CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
DEPARTMENT OF TOXIC SUBSTANCES CONTROL

RCRA FACILITY ASSESSMENT QUESTIONNAIRE

INSTRUCTIONS

Pursuant to Section 3007 of the Resource Conservation and Recovery Act (RCRA) as amended by the Hazardous and Solid Waste Amendments, and Section 25358.1 of the California Health and Safety Code (H&SC), the Department of Toxic Substances Control requests hazardous waste management facilities that are permitted or operating under Interim Status Documents to provide information in this RCRA Facility Assessment Questionnaire.

Any person handling hazardous waste who fail to provide information requested under the sections cited above within sixty (60) calendar days of the date of receipt of the questionnaire is in violation of hazardous waste laws and regulations and is therefore subject to enforcement actions under Section 3008 of RCRA, and Chapter 6.5, Article 8 of H&SC, and also subject to the revocation of denial (as applicable) of the state and federal hazardous waste facility permits.

All pertinent facility records must be reviewed and all available sources of information investigated in order to obtain the information requested in this questionnaire, including the personal recollection of longtime employees and past owners and operators.

Complete the questionnaire, add pages, and provide self contained documentation, photographs, and drawings as needed. Relevant definitions are provided at the end of the questionnaire.

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1. Provide facility information as follows:

Facility Name: Former Canoga Park Facility
EPA ID. Number: CAD 041162124
Location Address:
Mailing Address: 8433 Fallbrook Avenue,
Canoga Park, CA 91304

Name of Operator: Raytheon Company
Operator Address: 1151 East Hermans Road, Bldg. 826
Tucson, Az 85734-1337
Note: Raytheon operations ceased in 1994 and the property sold in 1995.

Name of Owner:
Owner Address:

Name of Landowner: MEPT West Hills, LLC (majority of property), and City of Los Angeles
Landowner Address: 8413 Fallbrook Avenue
West Hills, CA 91304

2. **Are there or have there ever been any of the following solid waste management units (existing or closed) at your facility?**

Note: Do not include waste management units currently shown in your most recent Part A or Part B permit applications.

	Yes	No
Landfill(s)	—	X
Surface Impoundment(s)	—	X
Land Farm(s)	—	X
Incinerator(s)	—	X
Storage Tank(s) (above ground)	—	X
Storage Tank(s) (below ground)	—	X
Container Storage Area(s)	—	X
Container Cleaning Areas or Units	—	X
Injection Well(s)	—	X
Waste Water Treatment and Pre-Treatment **Units**	—	X
Waste Treatment Units	—	X
Transfer Stations and Accumulation Areas	—	X
Waste Recycling Operations	—	X
Waste Piles	—	X
Process Collection Sumps, Collection Basins, etc.	—	X
Loading and Unloading Areas for Solid Wastes	—	X
Coupling and Decoupling Areas for Transfer of Solid Wastes	—	X
Air Emission Control By-product Accumulation Areas	—	X
Other Waste Handling Areas	—	X

Note: A copy of the operation plan for the hazardous waste storage facility is enclosed.

3. If there are "Yes" answers to any of the questions in Number 2 above, please:

N/A

a. Provide a description of the wastes that were or are being stored, treated, disposed or otherwise handled in those units.

b. State whether or not the wastes would be considered hazardous and whether or not they contain hazardous constituents regardless of the dates in which the waste management occurred at the units.

c. Include any available data on types and quantities of wastes disposed of in the units, if any, and the dates of disposal.

d. Describe each unit and include information on its capacity, dimensions, and history of installation and modification in chronological order.

e. If the unit was closed under the oversight of a regulatory agency, submit a letter from that agency showing the acceptance of closure activities conducted.

f. If the unit was closed without regulatory agency oversight or approval, submit detail procedures and activities conducted for clean closure of that unit.

g. Show the specific location of every unit at the facility on a topographic map.

h. **Provide any other available information relative to each unit.**

i. **Include photographs of these units.**

4. **Are there or have there ever been any of the following installations for the handling, storage and management of hazardous materials at your facility?**

	Yes	No
Underground Storage Tanks	X	
Above Ground Storage Tanks	X	
Container Storage Areas	X, HWSA	
Accumulation Piles		X
Ponds (lined or unlined)		X
Process Sumps and Catch Basins	X	
Loading and Unloading Areas	X, HWSA	
Manufacturing Units or Areas		X

5. If there are "Yes" answers to any of the **items in Number 4 above, please:**

a. Provide a description of each installation.
See Tables 1A through 3C

b. List all the hazardous materials ever handled at each unit.
See Tables 4 through 7

c. Include information on its capacity, dimensions, and history of installation and modification in chronological order.
See Tables 4 through 7

d. Show the specific location of every installation at the facility in a map.
See Figure 1

e. If the unit was closed under the oversight of a regulatory agency, submit a letter from that agency showing the acceptance of closure activities conducted. See Tables 1A through 3C

f. If the unit was closed without regulatory agency oversight or approval, submit detail procedures and activities conducted to clean closure that unit.
See Tables 1A through 3C

g. Provide any other available information relative to these units.
See Tables 1A through 3C and 4 through 7

h. **Include photographs of these units.**

Each feature has long been decommisioned and the site re-developed, current photographs are not possible.

6. For the units noted in Number 2 and Number 4 above and also for those hazardous waste management units indicated in the Part A or Part B permit application, please provide data on any releases of hazardous materials, hazardous wastes, and hazardous constituents to the environment that have occurred in the past or that may still be occurring. A release is defined as any spilling, leaking, pouring, emitting, emptying, discharging, injecting, pumping, or disposing of hazardous waste, hazardous constituents or hazardous materials into the environment (including the abandonment of

barrels, containers, and other closed receptacles **containing** hazardous wastes, hazardous **constituents, or hazardous materials). (**Environment includes air, soil, groundwater, surface waters, and subsurface **gas.)**

See Tables 1A through 3C

Please provide the following information:

a. Date and type of hazardous wastes, hazardous constituents, or hazardous materials release
b. Quantity or volume released
c. Describe nature of release (i.e., spills overflow, ruptured pipe or tank, etc.)

See Tables 1A through 3C

7. For releases listed and described under Number 6 above, provide (for each unit) any analytical data that may be available which would describe the composition, nature and extent of such releases.

See Tables 1A through 3C

8. Provide the dates and information on locations of other product spills, leaks, drippings and other releases which have occurred or are recurring at your facility and any cleanup operations which have occurred relative to these incidents, if any.

See Tables 1A through 3C

9. Provide details of any corrective actions or cleanup operations which were carried out or are in progress under the supervision of any federal, state, or local government agencies.

The Corrective Action Plan was approved by the DTSC in December 1996 and the Closure Certification Report for the HWSA and T-3 Area was submitted to the DTSC in November 2002.

LARWQCB approved shutdown of the pump and treat system and approved the discontinuance of monitoring for well in the southern "Freon" area as no concentrations above MCLs have been detected since 1999.

See Tables 1A through 3C and reference 2007 Annual Groundwater Monitoring and Groundwater Remediation System Report, January 2007 - December 2007 (TN&A, April 2008) and the Enhanced In Situ Bioremediation Progress Update for the Fourth Quarter 2007 (TN&A, January 2008)

All reports are submitted to the DTSC during their respective report dates.

SIGNATURE AND CERTIFICATION

Submittal of this information must contain the certification below signed by the principal executive officer or by a duly authorized representative of that person. All pertinent facility records must be reviewed and all available sources of information investigated in order to obtain the requested information, including the personal recollection of longtime employees and past owners and operators.

A person handling hazardous waste who fails to provide information requested under Section 3007 of RCRA and H&SC Section 25358.1 and Chapter 6.5, Article 8 or H&SC is in full violation of the law and it is therefore subject to enforcement action under Section 3008 of RCRA, and subject to revocation of denial (as applicable) of its hazardous waste facility permit.

> *"I certify under penalty of law that this document and all attachments were prepared under my direction or 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 be 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 and imprisonment for knowing violations."*

Name of Operator: Raytheon Missile Systems
Title: EHS Director
Name of Company:
Date: May 19, 2008

Note: Raytheon operations ceased in 1994 and the property sold in 1995.

Signature: _____

Name of Owner:
Title:
Name of Company:
Date:

Signature: _____

Name of Landowner:
Title:
Name of Company:
Date:

Signature: _____

DEFINITIONS

"Facility" means all contiguous land and structures, other appurtenances, and improvements on the land used for the treatment, transfer, storage, resource recovery, disposal, or recycling of hazardous waste. A hazardous waste facility may consist of one or more treatment, transfer, storage, resource recovery, disposal or recycling operational units or combinations of these units.

"Release" means any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing of hazardous waste (including hazardous constituents) into the environment (including the abandonment or discarding of barrels, containers, and other closed receptacles containing hazardous wastes or hazardous constituents).

"Solid Waste Management Unit" or "SWMU" means any unit at which a hazardous waste facility from which hazardous constituents might migrate, irrespective of whether the units were intended for the management of wastes, including but not limited to: container, tanks, surface impoundments, waste piles, land treatment units, landfills, incinerators and underground injection wells.

"Hazardous Waste" means a hazardous waste as defined in the California Code of Regulations (CCR), Title 22, Section 66261.3. Hazardous waste includes extremely hazardous waste, acutely hazardous waste, RCRA hazardous waste, non-RCRA hazardous waste, and special waste.

"Hazardous Constituent" means a constituent that caused the USEPA Administrator to list the hazardous waste in the Code of Federal Regulations (CFR), Title 40, Part 261, Subpart D, or a constituent listed in Table 1 of 40 CFR 261.24.

"Hazardous Material" means any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. Hazardous materials include, but are not limited to, hazardous substances, hazardous waste, and any material which a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment.

"Solid Waste" means any discarded material of any form (e.g., liquid, semi-solid, solid, or gaseous) as defined in 22 CCR 66261.2.

COPY Mail Copy

June 5, 1997

Cal/EPA

Department of Toxic Substances Control

1011 N. Grandview Avenue Glendale, CA 91201

Ms. Pamela J. Beilke
Group Manager
Safety, Health, and
Environmental Programs
Hughes Missile Systems Company
Building 801, MS N-12
P.O. Box 11337
Tucson, AZ 85734

Dear Ms. Beilke:

SOLID WASTE MANAGEMENT UNITS AND AREAS OF CONCERN AT THE HUGHES MISSILE SYSTEMS COMPANY FACILITY, 8344 FALLBROOK AVENUE, CANOGA PARK, CALIFORNIA - EPA ID NUMBER CAD 041 162 124

In May 1995, the Department of Toxic Substances Control (DTSC) staff performed an onsite file review and a facility inspection in order to determine Solid Waste Management Units (SWMUs), and Areas of Concern (AOCs) at the Hughes Missile Systems Company facility (HMSC) in Canoga Park, California. Moreover, DTSC has collected additional data from a recent soil gas investigation, and groundwater monitoring cleanup at the site. Based on our review of past and recent data, we have determined that the following SWMUs and AOCs at the HMSC site need further investigation:

A. SWMUs:

1) Building 272

2) Building 282

3) Pits #1 and #2 at Building 269

4) Parking Area between Buildings 274 & 276

5) Cooling Unit at the northeast corner outside Building 274

6) Former underground tank system T1/T2/pump island near Buildings 272 and 282

7) Sewerline near B-SL-4

B. AOCs:

1)	Building 262	8)	Building 274
2)	Building 263	9)	Building 276
3)	Building 265	10)	Building 281
4)	Building 268	11)	Tanks T5 and T6
5)	Building 269	12)	Tanks T7, T8, and T9
6)	Building 270	13)	Tank 14
7)	Building 271		

The rationale for our determination is included in the enclosed DTSC memorandum.

We look forward to discussing the subject matter in our June 9, 1997 conference call.

If you have any question regarding this letter, please contact Ms. Maria Fabella of my staff at (818) 551-2918.

Thank you.

Sincerely,

Yolanda M. Garza
Unit Chief
Southern California
Permitting Branch

Enclosure

cc: Ms. Carol Goldsmith
Waste Programs Manager
Safety, Health, and Environmental Affairs
Hughes Missile Systems Company
Building 801, MS N-12
P.O. Box 11337
Tucson, Arizona 85734

M E M O R A N D U M

Cal/EPA

Department of
Toxic Substances
Control

1011 N. Grandview Avenue
Glendale, CA 91201

Pete Wilson
Governor

James M. Strock
Secretary for
Environmental
Protection

TO : 1) Maria Fabella
2) Yolanda M. Garza
3) File

FROM : Philip Chandler
Supervising Hazardous Substances
Engineering Geologist

DATE : June 5, 1997

SUBJECT: **CORRECTIVE ACTION AT HUGHES MISSILE SYSTEMS GROUP, CANOGA PARK FACILITY EPA ID NUMBER CAD 041 162 124**

This is a revision of a December 20, 1996, memorandum by the Geological Services Unit (GSU) staff on Corrective Action at Hughes Missile System Group (HMSG) to include recommendations concerning radiological sampling of monitoring wells. A tentative outline of Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) currently under consideration and discussion by the GSU was presented in a February 28, 1995 memo. That review was not exhaustive and was based on the then-existing data and information provided by HMSG from its files on environmental investigations at the site. Additional data has been collected by HMSG during a soil gas survey of a number of areas on the site, a site-walk-through was performed with GSU staff, and further groundwater monitoring and cleanup data has become available. This review takes into account the more recent data but does not include a review of the on-going groundwater extraction program. Neither does this review treat the data probably available from L.A. County Sanitation Districts, L.A. City Building and Safety, L.A. City Fire Department, etc., all of which generally contain data necessary for assessing SWMUs and AOCs. Instead, a RCRA Facility Assessment (RFA) should be prepared which includes a records evaluation of HMSG and prior owner/operators. The 1992 Preliminary Assessment (PA) prepared by Ecology and Environment, Inc. for the U.S. EPA is entirely inadequate for purposes of fully evaluating the SWMUs and AOCs because it lacks satisfactory and thorough research and review of available records and data.

EVALUATION

- As indicated in the October 11, 1994, GSU memo, Buildings 272 and 282, previously used for hazardous waste storage of unreported volume and constituents, appear to have been the source of serious solvent contamination of underlying and adjoining soils and is considered by the GSU to be a SWMU or SWMUs where remediation is clearly necessary. The Potential Source Area Investigation Report (PSAIR) prepared by HMSG's consultant, McLaren/Hart described operations at Building 272 as reportedly including solvent cleaning using dichloromethane (methylene chloride). Solvent waste storage apparently included trichloroethene (TCE) from 1989 to present as cited in Table 2 of the PSAIR. The existing limited soil gas survey provides recognition of waste discharge to ground at these buildings. Despite the PSAIR conclusion that "..there do not appear to be significant contamination sources within building 282.", GSU staff noted that drums were stored around its periphery as recently as 1994, and that steam-cleaning operations had apparently been conducted adjacent to it. Furthermore, the 40-gallon tank T-17, used to store hydraulic oil, was previously excavated from the floor of this building. Moreover, the "Phase I Environmental Report of Potential Chemical Release to Soil and Groundwater, Hughes Missile Systems Company, Canoga Park" (ERPCRS), prepared by Groundwater Technology, Inc. (GTI) in 1993, indicated that drum storage had been observed to the east of Building 272 in aerial photographs of 1965 vintage. This was before Building 282 had been constructed in that general location (cited as "sometime after 1986" in the PSAIR). It may be that Building 282 was constructed atop this former drum storage area. Observations made during the walk-through indicates that cracks existed in the concrete floor upon which solvent and waste storage had occurred.

  Although further evaluation is necessary, HMSG may be able to demonstrate that the proposed groundwater sparging system approved for implementation by the Los Angeles Regional Water Quality Control Board (LARWQCB) will or can be modified to accommodate remediation of these SWMU(s) as well as the groundwater problems.

