



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 9
 75 Hawthorne Street
 San Francisco, CA 94105-3901

Addendum to
Third Five-Year Review Report
Westinghouse Sunnyvale Superfund site
Sunnyvale, Santa Clara County, California
January, 2013

The Third Five-Year Review Report (Report) for the Westinghouse Sunnyvale Superfund site (the Site) located at 401 East Hendy Avenue in Sunnyvale, California was approved by Kathleen Salyer, Assistant Director, Superfund Division, on September 29, 2011. The protectiveness determination was deferred because of the potential for vapor intrusion from groundwater at and around Building 21 where workers are present. The statement in the Report regarding protectiveness was as follows:

“A protectiveness determination of the remedy at the Westinghouse Electric Corp. Superfund Site cannot be made at this time until further information is obtained. Further information will be obtained by taking the following action:

- *Evaluate whether there is a complete vapor intrusion exposure pathway to on-site employees.”*

It is expected that this action will take approximately one year to complete, after which a protectiveness determination will be made. In addition, the following actions are needed to ensure long-term protectiveness:

- *Remove or cap shallow surface soils determined to exceed 25 mg/kg PCBs.*
- *Implement Institutional Controls by placing deed restrictions on the Site.*
- *Identify and characterize potential unaddressed source areas that may be contributing to groundwater contamination upgradient of known sources.*
- *Evaluate strategies to optimize the remedy, including implementation of active treatment technologies.*

Progress Since the Five-Year Review Completion Date

Background

The Site occupies a 75 acre parcel of land located at 401 East Hendy Avenue in Sunnyvale, California. The Site is currently operating as a Northrop Grumman Systems Cooperation (NGSC) manufacturing facility. The Site was previously owned and operated by the Marine Division of Westinghouse Electric Corporation. Westinghouse manufactured transformers primarily in Building 21 utilizing Inerteen and mineral oil as thermal insulating fluids during its operations. Inerteen contains approximately 60 percent Polychlorinated Biphenyls (PCBs), predominantly Aroclor 1260 and 40 percent Trichlorobenzene (TCB).

The Site currently manufactures steam generators, marine propulsion systems, and missile launching systems for the U.S. Government. No significant changes to land use are anticipated at the Site in the foreseeable future.

Vapor Intrusion

The Third Five-Year Review Report included a screening level vapor intrusion assessment. The need for the evaluation was predicated on the presence of volatile organic compounds (VOCs) in Site groundwater at concentrations exceeding USEPA draft generic groundwater screening levels for the VI pathway (USEPA, 2002). The Five-year Review determined that because Trichloroethene (TCE), TCB, 1,3-Dichlorobenzene and Chlorobenzene were detected in wells in the shallow water within 100 feet of two buildings, a potential for vapor intrusion exists at those buildings. Building 12 is used for storage only; and therefore, there is no exposure risk associated with vapor intrusion. Building 21, however, is a multi-use building used for storage, manufacturing, and administrative/office space. Site employees occupy this building full-time (40 hours per week). In addition, the Five-Year Review assessed the potential for vapor intrusion to nearby residences and determined there was no potential for vapor intrusion in this off-site residential area. The residential area east of the Site is not within 100 feet of wells where VOCs concentrations exceeded the draft generic screening levels, and groundwater monitoring Well 57 (which is much closer to the residences) has consistently been non-detect for site contaminants.

In September 2012, Geosyntec Consultants for Northrop Grumman conducted the first sampling event by installing and sampling three sub-slab gas probes in Building 21 and six soil gas probes between the former above ground storage tanks and the adjacent occupied buildings. The soil gas samples collected in September 2012 had detections of 1,1,1-trichloroethane (1,1,1-TCA), chloromethane (CM), tetrachloroethene (PCE), TCE and vinyl chloride (VC). The sub-slab soil gas samples had detections of 1,1,1-TCA, PCE and TCE. The detected concentrations were less than the site-specific screening levels by at least an order of magnitude, with the exception of the SS3 sample beneath Building 21 which had a TCE concentration of 180 micrograms per cubic meter [$\mu\text{g}/\text{m}^3$] which is above the site-specific screening level of $60 \mu\text{g}/\text{m}^3$.

