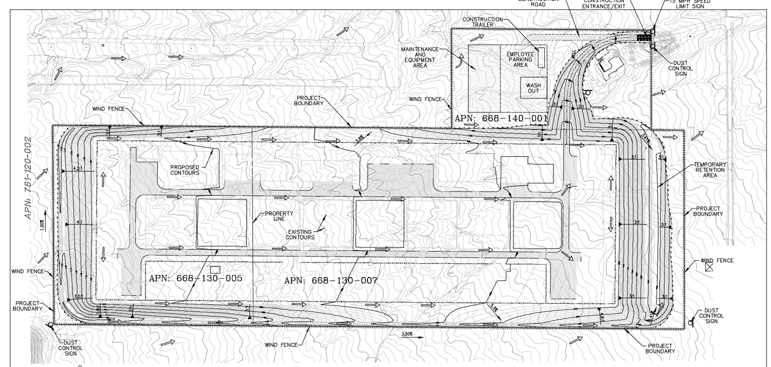
I HEREBY AFFIRM THAT I AM LICENSED UNDER THE PROVISIONS OF CHAPTER 9 (COMMENCING WITH SECTION 7000 OF DIVISION 3 OF THE BUSINESS AND PROFESSIONS CODE), AND THAT MY LICENSE IS IN FULL FORCE AND EFFECT.

LICENSE CLASS ____ NO. ____
CONTRACTOR'S NAME ____
COMPANY NAME ____
COMPANY ADDRESS ____
CONTACT PHONE NUMBERS DAY ____ NIGHT ____
CONTRACTOR'S SIGNATURE ____ DATE ____

OWNER'S CERTIFICATION:
I CERTIFY THAT I HAVE READ THIS APPLICATION AND THAT THE INFORMATION CONTAINED HEREIN IS TRUE AND CORRECT. I AGREE TO COMPLY WITH COUNTY ORDINANCE 398 (MUNI. CODE SEC. 15.32) AND ALL LAWS RELATING TO GRADING OPERATIONS. I AUTHORIZE REPRE[illegible] OF RANCHO MIRAGE TO ENTER UPON THE ABOVE-MENTIONED PROPERTY [illegible] ABATEMENT PURPOSES, AND I AGREE TO HOLD HARMLESS THE COUNTY [illegible] FROM LIABILITY FOR ANY ACTIONS RELATED TO THIS PERMIT.

Info Required

OWNER'S NAME(S) ____
OWNER'S ADDRESS ____
CONTACT PHONE NUMBERS DAY ____ NIGHT ____
OWNER'S SIGNATURE(S) ____
DATE ____



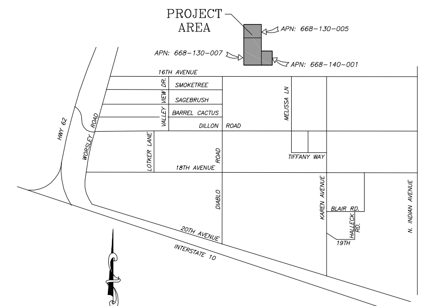
REFERENCE MAP/GRADING SITE FEATURES

SCALE: 1" = 200'

THE ACTIVE DISTURBED AREA MUST BE LIMITED TO WHAT CAN BE EFFECTIVELY WATERED 4 TIMES PER DAY BY EITHER SPRINKLERS OR WATER TRUCKS. TYPICAL 2,000 GALLON WATER TRUCKS CAN EFFECTIVELY WATER ABOUT 4 ACRES PER HOUR. THEREFORE AN 8 HR. WORKDAY DIVIDED BY 4 WATERING PER DAY TIMES 4 AC./HR. = 8 ACRES PER TRUCK

LEGEND

- PROPOSED ON-SITE HAUL ROUTE
- CONCRETE WASH OUT
- PM-10 FENCE (AT PROPERTY LINE)
- DIRECTION OF FLOW
- EMPLOYEE PARKING AREA
- STABILIZED CONSTRUCTION ENTRANCE
- MAINTENANCE & EQUIPMENT STORAGE AREA
- SIGN (AS INDICATED ON PLAN)



VICINITY MAP

NOT TO SCALE

PERMIT
####
COUNTY OF RIVERSIDE
GRADING PERMIT NUMBER
PROJECT NAME
TRACT XXX
PROJECT NAME
IF YOU SEE DUST COMING FROM THIS PROJECT CALL
760-XXX
AUTHORIZED DUST CONTROLLER PHONE NUMBER
IF YOU DO NOT GET A RESPONSE WITHIN ONE HOUR, PLEASE CALL THE BUILDING DEPT. AT 760-863-8271 AND REPORT THE E# AND PH.# ABOVE OR CALL A.Q.M.D. AT 1-800-CUT-SMOG

CONSTRUCTION SITE SIGNAGE

COUNTY APPROVED SIGNAGE IS TO BE LOCATED ON EACH SIDE OF THE PROJECT AREA AND WITHIN 50 FEET OF THE SITE BOUNDARY. THE TELEPHONE NUMBER LISTED FOR THE DEVELOPER CONTACT MUST BE A LOCAL OR TOLL FREE NUMBER AND MANNED 24 HOURS PER DAY, 7 DAYS PER WEEK. SIGN AND LETTER SIZE REQUIREMENTS PER COACHELLA VALLEY FUGITIVE DUST CONTROL HANDBOOK.

ASSESSOR PARCEL NUMBERS
668-130-005
668-130-007
668-140-001

[illegible] COUNTY OF RIVERSIDE

R.C.E. _____ EXP. __/__/__

COUNTY OF RIVERSIDE
LOCAL AIR QUALITY MANAGEMENT PLAN
PM_{10} DUST MITIGATION
PROJECT NAME C.P.V. SENTINEL POWER PLANT
SITE ADDRESS 62575 POWERLINE ROAD A.P.N. SEE LIST ABOVE
SEC. 4 T. 3 S., R. 4 E., S.B.B. & M.

SHEET 1 OF 1
GRADING PERMIT #

Jan 17, 2008 – 1st SUBMITTAL

Plotted: Jan 17, 2008 – 3:52pm By: chunter DWG: O:\201_1053\201_105300\drawings\grading\AQMD.dwg

SECTION D

Storm Water Pollution Prevention Plan (SWPPP)

See Appendix G
of the June 2007
Application for Certification
for the
Draft Storm Water Pollution Prevention Plan

Section E
State Water Resources Control Board
E.1 Application Checklist

CPV SENTINEL POWER PLANT
APN: 668-130-005, 668-130-007, 668-140-001

Prepared for:
State of California Water Resources Control Board
1001 I Street
Sacramento, CA 95814
916-341-5537

CONTRACTOR:
Wintec Energy Ltd
1090 N. Palm Canyon Drive, Suite A
Palm Springs, CA 92262
760-323-9490
D&F Land CO, LLC

Project Location/Site Address:
62575 Powerline Road
Desert Hot Springs, CA 92240

Contractor's Pollution Prevention Manager:
TBD

Prepared by:
Stantec Consulting Ltd.
73733 Fred Waring Drive, Suite 100
Palm Desert, CA 92260
Dale C, Ross, Sr. Project manager

Preparation Date
January 2008

Estimated Project Dates:
Start of Construction: March 2008-May 2010

Linda S. Adams
Secretary for
Environmental Protection

State Water Resources Control Board

Division of Water Quality
1001 I Street • Sacramento, California 95814 • (916) 341-5537
Mailing Address: P.O. Box 1977 • Sacramento, California • 95812-1977
FAX (916) 341-5543 • Internet Address: http://www.waterboards.ca.gov/stormwtr/index.html

Arnold Schwarzenegger
Governor

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FOR
STORM WATER DISCHARGES ASSOCIATED WITH
CONSTRUCTION ACTIVITY (GENERAL PERMIT)
WATER QUALITY ORDER 99-08-DWQ

TABLE OF CONTENTS

Click on the items below to view Section

Linda S Adams
Secretary for
Environmental Protection

State Water Resources Control Board

Division of Water Quality
1001 I Street • Sacramento, California 95814 • (916) 341-5537
Mailing Address: P.O. Box 1977 • Sacramento, California • 95812-1977
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Arnold Schwarzenegger
Governor

CHECKLIST FOR SUBMITTING A NOTICE OF INTENT

In order for the State Water Resources Control Board to expeditiously process your Notice of Intent (NOI), the following items must be submitted to either of the addresses indicated below:

1. _____ NOI (please keep a copy for your files) with all applicable sections completed and original signature of the landowner or signatory agent;

2. _____ Check made out to the "State Water Resources Control Board"
Fee is ($200 + $20/acre) plus 18.5% surcharge. See reverse for listing of fees by acre. The fee is based on the "Total Acres to be Disturbed" for the life of the project.

3. _____ Site Map of the facility (see NOI instructions). DO NOT SEND BLUEPRINTS

U.S. Postal Service Address

State Water Resources Control Board
Division of Water Quality
Attn: Storm Water Section
P.O. Box 1977
Sacramento, CA 95812-1977

Overnight Mailing Address

State Water Resources Control Board
Division Of Water Quality
Attn: Storm Water, 15th Floor
1001 I Street
Sacramento, CA 95814

NOIs are processed in the order they are received. A NOI receipt letter will be mailed to the land owner within approximately two weeks. Incomplete NOI submittals will be returned to the landowner's address within the same timeframe and will specify the reason(s) for return. If you need a receipt letter by a specific date (for example, to provide to a local agency), we advise that you submit your NOI thirty (30) days prior to the date the receipt letter is needed.

Please do not call us to verify your NOI status. A copy of your NOI receipt letter will be available on our web page within twenty-four (24) hours of processing. Go to: http://www.waterboards.ca.gov/stormwtr/databases.html to retrieve an electronic copy of your NOI receipt letter. If you have any questions regarding this matter, please contact us at (916) 341-5537.

Acres	Fee	18.5% Surcharge	Total Fee	Acres	Fee	18.5% Surcharge	Total Fee
0	$200.00	$37	$237	51	$1,220.00	$226	$1,446
1	$220.00	$41	$261	52	$1,240.00	$229	$1,469
2	$240.00	$44	$284	53	$1,260.00	$233	$1,493
3	$260.00	$48	$308	54	$1,280.00	$237	$1,517
4	$280.00	$52	$332	55	$1,300.00	$241	$1,541
5	$300.00	$56	$356	56	$1,320.00	$244	$1,564
6	$320.00	$59	$379	57	$1,340.00	$248	$1,588
7	$340.00	$63	$403	58	$1,360.00	$252	$1,612
8	$360.00	$67	$427	59	$1,380.00	$255	$1,635
9	$380.00	$70	$450	60	$1,400.00	$259	$1,659
10	$400.00	$74	$474	61	$1,420.00	$263	$1,683
11	$420.00	$78	$498	62	$1,440.00	$266	$1,706
12	$440.00	$81	$521	63	$1,460.00	$270	$1,730
13	$460.00	$85	$545	64	$1,480.00	$274	$1,754
14	$480.00	$89	$569	65	$1,500.00	$278	$1,778
15	$500.00	$93	$593	66	$1,520.00	$281	$1,801
16	$520.00	$96	$616	67	$1,540.00	$285	$1,825
17	$540.00	$100	$640	68	$1,560.00	$289	$1,849
18	$560.00	$104	$664	69	$1,580.00	$292	$1,872
19	$580.00	$107	$687	70	$1,600.00	$296	$1,896
20	$600.00	$111	$711	71	$1,620.00	$300	$1,920
21	$620.00	$115	$735	72	$1,640.00	$303	$1,943
22	$640.00	$118	$758	73	$1,660.00	$307	$1,967
23	$660.00	$122	$782	74	$1,680.00	$311	$1,991
24	$680.00	$126	$806	75	$1,700.00	$315	$2,015
25	$700.00	$130	$830	76	$1,720.00	$318	$2,038
26	$720.00	$133	$853	77	$1,740.00	$322	$2,062
27	$740.00	$137	$877	78	$1,760.00	$326	$2,086
28	$760.00	$141	$901	79	$1,780.00	$329	$2,109
29	$780.00	$144	$924	80	$1,800.00	$333	$2,133
30	$800.00	$148	$948	81	$1,820.00	$337	$2,157
31	$820.00	$152	$972	82	$1,840.00	$340	$2,180
32	$840.00	$155	$995	83	$1,860.00	$344	$2,204
33	$860.00	$159	$1,019	84	$1,880.00	$348	$2,228
34	$880.00	$163	$1,043	85	$1,900.00	$352	$2,252
35	$900.00	$167	$1,067	86	$1,920.00	$355	$2,275
36	$920.00	$170	$1,090	87	$1,940.00	$359	$2,299
37	$940.00	$174	$1,114	88	$1,960.00	$363	$2,323
38	$960.00	$178	$1,138	89	$1,980.00	$366	$2,346
39	$980.00	$181	$1,161	90	$2,000.00	$370	$2,370
40	$1,000.00	$185	$1,185	91	$2,020.00	$374	$2,394
41	$1,020.00	$189	$1,209	92	$2,040.00	$377	$2,417
42	$1,040.00	$192	$1,232	93	$2,060.00	$381	$2,441
43	$1,060.00	$196	$1,256	94	$2,080.00	$385	$2,465
44	$1,080.00	$200	$1,280	95	$2,100.00	$389	$2,489
45	$1,100.00	$204	$1,304	96	$2,120.00	$392	$2,512
46	$1,120.00	$207	$1,327	97	$2,140.00	$396	$2,536
47	$1,140.00	$211	$1,351	98	$2,160.00	$400	$2,560
48	$1,160.00	$215	$1,375	99	$2,180.00	$403	$2,583
49	$1,180.00	$218	$1,398	>100	$2,200.00	$407	$2,607
50	$1,200.00	$222	$1,422				

Section E
State Water Resources Control Board

E.2 Notice of Intent

CPV SENTINEL POWER PLANT

APN: 668-130-005, 668-130-007, 668-140-001

Prepared for:
State of California Water Resources Control Board
1001 I Street
Sacramento, CA 95814
916-341-5537

CONTRACTOR:
Wintec Energy Ltd
1090 N. Palm Canyon Drive, Suite A
Palm Springs, CA 92262
760-323-9490
D&F Land CO, LLC

Project Location/Site Address:
62575 Powerline Road
Desert Hot Springs, CA 92240

Contractor's Pollution Prevention Manager:
TBD

Prepared by:
Stantec Consulting Ltd.
73733 Fred Waring Drive, Suite 100
Palm Desert, CA 92260
Dale C, Ross, Sr. Project manager

Preparation Date
January 2008

Estimated Project Dates:
Start of Construction: March 2008-May 2010

Attachment F

Notice of Intent (NOI)