  At present, HMSG has not demonstrated that the remediation system cited in GTI's May 15, 1995, letter, "... will fully address solvent or TPH present in soil and groundwater." Further assessment was proposed to depend on efficacy of remediation. GTI's statement in this letter that "... no further assessment in this area would be required." is in fact misleading. Since HMSG did not want to perform soil gas work at the building at the time of the multi-depth soil

gas survey (July 6, 1995) report by Environmental Support Technologies (EST), the extent of problem in this area has not been fully determined. This may ultimately be acceptable, provided that HMSG actually demonstrates that, as part of the on-going air sparging cleanup of ground water, the contaminated soil at these two buildings is really being cleaned up. Moreover, soil clean-up goals need to be determined and an adequate monitoring and verification program for the soil contamination at Buildings 272 and 282 must be provided to demonstrate achievement of those goals. It is suggested that the Hazardous Waste Management Unit (HWMU) closure performance standards be utilized for the sake of consistency.

Since the on-going work in this area is probably removing VOC contamination in the soils associated with Buildings 272 and 282 together with contaminants induced from dissolved to vapor phase by the on-going groundwater sparging, the existing process should be memorialized as a RCRA corrective action Interim Measure (IM). HMSG must still provide performance measures that demonstrate the effectiveness of the system to deal with VOC-contaminated soil issue at Buildings 272 and 282. Therefore, despite GTI's representations to the contrary, these buildings require significant attention with respect to corrective action --- even though HMSG may fortunately already have the long-term corrective measure in place. Most especially, corrective action effectiveness for these SWMUs must be demonstrated.

- Specific portions of Building 262 were excluded from further consideration in the PSAIR by Mclaren Hart on the basis that a single visual inspection, at one specific point in time during site operation in 1989, failed to note any spills, etc., on the floors of these areas. However, at the same time the PSAIR indicated that there had been a long history of usage. Such usage apparently included as of 1989, some 500 gallons/year of dichloromethane (methylene chloride) but also included 1,1,1-trichloroethane (TCA). Although this building is situated near-field upgradient to monitoring well MW-24, which has not shown contamination, it is also upgradient from wells CM-8d, CM-9d and CM-18, which have all exhibited 1,1-dichloroethene (1,1-DCE) for which no source(s) have been defined yet.

  During the site walk-through by GSU staff, it was indicated by the escorting HMSG personnel that at least during HMSG tenure, solvent use in this building appeared to be confined to a second floor laboratory. However, building drain line(s) from the laboratory to below-grade "feeder" sewer lines probably exist(ed). Solvent waste from the laboratories could have been conveyed by the building drains

to the "feeder" sewer lines beneath the building where leakage could have occurred. Despite this possibility, GTI indicates that there is a "... lack of an identified potential entry path to soil and groundwater." The GSU staff strongly disagrees since building drains and "feeder" sewer line(s) under the building are clearly identifiable as a potential pathway. The GSU's concern with such a pathway is that renewed use of the building plumbing by any new occupants could renew transport from hypothetical residual concentrations of contamination in the soil zone(s) around the "feeder" sewer line(s). Therefore, this building should remain an AOC until a source for the contamination in well CM-8d is demonstrated.

Note that the June 28, 1996 groundwater monitoring report shows that contaminant concentrations in well CM-8d increased significantly. It was not recommended at the time of the walk-through that the site investigation proposed at that time include soil gas work or borings underneath this building. It was hoped that another source would be demonstrated by the proposed work. It was not and it is clear that further evaluation is necessary to document usage of past owners to assure that solvent use was always restricted to the upper floors, to determine where building drain lines connect to below-grade "feeder" sewer line(s) beneath the building, to document what building modifications may have been made through time, and to assess whether portions of the main site-wide sewer system exist under or adjacent to the building, etc. It is clearly necessary under RCRA corrective action to determine a source for the contamination exhibited in wells CM-8d, CM-9d and CM-18 and to assure that no further contamination will be discharged to ground water. Therefore, potential corrective action related to Building 262 should include continued groundwater monitoring of existing wells, installation of additional wells or performing "hydro-punch" operations to isolate the source. If the foregoing isolate the contaminant source at Building 262, then a soil gas survey of the main and "feeder" sewer lines at or beneath the building would be necessary. Alternatively, a combination of hydro-punch and soil gas work might be used to "clear" the building. If during the RFI, this building is determined to be a source of the observed groundwater contamination, through a potential path such as "feeder" sewer-line leakage, direct investigation and remediation could become necessary to preclude further discharge.

- Building 263 contained spray paint operations prior to 1987, had a degreaser, and apparently utilized solvents in Boiler Room cleaning activities until HMSG operations ceased. It is located relatively near-field and upgradient of

monitoring well CM-8d. This monitoring well has exhibited concentrations of dichloroethene (1,1-DCE) as high as 760 µg/l. Although the only chemical cited in Table 2 of the PSAIR for this location is dichloromethane (methylene chloride), nothing in the PSAIR, such as the visual inspection report by the HMSG consultant, indicates that this building could not be a potential source for the contamination observed at monitoring well CM-8d.

As GTI stated, "... the source of the VOCs in well CM-8d has not been established", however, their conclusion that "[N]o further investigation of the building itself is required." is not necessarily accurate. Despite the multi-story nature of the building, sinks / floor drains, etc., all typically lead somewhere --- for instance to "feeder" sewer lines beneath this building which then lead to the main site-wide sewer line outside. It was observed during the GSU walk-through that there appeared to be a sump or floor drain in one of the separate rooms, and a trench drain of some kind in one open area on the first floor, etc. Therefore, an examination of detailed floor plan(s) of this building needs to be performed, which should concentrate on potential pathways or sources, such as connections between the building drains and the "feeder" sewer lines, etc., before it can be reasonably concluded that investigation of the soil beneath the building might not be needed.

The EST soil gas investigation covered locations along the west side and southeast corner of the building ["Areas 3 and 4" of the GTI report, respectively]. Neither set of samples were directly at or underneath Building 263 proper. Samples SG-29 and SG-30, were obtained 40-50 feet to the west and SG-45 was obtained 20-30 feet away to the southeast. Despite all of these samples being non-detect (ND), Building 263 is not fully cleared with regard to any responsibility for groundwater contamination found to the southeast at well CM-8d, since investigation has not been performed under the building. It can only be concluded that there is no laterally extensive vapor-phase soil contamination in the vicinity of the building. The source for contamination at well CM-8d needs to be discovered before this building is removed from the category of an AOC.

- Building 265 is indicated by the PSAIR as having two then-active chemical operations on the second and third floors. Several other operations, such as painting and coating, on the ground floor also occurred in the past. Direct contact with soils from these operations was reported by GTI as being only possible from the basement. Clearly, drains from the various floors to "feeder" sewer lines under the building and extending to it could serve as potential

pathways and sources. Chemicals cited as being used or stored at this building include 1,1,1-TCA, dichloromethane (methylene chloride) and lead. This building is situated upgradient from monitoring wells MW-29, MW-30 and CM-10. Well CM-10 displays a persistent Freon-11 problem.

Building 265 was excluded from the 1995 soil gas survey since GTI argued that the chemical operations --- at least during HMSG's tenure "... were on the second and third floors, and were not known to include use of Freon." Having the HMSG chemical use restricted to the second and third floors narrows the pathway focus (although just for their operations but perhaps not for Bunker Ramo) to the building-drain/"feeder" sewer-line system. In addition to providing facility information on such potential pathway(s), HMSG also needs to research the historical Bunker-Ramo usage at this building.

GTI's argument that MW-29 lies between this building and CM-10 is accurate; citation of MW-30 is inaccurate --- since the flow regime has been somewhat radial. The groundwater contours flatten out on the May 13, 1996 groundwater "gradient" map prepared by GTI, but MW-30 still lies north and "off-vector" from CM-10. Whether or not any soil investigation needs to be done at Building 265 depends on further record evaluation and whether or not a satisfactory alternative source(s) is determined for the Freon-11 contamination in well CM-10.

Since operations at Building 265 have now ceased, input of any hypothetical contaminants from it should have been cut-off and transport of any residual soil contamination to ground water should be diminishing. If a leaky sewer line at Building 265 were to be somehow responsible for the observed groundwater contamination at well CM-10, renewed use of this building might lead to a new influx of pore-water and a subsequent increase in contaminant concentrations at well CM-10 --- even with no renewed chemical use by the new occupant --- strictly from increased mobilization of any residual soil contaminants. The principal potential pathway at this building would be the building drain/"feeder" sewer-line system, in as much as the HMSG operations using chemicals were reportedly restricted to the second and third floors. Specifically, sink and floor drains, through their ultimate connection to the "feeder" sewer line under the building and the "feeder" line connection to the site-wide main sewer line, need to be considered. It was also noted that a sump and drain system of some kind existed outside the building proper. An anomalous area of vapor-phase Freon 11 contamination was mapped during the EST soil gas survey in the asphalt paved

parking area to the south of Building 265 and west of Building 274. No connection to either Building has as of yet been determined. This parking area is downslope from Building 265. Building 265 sits on a terrace --- with adjacent parking separated by a steep vegetated slope from the parking area which showed the Freon-11 on the next terrace down. There is probably some form of surface drainage connection between the two terraces which needs to be evaluated as a potential pathway. Building 265 needs to remain an AOC until HMSG can demonstrate that soils underlying or adjacent to the basement are not responsible for the well CM-10 pollution, e.g., as result of hypothetically leaking "feeder" sewer lines which conveyed waste from operations previously conducted within the building. This will entail, as a first step, evaluation of the HMSG/Bunker-Ramo operations formerly conducted in the building, and mapping of the various "feeder" sewer lines as potential pathways to soil. Hydro-punch investigation stepping back upgradient from well CM-10 is necessary to separate the AOC(s) which may be responsible for the observed contamination at well CM-10. Additional work may also include more narrowly focused soil gas investigation of segments of the "feeder" and site-wide sewer lines at this building, and an evaluation of whether there is any connection between them and the vapor-phase Freon-11 concentration observed in the asphalt paved parking area downslope from Building 265.

- The 1989 PSAIR describes Building 268 as having 17 then-active chemical use areas. There is only one monitoring well nearby, well CM-12, which is located some 100 feet downgradient from the western end of the building. It exhibits elevated 1,1-DCE concentrations. Operations in the chemical use areas of this building were described as including solvent cleaning, spray painting, coating, copper etching and vapor degreasing. The PSAIR cites that 1,1-DCE was one of the solvents used in low quantities for cleaning together with dichloromethane (methylene chloride). Although many of the chemical use areas were described as being on the second floor, presence of at least one industrial waste clarifier was indicated. An early visual inspection and then-current "...quantifiably insignificant..." use were cited by HMSG's consultant in the PSAIR as being the basis for no field investigation and no further consideration of this building as a potential source. Such reasoning is insufficient to exclude this building from the corrective action process.

  Subsequently in 1995, GTI has argued that "[L]ow level use of containerized chemicals in a laboratory should not render the vicinity an Area of Concern." This argument belies

description in the PSAIR although agreeing with the PSAIR consultant's conclusion. GTI implies that presence of a UST "... near the building." is necessary to indicate a potential threat of discharge. However, it is the GSU's opinion that the described chemical uses do not need a UST to provide potential pathway. Even if most of the HMSG activities took place on the upper floors, floor/sink drains provide contaminant pathways to the feeder sewer line beneath the building, etc. If this feeder sewer line leaked, the waste could be discharged to the surrounding soils. For example, it appears that some form of treatment took place at the second floor before waste water was discharged through the drain lines to the feeder sewer line. There also appeared to be some form of related activity on the first floor. Outside the building, a short distance to the west and upgradient of well CM-12, a large manhole cover was observed which may indicate a segment of the site-wide sewer line passing fairly close to the building.

GTI also made arguments that (a) in 1993 and 1994, well CM-12 contained no detectable VOCs, and (b) borings B-SL-2 and B-SL-3, placed along the side-wide sewer line segment just west of Building 268, had zero PID readings and non-detect VOC soil matrix concentrations. The lessening of VOCs in well CM-12 does not obviate Building 268 or the associated "feeder" or site-wide sewer-line segments as potential past sources. Any direct contamination input from the building would have been expected to cease with cessation of HMSG operations, and soil migration of residual soil contamination would be slower without leakage, leading to diminished concentrations in the well. Two soil matrix samples are insufficient to be definitive with regards to the nearby site-wide sewer line segment and PIDs are not an acceptable means of acquiring vapor-phase information. Furthermore, such sampling would first be needed at the building drain/"feeder" sewer line connection for Building 268 and where the "feeder" would have joined the main site-wide sewer line. In other words, neither the PSAIR conclusions nor the GTI arguments eliminate Building 268 as a possible source of groundwater contamination.

There may be a long-term concern with the building from renewed soil migration resulting from increased usage of the building by the new owner/occupants, which might lead to an increase in groundwater contamination.

- HMSG and its consultant considered Building 269 as one of five potential chemical source areas and performed some investigative work on its periphery. Eleven then-active chemical use areas were cited in the PSAIR. Operations included cleaning, vapor degreasing, liquid degreasing,

plating, painting, etching, etc. For example, the degreaser was active from 1967 to 1985 and was indicated as having 1,1,1-TCA stored or used at it but also as having a permit allowing for use of methylene chloride and trichlorofluoro-ethane (Freon). The plating room included a degreaser and a clarifier pit with cited chemicals including copper, nickel, chromic acid and gold-cyanide. A network of trench drains, serving as an over-spill collection system, in the former plating room led to the clarifier pit.

Cleaning stations (rooms 1295B&C and 1475C) utilized chemicals which included TCE, 1,1,1-TCA and isopropyl alcohol (IPA). At the time of the PSAIR, 1,1,1-TCA was the dominant solvent used in terms of volume---perhaps as much as 1,000 gallons a year from this building. However, some use of dichloromethane (methylene chloride) was also reported together with IPA, thinner, developer, hydrochloric acid, nitric acid, iodine, potassium iodine, ceric sulphate and ammonium persulphate. Two linked "storage pits", P-1 and P-2, are located outside and immediately adjacent to the east of Building 269. P-1 was active as late as 1993, holding photographic process wastes and P-2 is a former clarifier for plating operation wastes which subsequently served to contain outflow from P-1. P-2 was described in the 1989 PSAIR as an underground non-waste sump used for neutralized acids and plating rinse water which typically contained waste solvents derived from degreasing associated with plating operations.

Monitoring wells CM-4, CM-4d and CM-5 are established upgradient and wells CM-6 and CM-6d are downgradient. It was cited in the PSAIR that well CM-6 contained "... little or no water ..." and 6d was non-detect for 1,1-DCE and TCE. However, CM-4d, immediately upgradient adjacent to the building exhibited 1,800 μg/l of 1,1-DCE and 310 μ/l of TCE. The PSAIR postulated no sources upgradient of this well. It is also noted that CM-6 is not directly downgradient of CM-4d. While the former plating room was discussed in the PSAIR, other rooms, such as 1115A with its degreaser were not. Active sources of groundwater contamination in the form of residual soil contamination may exist underlying this building either as a result of direct leakage from the plating pit area or from "feeder" sewer lines conveying waste from the laboratories to the main site-wide sewer lines. Investigative work was performed by GTI outside the building in 1994. Three soil borings were emplaced along the eastern periphery of the building from which samples were analyzed for metals and cyanide but not for VOCs. EST performed a soil gas survey in 1995, which collected vapor-phase VOC data from outside the building. However, no borings or soil gas probe have been emplaced through the

Building 269 floor to investigate the plating pit or any association floor drain/sump system. While the plating pit room is below grade, the plumbing connection from the plating pit to the external sumps/P1 and P2 were reportedly above ground. The floor of the plating pit room reportedly was sloped to areas of the room from where waste and spillage were collected.

HMSG agreed to conduct a limited soil gas survey which would include the periphery of Building 269, at the east near clarifiers P-1 and P-2. This work comprises "Area 1" of the 1995 "Report on Soil Gas Survey ..." prepared by GTI. No work was performed at the former plating room pit or sumps inside Building 269. Probes SG-18 and SG-43 were driven "to achieve the depths" of the foundation of Building 269. These deeper probes reportedly encountered bedrock in several instances but probably SG-45 and SG-18 reached to depth at 9 or 10 feet bgs, respectively. The results were ND at a detection limit of 1 µg/L. SG-11, at 9.5 feet bgs was adjacent to P-1, exhibited about 4 µg/L of 1,1-DCE. Other probes in the vicinity were non-detect. It could be alternatively interpreted that SG-11 implies leakage at either P-1 or the former plating pit/sumps in the interior of the building or that the VOCs are from tank T-3, some distance away. However, metals analyses from the vicinity of P-1 and P-2 reveal beryllium and cadmium at concentrations exceeding the closure performance standards for the HWSA and this area exhibits PCE contamination not characteristic elsewhere. Therefore, the existing data set probably indicates that releases occurred at P-1 and P-2. These must be considered SWMUs. The interior plating room pit/sumps in the east end of the building should also be considered SWMU(s) because there has been no direct investigation of them.