In April 2013, GeoSyntec installed three more sub-slab gas probes beneath Building 21 and conducted a second round of sampling that included indoor air in addition to sub-slab soil gas. The indoor air samples were collected in Building 21 and were co-located with a sub-slab soil gas probe. The samples were collected over a weekend when operations were not active. The building's HVAC system however, was operated normally over the weekend.

The indoor air results were compared to U.S. EPA Regional Screening Levels (RSLs) for indoor air as a first step in determining whether response actions may be needed to address potential human health exposures. The RSLs are chemical-specific concentrations for individual contaminants that correspond to an excess cancer risk level of 1×10^{-6} (or a Hazard Quotient (HQ) of 1 for noncarcinogens), and they have been developed for a variety of exposure scenarios (e.g., residential, commercial/industrial). RSLs are not de facto cleanup standards for a Superfund site, but they do provide a good indication of whether actions may be needed.

In September 2011, EPA completed a review of the TCE toxicity literature for both cancer and non-cancer toxicity effects which resulted in lower RSLs for TCE. For industrial exposures, assuming an 8-hour work day, the screening level for chronic exposure for cancer excess risk level of 1×10^{-6} is $3.0 \mu\text{g}/\text{m}^3$. EPA also reassessed PCE toxicity literature for both cancer and non-cancer toxicity effects in February 2012. The reassessment determined that risk for cancer excess of 1×10^{-6} under industrial exposures was less stringent than originally assumed. However, in California, EPA uses the California-modified PCE indoor air screening levels that are more stringent than EPA's RSLs for PCE. California's Office of Health Hazard Assessment's PCE

indoor air toxicity values of 2 µg/m³ for commercial/industrial exposures will be used for all NPL sites within California.

Table 1 lists the results of the indoor sampling including the results from the outdoor air samples collected concurrently. TCE and 1,2,4-TCB were not detected in any of the indoor air samples collected from this area of the building, which is consistent with the relatively low concentration of these VOCs in the sub-slab soil gas. Concentrations of the xylenes in indoor air were relatively low (at least an order of magnitude below the screening levels). These data provide evidence that the VI pathway is not significant for the current building configuration.

TABLE 1
INDOOR AND OUTDOOR AIR ANALYTICAL RESULTS
Westinghouse Superfund Site, Sunnyvale, CA