State Water Resources Control Board

NOTICE OF INTENT

TO COMPLY WITH THE TERMS OF THE
GENERAL PERMIT TO DISCHARGE STORM WATER
ASSOCIATED WITH CONSTRUCTION ACTIVITY (WQ ORDER No. 99-08-DWQ)

I. NOI STATUS (SEE INSTRUCTIONS)

MARK ONLY ONE ITEM 1. **XX** New Construction 2. Change of Information for WDID#

II. PROPERTY OWNER

Name	Contact Person		
Wintec Energy Ltd			
Mailing Address: 1090 Palm Canyon Drive Suite A	Title		
City: Palm Springs,	State: **CA**	Zip: 92262	Phone

III. DEVELOPER/CONTRACTOR INFORMATION

Developer/Contractor	Contact Person		
Wintec Energy Ltd			
Mailing Address: **1090 N. Palm Canyon Drive, Suite A**	Title		
City: **Palm Springs,**	State: **CA**	Zip: **92262**	Phone: 760-323-9490

IV. CONSTRUCTION PROJECT INFORMATION

Site/Project Name	Site Contact Person		
C.P.V. Ocotillo Power Plant			
Physical Address/Location: **62575 Powerline Road**	Latitude: 33°	Longitude: 116°	County: Riverside
City (or nearest City): **Desert Hot Springs**	Zip: **92262**	Site Phone Number	Emergency Phone Number

A. Total size of construction site area: 37 Acres

B. Total area to be disturbed: 37 Acres (% of total (100)

C. Percent of site imperviousness (including rooftops):
Before Construction: .05 %
After Construction: .80 %

D. Tract Number(s): APN: 668-130-005, 668-130-007, 668-140-001

E. Mile Post Marker: N/A

F. Is the construction site part of a larger common plan of development or sale?
YES NO

G. Name of plan or development: **N/A**

H. Construction commencement date: 04/30/2007

I. % of site to be mass graded: 40%

J. Projected construction dates:
Complete grading: 8/30/08 Complete project: **1/15/09**

K. Type of Construction (Check all that apply):

1. Residential 2. Commercial 3. Industrial 4. Reconstruction 5. Transportation

6. XX Utility Description: Energy Plant 7. Other (Please List): _____

V. BILLING INFORMATION

SEND BILL TO:			
OWNER (as in II. above)	Name: Wintec Energy Ltd	Contact Person	
DEVELOPER (as in III. above)	Mailing Address: 1090 N. Palm Canyon Drive Suite A	Phone/Fax	
OTHER (enter information at right)	City: Palm Springs,	State: CA	Zip: 92262

VI. REGULATORY STATUS

A. Has a local agency approved a required erosion/sediment control plan?..... YES NO

Does the erosion/sediment control plan address construction activities such as infrastructure and structures?..... YES NO

Name of local agency: Phone: ( ) --

B. Is this project or any part thereof, subject to conditions imposed under a CWA Section 404 permit of 401 Water Quality Certification?..... YES NO

If yes, provide details: _____

VII. RECEIVING WATER INFORMATION

A. Does the storm water runoff from the construction site discharge to (Check all that apply):

1. **Indirectly to waters of the U.S.**

2. **Storm drain system - Enter owner's name:** _____

3. **Directly to waters of U.S. (e.g., river, lake, creek, stream, bay, ocean, etc.)**

B. Name of receiving water: (river, lake, creek, stream, bay, ocean): _____

VIII. IMPLEMENTATION OF NPDES PERMIT REQUIREMENTS

A. STORM WATER POLLUTION PREVENTION PLAN (SWPPP) (check one)

A SWPPP has been prepared for this facility and is available for review: Date Prepared: ____/____/____ Date Amended: ____/____/____

A SWPPP will be prepared and ready for review by (enter date): 2/02/2008

A tentative schedule has been included in the SWPPP for activities such as grading, street construction, home construction, etc.

B. MONITORING PROGRAM

A monitoring and maintenance schedule has been developed that includes inspection of the construction BMPs before anticipated storm events and after actual storm events and is available for review.

If checked above: A qualified person has been assigned responsibility for pre-storm and post-storm BMP inspections to identify effectiveness and necessary repairs or design changes..... YES NO

Name: Phone: ( )

C. PERMIT COMPLIANCE RESPONSIBILITY

A qualified person has been assigned responsibility to ensure full compliance with the Permit, and to implement all elements of the Storm Water Pollution Prevention Plan including:

1. Preparing an annual compliance evaluation..... YES NO

Name: Phone: ( ) --

2. Eliminating all unauthorized discharges..... YES NO

IX. VICINITY MAP AND FEE (must show site location in relation to nearest named streets, intersections, etc.)

Have you included a vicinity map with this submittal? ..... YES NO

Have you included payment of the annual fee with this submittal?..... YES NO

X. CERTIFICATIONS

"I certify under penalty of law that this document and all attachments were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment. In addition, I certify that the provisions of the permit, including the development and implementation of a Storm Water Pollution Prevention Plan and a Monitoring Program Plan will be complied with."

Printed Name:

Signature: **Date:**

Title:

Section E
State Water Resources Control Board

E.3 Vicinity Map

CPV SENTINEL POWER PLANT
APN: 668-130-005, 668-130-007, 668-140-001

Prepared for:
State of California Water Resources Control Board
1001 I Street
Sacramento, CA 95814
916-341-5537

CONTRACTOR:
Wintec Energy Ltd
1090 N. Palm Canyon Drive, Suite A
Palm Springs, CA 92262
760-323-9490
D&F Land CO, LLC

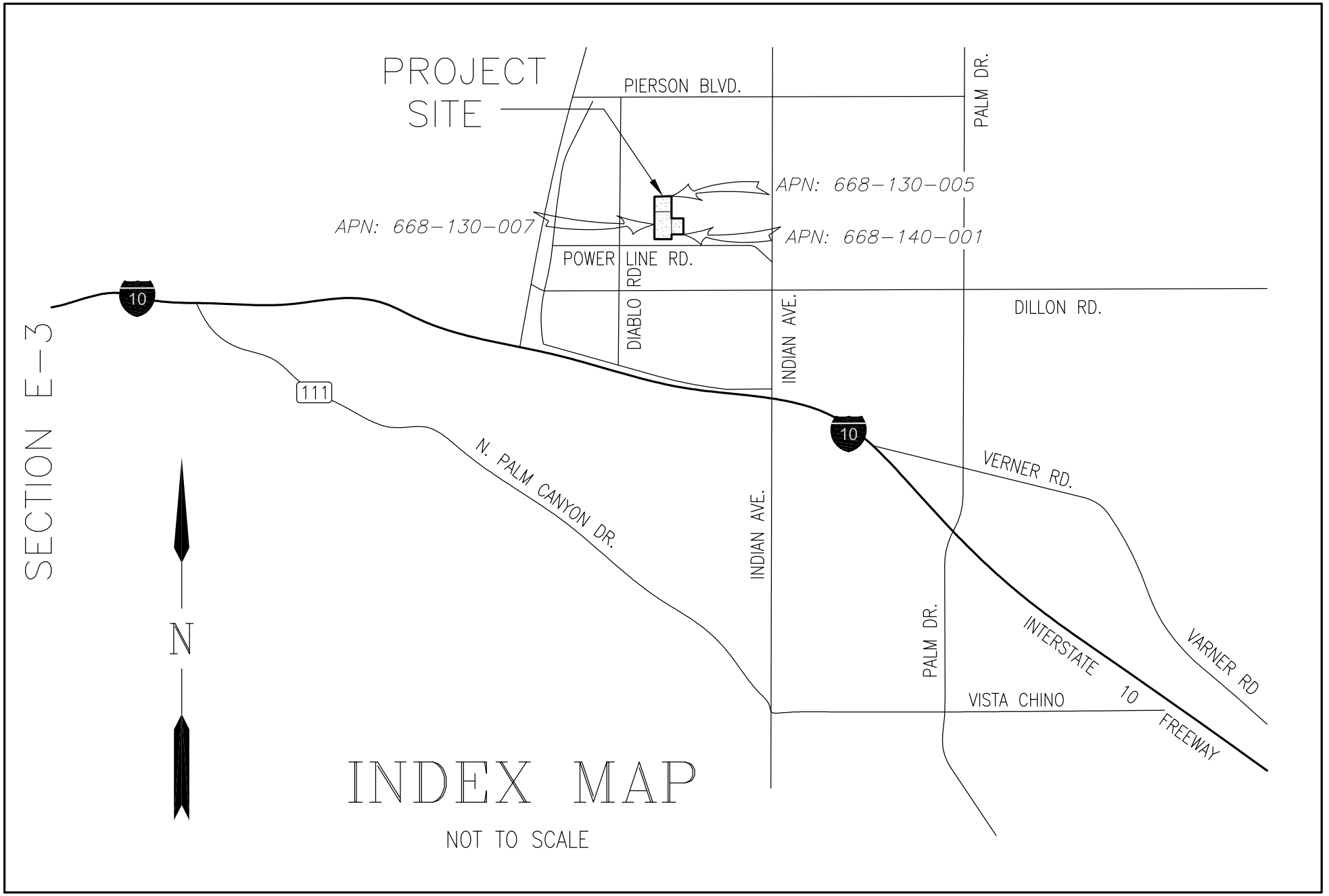
Project Location/Site Address:
62575 Powerline Road
Desert Hot Springs, CA 92240

Contractor's Pollution Prevention Manager:
TBD

Prepared by:
Stantec Consulting Ltd.
73733 Fred Waring Drive, Suite 100
Palm Desert, CA 92260
Dale C, Ross, Sr. Project manager

Preparation Date
January 2008

Estimated Project Dates:
Start of Construction: March 2008-May 2010


PROJECT SITE
PIERSON BLVD.
PALM DR.
APN: 668-130-005
APN: 668-130-007
APN: 668-140-001
POWER LINE RD.
DIABLO RD
INDIAN AVE.
DILLON RD.
10
111
SECTION E-3
N. PALM CANYON DR.
VERNER RD.
VARNER RD
INTERSTATE 10 FREEWAY
VISTA CHINO
N
INDEX MAP
NOT TO SCALE

APPENDIX B

TECHNICAL MEMORANDUM
ADDITIONAL GROUNDWATER FLOW MODEL SCENARIOS
PROPOSED CPV SENTINEL ENERGY PROJECT

Technical Memorandum

Additional Groundwater Flow Model Scenarios
Proposed CPV Sentinel Energy Project

Mission Creek Subbasin
Riverside County, California

prepared for:

CPV Sentinel, LLC

by

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Oakland, California 94612
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January 2008

INTRODUCTION

A three-dimensional groundwater flow model was previously constructed for the Mission Creek Subbasin (subbasin) in Riverside County, California (Figure 1), to evaluate potential impacts of pumping and percolation on the subbasin. This model was described in the *Technical Memorandum, Model Documentation, Proposed CPV Sentinel Energy Project, June 2007*, submitted to the California Energy Commission as Appendix R-1 of the CPV Sentinel Energy Project Application for Certification in June 2007.

Additional groundwater flow model scenarios simulated since June 2007 are described herein. The primary objective of these additional scenarios is to evaluate the effect of project-specific pumping and percolation volume and timing variations on the relative groundwater levels in the subbasin. These additional scenarios used the June 2007 model as a base model. The model domain (Figure 2), model grid, boundary conditions, and most aquifer parameters were not changed; the June 2007 Technical Memorandum includes a full description of model development. Changes made to the model for the additional scenarios are described in this Technical Memorandum.

BACKGROUND

The June 2007 groundwater flow model simulated subbasin flow and response for 30 years under two scenarios, Scenario A and Scenario B. Both scenarios simulated pumping at the proposed location of the power plant and percolation at Mission Spring Water District's (MSWD) Horton Wastewater Treatment Plant (Horton WWTP) and at Desert Water Agency's (DWA) Mission Creek Recharge Basin (DWA basin). Both scenarios simulated pumping with three and five power plant extraction wells.

Scenario A simulated pumping at a volume of 550 acre-feet per year (afy) and percolation at both DWA basin and Horton WWTP. Percolation at the DWA basin equaled the volume of water extracted (550 afy), while percolation at the Horton WWTP was 1,500 afy. Thus, the total volume of water percolated to the subbasin was more than 3.7 times the volume extracted.

Scenario B assumed that water would not be percolated at the Horton WWTP on behalf of the project. The long-term extraction from the onsite wells and percolation at the DWA basin remained the same as in Scenario A. Thus, the total volume of water percolated to the subbasin was equal to the volume extracted.

Simulation results showed that the model was relatively insensitive to the number of extraction wells and that percolation at the Horton WWTP on behalf of the project does not significantly affect the maximum amount of drawdown at the pumping wells during the 30-year simulation period. Percolation at Horton WWTP affected the time at which the maximum drawdown occurred at the pumping wells and resulted in an increase in water levels at the pumping wells. The water table beneath the DWA basin, the Horton WWTP ponds, and the extraction well area was affected by percolation at Horton WWTP.

MODEL SCENARIOS

Three additional model scenarios—Scenario 1, Scenario 2, and Scenario 3—were simulated. The June 2007 model, Scenario B, with three onsite pumping wells, was used as the base model for these additional scenarios. Scenarios 1 and 2 simulate project-specific pumping at the power plant site and percolation at the DWA basin. Scenario 3 assumes only project pumping with no percolation at the DWA basin. These scenarios also assume that water is not

percolated at Horton WWTP on behalf of the project. As described in the June 2007 Technical Memorandum, a 1-year lag time is assumed between the application of water at the DWA basin and the time it takes for the water to percolate and reach the water table.

Scenario 1 simulates project pumping at a rate of 1,100 afy and an equivalent recharge rate at the DWA basin. Recharge is applied to the DWA basin immediately, but reaches the water table, and hence is applied to the model, after 1 year. These conditions are simulated for 30 years.

Scenario 2 simulates project pumping at a rate of 1,100 afy and DWA basin recharge at a rate of 5,500 afy every 5 years. No recharge is applied to the DWA basin in other years. These conditions are simulated for 31 years. Hence, DWA basin recharge is applied to the model at years 6, 11, 16, 21, 26, and 31.

Scenario 3 simulates project pumping at a rate of 2,059 gpm, which represents the maximum project pumping rate. Pumping duration is simulated for 4 months, with a total volume pumped equal to 1,100 afy, the same annual volume as in Scenarios 1 and 2. No recharge is applied to the DWA basin. These conditions are simulated for one year.

