



Denise Duffy & Associates, Inc.

PLANNING AND ENVIRONMENTAL CONSULTING

MEMORANDUM

Date: **Thursday, October 5, 2206**

To: **Roy Evans, HydroGeoLogic, Inc.**

From: **Josh Harwayne, Senior Environmental Scientist, Denise Duffy and Associates, Inc.**

RE: **Summary Memorandum for the Fort Ord Nature Reserve OU-1
Environmental Monitoring in Support of Summer 2006 Well Construction**

Denise Duffy and Associates, Inc. (DD&A) contracted with HydroGeoLogic, Inc. (HGL) to supervise brush-cutting activities within the Fort Ord Natural Reserve (FONR). The contract also included coordination with FONR staff and the HGL Field Supervisor to provide site orientation to drilling crews before the start of drilling activity, the inspection of the proposed well sites and identification of any areas that should be avoided to protect sensitive species.

DD&A staff provided full-time on-site monitoring supervision during all brush-cutting activities and advised the HGL Field Supervisor on avoidance of protected plant and wildlife species as necessary. These activities were initiated on July, 18 2006 and were completed on July 24, 2006.

DD&A staff provided intermittent monitoring during all drilling activity. Specifically, DD&A staff was present at the initiation of the project to provide an orientation presentation, during the subsequent initiation of all individual drill site activities, and at the conclusion of drilling activities. In addition, DD&A staff initiated site visits to address specific requests for guidance on a regular basis, at least once a week, and as requested by the HGL Field Supervisor. Drilling activities began on July 25, 2006 and concluded on September 1, 2006.

The following is a summary of specific monitoring activities and communication by DD&A personnel pertaining to the well drilling and well construction activities at FONR. The summary documents communication and activities in which there was direct input or direction by DD&A staff. DD&A staff was present on-site on a semi-daily basis in addition to the dates listed below. Comments were based on on-going field reviews of the construction site and meetings with staff from FONR, HGL, the HGL Field Supervisor, and several members of the drill team. Pictures of the sites before and after clearing, as well as other pictures documenting certain incidents are included in Attachment A to this memo.

- During the project initiation site visit on July 18, 2006, DD&A environmental monitors and the HGL Field Supervisor (Jack Alt of Epigene International), delineated the least damaging access routes for the equipment and materials necessary to complete all

construction activities planned for 2006. Each site and any resources or issues discussed are listed below in the chronological order that they were discussed on site:

- FONR rare plant survey Site 7, well location MW-D (subsequently identified as MW-OU1-85-A) and EW-OU1-72-A: large oak tree was trimmed on the eastern boundary of the site to allow access for the drilling rig. Pictures of the site before and after trimming the oak tree are included in Attachment A (Photo 1 and 2).
- FONR rare plant survey Site 9, well location MW-G (subsequently identified as MW-OU1-82-A): this area was previously cleared for rare plant surveys conducted earlier this year. A Monterey dusky-footed woodrat (*Neotoma fuscipes luciana*) (woodrat) nest was documented at this site. Pictures were taken of the nest (Attachment A, Photo 3). All woodrat nests observed during the construction activities were treated in one of two ways. Woodrat nests that were near any construction zones and could be avoided were staked and flagged by DD&A environmental monitors. Woodrat nests that could not be avoided during construction activities were dismantled by hand and documented by DD&A environmental monitors.
- FONR rare plant survey Site 8, well location MW-F (subsequently identified as MW-OU1-83-A): the trail just west of the site location was avoided as rare plants have been observed there previously. A woodrat nest was observed near the trail referenced above and was also avoided during clearing and construction activities.
- FONR rare plant survey Site 4, well location IW-OU1-74-A: oaks near this location were trimmed and a sandmat manzanita (*Arctostaphylos pumila*) was observed along the existing roadway that was used by the drilling rigs (Attachment A, Photo 4). DD&A environmental monitors communicated to the HGL Field Supervisor that this plant should be avoided to the extent feasible. However, this plant was located directly in the access path of the drilling rigs and could not be avoided without more severe impacts to the surrounding habitat. The resulting impacts to the flowering structure of the plant were major but impacts to the root structure or burl were minimal and should allow the plant to recover.
- FONR rare plant survey Site 4, well location IW-OU1-73-A: one oak tree located on the northern border of well location IW-OU1-73-A was trimmed to allow the drilling rig to operate (Attachment A, Photo 5).
- FONR rare plant survey Site 6 well location EW-OU1-71-A: one oak tree located along the side of the road was trimmed back to allow access for the drilling rigs (Attachment A, Photo 6).
- FONR rare plant survey Site 6 well location MW-B (subsequently identified as MW-OU1-86-A): one oak tree along the northern edge of this well location was cleared to allow room for the drilling rig and several oak limbs were trimmed (Attachment A, Photo 7).
- Well location MW-A (subsequently identified as MW-OU1-88-A): well site was moved just north of the area proposed on the GIS data made available to the environmental monitors. HGL staff needed to move this site for geologic and system performance reasons.
- During the site visit on July 19, DD&A environmental monitors and the HGL Field Supervisor delineated the least damaging access routes for the equipment and materials necessary to complete all construction activities planned for 2006. Each site and any resources or issues discussed are listed below in the chronological order they were discussed:

- FONR rare plant survey Site 6, well location EW-OU1-72-A: oak tree was trimmed and photographs were taken of the tree after clearing (Attachment A, Photo 8).
- FONR rare plant survey Site 8, well location MW-F (subsequently identified as MW-OU1-83-A): a path to this site was cleared to allow the drilling rig access to the well location (Attachment A, Photo 9). The path was cut into the coastal scrub east of the trail referenced above (July 18, 2006 FONR rare plant survey Site 8, well location MW-F) to avoid rare plant species that had been mapped in the past.
- FONR rare plant survey Site 4, well location MW-E (subsequently identified as MW-OU1-84-A): coastal scrub was cleared back along the northern border of this well location (Attachment A, Photo 10). A woodrat nest found on the northern border was left intact and avoided (Attachment A, Photo 11).
- FONR rare plant survey Site 4, well locations IW-OU1-73-A and IW-OU1-74-A: several woodrat nests were discovered at this location. Two of these nests were dismantled. One of the two nests was built around an old decaying oak tree still connected to its root structure, after clearing the nest and allowing the site to settle overnight the oak tree was pulled out of the ground using a chain and a 4-wheel drive vehicle. (Attachment A, Photos 12 and 13). The rest of the woodrat nests were left intact as they were not in the path of the drilling rigs. The intact woodrat nests were staked and flagged consistent with the procedures referenced above. Several limbs from multiple oaks were trimmed to allow access for the drilling rigs. The site after dismantling the woodrat nests and trimming the oak limbs is shown in Attachment A, Photos 14 and 15.
- During the site visit on July 20, 2006, DD&A environmental monitors and the HGL Field Supervisor delineated the least damaging access routes for the equipment and materials necessary to complete all construction activities planned for 2006. Each site and any resources or issues discussed are listed below in the chronological order they were discussed:
 - FONR rare plant survey Site 4, well locations IW-OU1-73-A and IW-OU1-74-A: DD&A environmental monitors observed a small mammal that could have been a woodrat vacating the woodrat nest attached to a decaying oak tree that was referenced above. The animal was able to vacate its current habitat and inhabit an adjacent structure (no more than 10 feet from the original nest) with a minimal amount of distress. The dismantled woodrat nests are documented in Attachment A, Photos 16 and 17.
 - FONR rare plant survey Site 9, well location MW-G (subsequently identified as MW-OU1-82-A): a woodrat nest was dismantled after well location MW-G was cleared (Attachment A, Photos 18, 19 and 20).
 - FONR rare plant survey Site 6, well locations EW-OU1-71-A and MW-B (MW-OU1-86-A): several limbs were trimmed at both well locations on this site to allow access for the drilling rigs (Attachment A, Photos 21, 22 and 23).
 - Well location EW-OU1-71-A: this site was cleared to allow drilling rig access (Attachment A, Photo 24).
 - Well location MW-A (MW-OU1-88-A): this site did not require clearing to allow drilling rig access (Attachment A, Photo 25).
- During the site visit on August 17, 2006, DD&A environmental monitors communicated to the HGL Field Supervisor the following concerns with the current construction activities:
 - Several well sites without active construction activity contained trash. DD&A environmental monitors communicated that all trash needs to be cleaned up immediately after leaving a well location.

- Drilling crews were using traction boards to assist the drilling rigs in moving up steep sandy slopes. DD&A environmental monitors communicated to the consulting geologist that these boards should be lifted each morning before beginning work to check for animals and checked regularly during the day if they are not constantly in use.
 - DD&A environmental monitors communicated with the consulting geologist the importance of staking all woodrat nests near well locations. DD&A volunteered to complete this task and it was agreed that DD&A would take the lead on this task.
- During the site visit on August 24, 2006, DD&A environmental monitors dismantled a woodrat nest at FONR rare plant survey site 4 well location IW-OU1-74-A, consistent with the dismantling procedures described above (Attachment A, Photo 26).
- During the final site visit on September 18, 2006, DD&A environmental monitors removed all staking for woodrat nests that were left intact, cleaned any sites where debris and garbage was left by drilling crews, and photographed all finished well locations (Attachment A, Photos 27-38).
- On September 21, 2006, DD&A environmental monitors communicated several concerns with the final state of the FONR OU-1 construction area in email format to the HGL Field Supervisor. Listed below are these concerns.
 - Some of the new wells constructed this year were capped and covered to the ground level while others were left with a depression where the concrete had settled. There is a concern that these depressions could be utilized by some of the rare species and that they could be detrimental to their existence (Attachment A, Photo 39).
 - There was a wood pallet left at FONR Site 6, well location 71-A (Attachment A, Photo 34).
 - There were a few piles of wood from the oak tree clearing effort left on FONR. DD&A environmental monitors' concerns about their presence were communicated to HGL staff.
- On September 26, 2006, DD&A environmental monitors received a response to the concerns referenced above. HGL staff communicated that they would clear all remaining trash, pallets, etc. left on site and that they would fill in any depressions left from sinking concrete. HGL staff stated that FONR staff had not voiced any concerns to them about the oak limbs left on site during previous trimming activities. If FONR staff wishes to have the oak limbs removed HGL staff agreed to provide the labor necessary to complete this task.

Attachment A

Fort Ord Nature Reserve OU-1 Site Photos