It is believed that in order to fully evaluate soil contamination at Building 269 and to ascertain whether there was leakage from the plating pit/sumps, sampling below the floor needs to be included as part of the RFI. Sampling of the original concrete underlying the present floor should also be performed to determine whether the former plating pit and surrounding floor contain hazardous leakage waste constituents.

It should be noted that the existing floor of the former plate area has been filled and brought up to grade --- no sumps are observable now, and, therefore, the floor of the building serves as a cover or cap. However, there are several caveats. It should be considered that the older concrete of this plating room may contain residual contamination, etc., above the TTLC or STLC, and should, if

demolition were to occur, be treated as hazardous waste. There also may be direct contact health hazard associated with parts of the concrete floor and walls. Finally, leakage from sewer lines, water supply lines, or watering of foundation planting could provide the vehicle for re-mobilization of any residual soil contamination. Therefore, even if no remediation is to occur underneath the building, a deed restriction may be necessary. The soils external to the building may need to be remediated based upon the HWSA closure performance standards.

- Some 12, then-active, chemical use areas were cited in the PSAIR as having been located in Building 270. Operations were described as having included vapor degreasing and solvent cleaning which used 1,1,1-TCA (nearly 2000 gallons per year) and may have included methylene chloride and trichlorofluoroethane as well. In fact, dichloromethane (methylene chloride) was reportedly present in low volumes as was Freon (trichlorofluoroethane) and benzene. While those chemical use areas on the second floor may not have posed a direct waste discharge threat to soil, waste or spillage disposal conveyed from such areas by the building drain system to sub-grade "feeder" sewer lines represents a potential pathway.

  There are no monitoring wells immediately downgradient. The 1994 "Report on Facility-Wide, Site Assessment, Hughes Missile Systems Company, Canoga Park, California" included analytical data from soils on the periphery of the building. These data did not reveal either VOCs or hydrocarbons. However, neither these data nor McLaren Hart's one-time observation of "... good housekeeping practices ..." inside the building and their subsequent conclusion of "... quantifiably insignificant ..." usage (excepting the degreasers), eliminate this building as an AOC or as a potential SWMU. Further evaluation with respect to the previous interior uses and waste disposal pathways needs to be done as part of the corrective action process.

  GTI argued in its 1995 summary review of the GSU walk-through "... there is no potential migration route to soil and groundwater were identified during the walk-through." This is not wholly accurate. Although HMSG chemical usages were reportedly confined to the second floor, a building drain system exists which presumably connects through "feeder" sewer lines to the site-wide sewer line. These were not directly "observed" by the GSU, but must exist as a general condition of occupancy permits.

  With respect to groundwater monitoring or recovery wells, GTI makes the argument that CM-6D, CM-12, MW-20 D/S and RW4

through RW9 "... are positioned to test downgradient groundwater ..." Actually, well CM-6D sits at the southeastern corner of Building 270 and RW-5 sits about 100 feet to the northeastern sector of the west side. This leaves a downgradient arc of over 90 degrees uncovered. Well CM-12 is not near-field and neither are MW-20 D/S. GTI indicates that only monitoring wells CM-6D and MW-20 D/S have been consistently ND for all VOCs. There is no groundwater data for the uncovered arc. The foregoing evaluation indicates that Building 270 cannot be precluded as a potential source, needs to remain an AOC, and may need to be assessed in some active fashion in the corrective action process. Finally, despite GTI's contention in the May 15, 1995 AOC response letter, it was not "agreed" that Building 270 was no longer an AOC. It was, however, agreed that no soil gas would be required within the building as part of the investigative efforts being proposed by HMSG at that time. Several concerns do need to be addressed, e.g., the potential pathways at the building need to be evaluated, i.e., the building drains/"feeder" sewer line (connection G). Hydro-punch investigation, followed by at least one near-field well in the uncovered arc should be considered. The same re-mobilization of potential soil contamination arguments as existing at Building 269 apply here. However, before any active investigation is required, additional evaluation of existing data and plans of the building drain/"feeder" sewer system needs to be performed.

- Building 271 contained a spray paint booth and usage of 1,1,1-TCA and dichloromethane (methylene chloride) was cited in the PSAIR. This building is relatively small and is situated between Building 262 and 263. GTI's contention that the walk-through or "field evaluation" on March 24, 1995, "... revealed no obvious potential migration pathways for chemical release from the building." is not wholly accurate. The building was certainly not "solvent-tight" and the courtyard area beyond it, while paved, did exhibit some cracks, etc. GSU staff disagrees with GTI's statement that "... no further investigation of this area is required." Moreover, MW-24 is not downgradient as stated by GTI, despite its lack of contamination. The observed groundwater contaminants at well CM-8d are more nearly downgradient.

  The soil gas work done by EST covers part of Building 271 but not all. SG-25 (3' bgs) is some 50 feet from the west end of the building --- and although ND, does not wholly "clear Building 271". It is still suggested that the soil gas survey be extended under this building --- unless an alternative soil source has been definitively determined elsewhere for the "eastern flow regime" groundwater

contamination at CM-8d. Therefore, this area remains an AOC and may require some further active investigation, such as soil gas and/or hydro-punch work, to verify it as a non-source.

- Building 274 was reported in the PSAIR as having been used for solvent cleaning, although these activities were not fully described. Specific solvents listed in Table 2 of the PSAIR included 1,1,1-TCA and Freon-11. This building is situated upgradient of MW-29 and is quasi-upgradient of CM-10 which exhibits significant Freon-11 contamination. The earlier HMSG consultant's citation of good housekeeping, visual inspection and "quantifiably insignificant" usage are insufficient to remove this building as a potential source and AOC.

  The GSU walk-through revealed a cooling unit situated outside the building on its northeast corner. HMSG was asked to place at least one soil gas probe near this unit --- in the line of surface flow away from the unit (in the event that overfilling spillage during maintenance or long-term leakage of coolant may have occurred). GTI argued that no solvent cleaning actually took place in the building --- presumably referring only to HMSG occupancy. They stated that only a hydraulic pump and a chiller could have served as contaminant sources within the building. Freon-11 was detected at 6 µg/L in SG-44 near the cooling unit. Therefore, a source of Freon-11 contamination is within, at, or nearby the building and GTI's contention that Building 274 "... is no longer an AOC and no further investigation is needed." is in error. Since, Freon-11 is evidence of a release, the cooler unit area may need to be considered a SWMU. Further active investigation needs to be conducted to assure that this area has not been or will not be a continuing source of groundwater contamination. This should include further soil gas and/or hydro-punch work.

- Further information needs to be provided with respect to the cleaning operations reportedly conducted by HMSG in Building 276. At the time of the PSAIR, 1,1,1-TCA was either utilized or stored in the building with usage cited at a low rate of less than or equal to 5 gallons per year. Prior operations by Bunker-Ramo were not described. There are no monitoring wells immediately downgradient of this building and hence no information on possible near-field groundwater contamination at the building or on the near-field groundwater flow direction. Based on the available data, the building might be considered upgradient of well CM-10 or CM-17, and although neither well has reported 1,1-DCE or TCE, Freon-11 occurs in CM-10.

GTI indicates that this building was primarily used for administrative functions and that borings B-SL-7 and B-SL-8 and B-RUDM-3 were "... drilled in generally downgradient position." and were all ND for VOCs. Because of the foregoing, GTI contends that Building 276 should not be an AOC and requires no investigation. The positions of the cited borings and the related soil matrix samples have little or no relevance to Building 276 proper. The walk-through revealed at least one "floor sink" in a "process room". More importantly, there appears to be a chiller or air conditioning system in or adjacent to the building's southwest side. There has been no investigation of the building drains or "feeder" sewer line(s) underneath the building. Therefore, GTI's conclusion about the GSU walk-through results are in error. Soil gas samples were obtained at points along segments of the main site-wide sewer line which runs southwest to northeast along the south sides of Buildings 276 and 274. The results indicated that there did not appear to be any continuing source(s) in the section of sewer line nearest Building 276. However, soil gas data in the parking area between the two buildings revealed the presence of significant amounts of vapor-phase Freon-11. No obvious connection between either Building 276 or 274 and the vapor-phase contamination in this parking area has yet been established. It should be noted that a down-drain(s) from an upper parking terrace outside Building 265 may affect the lower parking area between Building 276 and 274. Therefore, all three buildings still need to be considered AOCs until the actual Freon-11 source is established. The parking area may ultimately need to be treated as a separate SWMU, but active investigation is needed at Building 276 to establish that such is the situation.

- Building 281 was cited in the PSAIR as having two then-active chemical use areas, consisting of a "Controlled Materials Storage Area" and a "Maintenance Shop". Dichloromethane (methylene chloride) is cited as having been stored or used at this location. The building is situated between well CM-8d, downgradient, having Freon-11 VOC groundwater pollution and CM-9d, cross-gradient, which exhibits considerably less pollution. Building 281 also adjoins an area where diesel tank removal occurred.

  GTI contends that since Building 281's chemical use "... was restricted to the first floor, which overlies a basement.", that there is no potential chemical migration pathway to be identified. This is not reasonable since chemicals discharged into building drains reach below-grade "feeder" sewer lines under and adjacent to the building. Therefore, Building 281 has potential pathways. Moreover, Bunker Ramo

usage of the building has not been clarified by HMSG. There is a clear groundwater problem adjacent to the building. GTI's argument that this problem has diminished is not wholly re-assuring, since the building has not been in use. If there has been a "feeder" sewer line source under the building, then the soil surrounding the "feeder" sewer line may still contain VOCs. Renewed use of the building drains could renew hypothetical leakage and re-mobilize soil contaminants to migrate into ground water. Therefore, concern still exists. The soil gas work at well CM-8d did not clear Building 281 and its associated building drain/"feeder" sewer-line system. Further evaluation and perhaps investigation of the building may be necessary if a reasonable alternative source for the observed groundwater contamination at well CM-8d is not demonstrated. Specific relationships are unclear, but Building 281 should be considered an AOC subject to further evaluation.

- Groundwater and soils cleanup, while being performed under the LARWQCB as lead agency, indicate that the former underground gasoline tank system T-1, T-2, and associated pump island near Buildings 272 and 282 needs to be considered a SWMU. Similarly, soils cleanup under the auspices of the LARWQCB, removal of 1000 yd^3 at the diesel underground tank cluster T-7, T-8 and T-9 located to the east of Building 281 and a small quantity of "odor-exhibiting soil" from the 500 gallon underground tank pair T-5 and T-6 which stored sulfuric acid and waste oil immediately west of Building 263, means that these also need to be considered SMWUs. No hydrocarbon contamination was reported from diesel tank T-10 just to the south of Building 281 and it should not be considered an AOC any longer.

  Recent regulatory concerns about MTBE means that DTSC does need to require, if not being presently required by the LARWQCB, that the wells near-field to these SWMUs must be sampled and analyzed for MTBE. If determined to be present, then additional soil evaluation could be required at them. The 1995 EST soil gas survey did not establish presence or absence of MTBE. Moreover, these samples were obtained near the T-10 diesel fuel tank. No soil gas work was performed at T-7, T-8, or T-9.

- It is noted that halogenated and aromatic VOCs together with bis(2-ethylhexyl)phthalate were reported from the soil at the tank pair T-5 and T-6 and that clean-up at T-7, T-8 and T-9 tank cluster left some soil hydrocarbon contamination in place. The ERPCRS indicated that even though the T-7, T-8

and T-9 tank cluster had soil excavated, they still needed to be considered "... potential release points to groundwater." Tanks T-5 and T-6 are located upgradient of well CM-8d, which exhibits considerable amounts of 1,1-DCE.

As with tanks T-7, T-8, T-9, and T-10, no evaluation was made of MTBE in either soil or in the ground water at well CM-8d. It may be necessary that all downgradient wells be evaluated for MTBE and that soil sampling for MTBE be performed.

- The 60-85 gallon tank T-12 area just to the south of Building 270 was of concern because it had stored solvent waste---including acetone, 1,1,1-TCA and isopropyl alcohol. Although this tank had been converted to an aboveground storage tank, details are lacking with respect to the conversion process and whether this was the original underground location. The 10,000-gallon T-13 tank containing diesel or fuel oil was located a short distance away to the southeast.

  The 1995 soil gas survey included five points around the T-12 area. All were ND at 1 µg/L detection limits for VOC's. Therefore, this AOC can be considered to have been satisfactorily evaluated and no further action is required.

- The 60-85 gallon T-14 tank (solvent waste---including acetone, 1,1,1-TCA and isopropyl alcohol) is described as being located south of Building 269 in the 1989 PSAIR but is not discussed in the 1993 EPRCRS. The existence of a concrete vault and the fact that it is indoors <u>does not</u> eliminate the possibility of leakage due to overflow or spillage. GTI needs to describe what would have happened if spillage had occurred, etc. The explanation that "T-18" is really a typographical error is acceptable based on GTI representations but T-14 should remain an AOC until further explanation is provided.

- HMSG has performed soil matrix sampling at widely spaced intervals along the main sewer line around the site. In part this was because Freon-11 has been consistently identified in ground water sampled from well CM-10, which is located downgradient from the HMSG connection with the public sewer line at "manhole 13". Groundwater pollution appears to have extended off-site downgradient from well CM-10.

  HMSG has not explained the Freon-11 source with either soil matrix or soil gas sampling to date. Whatever the source area or areas, it or they should be considered SWMUs when identified. The source(s) may include a number of the

aforementioned AOCs, segments of the site-wide sewer line or unidentified source-types. HMSG needs to extend its 1995 soil gas survey to evaluate those AOCs upgradient from well CM-10 which might be responsible for the observed contamination.

HMSG performed only a partial evaluation of vapor-phase contamination along the site-wide sewer line upgradient of well CM-10 in 1995. GTI's argument about the sufficiency of test borings along the site-wide sewer line revealing no VOCs is not reasonable. Specific sections of the site-wide sewer line still need to be evaluated near the AOCs as well as the "feeder" sewer lines under those buildings, and an explanation provided for the Freon-11 found in the parking area between Buildings 276 and 274.

CONCLUSIONS

- Based on the existing data set, some of the AOCs need to be considered SWMUs. There have been demonstrable waste discharges---releases---to soil and ground water not attributable to the waste discharge at Tank T-3. These include PCE (ground water) and Cd and Be (soil matrix) at P-1/P-2 outside Building 269; Freon-11 (vapor phase) in the parking area soils between buildings 276 and 274, in the ground water at well CM-10---downgradient from Buildings 265, 274, 275, 276, and 277---and in the soils near the air conditioning unit outside Building 274; chlorinated VOCs---source unknown, but observed in well CM-8d---downgradient from Buildings 262, 263, 281, and near-field to Building 264; and chlorinated VOCs (vapor phase) in the soils at Buildings 272 and 282.

- Additional investigative work needs to be performed in several areas to discover and identify the SWMUs responsible for observed soil and groundwater contamination.

- Contamination from waste discharges at HMSG have already migrated off-site. In the instance of the on-going groundwater remediation at Tanks T-1 and T-2 for the Underground Tanks program at the LARWQCB, current clean-up efforts may remediate this, but in the instance of well CM-10, neither the lateral or vertical extent nor maximum concentrations in off-site ground water have been demonstrated and there is no remediation on-going.

- The former plating pit in Building 269 was paved over at some point in time. There is no evidence of investigations at or below it relative to leakage or contamination of the pit construction materials themselves. Additional

investigative work needs to be performed to determine the condition of the pit. Alternatively, the location can be carefully described and included in a deed restriction.

- While the on-going clean-up work and groundwater monitoring relative to the underground fuel tanks T-1 and T-2 near Buildings 272 and 282 is an appropriate part of the overall remedy and should be continued, it does not address all of the RCRA corrective action needs facility-wide and additional investigative and remedial work is warranted at the HMSG facility.