The hydraulic conductivity defined in the June 2007 model was based on literature values of transmissivity (T) provided in Tyley (1974). To evaluate the sensitivity of T values on model results, T values were reduced by 50 percent. Therefore, two cases (Case A and Case B) were simulated for each scenario. Case A assumes the T distribution in Tyley (1974) and Case B assumes the T values are halved throughout the domain. Case B preserves the relative distribution of geologic materials as defined by Tyley (1974), but assumes that the materials are half as permeable. In Case A, T values range from 2,000 gallons per day per foot (gpd/ft) to 200,000 gpd/ft, with a T value of 50,000 gpd/ft in the vicinity of the project pumping wells. In Case B, T values range from 1,000 gpd/ft to 100,000 gpd/ft, with a T value of 25,000 gpd/ft in the vicinity of the project pumping wells. The T distributions for Case A and Case B are shown on Figures 3 and 4, respectively.

RESULTS

Simulation results are summarized on Table 1, and presented on the figures as hydrographs and contour maps. Hydrographs of the simulation results are plotted at the location of the project pumping wells, the DWA basin, and the two sets of public pumping wells that are closest to the project pumping wells—MSWD Wells 28 and 30 and MSWD Wells 27 and 31. MSWD Wells 27 and 31 are slightly less than 2 miles east-southeast of the project pumping wells and MSWD Wells 28 and 30 are slightly more than 3 miles north-northeast of the project pumping wells. Since MSWD Wells 28 and 30 and Wells 27 and 31 are each so close to one another, the results were compiled as if they were at the same location.

Scenario 1

Model simulation results show increasing drawdown at the project pumping wells during the first year of pumping, followed by a gradual leveling off after the first year once percolation at the DWA basin reaches the water table. Groundwater elevations beneath the DWA basin initially decrease due to project pumping, but then increase once percolation reaches the water table at the end of the first year. Groundwater elevations beneath the DWA basin stabilize after approximately 6 to 11 years. Drawdown at the MSWD pumping wells and CVWD pumping wells is less than 1 foot.

In Case A, maximum drawdown at the project pumping wells is approximately 7.2 feet after 30 years. The drawdown stabilizes after approximately 5 years, but continues to increase throughout the duration of the simulation. The maximum water level rise at the DWA basin is 7.9 feet after 30 years, but stabilizes after approximately 6 years.

In Case A, drawdown at MSWD Wells 28 and 30 and Wells 27 and 31 is less than 1 foot. Drawdown at MSWD Wells 27 and 31 is greater than at MSWD Wells 28 and 30 because they are closer to the project pumping wells. Maximum drawdown at MSWD Wells 22, 24, 29, and 32 and CVWD public pumping wells is between 0.5 and 1 foot.

Case B results follow a similar pattern to Case A results. However, due to lower model T values in Case B, drawdowns are greater and the time to reach stabilization is longer. Therefore, drawdown at the project pumping wells, the groundwater elevation increase at the DWA basin, and drawdown at the MSWD and CVWD public pumping wells are greater than in Case A. As shown on Table 1, the maximum simulated drawdown at the project pumping wells is approximately 14 feet, maximum simulated groundwater elevation rise at the DWA basin is approximately 16 feet, and maximum drawdown at MSWD Wells 27 and 31 is approximately 1.4 feet. In Case B, drawdown and groundwater elevation stabilize after approximately 9 to 11 years, as compared with 5 to 6 years in Case A.

Scenario 1 results are summarized on Table 1 and presented on Figures 5, 6, 7, and 8. Contour maps, presented on Figures 7 and 8, show results at the end of the simulation—year 30—when maximum drawdown and groundwater elevation increase occur.

Scenario 2

Model simulation results show increasing drawdown at the pumping wells during the first 5 years of pumping. At the beginning of year 6, groundwater elevations at the pumping wells increase slightly due to DWA basin percolation. Percolation stops at the end of year 6. Groundwater elevations at the pumping wells increase until they reach the maximum values at the end of year 7. The drawdown at the project pumping wells gradually increases again until reaching another near maximum at the end of year 10. Percolation is applied again at the beginning of year 11. This 5-year cycle continues throughout the duration of the 31-year simulation.

This cyclical pattern is also evident in groundwater elevations beneath the DWA basin. During the first 5 years, groundwater elevations beneath the DWA basin decrease due to project pumping. At the beginning of year 6, when DWA basin percolation reaches the water table, the groundwater elevation beneath the DWA basin increases dramatically. Once percolation stops at the end of year 6, this mound of groundwater spreads out and groundwater levels recover to near pre-percolation levels and the 5-year cycle begins again.

Results for Case A and B show similar patterns. However, as in Scenario 1, Case B results are magnified due to lower T values. In Case B, drawdown from project pumping and groundwater mounding from DWA basin percolation are greater than in Case A. Maximum drawdown at the project pumping wells is 8.8 feet in Case A and 15.3 feet in Case B. The maximum groundwater elevation increase beneath the DWA basin is 30.1 feet in Case A and 51.7 feet in Case B.

The effect of pumping and recharge at the MSWD and CVWD wells are about the same for Case A and Case B. The maximum drawdown in Case A is 1.8 feet at both Wells 27 and 31 and Wells 28 and 30. In Case B, maximum drawdown is 2.1 feet at Wells 27 and 31, and

1.7 feet at Wells 28 and 30. Drawdown at MSWD Wells 22, 24, 29, and 32 and CVWD Wells is between 1 and 2 feet.

Scenario 2 results are summarized on Table 1 and presented on Figures 9 through 14. Contours maps, presented on Figures 11, 12, 13, and 14, show Case A and Case B results at year 5, when maximum or near maximum drawdown occurs, and year 31, the end of the simulation when maximum groundwater rise occurs at DWA basin.

Scenario 3

Model simulation results show increasing drawdown at the pumping wells during the first 4 months of the simulation while the wells are pumping. Once the wells stop pumping, groundwater elevations gradually recover to near pre-pumping levels. Due to the lack of percolation at the DWA basin, groundwater levels beneath the DWA basin decrease slightly through time as a result of project pumping.

Results for Case A and B show similar patterns. As in both Scenarios 1 and 2, Case B drawdown from project pumping is greater than in Case A. Maximum drawdown at the project pumping wells is 15.0 feet in Case A and 25.8 feet in Case B. In both cases, maximum drawdown at the pumping wells occurs at the end of 4 months, immediately before pumping stops. Interestingly, the groundwater level decrease beneath the DWA basin is greater in Case A than in Case B because the radius of influence is greater due to higher T.

Drawdown at the MSWD and CVWD wells is minimal for both Cases A and B. The maximum drawdown in Case A is 0.4 foot at MSWD Wells 27 and 31 and 0.3 foot at MWSD Wells 28 and 30. In Case B, maximum drawdown is 0.3 foot at MSWD Wells 27 and 31 and 0.2 foot at MSWD Wells 28 and 30. Drawdown at MSWD Wells 22, 24, 29, and 32 and CVWD Wells in both Cases is less than 0.4 foot.

Scenario 3 results are summarized on Table 1 and presented on Figures 15 through 20. Contour maps, presented on Figures 17, 18, 19, and 20, show Case A and Case B results at month 4, when maximum pumping well drawdown occurs, and month 12, the end of the simulation.

DISCUSSION

Simulation results illustrate a direct correlation between the pumping rate and drawdown at the project pumping wells and between the recharge rate and the amount of groundwater mounding. Results indicate a nearly linear relationship between T values and the magnitude of both drawdown at the pumping wells and mounding at the DWA basin. Lower T values result in increased drawdown at the project pumping wells, increased mounding of groundwater at the DWA basin, and decreased radius of influence affecting both the pumping cone of depression and recharge water spreading.

The maximum drawdown at the pumping wells is seen in Scenario 3, where maximum potential project pumping occurs in the absence of percolation at the DWA basin. The maximum groundwater mounding at the DWA basin is seen in Scenario 2, where water is percolated every 5 years.

However, despite the variations in pumping and percolation volumes and timing, the response at the MSWD wells and the CVWD wells is insignificant. Maximum drawdown is approximately 2.0 feet, observed at MSWD Wells 27 and 31 in Scenario 2B. MSWD Wells 27 and 31 were

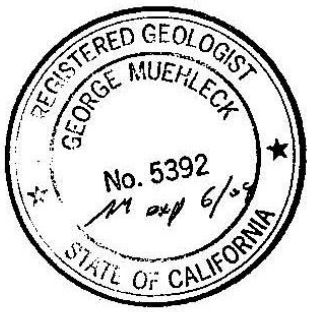
most affected by project pumping because they are the closest public pumping wells to the project pumping wells.

MODEL LIMITATIONS

The model was constructed in a cost-effective way to meet the model objectives and was developed to evaluate the potential impacts of pumping and percolation on the subbasin. Any groundwater model, including this screening-type model, is a simplification of the natural environment and therefore has recognized limitations.

Respectfully submitted,

URS Corporation



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Jim Zhang, PhD, PE
Senior Hydrogeologist

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Project Hydrogeologist

REFERENCES

Tyley, S, 1974. *Analog Model of the Ground-Water Basin of the Upper Coachella Valley, California. Geological Survey Water – Supply Paper 2027*. United States Government Printing Office, Washington.

URS, 2007. *Technical Memorandum, Model Documentation, Proposed CPV Sentinel Energy Project, Mission Creek Sub-Basin, Riverside County, California, prepared for CPV Sentinel LLC*. June.

ATTACHMENTS

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TABLES

Table 1: Summary of Simulation Results

Location	Scenario 1A	Scenario 1B	Scenario 2A	Scenario 2B	Scenario 3A	Scenario 3B
Results Based on Groundwater Flow Model Observation Point Data						
Project Pumping Wells						
maximum drawdown (ft)	7.2	14.0	8.8	15.3	15.0	25.8
time of maximum drawdown (year)	~5 - 30 yrs	~9 - 30 yrs	5 (5 yr cycle)	10 (5 yr cycle)	4 months	4 months
DWA Recharge Basin						
maximum water level rise (ft)	7.9	16.0	30.1	51.7	0	0
time of maximum water level rise (year)	~6 - 30 yrs	~11 - 30 yrs	31 (5 yr cycle)	31 (5 yr cycle)	0	0
Wells 28 and 30						
maximum drawdown (ft)	0.6	0.8	1.8	1.7	0.3	0.2
time of maximum drawdown (year)	~6 - 30 yrs	~11 - 30 yrs	5 (5 yr cycle)	10 (5 yr cycle)	12 months	12 months
Wells 27 and 31						
maximum drawdown (ft)	0.9	1.4	1.8	2.1	0.4	0.3
time of maximum drawdown (year)	~6 - 30 yrs	~11 - 30 yrs	10 (5 yr cycle)	30 (5 yr cycle)	12 months	12 months
Results Based on Groundwater Flow Model Contour Map Interpretation						
Well 22						
maximum drawdown (ft)	0.5 - 1	1 - 2	1 - 2	1 - 2	<0.4	<0.3
Well 24						
maximum drawdown (ft)	0.5 - 1	1 - 2	1 - 2	1 - 2	<0.4	<0.3
Well 29						
maximum drawdown (ft)	0.5 - 1	1 - 2	1 - 2	1 - 2	<0.4	<0.3
Well 32						
maximum drawdown (ft)	0.5 - 1	1 - 2	1 - 2	1 - 2	<0.4	<0.3
CVWD Wells						
maximum drawdown (ft)	0.5 - 1	1 - 2	1 - 2	1 - 2	<0.4	<0.3

Scenario 1: Pump = 1,100 afy, Recharge = 1,100 afy (DWA only)
Scenario 2: Pump = 1,100 afy, Recharge = 5,500 afy (every 5 years, DWA only)
Scenario 3: Pump = 2,059 gpm (4 months = 1,100 af), Recharge = 0