Location ID Sample Date Lab Sample ID QA/QC Type	Regional Indoor Air Screening Level	IA-3 4/21/2013 P1301691-019 --	IA-5 4/21/2013 P1301691-021 --	IA-7 4/21/2013 P1301691-020 --	OA-1 4/21/2013 P1301691-022 --	OA-2 4/21/2013 P1301691-023 --
Parameters (µg/m³)						
1,1,1-Trichloroethane	22,000	0.68 U	0.76 U	0.75 U	0.8 U	0.8 U
1,1,2,2-Tetrachloroethane	--	0.68 U	0.76 U	0.75 U	0.8 U	0.8 U
1,1,2-Trichloroethane	--	0.68 U	0.76 U	0.75 U	0.8 U	0.8 U
1,1-Dichloroethane	--	0.68 U	0.76 U	0.75 U	0.8 U	0.8 U
1,1-Dichloroethene	--	0.68 U	0.76 U	0.75 U	0.8 U	0.8 U
1,2,4-Trichlorobenzene	8.8	0.68 U	0.76 U	0.75 U	0.8 U	0.8 U
1,2-Dichlorobenzene	880	0.68 U	0.76 U	0.75 U	0.8 U	0.8 U
1,2-Dichloroethane	0.47	0.68 U	0.76 U	0.75 U	0.8 U	0.8 U
1,2-Dichloropropane	--	0.68 U	0.76 U	0.75 U	0.8 U	0.8 U
1,3-Dichlorobenzene	NC	0.68 U	0.76 U	0.75 U	0.8 U	0.8 U
1,4-Dichlorobenzene	1.1	0.68 U	0.76 U	0.75 U	0.8 U	0.8 U
Allyl Chloride	--	0.68 U	0.76 U	0.75 U	0.8 U	0.8 U
Bromodichloromethane	0.33	0.68 U	0.76 U	0.75 U	0.8 U	0.8 U
cis-1,2-Dichloroethene	NC	0.68 U	0.76 U	0.75 U	0.8 U	0.8 U
Carbon Tetrachloride	--	0.68 U	0.76 U	0.75 U	0.8 U	0.8 U
Chlorobenzene	220	0.68 U	0.76 U	0.75 U	0.8 U	0.8 U
Chloroethane	--	0.68 U	0.76 U	0.75 U	0.8 U	0.8 U
Chloroform	0.53	0.68 U	0.76 U	0.75 U	0.8 U	0.8 U
Chloromethane	390	1.2	1.3	1.2	0.92	1.3
cis-1,3-Dichloropropene	--	0.68 U	0.76 U	0.75 U	0.8 U	0.8 U
Dibromochloromethane	0.45	0.68 U	0.76 U	0.75 U	0.8 U	0.8 U
Dichloromethane (Methylene chloride)	1,200	0.69	0.83	1.0	0.8 U	0.8 U
Methyl Isobutyl Ketone (4-Methyl-2-m&p-Xylene	13,000	1.8	0.76 U	6.1	0.8 U	0.8 U
o-Xylene	440	5.7	1.5 U	16	2.0	1.6 U
Tetrachloroethene	47	2.1	0.76 U	6.1	0.8 U	0.8 U
trans-1,2-Dichloroethene	47	0.68 U	0.76 U	0.75 U	0.8 U	0.8 U
trans-1,3-Dichloropropene	--	0.68 U	0.76 U	0.75 U	0.8 U	0.8 U
Trichloroethene	3.0	0.68 U	0.76 U	0.75 U	0.8 U	0.8 U
Vinyl Chloride	2.8	0.68 U	0.76 U	0.75 U	0.8 U	0.8 U

Notes:

Results are in µg/m³

Bold value - analyte was detected

-- - analyte not detected, therefore screening level not calculated

U= below Method Detection Limit

Finally, Building 21 is large and includes open areas with significant ventilation. It is possible that future uses of this building may involve subdividing into smaller areas or installing of self-contained office spaces with minimal ventilation. Although sub-slab soil gas TCE, 1,2,4-TCB, and xylenes concentrations

exceed conservative site-specific screening levels by less than a factor of four, the potential for VI could become significant if building alterations involved subdividing into smaller areas, installing self-contained office spaces with minimal ventilation, or if there were modifications to the floor slab causing openings to the sub-slab soil gas, such as sumps, floor drains, etc. Further, the ROD requires Northrop Grumman to notify USEPA Region 9 "of any future intention to cease operations in, abandon, demolish, or perform construction (including partial demolition or construction) in Building 21". It is recommended that Northrop Grumman include an evaluation of VI potential with these notifications.

Issues and Recommendations

There are no issues that affect protectiveness. However, Northrop Grumman should evaluate the potential for vapor intrusion during any future renovation of Building 21.

Protectiveness Statements

Based on new information and additional sampling data gathered since the 2011 Five-Year Review, the protectiveness statement is being revised as follows:

The remedy at the Westinghouse Sunnyvale Site is currently protective of human health and the environment. Exposure pathways that could result in unacceptable risks are being controlled. However to be protective in the long-term, the following actions are needed:

- *Remove or cap shallow surface soils determined to exceed 25 mg/kg PCBs.*
- *Implement Institutional Controls by placing deed restrictions on the Site.*
- *Identify and characterize potential unaddressed source areas that may be contributing to groundwater contamination upgradient of known sources.*
- *Evaluate strategies to optimize the remedy, including implementation of active treatment technologies.*

Next Five-Year Review

The next five-year review will be completed by September 2016, five years after the signature of the last five-year review report.