- Arsenic (As) has been reported from the soil at 5 feet bgs (B-SL-4) along the sewer line at 42 mg/kg. Even using the 99th percentile background closure performance standard proposed by HMSG for arsenic which was 28 mg/kg, this can be concluded to represent waste discharge from the sewer line. This means the sewer line in this area needs to be investigated as a possible SWMU. Similarly, cadmium (Cd) (17 mg/kg) and beryllium (Be) (.87 mg/kg) have been reported from soils at P-1/P-2 at 5 feet bgs (BPHP-2) at concentrations greater than background. PCE has been reported from vapor-phase measurements there, but nowhere else, and cannot be considered as being derived from the Tank T-3 HWMU. Therefore, the P-1/P-2 area must be considered a SWMU.

- Simply because chemical uses have been restricted to the upper floors of given buildings does not mean that there is no potential pathway. Laboratories and other chemical use areas typically have drains which lead through the buildings to below-grade sewer lines which feed in turn to the main site-wide sewer line system. Therefore, source areas and pathways may lie concealed beneath the various buildings. The significance of such potential sources is that renewed usage of the building's drains may re-mobilize contaminants. Chlorinated VOCs can of course continue to migrate to ground water without additional leakage. Finally, fluctuations of groundwater elevation may re-mobilize soil contaminants. Therefore, the sources for the observed groundwater contamination need to be isolated.

- The April-June "Groundwater and Remediation System Monitoring Quarterly Report" dated July 10, 1996, shows a significant increase (3 to 4 times the September 1995 concentrations) in 1,1-DCE in well CM-8d. HMSG has argued that concentrations are dropping and that no investigative or remedial actions are warranted relative to the source of the contaminants in this well. Similarly, trichlorofluoromethane (Freon-11) concentrations in well CM-10 increased. It is unknown whether these contaminant

increases are due to reoccupation of some of the buildings by the new owners of the former HMSG facility resulting in increased flow through sewer lines and possible leakage re-mobilizing pre-existing soil contaminants or whether fluctuating groundwater elevations through the winter served to re-mobilize contaminants. The July-September quarterly monitoring report, dated October 7, 1996, shows the concentrations decreasing, but still above some of the historical levels, e.g. 39 µg/l of Freon-11 (February 1996) for well CM-10. It is noted that the groundwater elevation at well CM-8d rose by only .12 feet while the 1,1-DCE concentration dropped from 460 to 110 µg/l. At CM-10, the elevation dropped by .48 feet and Freon-11 concentrations dropped from 110 to 88 µg/l. It is concluded that investigative work still needs to be performed relative to the sources of contamination in those wells and consideration given to uncontrolled flushing of contaminants into ground water [without waste discharge requirements (WDRs) being adopted for this continuing threat to ground water by the LARWQCB] as part of the RCRA corrective action process.

- HMSG has not accounted for the site activities of former occupants Bunker-Ramo and the Rocketdyne Division of Rockwell International. The PA prepared by Ecology and Environment, Incorporated and the various facility assessment documents provided by HMSG do not detail that usage. There is no historical aerial photographic analysis to determine usages and construction/development of the site. It is concluded that such facility information still needs to be provided. The South Coast Air Quality Management District (SCAQMD) permits covering air emissions for a spray paint booth, five TCA vapor degreasers, and a chemical milling tank, need to be examined and reconciled with information in the facility assessment documents. HMSG was cited for storing waste in an unpermitted area for more than 90-days. This area needs to be identified and evaluated. The locations for all three industrial waste water clarifiers for which permits were issued by the Los Angeles Bureau of Sanitation needs to be reconciled with the existing facility assessment.

- The radioactivity cited in the PA, which was found in the ground water throughout the site has not been fully demonstrated to be solely the result of naturally-occurring background levels as maintained by HMSG, despite the "Phase One Remedial Investigation at Hughes Missile Systems Group Facility, Canoga Park, California", dated December 20, 1990, and prepared by Mclaren Hart. Several reports were prepared for HMSG on the issue of elevated radioactivity in the ground water at the facility. These include:

(1) "Radioisotope Review and Comparison for the HMSG Facility, Canoga Park, California", July 30, 1991, by McLaren/Hart Environmental Engineers Corporation;

(2) "Investigation of Radioactivity in Groundwater at the Hughes Aircraft Company, Canoga Park Facility, Canoga Park, California", January 23, 1993, by Groundwater Resource Consultants, Inc.; and,

(3) "Results of Radiological Sampling of Monitoring Wells, December 1991, HMSG, Canoga Park Facility, Canoga Park, California", March 27, 1992, by Groundwater Resource Consultants, Inc.

These reports addressed the issue of anthropogenic radioactivity in a sidewise fashion. Variation in radiologic analyses amongst various other sites in the San Fernando Valley were used to infer the "naturalness" of such measurements at HMSG; because all the Gross Beta results were below the compliance screening level of 50 pCi/l, it was inferred that no man-made radionuclide were present; uranium concentrations in several samples exceeds MCLs for uranium, but this was attributed to high "natural background TDS concentrations"; isotopic mass percentage of those samples with elevated uranium levels, indicate that the percentages are close to the U.S. EPA's definition of naturally occurring uranium. The most persuasive argument is that of the mass uranium isotope percentage. It, however, does not obviate the possibility of some of the Gross Beta radiation being due anthropogenic radioactivity from isotopes other than uranium.

RECOMMENDATIONS

- A RCRA Facility Assessment (RFA) needs to be performed based upon the existing investigation data from both LARWQCB and DTSC involvement at the various SWMUs and AOCs, the information which has been presented to date by HMSG and its consultants, and a rigorous effort to recover all available construction plans, permits and other such records relating to the site. The Preliminary Assessment (PA) which was performed by consultants (Ecology and Environment, Incorporated) in 1991 for the U.S. EPA is relatively incomplete, unsatisfactory in that all the then-available data and information was not evaluated, and did not or could not have utilized data and information that is now available.

- Despite the extensive, but relatively focused investigations under the LARWQCB, the ongoing air sparging groundwater cleanup and monitoring, and the soil gas work performed for DTSC, a RCRA Facility Investigation (RFI) needs to be performed at the former HMSG facility. In fact, it is partly because of the available data that the RFI needs to be performed. The work should include some additional soil matrix and soil gas sampling at various locations, hydro-punch or equivalent work in several areas, and installation of additional monitoring well(s) at one or more locations. Ground water around the suspect buildings may be characterized with hydro-punch techniques to isolate the source building and soil sampling performed underneath the buildings to determine the levels of residual soil contamination.

- The on-going groundwater clean-up activities being performed under the auspices of the LARWQCB Underground Tanks Program should be given equivalency as an Interim Measure (IM) under the RCRA corrective action procedures. It needs to be recognized that the specific groundwater remediation selected, air sparging, primarily directed at clean-up of groundwater contamination from underground tanks, is also acting to clean up the vadose zone at two SWMUs---Buildings 272 and 282---and the former T-3 hazardous waste management unit (HWMU) which is subject to post-closure. The on-going groundwater monitoring at well CM-8d and CM-10 should also be credited as separate IMs even though the SWMUs which have caused the observed contamination in those wells have not been identified.

- A corrective measure study (CMS) needs to be performed which considers all of the on-going interim measures of groundwater and vadose zone remediation at one area of the site and groundwater monitoring at other SWMUs and AOCs across the site. This on-going work clearly needs to be adopted as part of the final remedy for the site even though it may not be the complete remedy. For example even without an RFI having been performed, the following need to be considered for corrective measures as part of a final remedy: a) the former plating pit SWMU in Building 269 is likely to require a deed restriction measure to assure that any contaminated concrete, now covered by a new floor, be evaluated and handled as a hazardous waste---if necessary---at such time as demolition of the building occurs at any time in the future; b) the presently unknown source for off-site impact from the Freon-11 observed in the parking area between Buildings 276 and 274 and at well CM-10 may need remediation; c) the presently unknown source for the observed contamination at well CM-8d may need remediation or deed restriction to prevent continued waste discharge form

soils to ground water; d) the concentration of beryllium and cadmium at the P1/P2 SWMU outside Building 269 is above the closure performance standards approved for the HWMUs and may need remediation to be consistent; e) groundwater monitoring, initiated by the LARWQCB for their tank investigations, may need to be extended for some period of time as a means of corrective action effectiveness monitoring at locations downgradient of AOCs and SWMUs; f) vadose monitoring at the Building 272 and 282 SWMUs may be needed for some period of time to assure effectiveness of the air sparging groundwater clean-up in cleaning the soils at the SWMUs; g) corrective action effectiveness monitoring will need to be continued at the Tank T-3 HWMU---probably using the existing monitoring network.

- The foregoing exemplary remedies will need to be implemented or in the case of the air sparging being performed under the auspices of the LARWQCB, continue to be implemented under the corrective measures implementation (CMI) component of RCRA corrective action.

- A post-closure plan should be called in relative to the former Tank T-3 HWMU. Since the underground tank had no secondary containment, it must be treated as a land disposal unit. The post-closure plan should address both vadose zone and groundwater monitoring issues as well as corrective action effectiveness monitoring of the on-going air sparging being performed under the auspices of the LARWQCB. At least one new upgradient well needs to be established outside the influence of vapor-phase transport from residual soil contamination at the former Tank T-3 HWMU. The post-closure plan should include all of the necessary corrective action elements relative to the various SWMUs.

- While the isotope mass percentage of those samples with elevated uranium levels appear to fit the U.S. EPA's definition of naturally occurring uranium, additional radiologic sampling of the monitoring wells needs to be performed. The data provided by HMSG indicate a general pattern of association of higher radiological concentration with certain wells on the east and southeast side of the site. The association may simply be due to natural variation across the site, but these variations are not necessarily explained by attribution to total dissolved solid variations. The fact the all Gross Beta results were below the compliance screening level of 50 pCi/l does not necessarily mean that there are no anthropogenic radionuclides present. Sampling and analysis for such man-made nuclides could, however, demonstrate that the Gross Beta results were not related to them. In order to fully rest this issue and assure that radioactivity is unrelated

to site actions, additional samples should be obtained and analyze for anthropogenic radionuclides; the formation materials from the various wells should be evaluated to determine if there is any correlation to the distribution pattern; the total dissolved solids data need to be plotted together with the radiologic data.

Cross Reference Table for DTSC SWMU and AOC Designations

Former Canoga Park Facility, 8433 Fallbrook Avenue, Canoga Park, California

DTSC Designations - June 5, 1997		DTSC Designation - January 30, 2008	
SWMU No.		SWMU No.	
1	Bldg 272	1	Hazardous Waste Storage Area
2	Bldg 282	2	Tank T-3
3	Pits 1 and 2 at Bldg 269	3	Bldg 272
4	Parking between Bldgs 274 and 276	4	Bldg 282
5	Bldg 274 North Side Cooler Unit	5	Pits 1 and 2 at Bldg 269
6	Bldg 272/282 Pump Island Tanks T-1 and T-2	6	Parking lot between Bldgs 274 and 276
7	Sewer line near B-SL-4	7	Bldg 274 North Side Cooler Unit
--	--	8	Bldg 272/282 Pump Island Tanks T-1 and T-2
--	--	9	Sewer line near sample B-SL-4
AOC No.		AOC No.	
1	Bldg 262	1	Bldg 262 drains and feeder sewer lines
2	Bldg 263	2	Bldg 263 drains and feeder sewer lines
3	Bldg 265	3	Bldg 265 drains and feeder sewer lines
4	Bldg 268	4	Bldg 269 interior drains, dumps, degreaser, clarifier pit
5	Bldg 269	5	Bldg 271 industrial waste clarifier
6	Bldg 270	6	Bldg 274 drains and feeder sewer lines
7	Bldg 271	7	Bldg 276 drains and feeder sewer lines
8	Bldg 274	8	Bldg 281 drains and feeder sewer lines
9	Bldg 276	9	Former Tanks T-5 and T-6
10	Bldg 281	10	Former Tanks T-7 and T-8
11	Former Tanks T-5 and T-6	11	Above ground tank T-14
12	Former Tanks T-7 and T-8	12*	Site Wide Stormwater System
13	Former T-14	13*	Northeast Plume

Note:

1. * = AOC's 12 and 13 are not consistent with any of the 1997 DTSC original SWMU/AOC list.

Table 1A
Environmental Summary for 2008 DTSC SWMU No. 1
Hazardous Waste Storage Area
Former Canoga Park Facility, 8433 Fallbrook Avenue, Canoga Park California

Description (per June 5, 1997 DTSC Letter)	Reports	Environmental Investigations/ Remedial Actions	Current Status/ Recommendation
• HWSA constructed in 1981. • Stored hazardous wastes in 55-gallon drums, drum packs and carboys. • 3 bays segregated storage of acids, alkalines and flammable/ nonflammables. • HWSA no longer being used by 1994.	Report: *Closure Plan for the Hazardous Waste Storage Area and Tank T3 and Contingent Closure and Post Closure for Tank T3* (CH_2MHILL, February 1995) Report: *Modified Closure Plan for the Hazardous Waste Storage Area and Tank T3 and Contingent Closure and Post Closure for Tank T3* (CH_2MHILL, August 1995) Report: *Hazardous Waste Storage Area Workplan* – Raytheon Missile Systems Company, Former Canoga Park Facility (Fluor Daniel GTI, March 1998) Report: *Follow-on Sampling and Analysis Plan for the Hazardous Waste Storage Area* - Raytheon Missile Systems Company, Former Canoga Park Facility (Fluor Daniel GTI, September 1998) Report: *Results of Follow-on Sampling and Analysis for the Hazardous Waste Storage Area, Conducted September 21, 1998* (Fluor Daniel GTI, October 1998) Report: *Second Quarter 1999 and Semiannual 1999 Groundwater Sampling and Monitoring Report* (IT, August 1999) Report: *Third Quarter 1999 Groundwater Sampling and Monitoring Report* (IT, October 1999) Report: *Fourth Quarter 1999 and Annual 1999 Groundwater Sampling and Monitoring Report* (IT, August 2000)	• In December 1996, entire HWSA was vacuumed and pressure washed. Confirmation concrete samples indicated Cr^{6+} above the closure performance standard for concrete. Soil samples also indicated Cr^{6+} above closure performance standard. • Additional characterization sampling (soil and groundwater) activities followed in May 1997. • Based on May 1997 data, Raytheon elected to demolish and dispose of concrete and soil underlying the HWSA (March 1998 work plan approved by DTSC). • Demolition and soil excavation completed in June 1998; confirmation soil samples detected Cr^{6+} above closure performance standards; depth of excavation extended; additional confirmation samples collected and Cr^{6+} still detected above closure performance standards; excavation backfilled with clean fill until impacted soil could be fully delineated to allow for proper planning of additional remedial action. • Follow-on assessment (August 1998) concluded that Cr^{6+} soil contamination was delineated and localized to area under former acid and alkaline storage bays of HWSA and ~2.5-5 ft south of former HWSA; as redevelopment plans to add ~5 ft of soil to area to accommodate a multi-story parking garage, pathways of exposure are significantly limited; recommend no additional sampling or soil excavation although quarterly groundwater monitoring recommended to monitor Cr^{6+} in groundwater.	There is no state or federal promulgated standard for Cr^{6+}, although the MCL for total chromium is 50 µg/L and the USEPA Region IX PRG for tap water for Cr^{6+} is 110 µg/L. Continue semiannual Cr^{6+} groundwater monitoring and sampling program. Confirm DTSC approval of groundwater closure through LARWQCB. There has been no formal response to the November 2002 closure report.