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FIGURES

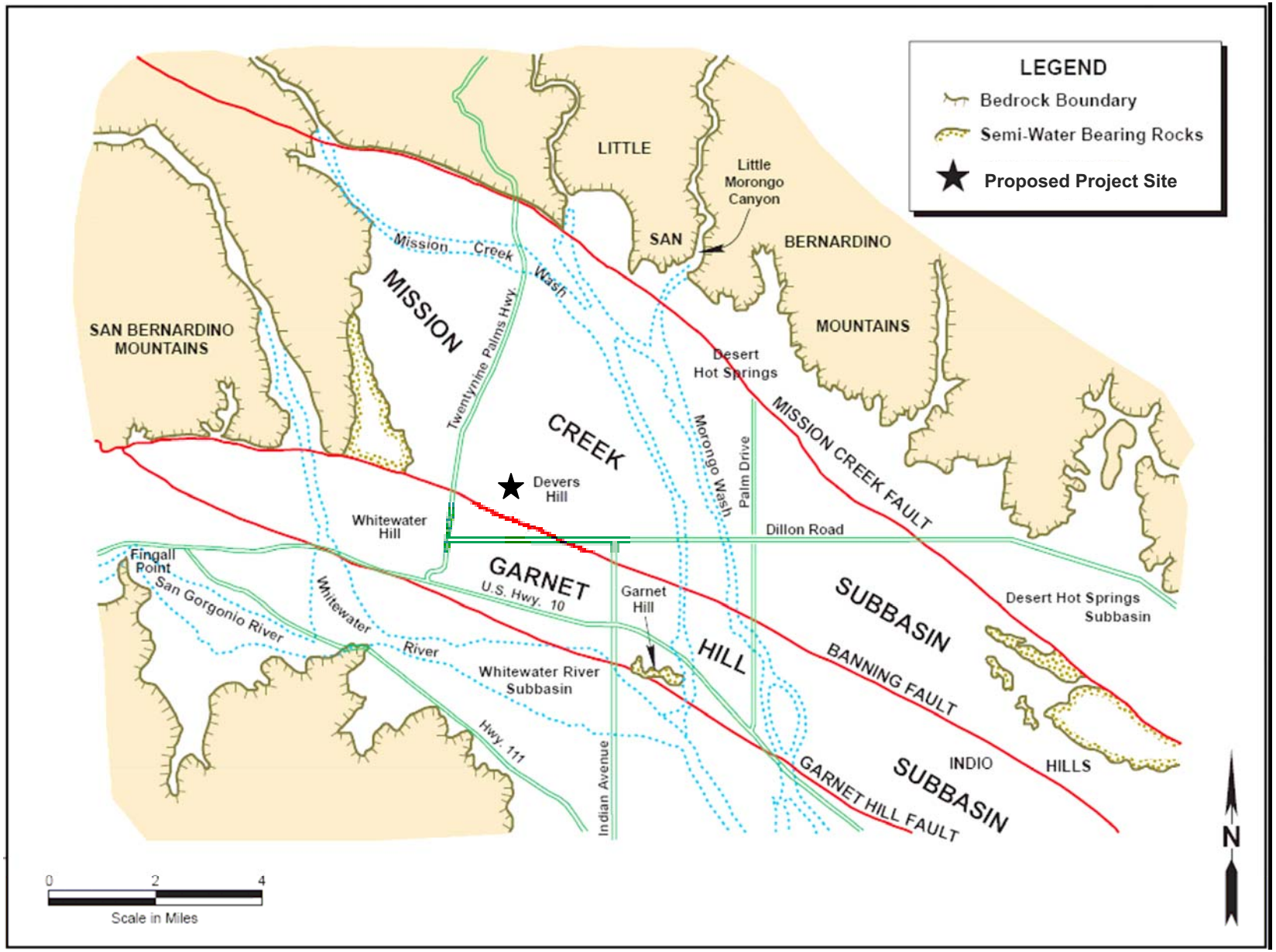

Figure 1: Groundwater Subbasin Map

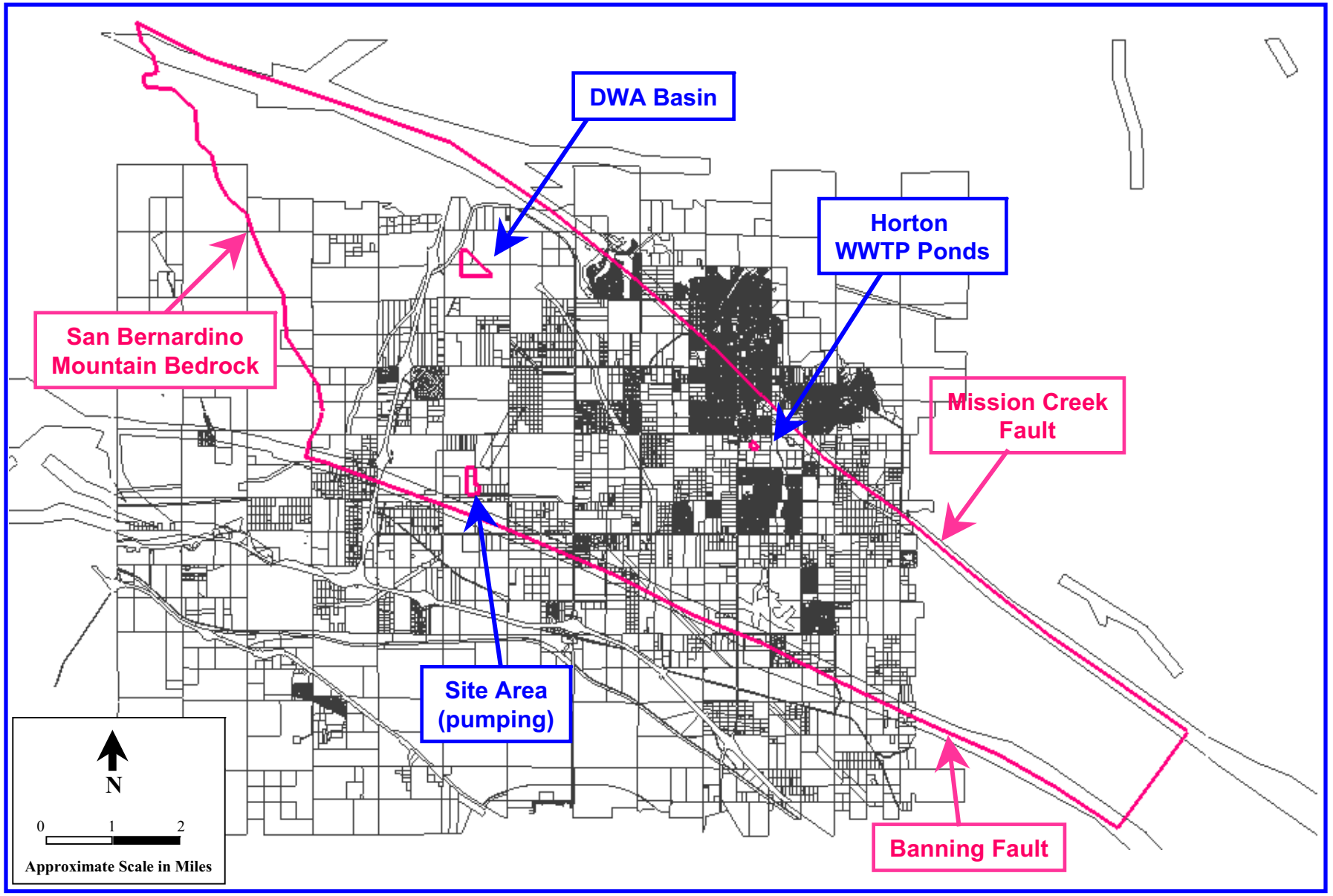

Figure 2: Model Domain

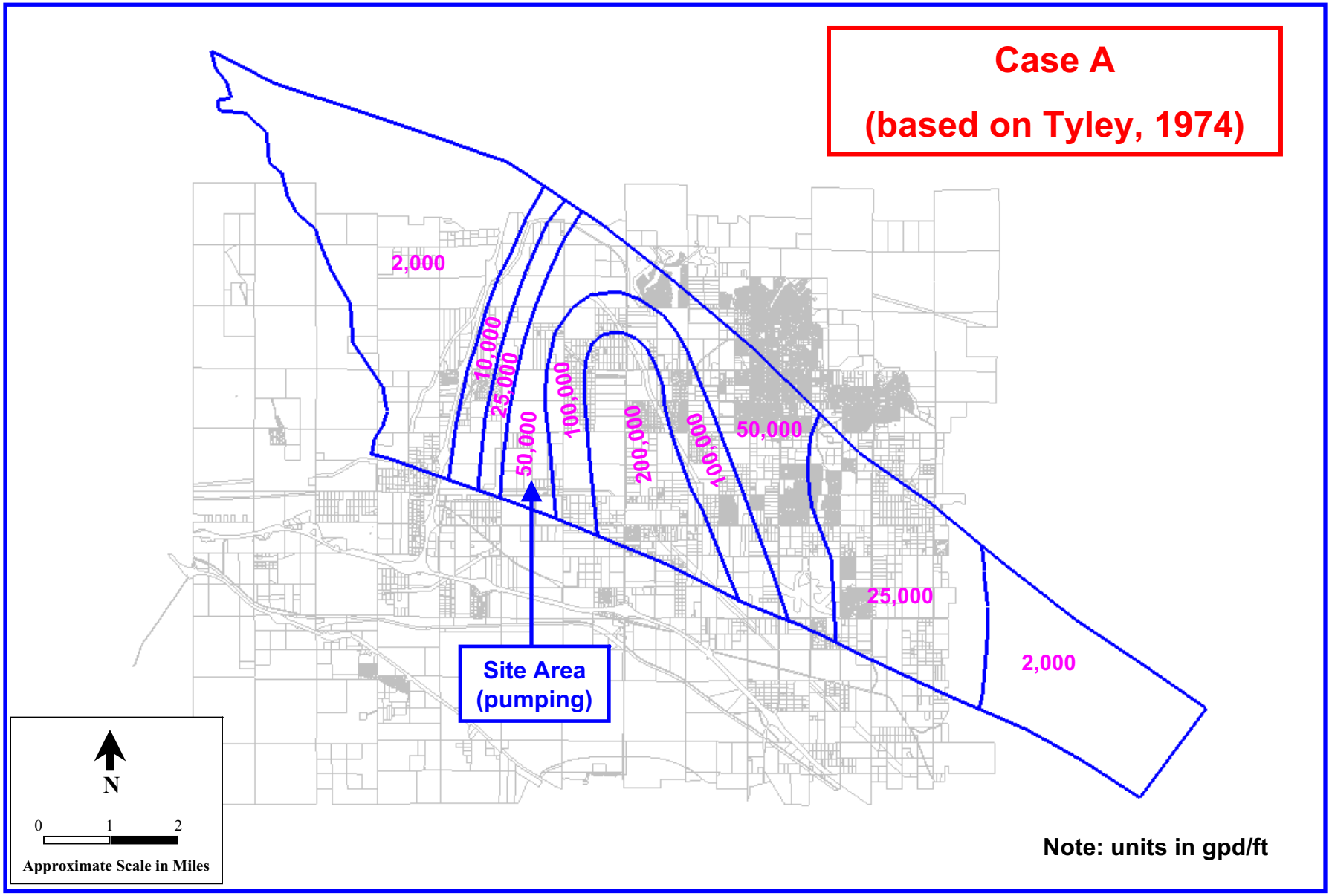

Figure 3: Transmissivity Distribution Used in Groundwater Flow Model – Case A

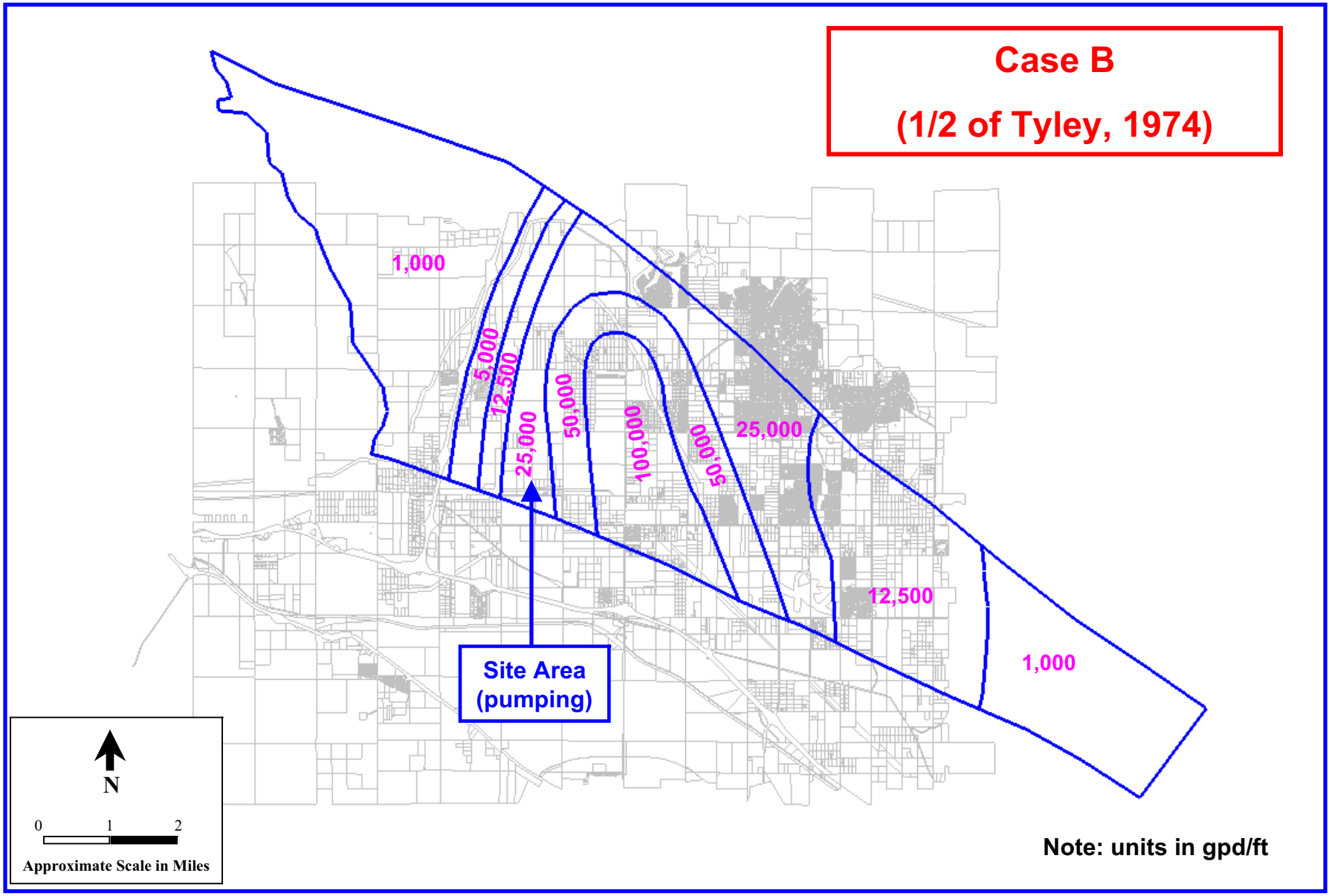

Figure 4: Transmissivity Distribution Used in Groundwater Flow Model – Case B

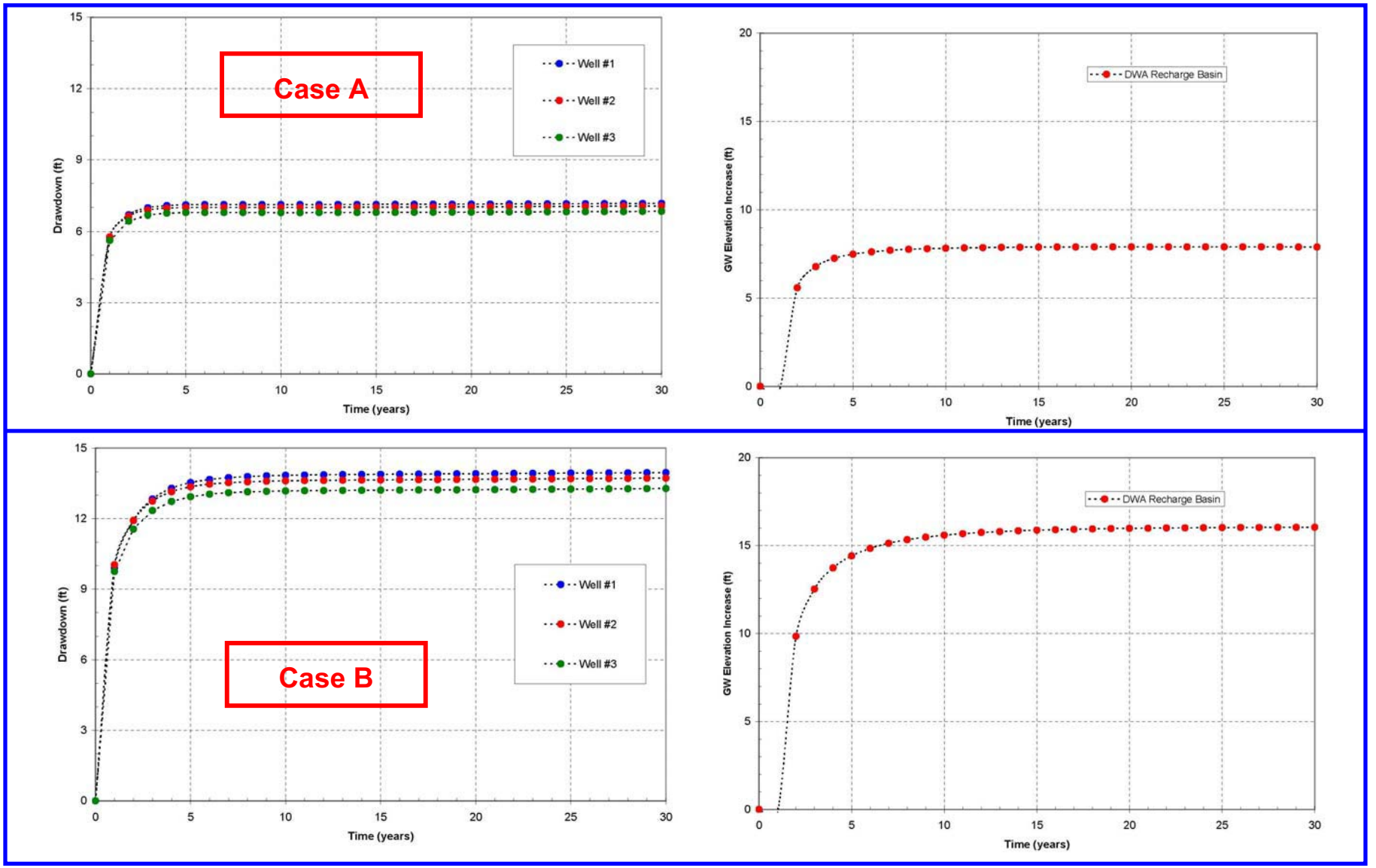

Figure 5:
Scenario 1 Results at Project Pumping Wells and DWA Recharge Basin
Pumping = 1,100 afy, Recharge = 1,100 afy