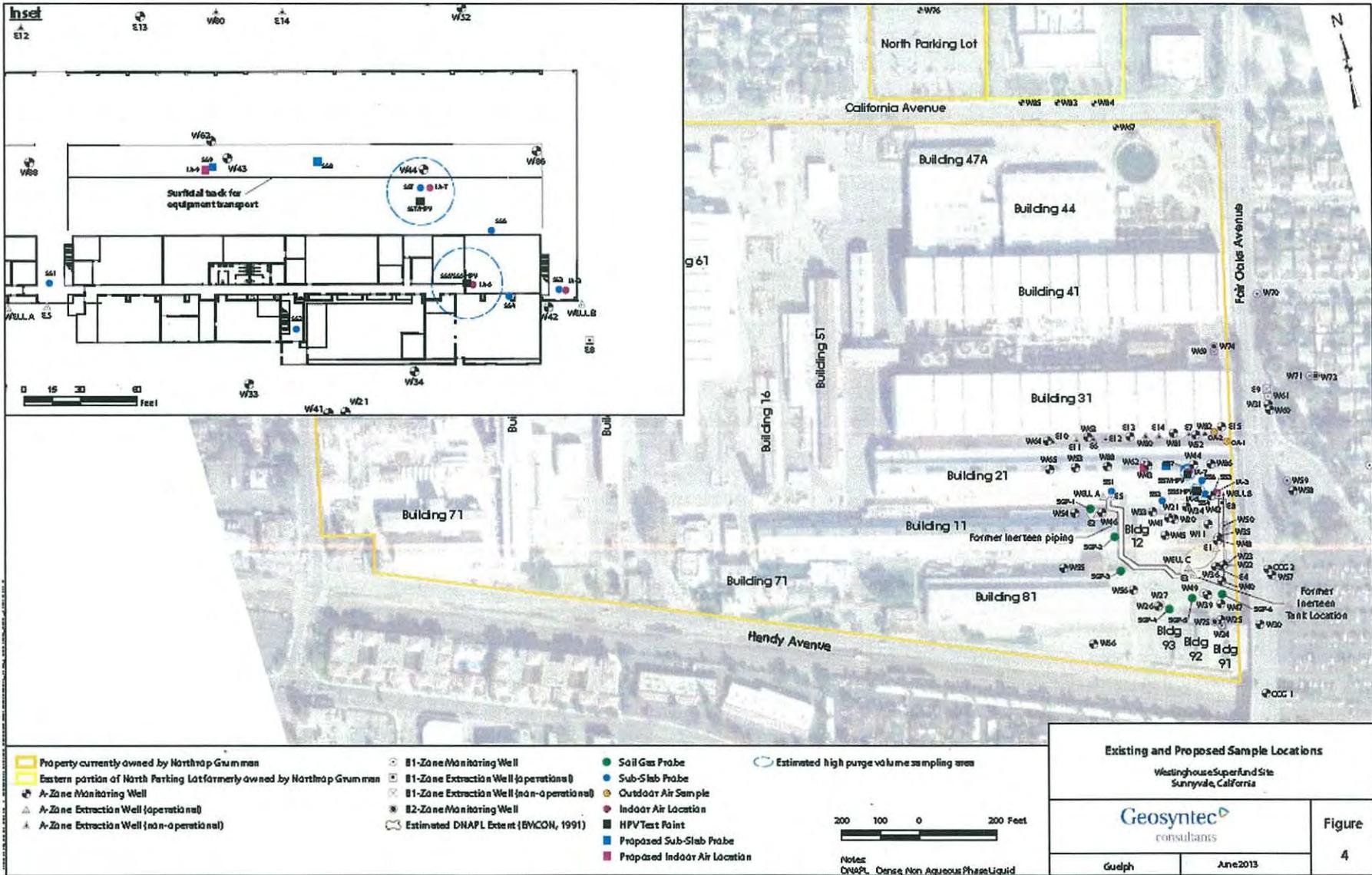


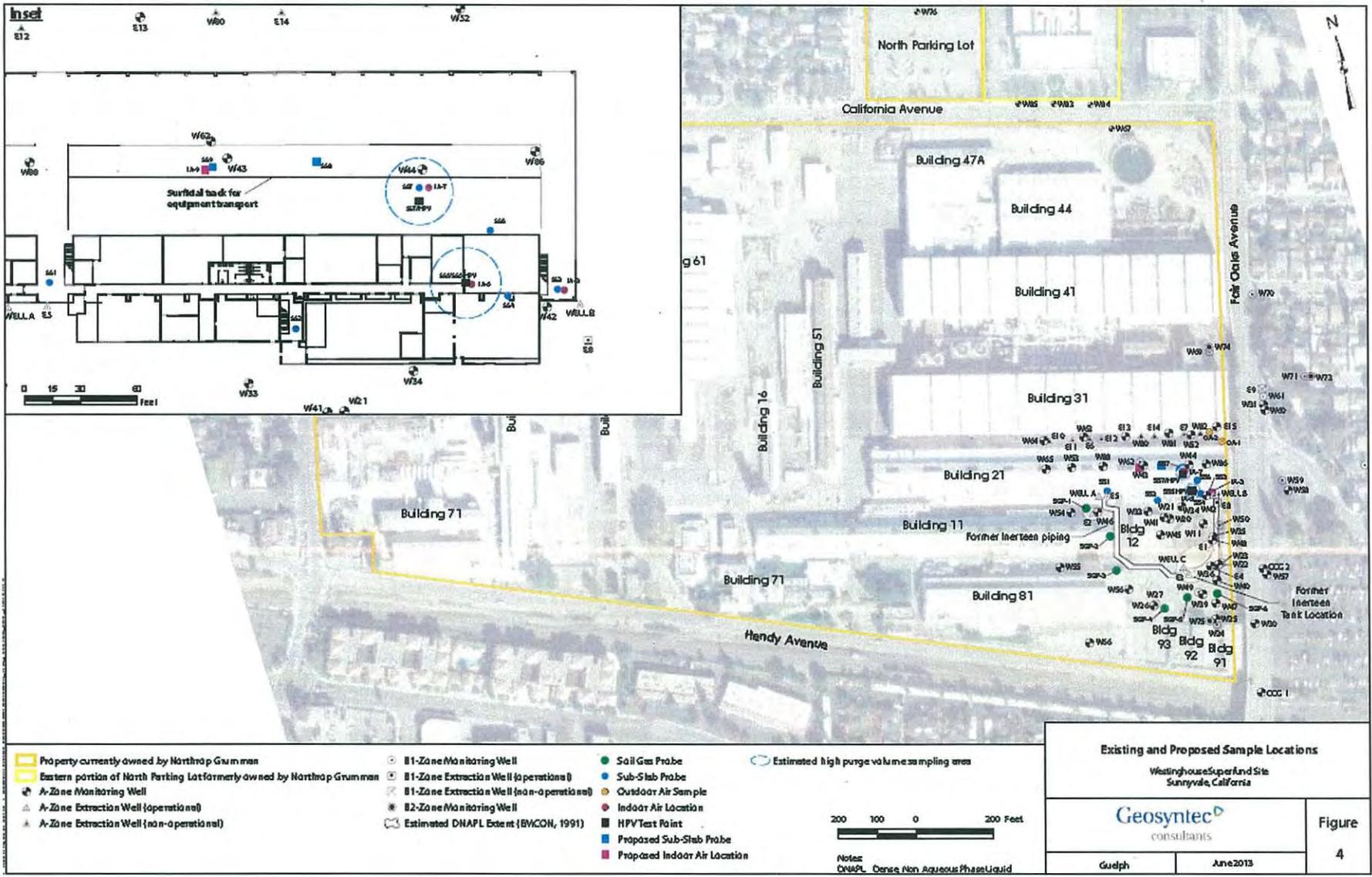
Kathleen Salyer
Assistant Director, Superfund Division
California Site Cleanup Branch
US EPA Region 9

Date

1/30/14

Reference: VAPOR INTRUSION PATHWAY INVESTIGATION RESULTS WESTINGHOUSE SUPERFUND SITE SUNNYVALE, CALIFORNIA, GeoSyntec, July 31, 2013





Reference: *VAPOR INTRUSION PATHWAY INVESTIGATION RESULTS WESTINGHOUSE SUPERFUND SITE SUNNYVALE, CALIFORNIA*,
GeoSyntec, July 31, 2013