Table 1A
Environmental Summary for 2008 DTSC SWMU No. 1
Hazardous Waste Storage Area
Former Canoga Park Facility, 8433 Fallbrook Avenue, Canoga Park California

Description (per June 5, 1997 DTSC Letter)	Reports	Environmental Investigations/ Remedial Actions	Current Status/ Recommendation
	Report: *Additional Subsurface Characterization, Former Hazardous Waste Storage Area,* Former Raytheon Systems Company Facility (TN&A, September 22, 2000) Report: *Results of Additional Subsurface Characterization, Former Hazardous Waste Storage Area* (TN&A, September 2000) Report: *Groundwater Sampling and Analysis Plan for the Former Hazardous Waste Storage Area* (TN&A, April 2001) Technical Memorandum: *Results of Quarterly Groundwater Monitoring, Former Hazardous Waste Storage Area* (TN&A, January 2002). Technical Memorandum: *Results of Quarterly Groundwater Monitoring, Former Hazardous Waste Storage Area* (TN&A, April 2002). Technical Memorandum: *Results of Quarterly Groundwater Monitoring, Former Hazardous Waste Storage Area* (TN&A, August 2002). Report: *Closure Certification Report for the Former Hazardous Waste Storage Area* (The Source Group, November 2002). Annual Groundwater Monitoring and Groundwater Remediation System Reports submitted through 2007	• Property owner (Regent Properties, Inc.) raised surface elevation ~5 ft in vicinity of during grading activities in late 1998/early 1999. • Raytheon adds Cr^{6+} analysis to routine semiannual groundwater sampling; all wells nondetect except for RW-15. • Quarterly groundwater monitoring followed in August '99, October '99 and December '99; RW-15 continued to show evidence of Cr^{6+}. • 7 new monitoring points were installed in June 2000; soil samples collected from borings; all soil samples had detectable concentrations of Cr^{6+} – highest within footprint of former HWSA; none exceeded USEPA Region XI PRG of 64 mg/kg, but 12 of 13 exceeded DTSC-selected HWSA closure performance standard for Cr6+ of 0.19 mg/kg; small Cr^{6+} groundwater plume delineated. • 8 monitoring wells are currently used to monitor the delineated Cr^{6+} groundwater plume on a semiannual basis; most recent Cr^{6+} concentrations ranged from 0.62 µg/L to 26 µg/L in November 2003; no samples collected for Cr^{6+} analysis exceeded MCL for total chromium of 50 µg/L.	

Notes:
Cr^{6+} = hexavalent chromium
DTSC = Department of Toxic Substance Control
HWSA = hazardous waste storage area
LARWQCB = Los Angeles Regional Water Control Board
MCL = maximum contaminant level
mg/kg = milligram per kilogram
PRG = preliminary remediation goal
µg/L = microgram per Liter
USEPA = United States Environmental Protection Agency

Table 1B
Environmental Summary of 2008 DTSC SWMU No. 2
Former Tank T3
Former Canoga Park Facility, 8433 Fallbrook Avenue, Canoga Park California

Description (per June 5, 1997 DTSC Letter)	Reports	Environmental Investigations/ Remedial Actions	Current Status/ Recommendation
• Installed in 1979 north of former Building 269. • 4,000 gallon capacity; used to store waste oils and wastes oils mixed with solvents. • No secondary containment. • Maximum depth of tank was 12 feet below ground surface • Soil locally contaminated (petroleum hydrocarbons and chlorinated VOCs) by releases.	Report: *Potential Source Area Investigation Report for the Hughes Missiles Systems Group, Canoga Park, California* (McLaren-Hart, November 30, 1989) Report: *Underground Tank Investigation, Hughes Aircraft Company Missile Systems Group, Canoga Park, California* (Hargis and Associates, Inc., 1986) Forms: *Tank Disposal Forms, 8433 Fallbrook Avenue, Canoga Park, California* (American Medical Recycling, Inc., June 15, 1988) Report: *Subsurface Investigation in Vicinity of Former T-3 Tank Site, Hughes Aircraft Company Missile Systems Group, Canoga Park, California* (Hargis and Associates, Inc., 1988) Report: *Remedial Action Plan, Former T-3 Tank Site, Hughes Aircraft Company Missile Systems Group, Canoga Park, California* (Hargis and Associates, Inc., October 20, 1989) Report: *Corrective Action Plan, Former T-3 Tank Site, Hughes Aircraft Company Missile Systems Group, Canoga Park, California* (ENSR, December 1990) Report: *Final Report Remediation of Former T-3 Tank Site, Hughes Aircraft Company Missile Systems Group, Canoga Park, California* (ENSR, 1991) Report: *Supplementary Subsurface Investigation, Hughes Aircraft Company Missile Systems Group, Canoga Park, California* (ENSR, 1991)	• Hughes submits tank inventory pursuant to the LARWQCB Groundwater Protection Program Underground Tank Investigation requirements (Oct 1983). • Underground tank monitoring program initiated in 1984. • Tank T3 removed in June 1988 in accordance with Los Angeles City Fire Department requirements (Permit # 60097); two soil samples from the base of excavation were collected and analyzed for TPH (EPA Method 8015 DHS Modified). • Subsurface investigation subsequently initiated in 1989 – a total of 16 boring locations sampled for TPH and VOCs; concluded that maximum concentrations were present at approximately 20 ft bgs; “soil plume” delineated; limited feasibility study conducted, and excavation and offsite disposal selected as remedial action for Tank T3 site. • LARWQCB approves RAP/CAP for soil excavation (previous agreement between DTSC and LARWQCB that LARWQCB would act as lead agency for mitigation of soil and groundwater at subject facility – letter dated January 30, 1990). • 1,321 cubic yards of hydrocarbon and chlorinated VOC-containing soil excavated from the Tank T3 site in 1991, utilizing a 3-ft diameter bucket auger; confirmation soil samples were collected for laboratory analysis in addition to FID-screening in the field – excavation ceased once TPH and VOC concentrations were below cleanup action levels (<100 ppm).	Remediation of residual soil contamination has been completed via SVE. Remediation of residual groundwater and saturated soil contamination is ongoing in accordance with the CAP & CAP Addendum. EISB was implemented in October 2005 with positive results. DCE concentration in well M-1 has decreased from 450 to 27 ug/L, well below the CAP goal of 60 µg/L.

Table 1B
Environmental Summary of 2008 DTSC SWMU No. 2
Former Tank T3
Former Canoga Park Facility, 8433 Fallbrook Avenue, Canoga Park California

Description (per June 5, 1997 DTSC Letter)	Reports	Environmental Investigations/ Remedial Actions	Current Status/ Recommendation
	Report: *Corrective Action Plan for Hughes Missile Systems Company, Canoga Park, California* (Hughes, 1992) Report: *Corrective Action Plan Addendum, Hughes Missile Systems Company, Canoga Park, California* (GTI, 1994) Report: *Closure Plan for the Hazardous Waste Storage Area and Tank T3 and Contingent Closure and Post Closure Plans for Tank T3, Hughes Missile Systems Company, Canoga Park, California* (CH_2MHILL, February 1995) Report: Modified *Closure Plan for the Hazardous Waste Storage Area and Tank T3 and Contingent Closure and Post Closure Plans for Tank T3, Hughes Missile Systems Company, Canoga Park, California* (CH_2MHILL, August 1995) Annual Groundwater Monitoring and Groundwater Remediation System Reports submitted through 2007	• GRTS, SVE and AS systems installed to remediate VOC-contaminated groundwater at Site (please reference CAP, CAP Addendum). • Raytheon submits contingent closure plan and post closure plans for Tank T3 site per DTSC (DTSC requests lead agency status in 1994 citing waste residuals in soil and groundwater in vicinity of Tank T3). • Closure plans are approved by DTSC in a letter dated August 6, 1996. Plans indicate that any residual contamination in soils and chlorinated VOCs in groundwater present in general vicinity of Tank T3 site are being addressed by site-wide CAP and CAP Addendum activities. • Final cover design placed over former Tank T3 site during excavation activities in 1991 and later during redevelopment activities at the Site – cement/sand slurry backfill and asphaltic concrete, which provides smooth surface and promotes drainage to minimize downward migration of water into former Tank T3 site.	

Notes:
AS = air sparge
CAP = Corrective Action Plan
DCE - 1,2-dichloroethene
DTSC = Department of Toxic Substance Control, State of California
EISB = enhanced *in-situ* bioremediation
FID = flame ionization detector
GRTS = groundwater remediation and treatment system
LARWQCB = Los Angeles Regional Water Control Board
ppm = parts per million
RAP = Remedial Action Plan
SVE = soil vapor extraction
TPH = total petroleum hydrocarbons
ug/L = micrograms per liter
VOCs = volatile organic compounds

Table 1C
Environmental Summary of 2008 DTSC SWMU Nos. 3 and 4,
(1997 DTSC SWMU Nos. 1 and 2)
Buildings 272 & 282
Former Canoga Park Facility, 8433 Fallbrook Avenue, Canoga Park California

Description (per June 5, 1997 DTSC Letter)	Reports	Environmental Investigations/ Remedial Actions	Current Status/ Recommendation
SWMU No. 3: Building 272			
• Built in early 1960s. • Chemical storage of various solvents, acids, bases, caustic, flammable/nonflammable liquids since 1979. • From 1986-1989 served as satellite accumulation area for hazardous waste.	Report: *Results of Subsurface Investigation and Monitoring Program, Hughes Aircraft Company, Missile Systems Group, Canoga Park, California* (Hargis & Associates, Inc., May 3, 1989) Report: *Potential Source Area Investigation Report for the Hughes Missiles Systems Group, Canoga Park, California* (McLaren-Hart, November 30, 1989) Report: *Summary Report of Supplemental Sampling and Analysis Performed at the Location of Former Buildings 269, 272, and 282* (Fluor Daniel GTI, 1998)	• Suspected source of VOC contamination in northern portion of Site. • October 1988 soil gas survey – maximum concentrations of chlorinated VOCs detected adjacent to Buildings 272 & 282. • During subsurface investigation around Tanks T1 & T2 (east of Building 272), soil samples collected – TPH and BTEX constituents detected at elevated levels in soil; BTEX also detected in groundwater. • May 1998 – 8 soil gas samples collected within footprint of former Buildings 272 & 282; VOCs nondetect (except for one trace detection of Freon 11).	Remediation of soil shown to be completed by absence of VOCs in 1998 and by absence of VOCs in SVE vapor stream. Remediation of groundwater in vicinity of Bldg 272 currently being conducted under LARWQCB in accordance with CAP & CAP addendum. EISB was implemented in October 2005 with positive results in downgradient wells. Concentrations in well CM-13 have been below CAP goals since 11/05. Well MW-15 has been non-detect since 7/06. Should be removed from list because building has been shown to not be a source of VOCs and was demolished prior to 1998. The underlying groundwater plume is part of the "northwest" Tank T3 plume.

Table 1C
Environmental Summary of 2008 DTSC SWMU Nos. 3 and 4,
(1997 DTSC SWMU Nos. 1 and 2)
Buildings 272 & 282
Former Canoga Park Facility, 8433 Fallbrook Avenue, Canoga Park California

Description (per June 5, 1997 DTSC Letter)	Reports	Environmental Investigations/ Remedial Actions	Current Status/ Recommendation
SWMU No. 4: Building 282			
• Built in 1966 for use as vehicle maintenance garage. • Two hydraulic lifts installed in 1986. • Chemical storage included gasoline (BTEX), ethylene dichloride, motor oil, antifreeze, kerosene, hydraulic fluid. • Tank T17 was installed in Building 282 in 1971 for hydraulic storage; removed in 1985.	Report: *Results of Subsurface Investigation and Monitoring Program, Hughes Aircraft Company, Missile Systems Group, Canoga Park, California* (Hargis & Associates, Inc., May 3, 1989) Report: *Potential Source Area Investigation Report for the Hughes Missiles Systems Group, Canoga Park, California* (McLaren-Hart, November 30, 1989) Report: *Hydraulic Lift Soil Investigation Work Plan for Hughes Missile Systems Group* (American Environmental Management Corporation, November 8, 1991) Report: *Hydraulic Lift Soil Remediation Report for Hughes Missile Systems Group* (American Environmental Management Corporation, March 25, 1992) Report: *Summary Report of Supplemental Sampling and Analysis Performed at the Location of Former Buildings 269, 272, and 282* (Fluor Daniel GTI, 1998)	• Suspected source of VOC contamination in northern portion of Site. • Soil samples collected from boring advanced in footprint of former hydraulic oil Tank T17; no detectable hydrocarbons. • October 1988 soil gas survey – maximum concentrations of chlorinated VOCs detected adjacent to Buildings 272 & 282. • December 1991 –hydraulic lift removed from building; soil excavated until confirmation samples fell below 100 ppm for TPH (approximately 8 ft below ground surface). • During subsurface investigation around Tanks T1 & T2 (north of Building 282), soil samples collected – TPH and BTEX constituents detected at elevated levels in soil; BTEX also detected in groundwater. • May 1998 – 8 soil gas samples collected within footprint of former Buildings 272 & 282; VOCs nondetect (except for one trace detection of Freon 11).	Remediation of soil shown to be completed by absence of VOCs in 1998 and by absence of VOCs in SVE vapor stream. Remediation of groundwater in vicinity of Bldg 282 currently being conducted under LARWQCB in accordance with CAP & CAP addendum. EISB was implemented in October 2005 with positive results in downgradient wells. Concentrations in well CM-13 have been below CAP goals since 11/05. Well MW-15 has been non-detect since 7/06. Should be removed from list because building has been shown to not be a source of VOCs and was demolished prior to 1998. The underlying groundwater plume is part of the "northwest" Tank T3 plume..

Notes:
BTEX = benzene, toluene, ethylbenzene and xylene
CAP = Corrective Action Plan
LARWQCB = Los Angeles Regional Water Control Board
ppm = parts per million
SWMU = solid waste management unit
SVE = soil vapor extraction
TPH = total petroleum hydrocarbons
VOCs = volatile organic compounds

Table 1D
Environmental Summary of 2008 DTSC SWMU No. 5
(1997 DTSC SWMU No. 3)
Pits P1 & P2 at Building 269
Former Canoga Park Facility, 8433 Fallbrook Avenue, Canoga Park California

Description (per June 5, 1997 DTSC Letter)	Reports	Environmental Investigations/ Remedial Actions	Current Status/ Recommendation
• P1 installed in 1981; • P2 installed in 1959; • P1 had 1,680 gallon capacity; stored photographic process waste; • P2 had 1,440 gallon capacity; stored neutralized acids from plating operations; • Both were concrete with polypropylene welded liner.	Report: *Potential Source Area Investigation Report for the Hughes Missiles Systems Group, Canoga Park, California* (McLaren-Hart, November 30, 1989) Report: *Report on Soil Gas Survey,* Former Hughes Missiles Systems Company, Canoga Park, California (GTI , August 1, 1995) Report: *Summary Report of Supplemental Sampling and Analysis Performed at the Locations of Former Buildings 269, 272 and 282* (Fluor Daniel GTI, 1998) Report: *Sampling and Analysis Plan for Follow-On Investigation, Former Building 269*, Former Raytheon Systems Company, Canoga Park, California (IT Corporation, 1999) Report: *Additional Site Assessment Report for Former Building 269 Location*, Former Raytheon Systems Company, Canoga Park, California (IT Corporation, April 1999)	• DTSC suspects possible release of PCE to groundwater and beryllium and cadmium to soil from Pits P1 and P2. • 1993 – soil samples collected near pits for metals analysis; no detected metals above TTLC or STLC values, although beryllium and cadmium detected above HWSA background-performance based standards; these standards are more strict than USEPA Region IX PRGs for industrial soil. • June 1995 – soil gas sampling near pits for VOC analysis; only one sample reported detectable concentrations (DCE at 4.0 ppb). • 1997 – soil samples collected near pits for metals and VOC analyses near Pit P2; all VOCs nondetect, metals below background. • May 1998 – subsurface sampling within footprint of Building 269, including areas which fed pits, for metals and VOC analyses; all metals considered within background, VOCs detected in southeast and east side of Building 269 • Pits abandoned during Building demolition in 1998.	PCE in groundwater in vicinity of Pits sourced to operations conducted within Bldg 269; more recent metal analyses of soil indicate metal concentrations below background. Remediation of VOC-impacted groundwater and soil in this area currently being conducted under LARWQCB in accordance with CAP & CAP addendum. EISB was implemented in October 2005.