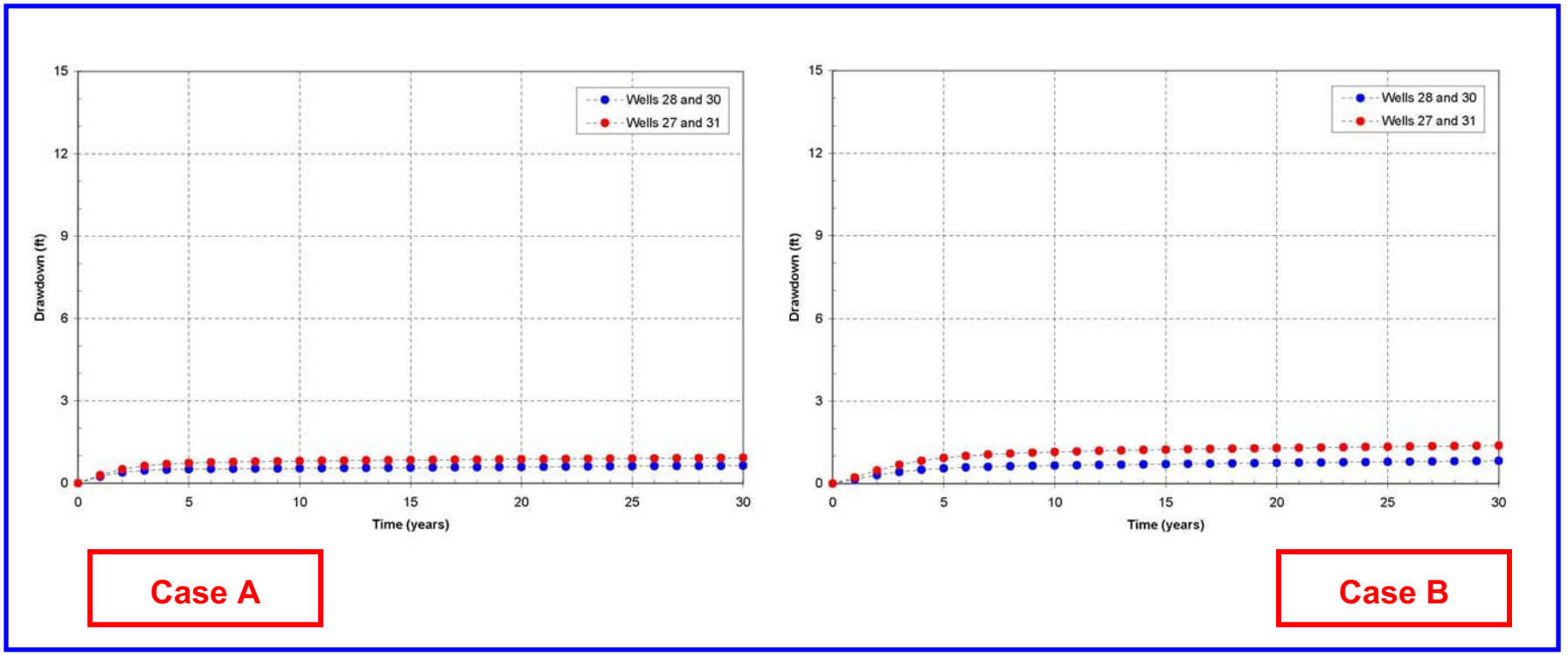

Figure 6:
Scenario 1 Results at MSWD Wells 28/30 and 27/31
Pumping = 1,100 afy, Recharge = 1,100 afy

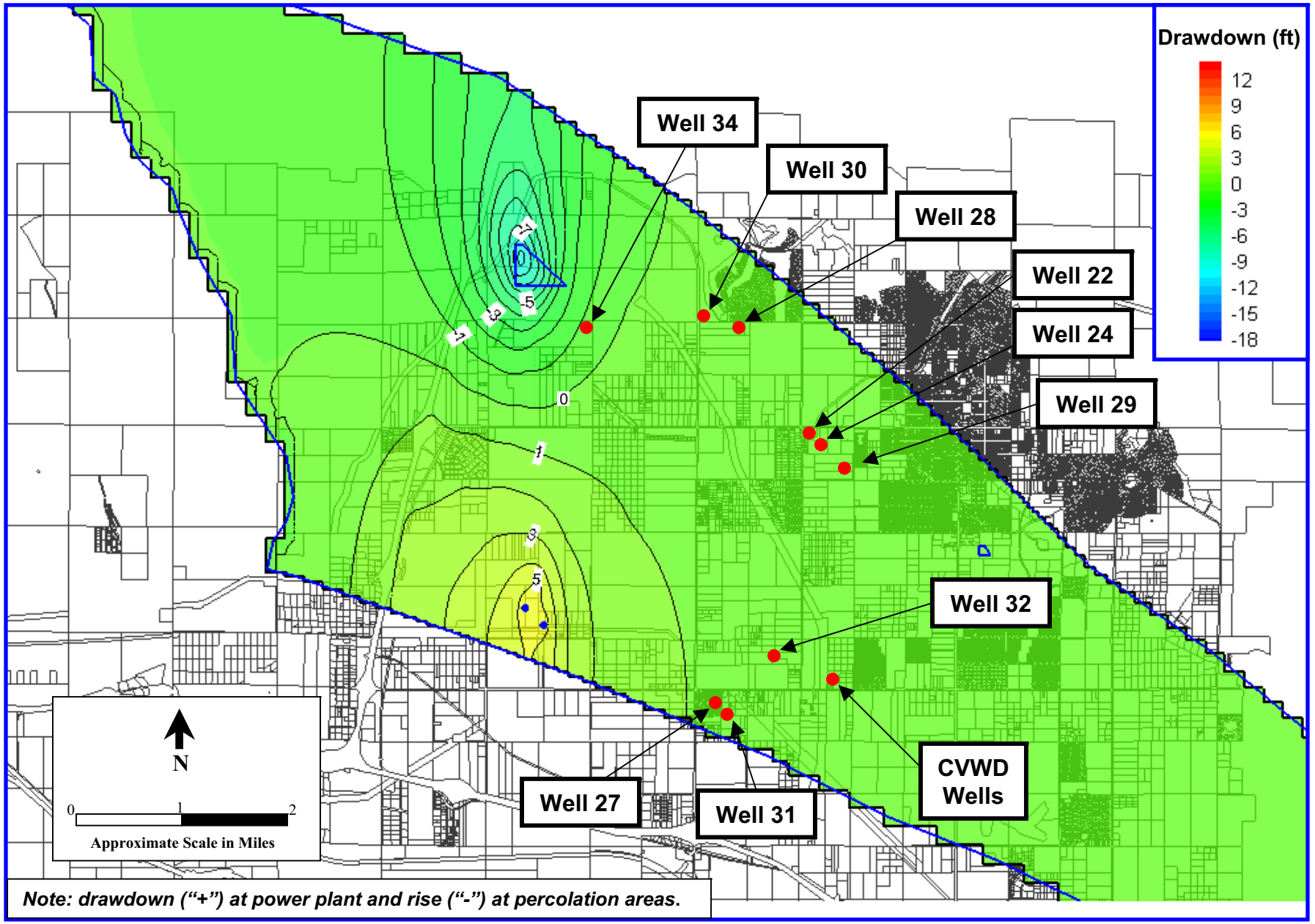

Figure 7: Contour Map of Simulated Groundwater Level Changes - Scenario 1A, 30 years

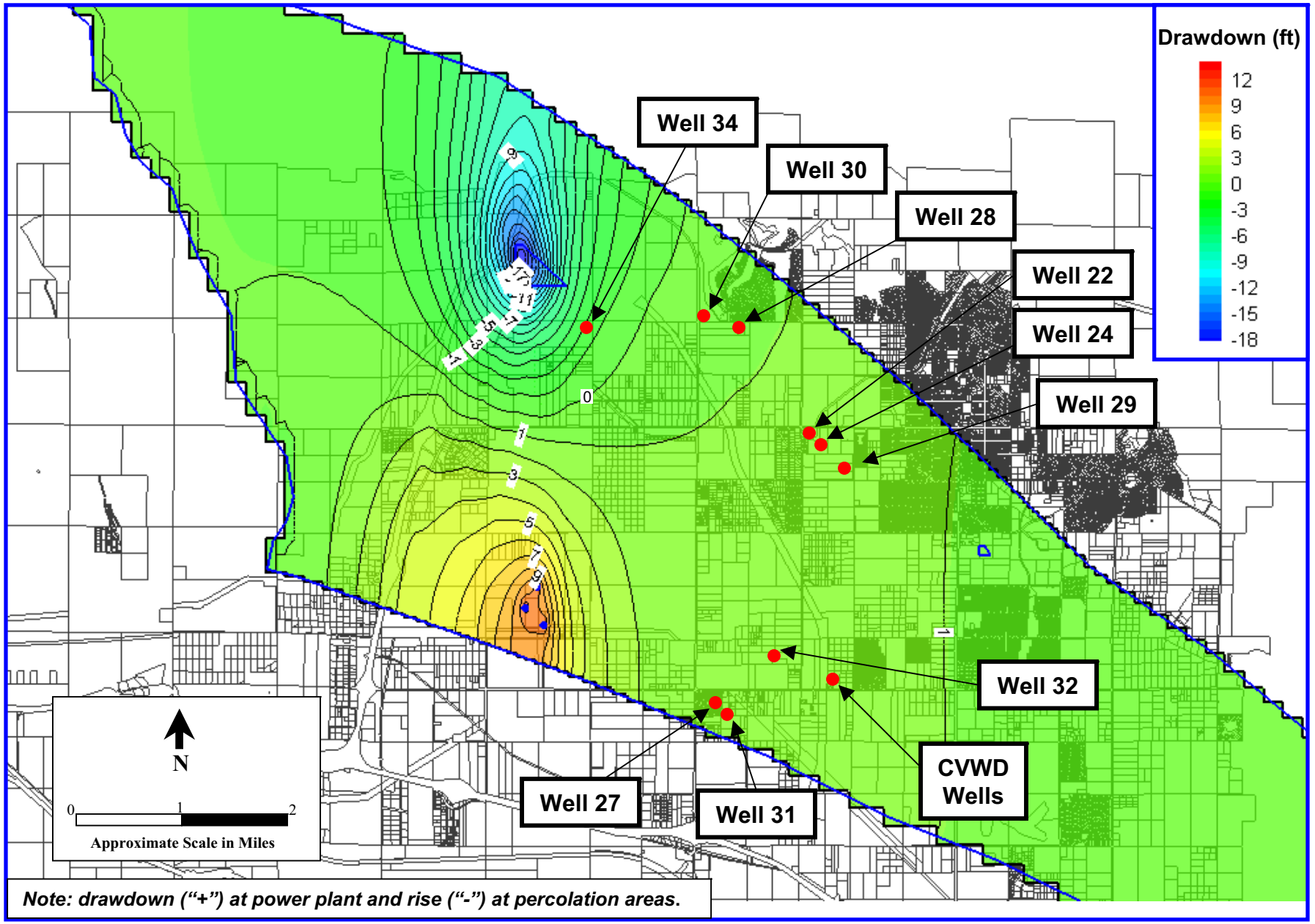

Figure 8: Contour Map of Simulated Groundwater Level Changes - Scenario 1B, 30 years

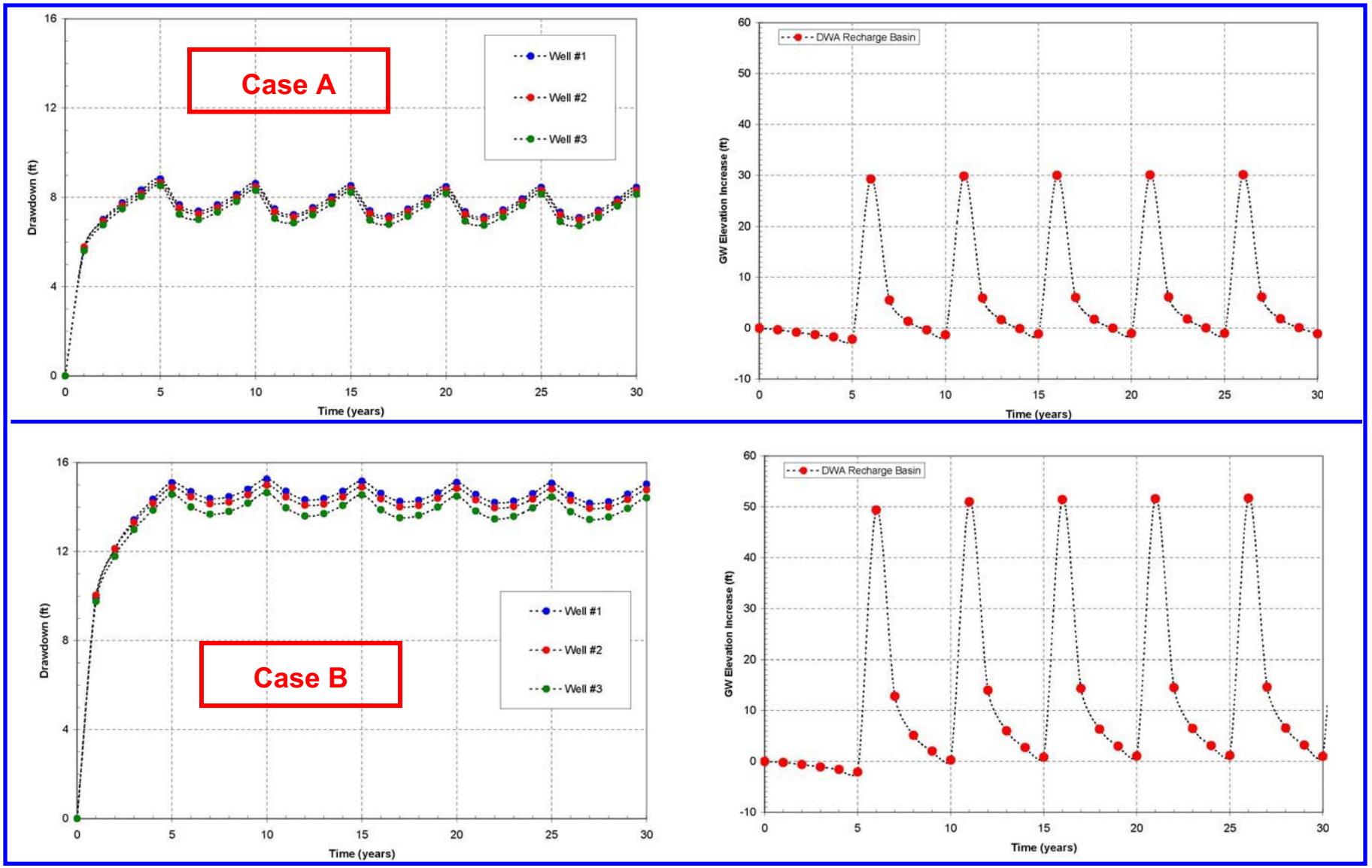

Figure 9:
Scenario 2 Results at Project Pumping Wells and DWA Recharge Basin
Pumping = 1,100 afy, Recharge = 5,500 afy (every 5 years)

