HOMESTAKE
Grants Project

Homestake Mining Company of California

Thomas Wohlford
Closure Manager

07 August 2017

Mr. Matthew Meyer
Materials Decommissioning Branch (Mail Stop T-8F5)
Decommissioning, Uranium Recovery, & Waste Programs
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, DC 20555–0001

40-8903

Mr. Sairam Appaji
Region VI Superfund Division
1445 Ross Avenue, Suite 1200
6SF-LP
Dallas, TX 75202-2733

Mr. William Pearson
Ground Water Quality Bureau
New Mexico Environment Department
PO Box 5469
Santa Fe, NM 87502-5469

RE: Off-Site Restoration without 5-Spot Well Pattern

Dear Matthew:

The U.S. Nuclear Regulatory Commission (NRC) has verbally requested the discontinuance and evaluation of the 5-spot well pattern for restoration of the Off-Site North and South areas at the Homestake Mining Company of California's (HMC) Grants Reclamation Project. The term 5-spot pattern is typically used on the Grants site as a description of one collection well surrounded by four injection wells. As compliant water from the Reverse Osmosis Post Treatment Tank (PTT) is pumped into the injection wells, the groundwater gradient is increased which increases the flow towards the collection well. A key element in the use of the alternating well pattern is that, within the plume area being restored, the composite collection rate is greater than the composite injection rate which maintains an inward ground-water gradient to the local restoration area. The use of the 5-spot pattern was presented in the HMC's Grants SERP 15-01 and in HMC's Remediation Strategy that was submitted to the NRC and the New Mexico Environmental Department (NMED) in October of 2014.

HMC has used the alternating injection and collection well patterns in the restoration of the Off-Site areas for the past two years after completion of SERP 15-01. Significant restoration progress has been made using this method in the alluvial aquifer in the north-east portion of land Section 3 in the area designated as the R well field area as shown in the 2015 and 2016 Annual Performance reports. The western extent of the plume in the H well field in land Section 28 has also been decreased.

The On-Site injection capacity is limited to approximately 1200 gallons per minute (gpm) while Off-Site capacity is more than double this amount. Total injection of treated water from the Post

NM5501

Treatment Tank (PTT) is planned to be near 2200 gpm for the next few years so there is no concern for a limit to injection water into the wells using the linear pattern.

HMC has changed the use of injection wells to that of the periphery or edges of the plumes with elevated uranium concentrations and discontinued use of internal injection wells. This change to site operations was performed on July 10th after receiving the NRC's Inspection Report 040-08903/2017-001 and Notice of Violation dated July 6, 2017. The injection wells now form a linear pattern to reverse the local groundwater flow gradient and also drive the contamination towards collections wells. Attached to this memo are three figures that show the current revised linear pattern for North Off-Site (NOS) alluvium, South Off-Site (SOS) alluvium and SOS Middle Chinle injection;

Figure 1: Location of Collection/Injection Wells without 5-spot, NOS, 2017
Figure 2: Location of Alluvial Collection/Injection Wells without 5-spot, SOS, 2017
Figure 3: Location of Middle and Lower Chinle Collection/Injection Wells without 5-spot, SOS, 2017

The locations of the active injection wells will be adjusted to the plumes' location as remediation proceeds over time.

HMC will perform an evaluation using the current groundwater flow model for the site to simulate remediation using both the 5-spot well pattern and the linear injection well pattern. Hopefully the modeling will be able to provide insight into which method is more effective for site remediation. If the results indicate the 5-spot well pattern is the more effective method, HMC will submit a request to the NRC for approval to change to the 5-spot well pattern. A Technical Evaluation Report similar to what was created and submitted in 2014 but also including the modeling results would be submitted with the request.

If you have any questions or comments regarding this matter, please contact me at the Grants office at 505.287.4456, extension 34, or call me directly on my cell phone at 505.290.2187.

Respectfully,

Thomas P. Wohlford

Thomas Wohlford
Closure Manager
Homestake Mining Company of California
Office: 505.287.4456 x34 | Cell: 505.290.2187

Copy To:

Document Control Desk, NRC, Washington, D.C. (hard copy)
K. Vollbrecht, NMED, Albuquerque, New Mexico (electronic copy)
C. Burrus, OSE, Albuquerque, New Mexico (electronic copy)
B. Tsosie, DOE, Grand Junction, Colorado (electronic copy)
M. McCarthy, Barrick, Salt Lake City, Utah (electronic copy)
H. Burns, Barrick, Toronto, Ontario (electronic copy)
C. Burton, Barrick, Henderson, Nevada (electronic copy)
G. Hoffman, Hydro-Engineering, Casper, Wyoming (electronic copy)