Notes:
CAP = Corrective Action Plan
DTSC = Department of Toxic Substance Control
HWSA = hazardous waste storage area
LARWQCB = Los Angeles Regional Water Control Board
ppb = parts per billion
PCE = tetrachloroethene
PRG = preliminary remediation goal
STLC = solid threshold limit concentration
SWMU = solid waste management unit
TTLC = total threshold limit concentration
USEPA = United States Environmental Protection Agency
VOCs = volatile organic compounds

Table 1E
Environmental Summary of 2008 DTSC SWMU No. 8
(1997 DTSC SWMU No. 6)
Former Pump Island Near Buildings 272 & 282; Tanks T1 & T2
Former Canoga Park Facility, 8433 Fallbrook Avenue, Canoga Park California

Description (per June 5, 1997 DTSC Letter)	Reports	Environmental Investigations/ Remedial Actions	Current Status/ Recommendation
• Tank T1 installed in 1974. • Tank T2 installed in 1975. • Tank T1 had 12,000 gallon capacity; stored unleaded gasoline. • Tank T2 had 10,000 gallon capacity; stored leaded gasoline. • Both were concrete tanks with polypropylene welded liner.	Report: *Potential Source Area Investigation Report for the Hughes Missiles Systems Group, Canoga Park, California* (McLaren-Hart, November 30, 1989) Report: *Underground Storage Tank Closure Report for Hughes Missile Systems Group* (American Environmental Management Corporation, September 11, 1991) Report: *Gasoline Contamination Site Assessment for Hughes Missile Systems Group* (American Environmental Management Corporation, October 28, 1991) Report: *Summary Report of Supplemental Sampling and Analysis Performed at the Location of Former Buildings 269, 272, and 282* (Fluor Daniel GTI, 1998)	• Suspected source of VOC contamination in northern portion of Site. • October 1990 – tank integrity performed; tanks tight, but fill spout and adjoining piping suspect; Tank T2 emptied. • April 1991 – Tank T1 emptied. • July 1991 – both tanks removed; gasoline discovered in soil in pump island area (beneath the dispenser); backfilled with clean stockpiled soil. • July/August 1991 – soil samples collected and monitoring well (MW-23) installed for VOCs and TPH analyses; TPH detected above 100 ppm; BTEX constituents detected at elevated levels in both soil and groundwater; it was recommended that 200 to 300 cubic yards of impacted soil be excavated.	Soil and groundwater fully remediated as indicated by the absence of petroleum hydrocarbons in SVE samples and groundwater samples. Bldgs 272 and 282 were demolished prior to 1998 and the two USTs were removed in 1991. Should be removed from list as corrective action goals have been achieved.

Notes:
BTEX = benzene, toluene, ethylbenzene and xylene
ppm = parts per million
SWMU = solid waste management unit
SVE = soil vapor extraction
TPH = total petroleum hydrocarbons
VOCs = volatile organic compounds

Table 1F
Environmental Summary of 2008 DTSC Site AOC No. 4
(1997 DTSC AOC No. 5)
Building 269 Interior: Plating Pit, Drains, Sumps, Degreaser Exterior Clarifier Pit and Feeder Sewer Lines
Former Canoga Park Facility, 8433 Fallbrook Avenue, Canoga Park California

Description (per June 5, 1997 DTSC Letter)	Reports	Environmental Investigations/ Remedial Actions	Current Status/ Recommendation
• Building 269 contained 16 chemical use areas, including cleaning, vapor & liquid degreasing, bonding, metal machining, plating, painting, etching, soldering, photographic developing and laboratory operations.	Report: *Results of Subsurface Investigation and Monitoring Program, Hughes Aircraft Company Missile Systems Group, Canoga Park, California* (Hargis and Associates, Inc., May 3, 1989) Report: *Potential Source Area Investigation Report for the Hughes Missiles Systems Group, Canoga Park, California* (McLaren-Hart, November 30, 1989) Report: *Report on Facility-Wide Site Assessment*, Hughes Missile Systems Company, Canoga Park, California (GTI, January 4, 1994) Report: *Report on Soil Gas Survey,* Former Hughes Missiles Systems Company, Canoga Park, California (GTI , August 1, 1995) Report: *Summary Report of Supplemental Sampling and Analysis Performed at the Location of Former Buildings 269, 272, and 282,* Former Raytheon Systems Company, Canoga Park, California (Fluor Daniels GTI, 1998) Report: *Additional Site Assessment Report Sampling and Analysis for Former Building 269 Location*, Former Raytheon Systems Company, Canoga Park, California (IT Corporation, April 1999)	• DTSC believes Building 269 is a possible source of VOC contamination in northern portion of Site. • October 1988 – subsurface investigation conducted; 2 soil gas samples collected north and northeast of Bldg 269; 4 soil gas samples collected along "feeder" sewer line; only trace levels of VOCs detected with exception to one sample collected adjacent to northeast corner of Building 269 (PCE and TCE detected up to 24 ppb). • 1993 – soil samples collected along east side of bldg near Pits P1 & P2; no metals detected above TTLC or STLC values, but beryllium and cadmium detected above HWSA background performance standards. • June 1995 – soil samples collected along east side of bldg and one along "feeder" sewer line for VOC analysis; only one sample (collected next to Pit P1) reported detectable VOCs. • 1997 – soil samples collected near Pit P2 and in southwest corner of Building 269; all VOCs nondetect, and metals below background. • May 1998 – post building demolition (concrete floor was removed to soil); soil, soil gas and groundwater samples collected in former building footprint; all detected metals considered within background range; VOCs detected in all 3 media along the east/southeast side of former Building 269.	Building 269 demolished; concrete disposed offsite. Conclusion of 1998/99 investigative work indicates no residual metal contamination; although VOC-contaminated soil and groundwater identified. VOC contamination has been completely delineated, and remediation is currently being conducted under LARWQCB in accordance with CAP & CAP addendum.

Table 1F
Environmental Summary of 2008 DTSC Site AOC No. 4
(1997 DTSC AOC No. 5)
Building 269 Interior: Plating Pit, Drains, Sumps, Degreaser Exterior Clarifier Pit and Feeder Sewer Lines
Former Canoga Park Facility, 8433 Fallbrook Avenue, Canoga Park California

Description (per June 5, 1997 DTSC Letter)	Reports	Environmental Investigations/ Remedial Actions	Current Status/ Recommendation
		• March 1999 – additional soil and groundwater samples collected within footprint of former bldg; no VOCs detected in soil samples, only one groundwater sample collected in northeast of building reported detectable VOCs; soil and groundwater impacts to south/southwestern area of building delineated and minor impact to groundwater in northeast of former bldg identified.	

Notes:
AOC = area of concern
CAP = Corrective Action Plan
DTSC = Department of Toxic Substance Control, State of California
HWSA = hazardous waste storage area
LARWQCB = Los Angeles Regional Water Control Board
PCE = tetrachloroethene
ppb = parts per billion
STLC = solid threshold limit concentration
SWMU = solid waste management unit
TCE = trichloroethene
TTLC = total threshold limit concentration
USEPA = United States Environmental Protection Agency
VOCs = volatile organic compounds

Table 1G
Environmental Summary of 2008 DTSC AOC No. 11
(1997 DTSC AOC No. 13)
Tank T14 Area
Former Canoga Park Facility, 8433 Fallbrook Avenue, Canoga Park California

Description (per June 5, 1997 DTSC Letter)	Reports	Environmental Investigations/ Remedial Actions	Current Status/ Recommendation
• 85-gallon aboveground tank; installed in 1980 inside Bldg 269 • Later converted to 60-gallon tank in 1986. • Dedicated to laboratory for solvent waste storage (acetone, TCA, isopropyl alcohol)	Report: *Potential Source Area Investigation Report for the Hughes Missiles Systems Group, Canoga Park, California* (McLaren-Hart, November 30, 1989) Report: *Summary Report of Supplemental Sampling and Analysis Performed at the Location of Former Buildings 269, 272, and 282* (Fluor Daniel GTI, 1998)	• October 1988 – soil gas samples collected in vicinity of Tank T14; all VOCs nondetect except for trace levels of PCE, TCE and TCA (<0.1 µg/L). • 1993 – soil samples collected; VOCs nondetect, and metals below TTLC and STLC. • June 1995 – soil gas samples collected near former Tanks T12 & T13, downgradient of Tank T14; only one sample contained detectable VOCs (DCE at 1.0 ppb). • 1997 – soil samples collected inside Bldg 269 upgradient of Tank T14; VOCs nondetect, and metal concentrations below background. • 1998 – subsurface investigation of Bldg 269, which included sample collection in vicinity of Tank T14 did not indicate evidence of residual soil contamination from Tank T14. • Downgradient wells CM-6D and RW-9 have been historically nondetect for VOCs.	There does not appear to be any evidence of chemical release from Tank T14. Should be removed from AOC/SWMU list.

Notes:
AOC = area of concern
DCE = 1,1-Dichloroethene
PCE = tetrachloroethene
ppb = parts per billion
STLC = solid threshold limit concentration
SWMU = solid waste management unit
TCE = trichloroethene
TCA = 1,1,1-Trichloroethane
TTLC = total threshold limit concentration
µg/L = micrograms per Liter
VOCs = volatile organic compounds

Table 4. List of Building-by-Building Chemical Usage/Waste Generation

Building	Chemicals Used
261	none
262	cleaning fluids, solvents (TCA, dichloromethane), paint, lubricating oil
263	paint, lacquers, solvents (TCA), degreasers
264 (dining room)	none
265	spray paint, solvents (TCA, dichloromethane), solder (lead)
268	solvents (TCA, dichloromethane, isoparaffin), lubricants, spray paint, ferric chloride etchant, photographic lab waste (aluminum sulfate, acetic acid, silver), gold-cyanide, solder (lead)
269	degreasers, film processing waste (silver), plating chemicals (copper, tin, nickel, lead, chromium, hydrochloric acid, sulfuric acid, fluoboric acid, chromic acid, gold-cyanide), solvents (TCE, TCA, IPA), nitric acid, ferric chloride etchant, iodine, potassium iodide, ceric sulfate, ammonium persulfate, epichlorohydrin, ethylene dichloride, benzene, mineral oil
270	degreasers, solvents (TCA, dichloromethane), sulfuric acid, chromic acid, lead borosilicate, solder (lead), ethylene dichloride, benzene, Freon
271	spray paint, solvents (TCA, dichloromethane)
272	storage of various solvents, acids, and bases, other caustic, flammable and nonflammable liquids, miscellaneous drum storage to east of building; also solvent cleaning
274	solvents (TCA), Freon, hydraulic fluid
275 (recreation area)	none
276	solvents (TCA), film processing waste (silver)
277	mineral oil
281	insecticide, antifreeze (ethylene glycol), mineral oil, dichloromethane
282 (garage)	gasoline (benzene, lead, ethylene dichloride), motor oil, antifreeze (ethylene glycol), kerosene, hydraulic fluid
Hazardous Waste Storage Shed (unnumbered)	since 1982: storage of flammable and nonflammable solvents, other flammable liquids, lab packs

TCA = 1,1,1-Trichloroethane
TCE = Trichloroethene
IPA = Isopropyl Alcohol

Reference: Groundwater Technology, Inc., Phase 1 Environmental Report: Areas of Potential Chemical Release to Soil and Groundwater, December 28, 1993.

Table 5. List of Underground Storage Tanks

Tank	Capacity (gal)	Date Installed	Construction	Materials Held	Status
T-1	12,000	1974	fiberglass, nonvaulted	unleaded gasoline	removed in 1991
T-2	10,000	1975	fiberglass, nonvaulted	leaded gasoline	removed in 1991
T-3	4,000	1979	fiberglass, nonvaulted	waste oil, probable solvent waste	removed in 1988
T-4	135,000	1959	concrete	water only (for sonar testing)	inactive, capped
T-5	500	1959	metal, glass-lined, vaulted	waste oil, sulfuric acid	removed in 1984
T-6	500	1959	metal, glass-lined, vaulted	waste oil, sulfuric acid	removed in 1984
T-7	12,000	1979	fiberglass, nonvaulted	diesel	removed in 1991
T-8	12,000	1979	fiberglass, nonvaulted	diesel	removed in 1991
T-9	12,000	1979	fiberglass, nonvaulted	diesel	removed in 1991
T-10	10,000	1959	metal, nonvaulted	diesel	removed in 1991
T-12	85	1980	fiberglass, nonvaulted	solvent waste	converted to aboveground in 1986
T-13	10,000	1977	fiberglass, nonvaulted	diesel	removed in 1988
T-17	40	1971	metal, vaulted	hydraulic fluid	removed in 1985

Reference: Groundwater Technology, Inc., Phase 1 Environmental Report: Areas of Potential Chemical Release to Soil and Groundwater, December 28, 1993.

Table 6. List of Reports Documenting UST Removal

Title	Date	Author	Subject
Closure Report, Removal of Underground Tanks, Hughes Aircraft Company	Jan. 29, 1985	IT Corporation	describes December 1984 removal of sulfuric acid/waste oil storage tank pair T-5, T-6; NOTE: chlorinated and other VOCs and the semivolatile compound bis(2-ethylhexyl)phthalate were discovered in soil immediately under the tank pair
Final Closure Report, Removal of Underground Tanks, Hughes Aircraft Company	Mar. 12, 1985	IT Corporation	describes excavation of 14 cubic yards of soil from floor of T-5, T-6 tank pit
Tank Disposal Forms	June 15, 1988	American Metal Recycling, Inc.	document the scrapping of tanks T-3 and T-13 (removed by Cal Science Engineering); NOTE: later assessment reports describe petroleum hydrocarbons and chlorinated VOCs in soil around T-3*
Underground Storage Tank Closure Report for Hughes Missile Systems Group	Sept. 11, 1991	American Environmental Management Corp. (AEMC)	describes August 1991 removal of gasoline storage tank pair T-1, T-2; NOTE: gasoline was discovered in soil in pump island area
Diesel Underground Storage Tank Closure Report for Hughes Missile Systems Group	Oct. 28, 1991	AEMC	describes September 1991 removal of diesel storage tank cluster T-7, T-8, T-9 and tank T-10; NOTE: diesel was discovered in soil in the vicinity of tank cluster T-7, T-8, T-9**; no diesel was discovered in soil near T-10

* In September 1991, ENSR Consulting and Engineering excavated 1321 cubic yards of hydrocarbon- and chlorinated VOC-containing soil from the T-3 tank site.

** In January and April-May 1992, AEMC excavated 2153 tons of diesel-containing soil from the T-7, T-8, T-9 tank cluster site.

Reference: Groundwater Technology, Inc., Phase 1 Environmental Report: Areas of Potential Chemical Release to Soil and Groundwater, December 28, 1993.

Table 7. Past Chemical Use and Storage Practices Per Building/Area
Former Raytheon Facility, Canoga Park, California

Building	Room	Chemical Use, Storage and Containment Areas	Chemicals Used or Stored	Time Period	Remarks
271	100	Underground Storage Tank (T-4)	Water (used for sonar testing)	1959 - before 1966	135,000 gallon capacity masonry pit, unlined
Grounds* (260)		Spray Ponds (Cooling)	Chlorine	1959-1984	Water from cooling ponds discharged to the storm sewer system under an NPDES permit #W-34202 issued 9/69
260		Underground Storage Tank (T-3)	Waste Oil	1979-1988	4,000 gallon capacity, fiber-glass, non-vaulted tank
260		Underground Storage Tank (T-5)	Waste Oil, Sulfuric Acid	1959-1984	500 gallon capacity, metal, vaulted, glass-lined tank
260		Underground Storage Tank (T-6)	Waste Oil, Sulfuric Acid	1959-1984	500 gallon capacity, metal, vaulted, glass-lined tank
260		Underground Storage Tank (T-12)	Solvent Waste including Acetone 1,1,1, TCA, Isopropyl Alcohol	1980-1986	85 gallon capacity, fiberglass, non-vaulted tank; converted to above ground storage tank in 1986
260		Underground Storage Tank (T-13)	Fuel Oil	1977-1988	10,000 gallon capacity, fiberglass, non-vaulted tank
260		Underground Storage Tank (T-17)	Hydraulic Oil	1971-1985	40 gallon capacity, metal vaulted tank
260		Aboveground Storage Tank (T-14)	Solvent Waste including Acetone, 1,1,1, TCA, Isopropyl Alcohol	1980-1986	85 gallon capacity tank, converted to 60 gallon capacity tank in 1986

[1] usage less than or equal to 1 gal/year
*Building 260 is equivalent to the general grounds area of the Facility

Table 7. Past Chemical Use and Storage Practices Per Building/Area
Former Raytheon Facility, Canoga Park, California (continued)

Building	Room	Chemical Use, Storage and Containment Areas	Chemicals Used or Stored	Time Period	Remarks
269	1115A	Degreaser	1,1,1 TCA	1967-1985	Permit allowed 1,1,1 TCA, Methylene Chloride, Trichloro-flouroethane
269	1005A	Film Processing Sinks	Silver	1959-1982	
269	1125, 1125A,B 1145, 1145A	Plating Room	Copper, Nickel, HCl, Chromic Acid, Gold-cyanide	1959- ?	Degreaser and clarifier pit present (1125A & B, 1145A currently room 1125C)
269	1175	Etcher	?	? - 1985	
269	1295B,C	Cleaning Station	TCE, TCA, isopropyl alcohol, resists, thinner, developer, HCl, Nitric Acid, iodine, potassium iodine, ceric sulfate, ammonium persulfate	?	Active in 1971, was dismantled sometime before 1979
269	1475C	Cleaning Station	TCE, TCA, isopropyl alcohol, resists, thinner, developer, HCl, Nitric Acid, idodine, potassium iodine, ceric sulfate, ammonium persulfate	?	Active in 1971, was dismantled sometime before 1979
269	1570	Spray Paint	Epochlorohydrin Chromium	?-1989	57 gal/yr.
269	1570A	Painting/Coating Painting/Coating	Chromium Lead	?-1989 ?-1989	18 gal/yr.