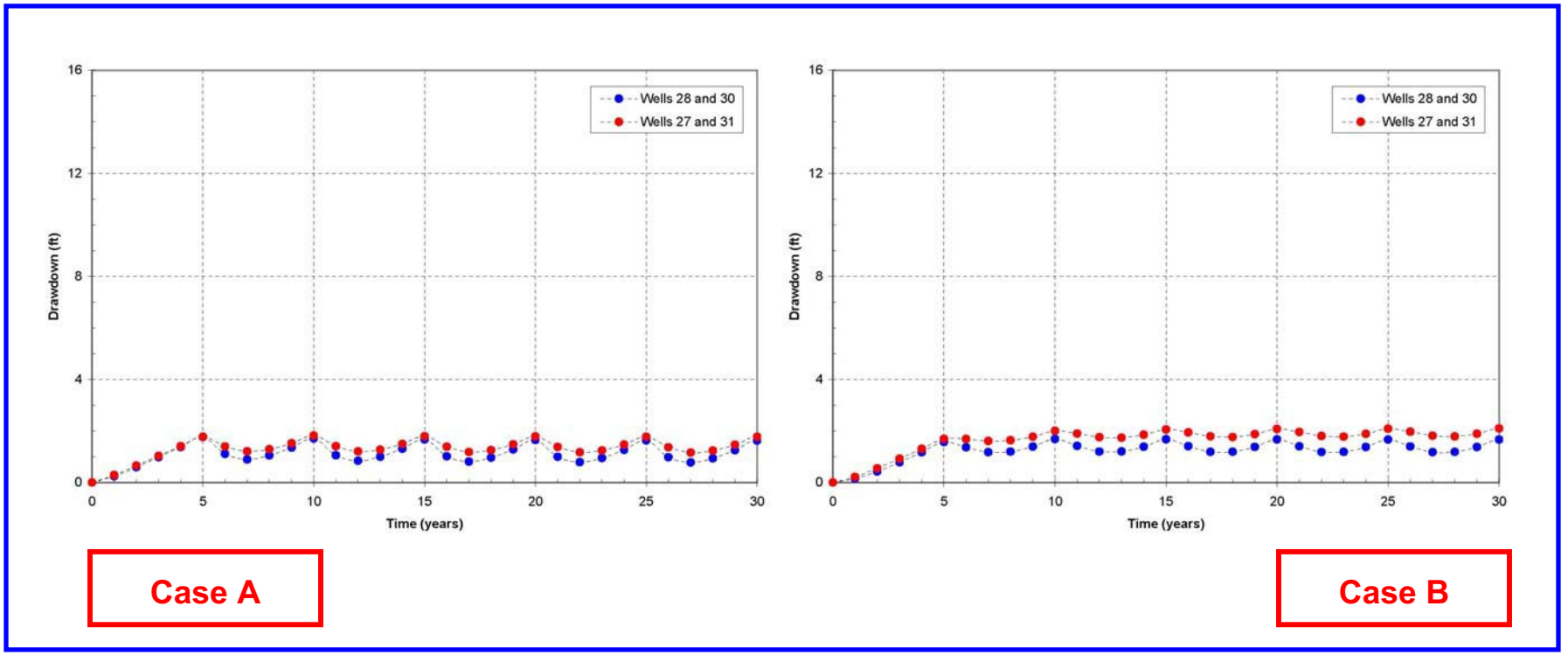

Figure 10:
Scenario 2 Results at MSWD Wells 28/30 and 27/31
Pumping = 1,100 afy, Recharge = 5,500 afy (every 5 years)

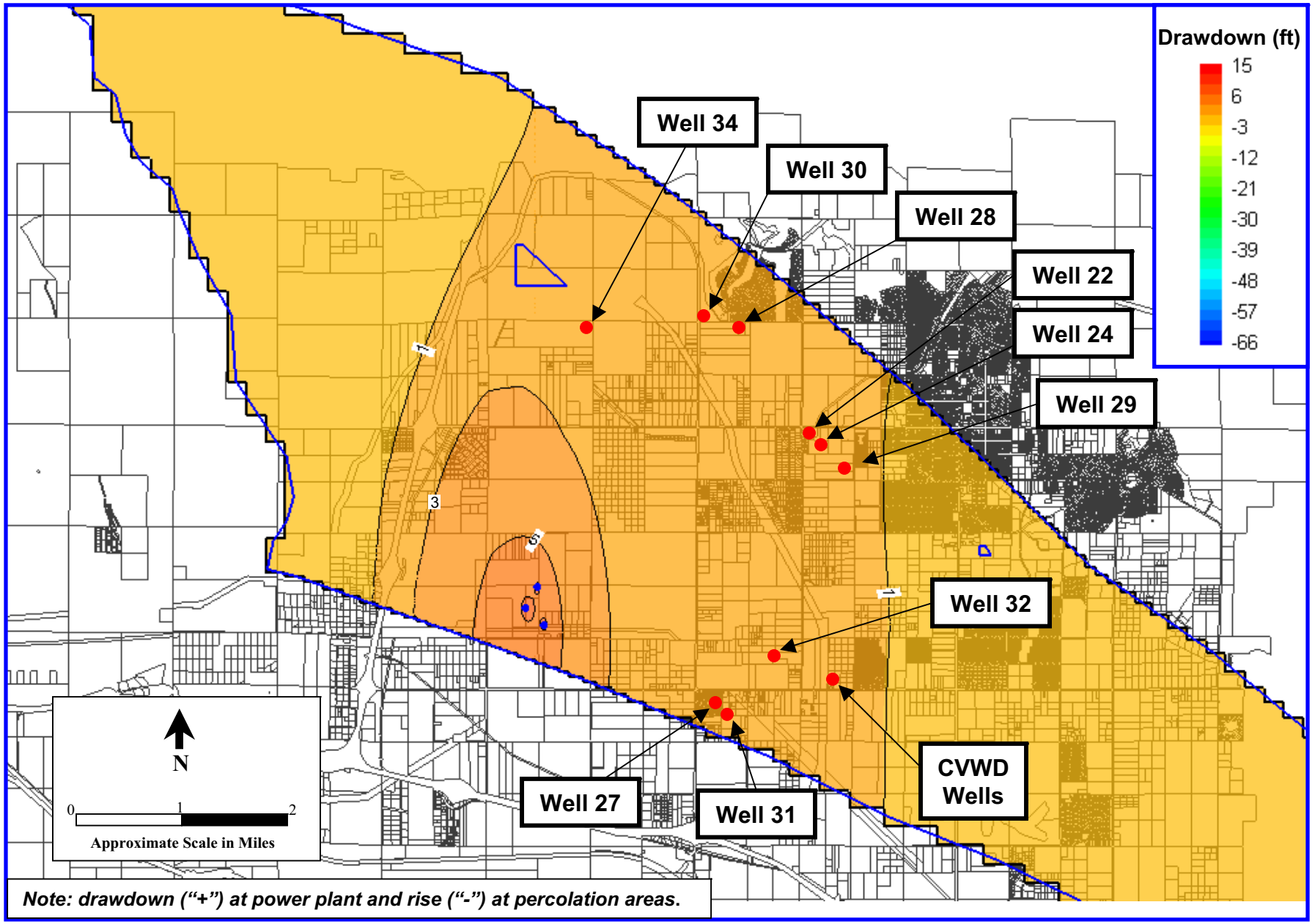

Figure 11: Contour Map of Simulated Groundwater Level Changes - Scenario 2A, 5 years

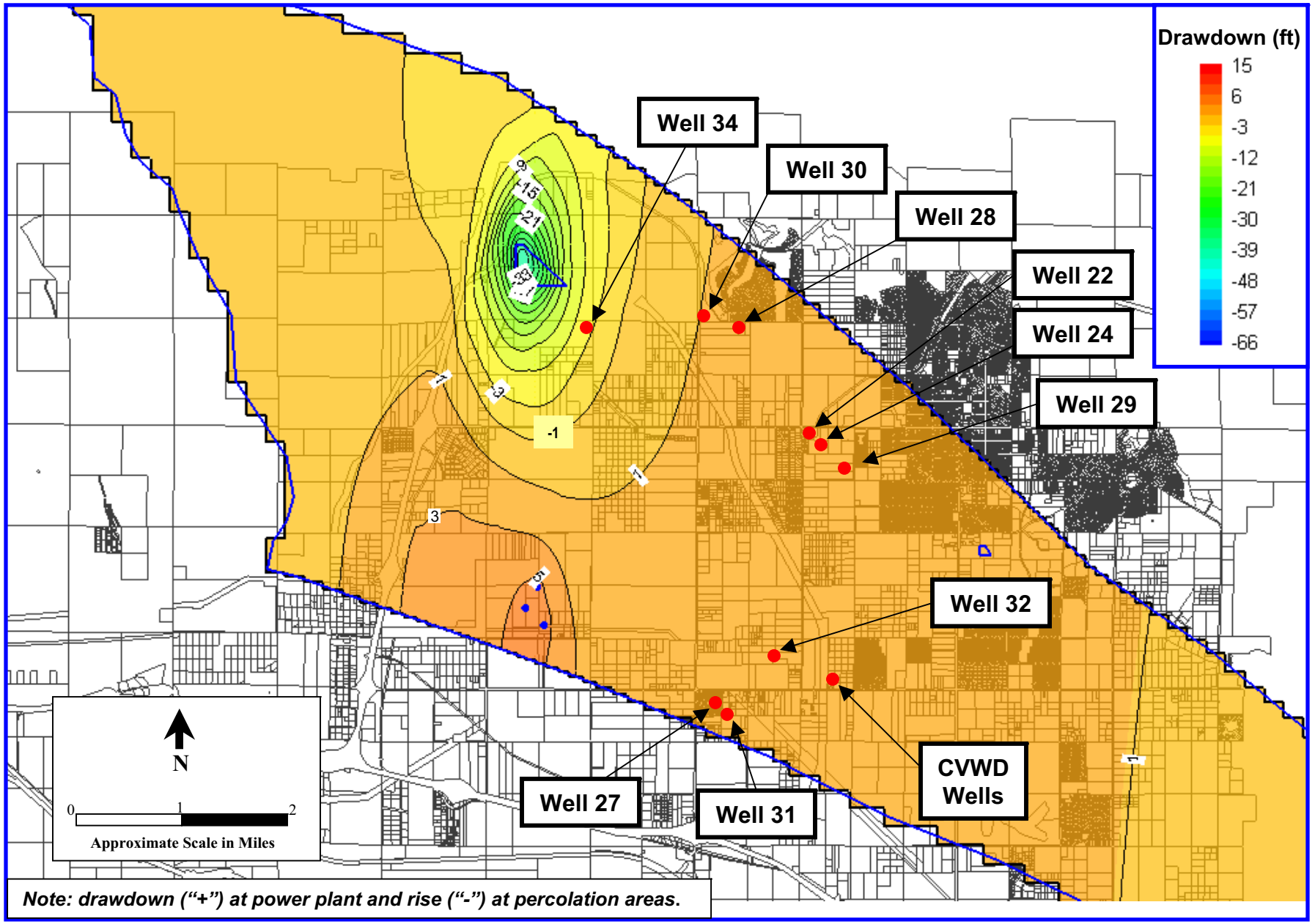

Figure 12: Contour Map of Simulated Groundwater Level Changes - Scenario 2A, 31 years