HOMESTAKE MINING COMPANY P.O. BOX 98, GRANTS, NM 87020 TELE: (505) 287-4456 FAX: (505) 287-9289

--LEGEND--

- ALLUVIAL WELL
- UPPER CHINLE WELL
- MIDDLE CHINLE WELL
- LOWER CHINLE WELL
- SAN ANDRES WELL
- OFFSET WELL
- OFF-SITE COLLECTION WELL
- R.O. COLLECTION WELL
- TREATED AND/OR FRESH WATER INJECTION WELL
- INFILTRATION LINE
- POINTS OF COMPLIANCE
- FRESH WATER INJECTION SUPPLY
- LINE OF INJECTION WELLS

FORMER 100 ACRE CENTER PIVOT

ALLUVIAL AQUIFER AREA WHERE URANIUM EXCEEDS SITE STANDARD IN 2016

NPV1 NPV2 NPV3 NPV4 NPV5 NPV6 NPV7 NPV8 NPV9 NPV10 NPV11

PLEASANT-VALLEY ESTATES

SCALE: 1"=500'
C:\PROJECTS\2017-06 2017 PLAN.DWG
DATE: 4/26/17

FIGURE 1. LOCATION OF COLLECTION/INJECTION WELLS WITHOUT 5 SPOT, NOS, 2017

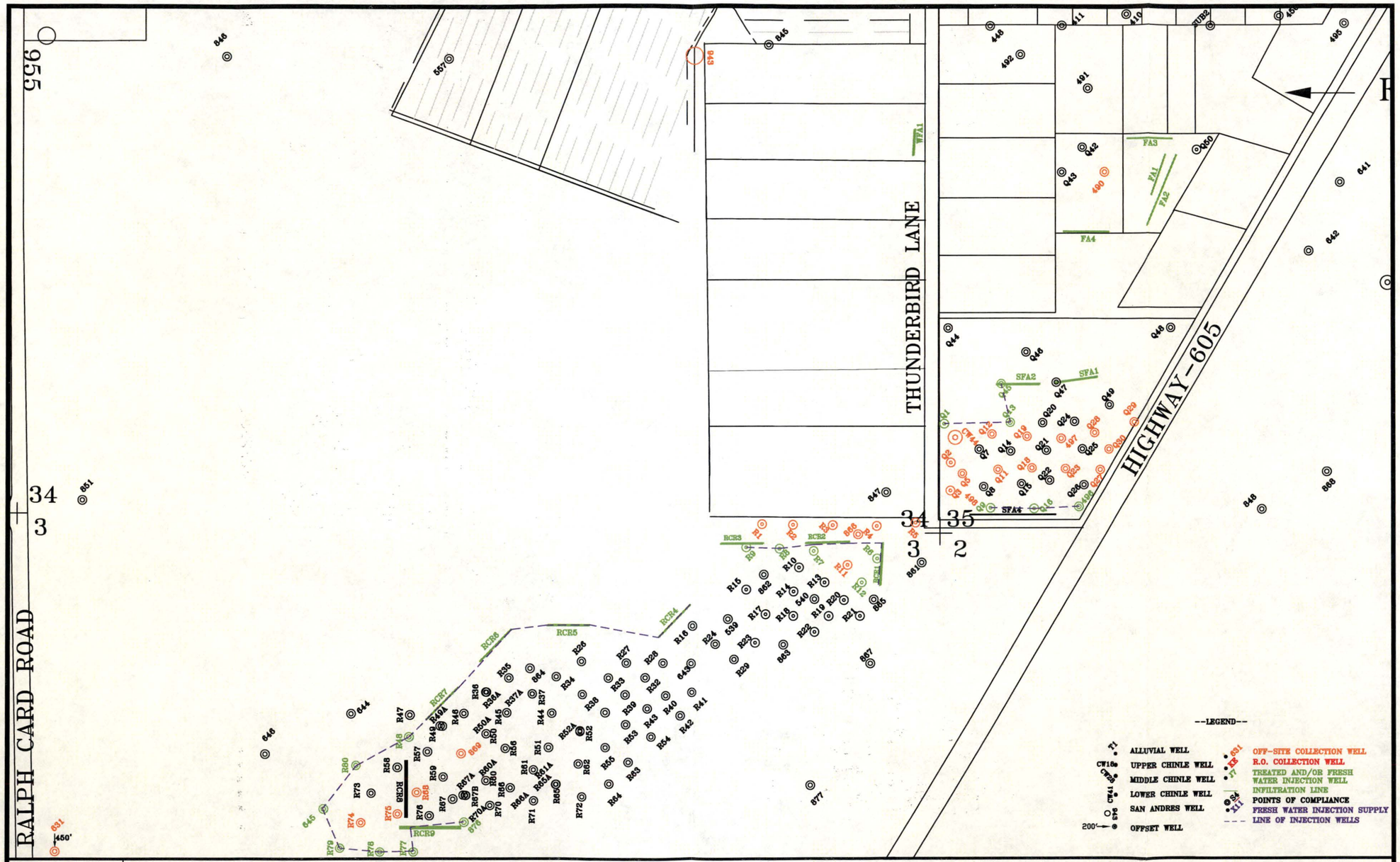
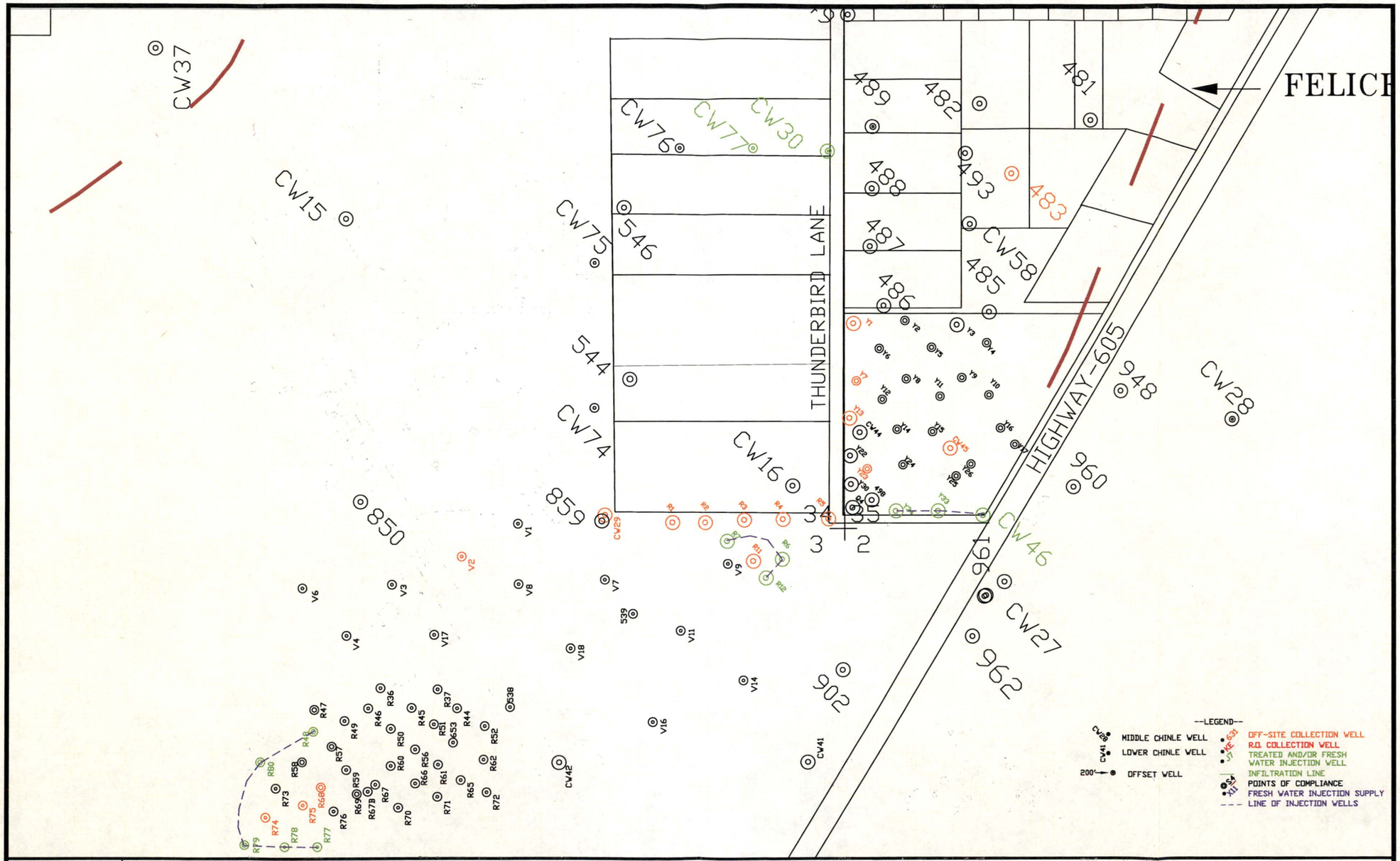


FIGURE 2. LOCATION OF ALLUVIAL COLLECTION/INJECTION WELLS WITHOUT 5 SPOT, SOS, 2017



SCALE: 1"=500'	FIGURE 3. LOCATION OF MIDDLE AND LOWER CHINLE COLLECTION/INJECTION WELLS WITHOUT 5 SPOT, SOS, 2017
C:\PROJECTS\2017-06 1600lowANDmid16.DWG	
DATE: 7/14/17	