Table 7. Past Chemical Use and Storage Practices Per Building/Area
Former Raytheon Facility, Canoga Park, California (continued)

Building	Room	Chemical Use, Storage and Containment Areas	Chemicals Used or Stored	Time Period	Remarks
270	1138C	Degreaser	1,1,1 TCA	1983-1985	Permit allowed use of 1,1,1 TCA, Methylene Chloride & Trichloro-flouroethane
268	2280D	Gold Plating	Gold-cyanide	?	Room construction modified 10/12/87
268	1348	Wave Solder Vapor Phase Solder	Lead Lead	?-1988 ?-1988	Active 1981
272	East of garage storage building	Drum Storage Area	?	?	Active in a 1965 aerial photograph; area unbermed, paved; drums were not placed on wooden pallets
262	1280	Cleaning Solvent Cleaning Spray Paint, Coating, Lubrication	1,1,1 TCA Dichloromethene Dichloromethane	?--1987	1 1 1
263	1300	Paint Spray Room	?	?-1987	In 1987, moved to Bldg. 271, Room 350
265	1390	Spray Painting/Coating	Dichloromethane	?-1987	
265	1188	Spray Painting/Coating Lubrication	Dichloromethane	?-1988	
Grounds* 260	-	Aboveground Storage Tank (T-12)	Solvent Waste Including Acetone, 1,1,1 TCA, Isopropyl Alcohol	1986-present	60 gallon capacity

*Building 260 is equivalent to the general grounds area of the Facility

Table 7. Past Chemical Use and Storage Practices Per Building/Area
Former Raytheon Facility, Canoga Park, California (continued)

Building	Room	Chemical Use, Storage and Containment Areas	Chemicals Used or Stored	Time Period	Remarks
Grounds* (260)	-	Aboveground Storage Tank (T-14)	Solvent Waste Including Acetone, 1,1,1 TCA, Isopropyl Alcohol	1986-present	60 gallon capacity
260	-	Underground Storage Tank (T-1)	Gasoline	1974-present	12,000 gallon capacity
260	-	Underground Storage Tank (T-1)	Gasoline	1975-present	10,000 gallon capacity
260	-	Underground Storage Tanks (T-7, T-8, T-9)	Fuel Oil	1979-present	12,000 gallon capacity
260	-	Underground Storage Tank (T-10)	Fuel Oil	1959-present	10,000 gallon capacity
260	-	Underground Waste Sump (P-1)	Photographic Process Waste	1981-present	1,683 gallon capacity, polypropylene-lined concrete sump
260	-	Underground Non-waste Sump (P-2)	Neutralized Acids Plating Rinse Water	1959-present	Polypropylene-lined concrete sump
262	1292	Cleaning	1,1,1 TCA	?-present	1
262	1208	Cleaning Solvent Cleaning	1,1,1 TCA Dichloromethene	?-present	1 1
262	130A	Paint Storage	Dichloromethane	?-present	500 gal/yr.**

1usage less than or equal to 1 gal/year
2usage less than or equal to 5 gals/year
* Building 260 is equivalent to the general grounds of the Facility
**Approximate usage

Table 7. Past Chemical Use and Storage Practices Per Building/Area
Former Raytheon Facility, Canoga Park, California (continued)

Building	Room	Storage and Containment Areas	Used or Stored	Time Period	Remarks
271	120	Paint Spray Booth	1,1,1 TCA Dichloromethane	1986-present	430 gal/yr.*
263	Carpenter Shop	Flammable Materials Storage Area	Paint, Lacquers Solvents	?-present	Active 1966
263	1302	Boiler Room Cleaning, Degreaser	Solvent 1,1,1 TCA	?-present ?-present	2
281	211	Controlled Material Stores, Insecticide	Dichloromethane	?-present	1
281	1261	Maintenance Shop Metal Machining	Mineral Oil	?-present	4 gal/yr.*
		Antifreeze	Ethylene Glycol	?-present	24 gal/yr.*
265	2310	Cleaning Soldering	1,1,1 TCA Lead	?-present	1
265	1188	Solvent Cleaning	Dichloromethene	?-present	2
265	3174	Cleaning Soldering	1,1,1 TCA Lead	?-present	1
274	305	Solvent Cleaning	1,1,1 TCA, Freon, Hydraulic fluid	?-present	2
276	1252	Cleaning	1,1,1 TCA	?-present	5 gal/yr.*
276	1282	Developer, Fixer	Silver	?-present	60 gal/yr.*
277	1528	Lubrication	Mineral Oil	?-present	2
268	3002 1176	Solvent Cleaning, Spray Painting/Coating Lubrication	Dichloromethane	?-present	1
268	2378	Spray Painting/Coating, Lubrication	Dichloromethane	?-present	1
		Solvent Cleaning	Dichloromethene	?-present	2

1usage less than or equal to 1 gal/year
2usage less than or equal to 5 gals/year
*Approximate usage

Table 7. Past Chemical Use and Storage Practices Per Building/Area
Former Raytheon Facility, Canoga Park, California (continued)

Building	Room	Containment Areas	or Stored	Period	Remarks
268	1348	Solvent Cleaning,	Dichloromethene	?-present	1
268	2208	Cleaning	1,1,1 TCA	?-present	1
		Solvent Cleaning	Dichloromethane	?-present	1
268	2284	Cleaning	1,1,1 TCA	?-present	1
268	2290	Cleaning	1,1,1 TCA	?-present	1
268	2292	Solvent Cleaning	Dichloromethene	?-present	2
268	2305	Electrostatic Plating (Toner)	Isoparifinic hydrocarbon solvent	?-present	
268	1286	Solvent Cleaning	Dichloromethene	?-present	2
268	600B	Solvent Cleaning Spray Painting/Coating, Lubrication	Dichloromethane	?-present	2
268	1220	Solvent Cleaning	Dichloromethene	?-present	16 gal/yr.*
		Cleaning	1,1,1 TCA	?-present	1
268	2268	Solvent Cleaning	Dichloromethene	?-present	2
268	2226	Solvent Cleaning	Dichloromethene	?-present	
268	2274	Solvent cleaning	Dichloromethene	?-present	2
			1,1,1 TCA	?-present	1
			Dichloromethane	?-present	
268	2220D 2220C	Vapor Degreaser Copper Etch Bench	1,1,1 TCA (?) Ferric Chloride	?-present	Active 1982
268	2280	Degreaser	1,1,1 TCA	?-present	Previously gold plating conducted here (See Table IA).
		Cleaning	1,1,1 TCA		
268	2220	Clarifier (Mic Lab)	Aluminum Sulfate, Acetic Acid, Silver	1984-present	Receives waste from Mic Lab (Rooms 2220A through E)
		Etcher	Ferric Chloride	?-present	
		Degreaser	1,1,1 TCA	?-present	

*Approximate usage

Table 7. Past Chemical Use and Storage Practices Per Building/Area
Former Raytheon Facility, Canoga Park, California (continued)

Building	Room	Chemical Use, Storage and Containment Areas	Chemicals Used or Stored	Time Period	Remarks
269	1475	Cleaning	1,1,1 TCA	1984-present	20 gal/yr.*
269	1348B	Vapor Degreaser	1,1,1 TCA	?-present	
269	1565B	Degreaser	1,1,1 TCA	?-present	
269	1400	Developer, Fixer	Silver	?-present	72 gal/yr.*
269	1295A	Laboratory Operations	Benzene	?-present	1
269	1255	Metal Machining	Mineral Oil	?-present	457 gal/yr.*
	1175	Vapor Degreaser	1,1,1 TCA	?-present	260 gal/yr.*
269	1175	Chrome Plating	Chromium	?-present	50 lbs/year*
		Two Etchers	Ferric Chloride	?-present	
		Hot Oil Solder Tank	Lead	1984-present	
		Process Plating	(Lead, Copper, Tin, Nickel, Gold, Sulfuric Acid, Fluoboric Acid, HCl, Cyanide)		
269	1005A	Bonding	Epochlorohydrin	?-present	
		Bonding	Ethylene Dichloride	?-present	
269	1040	Photo Lab Developer Replenisher	Silver	?-present	500 gal/yr.*
269	1005	Painting/Coating	Chromium	?-present	
	1115A	Vapor Degreaser	1,1,1 TCA	?-present	100 gal/yr.*
270	2015	Degreaser	1,1,1 TCA (?)	?-present	
		Cleaning	1,1,1 TCA	?-present	
		Bonding	Ethylene Dichloride	?-present	1
		Solvent cleaning	Dichloromethane	?-present	1
		Equipment Cleaning	Chromic/Sulfuric Acids	?-present	1
270	2025	Lead Screening	Lead Borosilicate	?-present	
270	1213	Spray Painting/Coating, Lubrication	Dichloromethane	?-present	1

*Approximate usage

Table 7. Past Chemical Use and Storage Practices Per Building/Area
Former Raytheon Facility, Canoga Park, California (continued)

Building	Room	Storage and Containment Areas	Used or Stored	Time Period	Remarks
270	1056	Solvent Cleaning	Dichloromethane	?-present	2
270	2024B	Vapor Degreaser	1,1,1 TCA	?-present	900 gal/yr.*
	2034	Solvent Cleaning	Dichloromethane	?-present	1
270	2034A	Wave Soldering Machine	Lead	?-present	
		Vapor Phase Soldering Machine	Lead	?-present	
270	2404	Solvent Cleaning	Dichloromethane	?-present	1
270	1200	Vapor Degreaser	1,1,1 TCA	?-present	903 gal/yr.*
270	1138	Laboratory Operations	Benzene	?-present	1
		Two Vapor Degreasers	1,1,1 TCA	?-present	100 gal/yr.*
		Spray Painting/Coating, Lubrication	Dichloromethane	?-present	1
		Coolant	Freon	?-present	
270	1636, 1504	Solvent Cleaning	Dichloromethane	?-present	1
282	Garage	Gasoline Dispensing	Benzene	1966-present	
		Gasoline Dispensing	Ethylene Dichloride	1966-present	4,700 gal/yr.*
		Gasoline Dispensing	Unleaded Gasoline	1966-present	56,400 gal/yr.*
		Lubrication	Motor Oil		330 gal/yr.*
		Antifreeze	Ethylene glycol		24 gal/yr.*
		Gasoline Dispensing	Leaded gasoline		14,800 gal/yr.*
			Kerosene		55 gal/yr.*
272	All	Hazardous Materials Storage	Non-flammable Solvents	Prior to 1979-present	
			Caustic chemicals		
			Flammable liquids		
			Non-flammable materials		
		Waste Storage	Acid Waste Storage	1987-present	
			Base Waste Storage		
			TCE		
272	100	Solvent Cleaning	Dichloromethane	?-present	

*Approximate usage

Table 7. Past Chemical Use and Storage Practices Per Building/Area
Former Raytheon Facility, Canoga Park, California (continued)

Building	Room	Storage and Containment Areas	Used or Stored	Time Period	Remarks
Unnumbered	53	Hazardous Waste Storage Shed	Flammable Solvents Lab Packs, Non-flammable Solvents, Flammable Liquids	1982-present	

*Approximate usage

Reference: McLaren Hart, Potential Source Area Investigation, November 30, 1989.
"Time period" of "present" indicates through at least November 1989.

Table 2A
Environmental Summary of 2008 DTSC SWMU No. 9
(1997 DTSC SWMU No. 7)
Sanitary Sewer Line
Former Canoga Park Facility, 8433 Fallbrook Avenue, Canoga Park California

Description (per June 5, 1997 DTSC Letter)	Reports	Environmental Investigations/ Remedial Actions	Current Status/ Recommendation
• Facility's main sewer line; section west of Building 277. • Elevated arsenic concentration detected in soil sample collected from boring B-SL-4.	Report: *Report on Facility-Wide Site Assessment*, Hughes Missile Systems Company, Canoga Park, California (GTI, January 4, 1994)	• Suspected source of arsenic. • 1993 – soil samples collected along main sewer line for VOC and metals analyses; all VOCs non-detect except for trace level (0.009 mg/kg) of toluene; metals below TTLC values; however, arsenic was detected at 42 mg/kg (above background closure performance standard of 28 mg/kg). • Sample with elevated arsenic collected at 5 ft bgs (*above* the sewer line) from boring B-SL-4; 10 ft sample collected beneath the sewer line reported arsenic at only 8 mg/kg. • Such elevated arsenic levels not unusual for sediments of marine origin, such as those found at the Site; in addition, Site was previously cultivated farmland which likely introduced arsenic by way of agricultural products.	Arsenic naturally occurring – this SWMU should be removed from the AOC/SWMU list.

Notes:
AOC = area of concern
mg/kg = milligram per kilogram
SWMU = soil waste management unit
TTLC = total threshold limit concentration
VOCs = volatile organic compounds

Table 2B
Environmental Summary of 2008 DTSC AOC No. 1
Building 262 Drains and Feeder Sewer Lines
Former Canoga Park Facility, 8433 Fallbrook Avenue, Canoga Park California

Description (per June 5, 1997 DTSC Letter)	Reports	Environmental Investigations/ Remedial Actions	Current Status/ Recommendation
• Building 262 stored cleaning fluids, solvents, paint and lubricating oil in five rooms. • Suspected source of VOC contamination detected in downgradient well CM-8D.	Report: *Potential Source Area Investigation Report for the Hughes Missiles Systems Group,* Canoga Park, California (McLaren-Hart, November 30, 1989) Report: *Report on Soil Gas Survey,* Former Hughes Missiles Systems Company, Canoga Park, California (GTI , August 1, 1995) Annual Groundwater Monitoring and Groundwater Remediation System Reports Submitted through 2007	• Bldg 262 is suspected by DTSC of being a potential source of VOC contamination detected in well CM-8D. • Well MW-24 installed southeast of Building 262 along "feeder" sewer line; soil samples collected for VOCs analysis during installation – no VOCs detected; groundwater samples collected to date all nondetect for VOCs (except for one detect of chloroform, which is a possible lab contaminant, in 2001). • June 1995 – soil gas survey; DCE detected at 1 ppb in two samples (located in or immediately adjacent to former Tanks T5 & T6), all others nondetect. • Reduction in VOC concentrations in this well over the years suggests natural attenuation. • Any remobilization of soil contaminants to groundwater through a hypothetical leakage in the "feeder" sewer line has not occurred as DCE levels in well CM-8D have generally reduced over the years despite renewed use of building.	Source of VOCs detected in well CM-8D unclear (could be former loading dock adjacent to east side of Building 264); documented natural attenuation might make it difficult to now identify an original point source Unknown source is mitigated by natural attenuation and active treatment of downgradient concentrations near well CM-8D. EISB implemented in December 2006 with positive results at well CM-8D with VOC concentrations below CAP goals since May 2007.