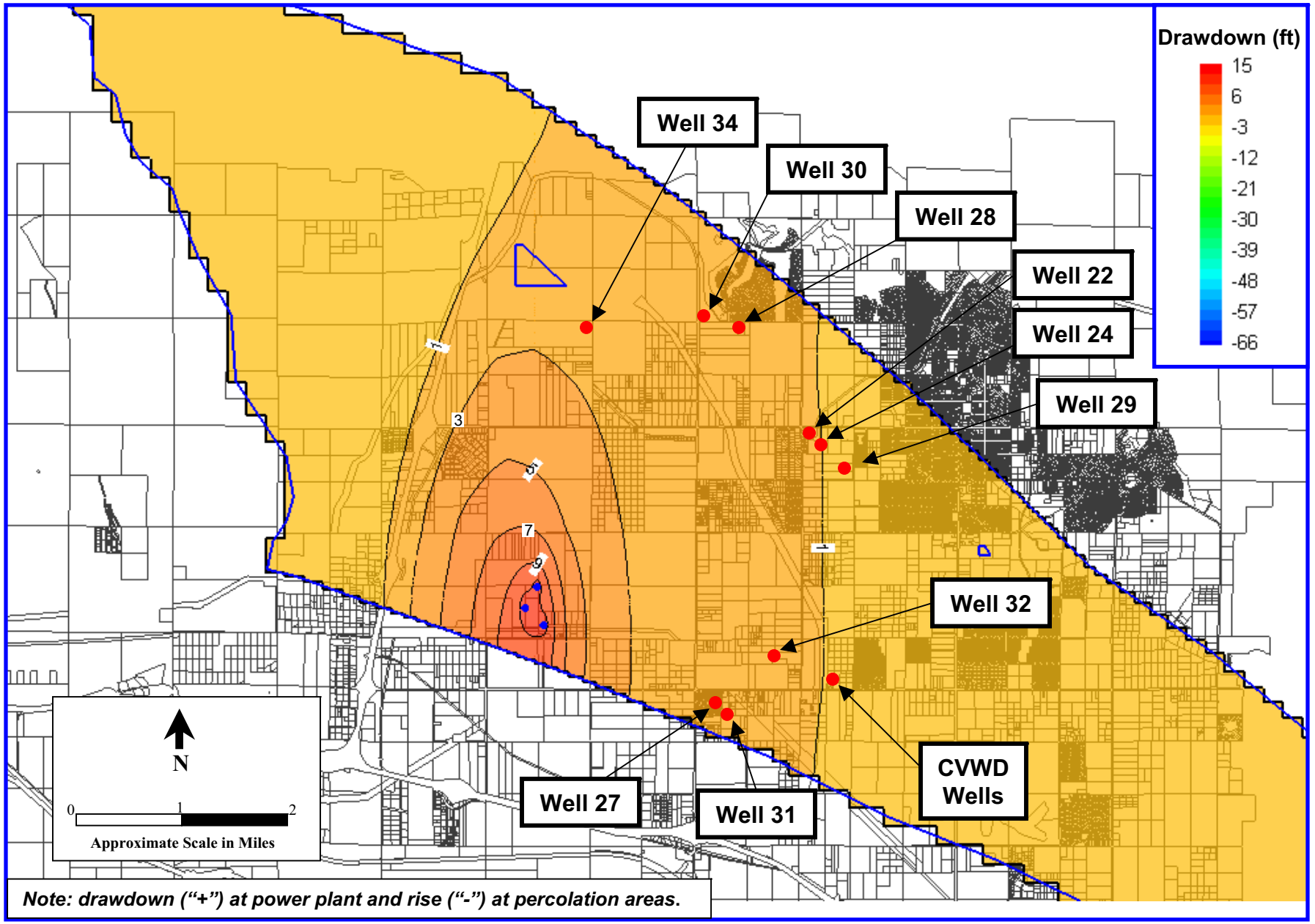

Figure 13: Contour Map of Simulated Groundwater Level Changes - Scenario 2B, 5 years

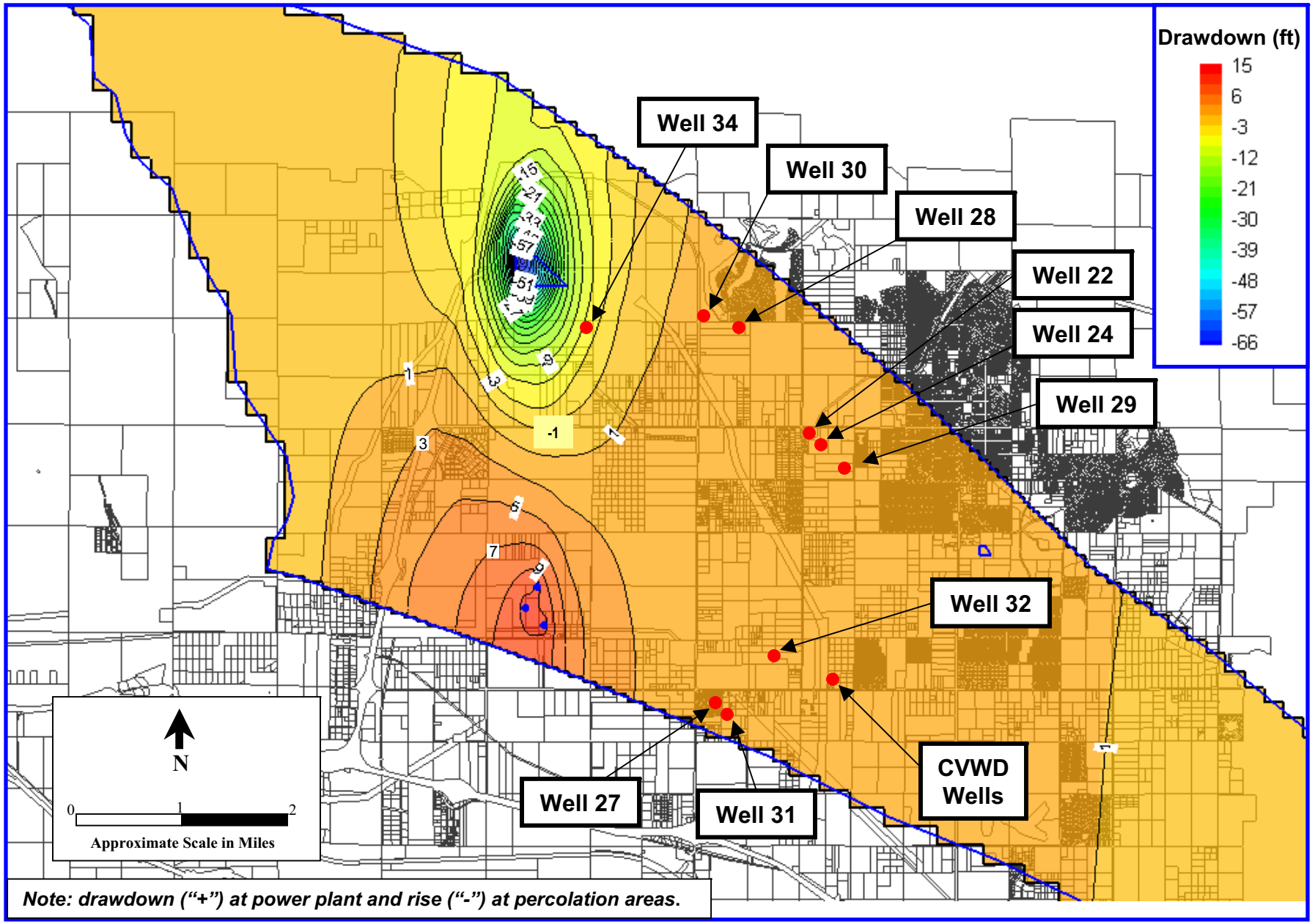

Figure 14: Contour Map of Simulated Groundwater Level Changes - Scenario 2B, 31 years

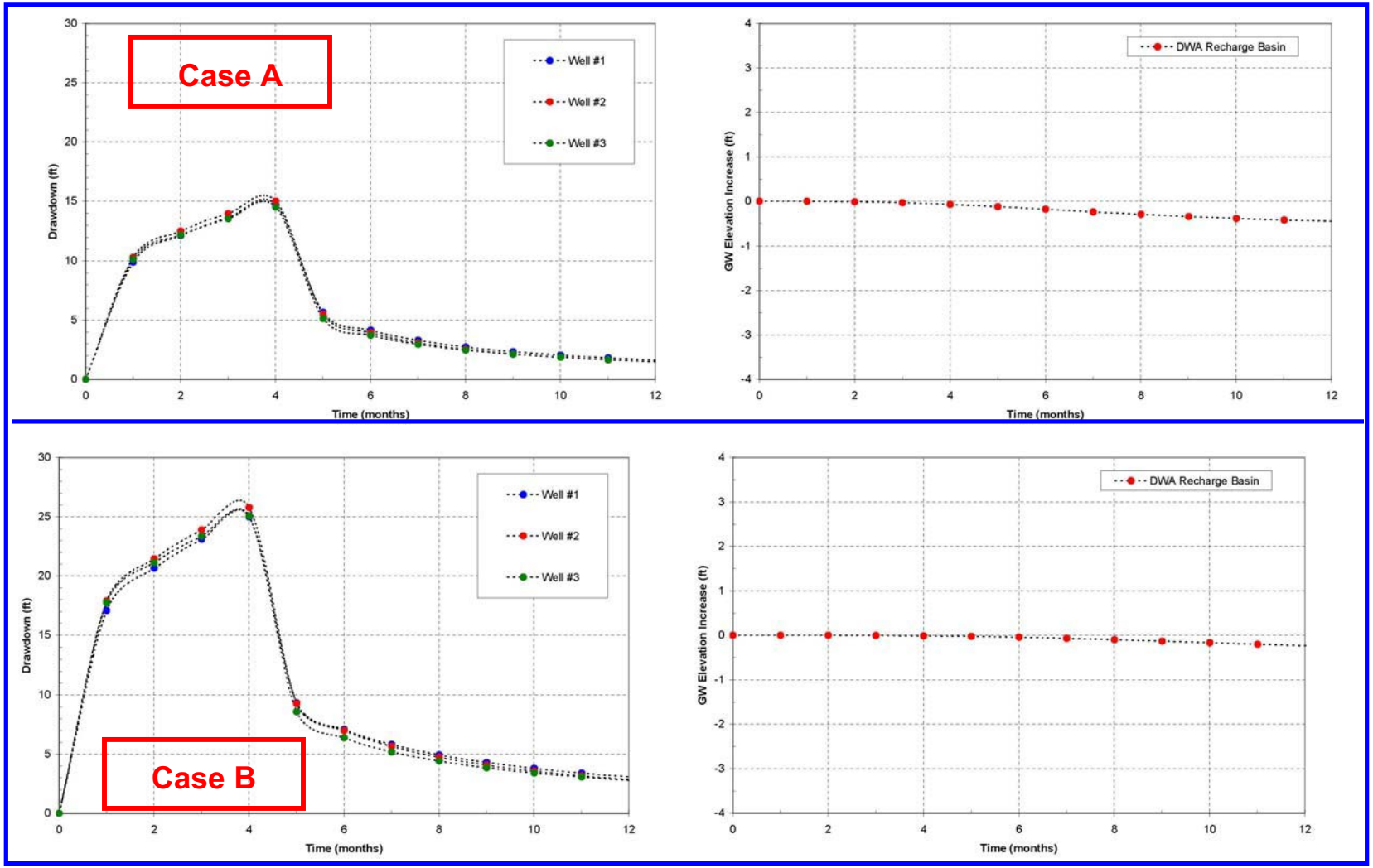

Figure 15:
Scenario 3 Results at Project Pumping Wells and DWA Recharge Basin
Pumping = 2,059 gpm (4 months), No recharge
(total volume pumped = 1,100 af)

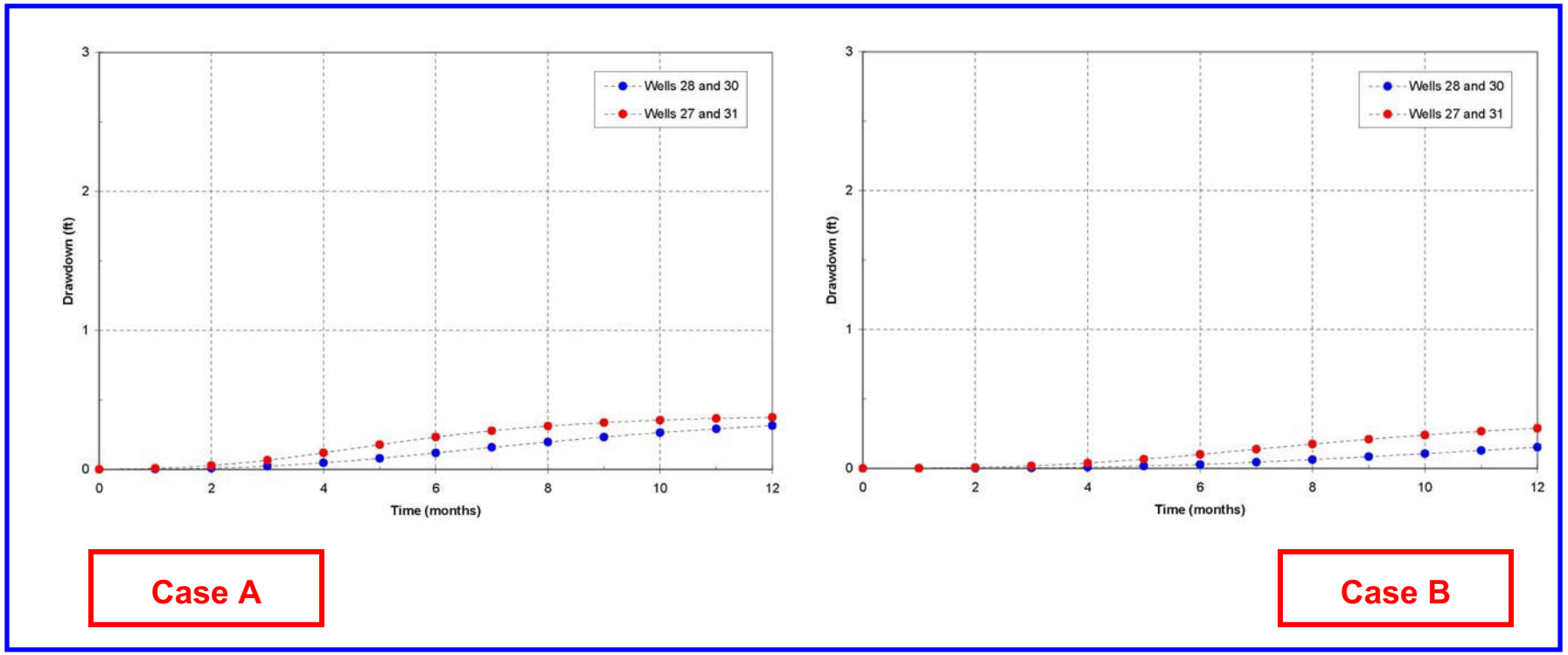

Figure 16:
Scenario 3 Results at MSWD Wells 28/30 and 27/31
Pumping = 2,059 gpm (4 months), No recharge
(total volume pumped = 1,100 af)

