

Table 2. 2009 Fort Huachuca GW Storage Change Liability Calculator

Description	Input or Calculated Values	Units	Source/Notes
2010 SIERRA VISTA (SV) + FORT HUACHUCA (FH) PER CAPITA GROUNDWATER DEMAND (Using most recent available data)			
SV Population Including FH Residential Population	46,597	Persons	2009 City of Sierra Vista
FH Residential Population	7,231	Persons	Sep 2010 Post Population Survey from Table 1
Total Sierra Vista Population Minus FH Residential Population On Post	39,366	Persons	Calculated Difference
SV Pumping	6,294	acre-feet	2009 City of SV (46,597 people x 144 gpcd x 365/325,829 gal/af)
FH Pumping	1,223	acre-feet	2009 FH (2010 was 1142 afa)
Total Pumping	7,517	acre-feet	Calculated Value (sum)
Incorporated Area Water Demand in Acre-Feet Per Person	0.161	afap	Calculated (Total Pumping/SV Population including FH Residential)
Incorporated Area Water Demand in Gallons	144	gpcd	Conversion from afap to gpcd
2005 Unincorporated Population in Sierra Vista Subwatershed (SVS)			
SVS Total Population	82,460	Persons	Revised DES estimates from J. Leenhouts (USGS)
SVS Unincorporated Population	23,717	Persons	Revised DES estimates from J. Leenhouts (USGS)
% of Population in SVS Unincorporated Areas	29%		
Unincorporated Area Water Demand Per Person	0.132	afap	Groundwater Users Advisory Council of Prescott AMA (2006)
Gallons per capita per day (gpcd)	118	gpcd	Conversion from afap to gpcd
TOTAL 2010 FORT HUACHUCA GROUNDWATER DEMAND			
FH Direct and Indirect Personnel	25,988	Persons	Sep 2010 Post Population Survey from Table 1
FH unincorporated area population	5,395	Persons	Calculated Value based on % in unincorp off-post pop
FH incorporated area population	20,593	Persons	Calculated Difference
FH Induced Personnel	6,939	Persons	Sep 2010 Post Population Survey from Table 1
FH unincorporated area population	1,996	Persons	Calculated Value based on % in unincorp induced pop
FH incorporated area population	4,943	Persons	Calculated Difference
Total FH Unincorporated Area Population	7,390	Persons	Sum of Direct, Indirect, and Induced
Total FH Incorporated Area Population	25,536	Persons	Sum of Direct, Indirect, and Induced
Total FH Responsible Population in SVS	32,926	Persons	Calculated Value
Total SVS Population	84,547	Persons	Bruce Gungle, USGS, for 2010 Section 321 Report (for 2009)
Percentage of Total SVS Population Attributable to FH	39%		Calculated value (FH portion/Total SVS Population)
Total Industrial Demand In SVS (2002-2010)	1,350	afa	2010 Section 321 Report (USGS) (for 2009)
Industrial Demand in SVS Attributable to FH	526	afa	Calculated Value (Total Industrial Demand x Percentage Attributable to FH)
FH Unincorporated Area Groundwater Demand	976	afa	Calculated Value (# of persons in unincorp x afap)
FH Incorporated Area Groundwater Demand	4,119	afa	Calculated Value (# of persons in incorp x afap)
Industrial Demand in SVS Atributable to FH	526	afa	Calculated Value (sum)
Total 2010 FH Groundwater Demand	5,095	afa	Calculated Value (sum of unincorp and incorp)
Total 2005 FH Groundwater Demand	5,926	afa	2006 Biological Assessment
Net Change in FH Groundwater Demand from 2005 Due to Conservation	-831	afa	Calculated Difference
TOTAL FH ATTRIBUTABLE RECHARGE			

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Fort Huachuca Artificial Recharge			
Fort Huachuca Stormwater Recharge	232	afa	USGS Calculated Basin Infiltration 2010
Fort Huachuca Effluent Recharge	433	afa	Conversion of 141,190,000 gallons to afa reduced by 2.5% evap
Irrigation Return Flow at Golf Course and Parade Grounds	55	afa	2002 est ADWR (2005) App F
Total Artificial Recharge on Fort Huachuca	720	afa	Calculated Value -- sum of three
Sierra Vista Recharge			
Stormwater (Urban-Enhanced)	2,300	afa	2010 Section 321 Report (for 2009)
Treated Effluent	2,587	afa	2009 City of Sierra Vista
Total SV Recharge (excluding septic systems)	4,887	afa	Calculated Value -- sum of Stormwater plus Treated Effluent
Percentage of SV Recharge Attributable to FH	46%		Calculated Value - FH Incorporated Area Population Minus On-Post/SV Population Minus On-Post
SV Recharge Attributable to Fort Huachuca	2,272	afa	Calculated Value -- Total SV Recharge x %
Recharge from Septic Systems			
Recharge from SV Septic Systems (assumed to be 5% of SV Recharge)	244	afa	
Percentage of Septic Flow Recharged	70%		Kevin Lansey, 2006 pers comm; also used by USPP
Percentage of SV Recharge Attributable to FH	46%		Calculated Value - FH Incorporated Area Population Minus On-Post/SV Population Minus On-Post
Recharge from SV Septic Systems Attributable to FH	80	afa	Calculated Value -- Total SV Recharge x % Recharged x % Attrib to FH
Recharge from Unincorporated Area Septic Systems	430		2006 Biological Assessment
Recharge from Septic Systems Attributable to FH	510		Calculated Value -- Sum of Recharge from SV and Unincorp Septic Systems
Total FH Attributable Recharge	3,502		Calculated Value -- Sum of three Recharge values
Total 2005 FH Attributable Recharge	2,398		2006 Biological Assessment
Net Change in FH Attributable Recharge	1,104		Calculate Difference
FH NET STORAGE CHANGE			
Total 2010 FH Groundwater Demand	5,095		Total 2010 FH Groundwater Demand from Page 1
Total FH Attributable Recharge	3,502		Total FH Attributable Recharge from Page 2
Net 2010 FH Groundwater Demand	1,593		Calculated Difference
% of GW pumping from GW Storage	55%		Goode and Maddock (2000); Corell, etal (1996), Freethey, etal (1982), Vionnet (1992)
Total 2010 FH Net Storage Change	876		Calculated Value -- Net 2010 FH GW Demand x % of GW Pumping
Total 2005 FH Net Storage Change	1,942		2006 Biological Assessment
Net Change in FH Net Storage Change from 2005	-1,066		Calculated Difference
PREDICTED NET STORAGE CHANGE ATTRIBUTABLE TO FH IN 2016			
2016 FH Attributable Groundwater Demand	4,979		Total 2010 FH GW Demand from Page 1 minus 116 afa in planned cons meas
2010 Total FH Attributable Recharge	3,502		2010 Total FH Attributable Recharge from above
Planned Increase in Recharge of Effluent and Stormwater	836		2006 Biological Assessment
2010 Predicted Net Storage Change Attributable to FH in 2016	641		Calculated Value -- GW Demand minus two Recharge Values
2005 Predicted Net Storage Change Attributable to FH in 2016	1,418		2006 Biological Assessment
Net Change in Predicted Net Storage Attributable to FH in 2016	-777		Calculated Difference