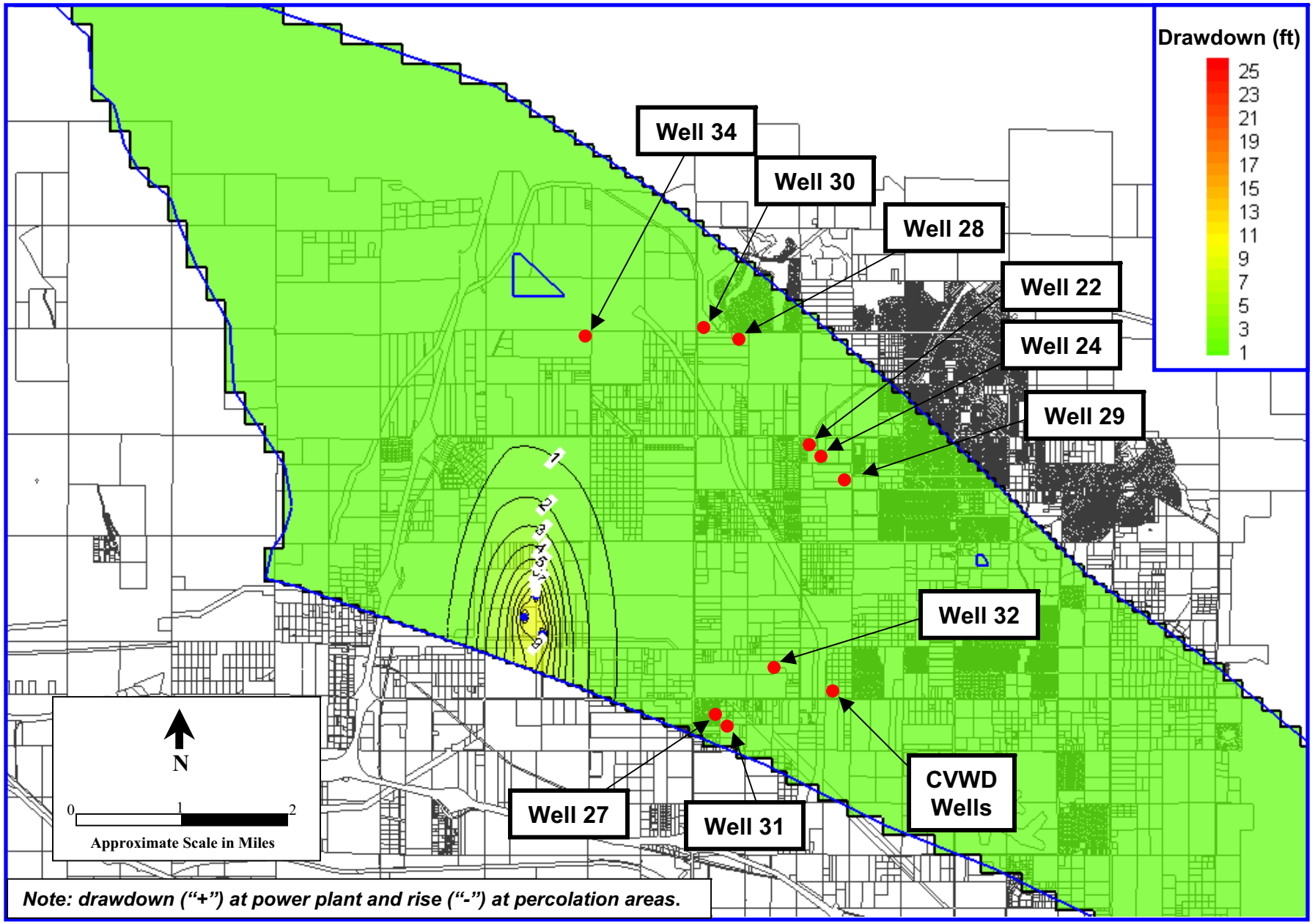

Figure 17: Contour Map of Simulated Groundwater Level Changes - Scenario 3A, 4 months

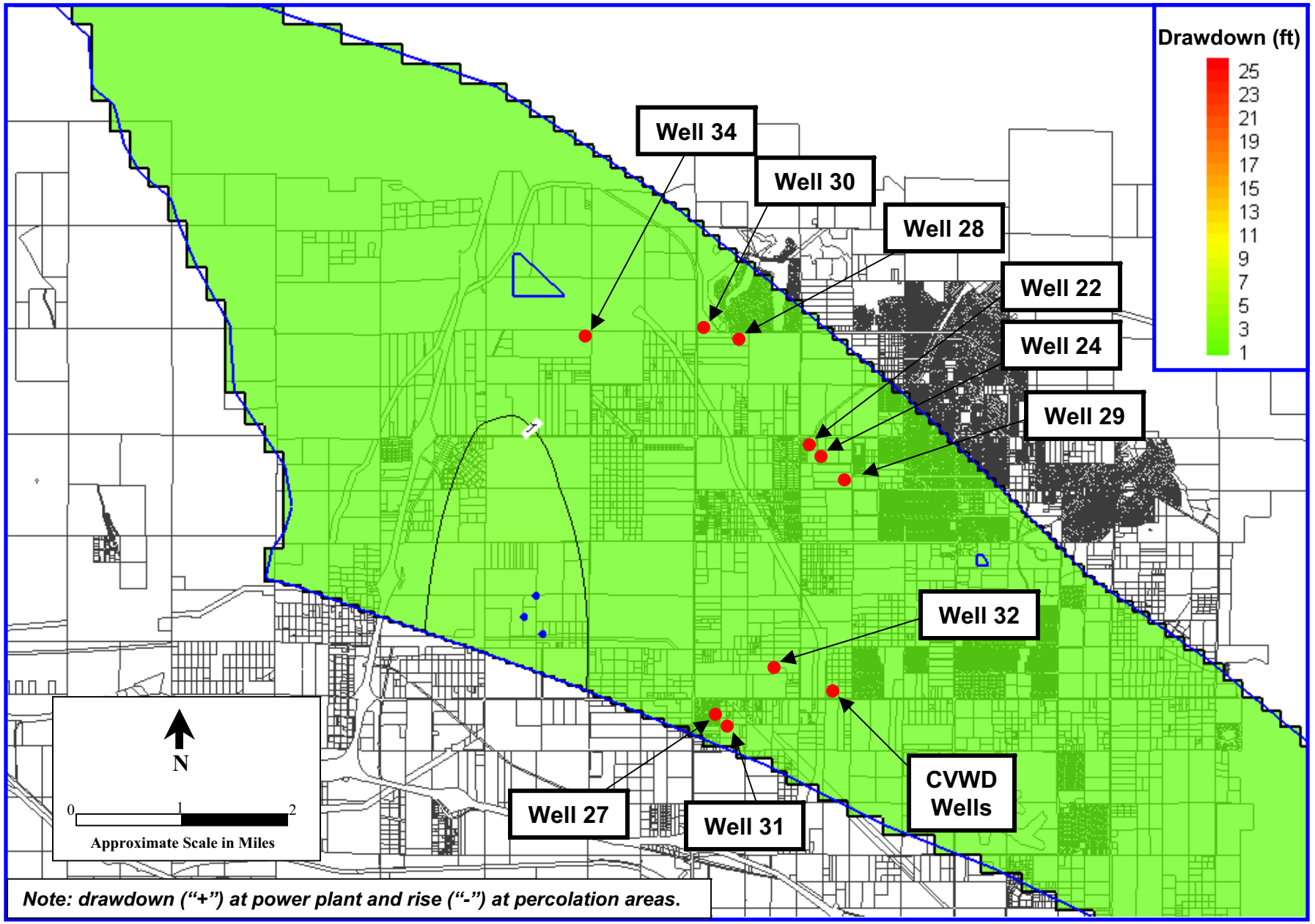

Figure 18: Contour Map of Simulated Groundwater Level Changes - Scenario 3A, 12 months

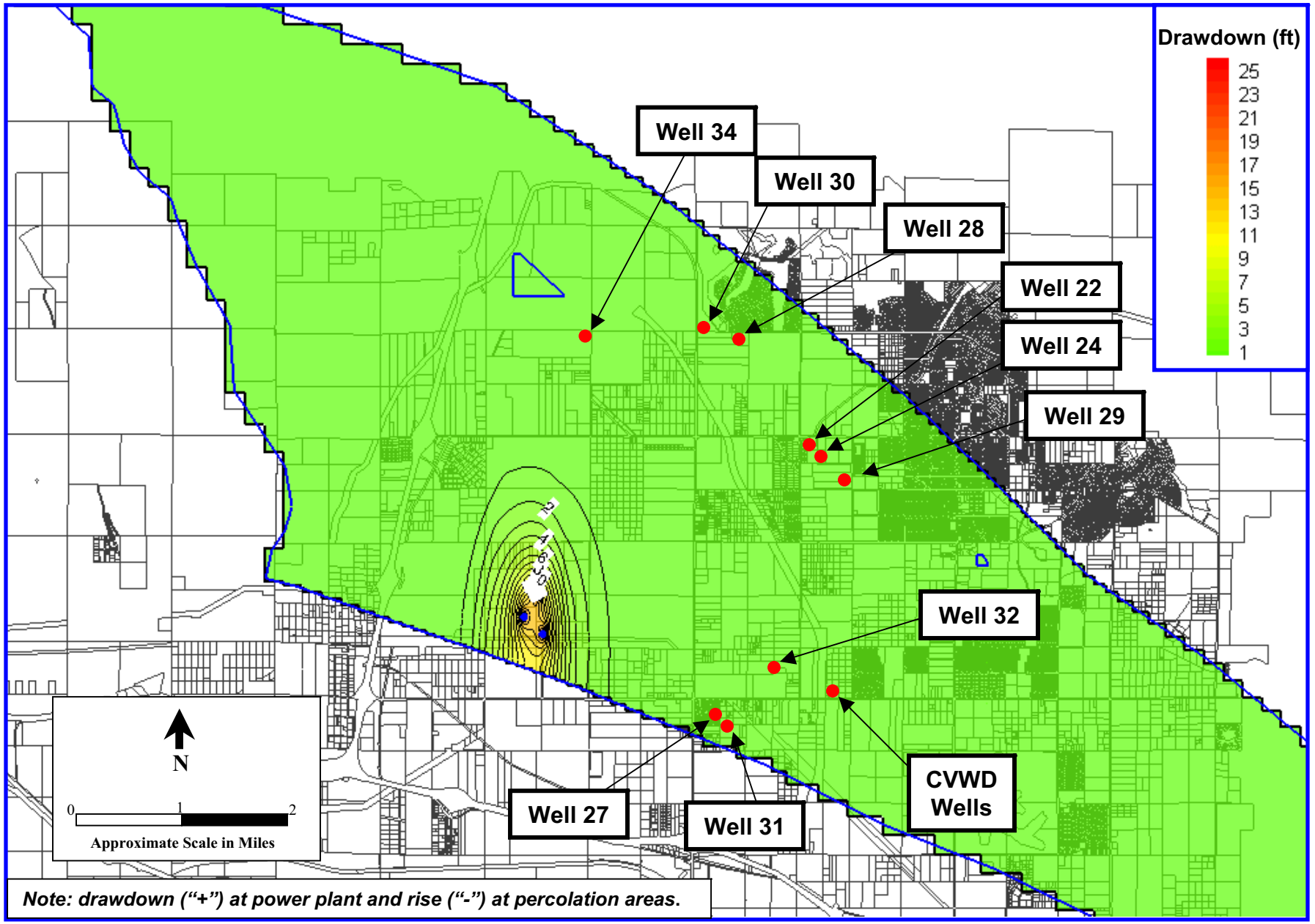

Figure 19: Contour Map of Simulated Groundwater Level Changes - Scenario 3B, 4 months

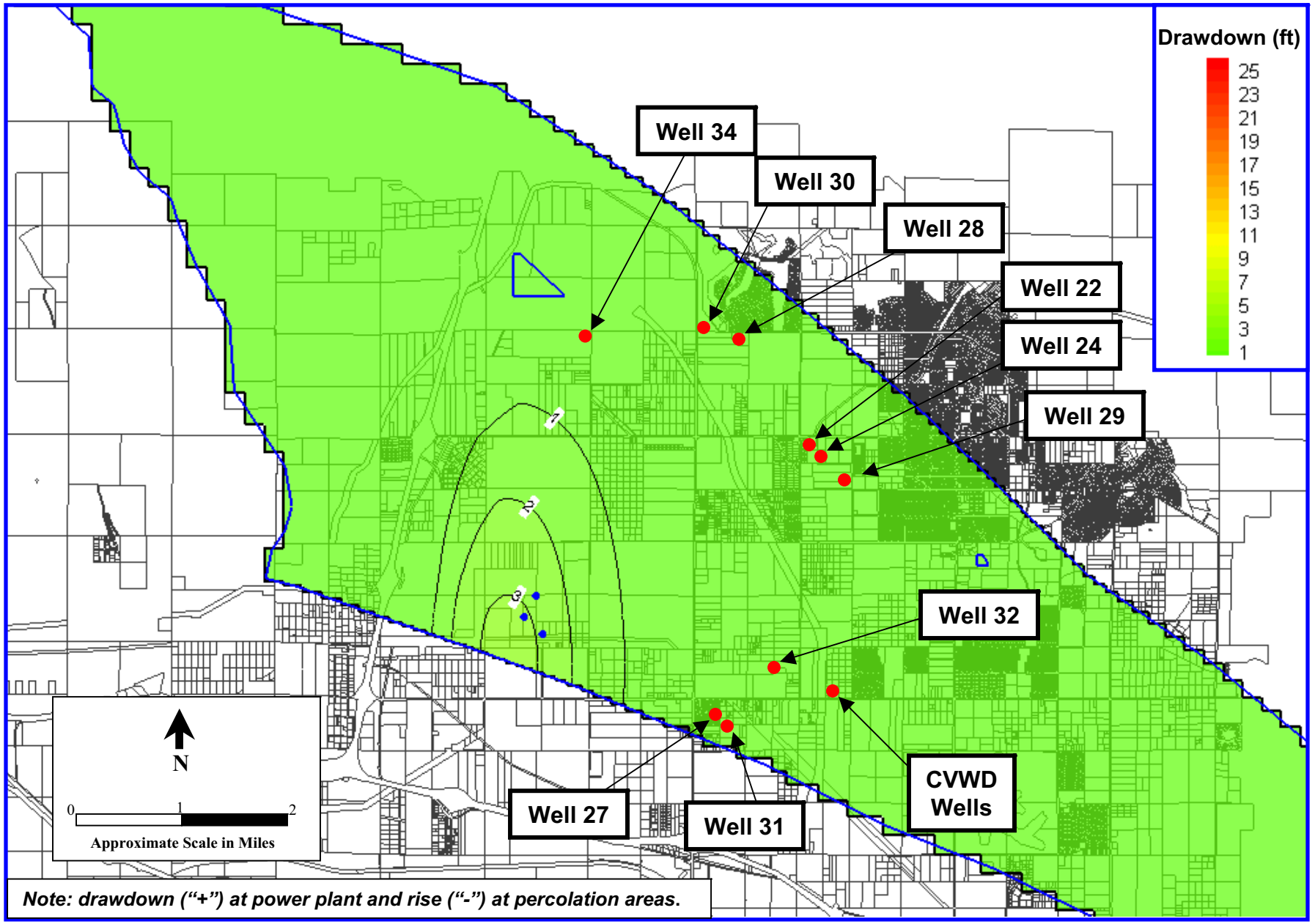

Figure 20: Contour Map of Simulated Groundwater Level Changes - Scenario 3B, 12 months