Notes:
AOC = area of concern
DCE = 1,1-Dichloroethene
DTSC = Department of Toxic Substance Control
EISB = enhanced *in-situ* bioremediation
VOCs = volatile organic compounds

Table 2C
Environmental Summary of 2008 DTSC AOC No. 2
Building 263 Drains and Feeder Sewer Lines
Former Canoga Park Facility, 8433 Fallbrook Avenue, Canoga Park California

Description (per June 5, 1997 DTSC Letter)	Reports	Environmental Investigations/ Remedial Actions	Current Status/ Recommendation
• Building 263 contained a spray paint room (paint) and a carpenter shop (lacquers and solvents); • A portable degreaser and solvents were also stored in the building's boiler room.	Report: *Potential Source Area Investigation Report for the Hughes Missiles Systems Group, Canoga Park, California* (McLaren-Hart, November 30, 1989) Report: *Report on Soil Gas Survey,* Former Hughes Missiles Systems Company, Canoga Park, California (GTI , August 1, 1995) Annual Groundwater Monitoring and Groundwater Remediation System Reports Submitted through 2007	• Building 263 is suspected by DTSC of being a potential source of VOC contamination detected in well CM-8D. • Well CM-18 installed southwest of Bldg 263; only trace-level VOCs detected. • June 1995 – soil gas survey; 3 probes placed west and south of Building 263; probe also placed along building's "feeder" sewer line; no VOCs detected. • Of note: 2 probes were placed in or immediately adjacent to former Tank T10 pit southeast of Building 263, another downgradient of well CM-8D; no VOCs detected. • Reduction in VOC concentrations in this well over the years suggests natural attenuation. • Any remobilization of soil contaminants to groundwater through a hypothetical leakage in the "feeder" sewer line has not occurred as DCE levels in well CM-8D have generally reduced over the years despite renewed use of building.	Source of VOCs detected in well CM-8D unclear (could be former loading dock adjacent to east side of Building 264); documented natural attenuation might make it difficult to now identify an original point source. Unknown source is mitigated by natural attenuation and active treatment of downgradient concentrations near well CM-8D. EISB implemented in December 2006 with positive results at well CM-8D with VOC concentrations below CAP goals since May 2007.

Notes:
AOC = area of concern
DCE = 1,1-Dichloroethene
DTSC = Department of Toxic Substance Control
EISB = enhanced *in-situ* bioremediation
VOCs = volatile organic compounds

Table 2D
Environmental Summary of 2008 DTSC AOC No. 3
Building 265 Drains and Feeder Sewer Lines
Former Canoga Park Facility, 8433 Fallbrook Avenue, Canoga Park California

Description (per June 5, 1997 DTSC Letter)	Reports	Environmental Investigations/ Remedial Actions	Current Status/ Recommendation
• Building 265 contained two chemical use areas [spray paint operations (solvents); soldering (lead)]; • Both operations were terminated by 1988.	Report: *Potential Source Area Investigation Report for the Hughes Missiles Systems Group, Canoga Park, California* (McLaren-Hart, November 30, 1989) Report: *Report on Soil Gas Survey,* Former Hughes Missiles Systems Company, Canoga Park, California (GTI , August 1, 1995) Report: *Additional Site Assessment Report, Sampling and Analysis for Vicinity of CM-10 and Parking Area Adjacent to Building 265, 274, and 276* (Fluor Daniel GTI, 1998)	• Building 265 is suspected by DTSC of being a potential source of Freon-11 contamination detected in well CM-10. • 1993 – soil samples collected downgradient of Bldg 265; no VOCs detected. • 1995 soil gas surveys – Freon-11 soil gas plume delineated in parking area between Buildings 274 & 276; highest concentrations detected along original pavement where Freon-11 may have been spilled. • May 1998 – permanent and temporary monitoring wells installed; Freon-11 contamination in groundwater delineated; highest concentrations detected in well MW-31, which was installed within the Freon-11 soil gas plume "hot spot".	Soil gas plume in parking lot between Buildings 274 & 276 considered to be sole source of Freon-11 contamination in groundwater in vicinity of well CM-10 (probable spill along edge of original pavement in parking area between Buildings 274 & 276). In addition, natural attenuation of Freon-11 in groundwater has been demonstrated (Freon-11 concentrations have been below MCL in well CM-10 since 6/95 and in well MW-31 since 12/99). Bldg 265 should be removed from AOC/SWMU list.

Notes:
AOC = area of concern
DTSC = Department of Toxic Substance Control
MCL = maximum contaminant level
SWMU = solid waste management unit
VOC = volatile organic compounds

Table 2E
Environmental Summary of 2008 DTSC AOC No. 5
(1997 DTSC AOC No. 7)
Building 271 Industrial Waste Clarifier, Drains, and Feeder Sewer Lines
Former Canoga Park Facility, 8433 Fallbrook Avenue, Canoga Park California

Description (per June 5, 1997 DTSC Letter)	Reports	Environmental Investigations/ Remedial Actions	Current Status/ Recommendation
• Contained 2 chemical use areas – spray paint booth and masonry pit (Tank T4). • Spray paint booth operations began in 1986; Tank T4 installed in 1959 and filled with water for sonar testing.	Report: *Potential Source Area Investigation Report for the Hughes Missiles Systems Group,* Canoga Park, California (McLaren-Hart, November 30, 1989) Report: *Report on Soil Gas Survey,* Former Hughes Missiles Systems Company, Canoga Park, California (GTI , August 1, 1995)	• Building 271 is suspected by DTSC of being a potential source for VOCs detected in well CM-8D. • 1994 – well MW-24 installed adjacent to building's "feeder" sewer line to determine source of VOCs in well CM-8D; VOCs historically nondetect. • June 1995 – soil gas samples collected; two samples detected DCE at 1.0 ppb (both located near Tanks T5 & T6). • Reduction in VOC concentrations in this well over the years suggests natural attenuation. • Any remobilization of soil contaminants to groundwater through a hypothetical leakage in the "feeder" sewer line has not occurred as DCE levels in well CM-8D have generally reduced over the years despite renewed use of building.	Source of VOCs detected in well CM-8D unclear (could be former loading dock adjacent to east side of Building 264); documented natural attenuation might make it difficult to now identify an original point source. Unknown source is mitigated by natural attenuation and active treatment of downgradient concentrations near well CM-8D. EISB implemented in December 2006 with positive results at well CM-8D with VOC concentrations below CAP goals since May 2007. Building 271 was demolished and the foundation removed in 2006/2007. This should be removed from the AOC/SWMU list.

Notes:
AOC = area of concern
DCE = 1,1-Dichloroethene
DTSC = Department of Toxic Substance Control, State of California
ppb = parts per billion
VOCs = volatile organic compounds

Table 2F
Environmental Summary of 2008 DTSC AOC No. 7
(1997 DTSC AOC No. 9)
Building 276 Drains and Feeder Sewer Lines
Former Canoga Park Facility, 8433 Fallbrook Avenue, Canoga Park California

Description (per June 5, 1997 DTSC Letter)	Reports	Environmental Investigations/ Remedial Actions	Current Status/ Recommendation
• Constructed in 1986. • 2 chemical use areas – involved cleaning and photographic processing operations. • Aerial photographs indicate that area north of Bldg 274 not paved until at least 1960; between 1963 and 1965, the pavement was extended west to Bldg 276.	Report: *Report on Facility-Wide Site Assessment*, Hughes Missile Systems Company, Canoga Park, California (GTI, January 4, 1994) Report: *Report on Soil Gas Survey,* Former Hughes Missiles Systems Company, Canoga Park, California (GTI , August 1, 1995) Report: *Report on Soil Gas Survey,* Former Hughes Missiles Systems Company, Canoga Park, California (GTI , September, 1995) Report: *Additional Site Assessment Report, Sampling and Analysis for Vicinity of CM-10 and Parking Area Adjacent to Building 265, 274, and 276* (Fluor Daniel GTI, 1998) Annual Groundwater Monitoring and Groundwater Remediation System Reports Submitted through 2007.	• Building 276 is suspected by DTSC as source of Freon-11 in well CM-10. • 1993 – soil samples collected in parking lot for VOCs, hydrocarbons and metals analyses; all VOCs and hydrocarbons nondetect, metals below TTLC and STLC values. • June 1995 – soil vapor survey conducted in parking lot; highest Freon 11 concentration (183 ppb) detected near main sewer line join; Freon-11 concentrations decreased as distance from soil gas plume in parking area increased. • September 1995 – soil vapor survey delineated soil gas plume; highest concentrations (>1,000 ppb) along edge of original pavement north of main sewer line join. • May 1998 – Freon 11 groundwater investigation; highest concentrations (>150 µg/L) detected in center of soil gas plume; groundwater samples collected from temporary well positioned near southeast corner of Building 276 was nondetect for VOCs.	Soil gas plume in parking lot between Buildings 274 & 276 considered to be sole source of Freon-11 contamination in groundwater in vicinity of well CM-10 (probable disposal along edge of original pavement in parking area between Buildings 274 & 276). In addition, natural attenuation of Freon-11 in groundwater has been demonstrated (Freon-11 concentrations have been below MCL in well CM-10 since 6/95 and in well MW-31 since 12/99). Building 276 should be removed from AOC/SWMU list.

Notes:
AOC = area of concern
DTSC = Department of Toxic Substance Control
MCL = maximum contaminant level
ppb = parts per billion
STLC = solid threshold limit concentration
SWMU = solid waste management unit
TTLC = total threshold limit concentration
µg/L = microgram per Liter
VOCs = volatile organic compounds

Table 2G
Environmental Summary of 2008 DTSC AOC No. 8
(1997 DTSC AOC No. 10)
Building 281 Drains and Feeder Sewer Lines
Former Canoga Park Facility, 8433 Fallbrook Avenue, Canoga Park California

Description (per June 5, 1997 DTSC Letter)	Reports	Environmental Investigations/ Remedial Actions	Current Status/ Recommendation
• Constructed in 1986. • Two chemical use areas included maintenance shop (antifreeze) and controlled material storage (insecticides, DCA). • Tanks T7, T8 & T9 located northeast of building; Tank T3 located southwest of building.	Report: *Potential Source Area Investigation Report for the Hughes Missiles Systems Group, Canoga Park, California* (McLaren-Hart, November 30, 1989) Report: *Diesel Tank Limited Subsurface Investigation and Site Remediation* (American Environmental Management Corporation, July 1992) Report: *Report on Soil Gas Survey,* Former Hughes Missiles Systems Company, Canoga Park, California (GTI , August 1, 1995) Annual Groundwater Monitoring and Groundwater Remediation System Reports Submitted through 2007.	• Bldg 281 is suspected by DTSC of being a potential source for VOCs detected in well CM-8D. • Tanks T7, T8, T9 & T10 removed in 1991 (details for those separate). • June 1995 – 4 DTSC-approved soil gas probes advanced south of Building 281 to determine source of VOCs in well CM-8D (2 adjacent to Tank T10; 2 near "feeder" sewer line); two samples reported DCE concentrations of 3.0 ppb. • Wells located north and east of Building 281 historically nondetect for VOCs. • Any remobilization of soil contaminants to groundwater through a hypothetical leakage in the "feeder" sewer line has not occurred as DCE levels in well CM-8D have generally reduced over the years despite renewed use of building.	Source of VOCs detected in well CM-8D unclear (could be former loading dock adjacent to east side of Building 264); documented natural attenuation might make it difficult to now identify an original point source. Unknown source is mitigated by natural attenuation and active treatment of downgradient concentrations near well CM-8D. EISB implemented in December 2006 with positive results at well CM-8D with VOC concentrations below CAP goals since May 2007.

Notes:
AOC = area of concern
DCE = 1,1-Dichloroethene
DTSC = Department of Toxic Substance Control
VOCs = volatile organic compounds

Table 2H
Environmental Summary of 2008 DTSC AOC No. 9
(1997 DTSC AOC No. 11)
Former Tanks T5 & T6
Former Canoga Park Facility, 8433 Fallbrook Avenue, Canoga Park California

Description (per June 5, 1997 DTSC Letter)	Reports	Environmental Investigations/ Remedial Actions	Current Status/ Recommendation
• Both 500-gallon tanks were installed in 1959, northwest of Building 263. • Used for storage of waste oil, sulfuric acid.	Report: *Potential Source Area Investigation Report for the Hughes Missiles Systems Group, Canoga Park, California* (McLaren-Hart, November 30, 1989) Report: *Closure Report, Removal of Underground Tanks, Hughes Aircraft Company* (IT Corporation, January 29, 1985) Report: *Final Closure Report, Removal of Underground Tanks, Hughes Aircraft Company* (IT Corporation, March 12, 1985) Report: *Report on Soil Gas Survey,* Former Hughes Missiles Systems Company, Canoga Park, California (GTI , August 1, 1995)	• Tanks removed by Raytheon in 1984. Chlorinated and other VOCs were discovered in soil immediately under the tank pair. • 1985 – 14 cubic yards of soil excavated from the floor of T5 & T6 tank pit. • 1990 – soil samples collected to 40 ft bgs near Tanks T5 & T6; samples nondetect for VOCs, TPH and TRPH. • 1991 – well CM-18 installed SW of tanks; only trace-level VOCs detected. • October 1994 – soil samples collected; VOCs nondetect. • June 1995 – soil gas samples collected; two samples detected DCE at 1.0 ppb; these concentrations do not constitute strong evidence of VOC source near tanks.	Tanks have been removed and contaminated soil excavated. No impacts to groundwater have been identified. This AOC should be removed from the AOC/SWMU list.

Notes:
AOC = area of concern
DCE = 1,1-Dichloroethene
ppb = parts per billion
SWMU = solid waste management unit
TPH = total petroleum hydrocarbons
TRPH = total recoverable petroleum hydrocarbons
VOCs = volatile organic compounds

Table 4. List of Building-by-Building Chemical Usage/Waste Generation

Building	Chemicals Used
261	none
262	cleaning fluids, solvents (TCA, dichloromethane), paint, lubricating oil
263	paint, lacquers, solvents (TCA), degreasers
264 (dining room)	none
265	spray paint, solvents (TCA, dichloromethane), solder (lead)
268	solvents (TCA, dichloromethane, isoparaffin), lubricants, spray paint, ferric chloride etchant, photographic lab waste (aluminum sulfate, acetic acid, silver), gold-cyanide, solder (lead)
269	degreasers, film processing waste (silver), plating chemicals (copper, tin, nickel, lead, chromium, hydrochloric acid, sulfuric acid, fluoboric acid, chromic acid, gold-cyanide), solvents (TCE, TCA, IPA), nitric acid, ferric chloride etchant, iodine, potassium iodide, ceric sulfate, ammonium persulfate, epichlorohydrin, ethylene dichloride, benzene, mineral oil
270	degreasers, solvents (TCA, dichloromethane), sulfuric acid, chromic acid, lead borosilicate, solder (lead), ethylene dichloride, benzene, Freon
271	spray paint, solvents (TCA, dichloromethane)
272	storage of various solvents, acids, and bases, other caustic, flammable and nonflammable liquids, miscellaneous drum storage to east of building; also solvent cleaning
274	solvents (TCA), Freon, hydraulic fluid
275 (recreation area)	none
276	solvents (TCA), film processing waste (silver)
277	mineral oil
281	insecticide, antifreeze (ethylene glycol), mineral oil, dichloromethane
282 (garage)	gasoline (benzene, lead, ethylene dichloride), motor oil, antifreeze (ethylene glycol), kerosene, hydraulic fluid
Hazardous Waste Storage Shed (unnumbered)	since 1982: storage of flammable and nonflammable solvents, other flammable liquids, lab packs

TCA = 1,1,1-Trichloroethane
TCE = Trichloroethene
IPA = Isopropyl Alcohol

Reference: Groundwater Technology, Inc., Phase 1 Environmental Report: Areas of Potential Chemical Release to Soil and Groundwater, December 28, 1993.

Table 5. List of Underground Storage Tanks

Tank	Capacity (gal)	Date Installed	Construction	Materials Held	Status
T-1	12,000	1974	fiberglass, nonvaulted	unleaded gasoline	removed in 1991
T-2	10,000	1975	fiberglass, nonvaulted	leaded gasoline	removed in 1991
T-3	4,000	1979	fiberglass, nonvaulted	waste oil, probable solvent waste	removed in 1988
T-4	135,000	1959	concrete	water only (for sonar testing)	inactive, capped
T-5	500	1959	metal, glass-lined, vaulted	waste oil, sulfuric acid	removed in 1984
T-6	500	1959	metal, glass-lined, vaulted	waste oil, sulfuric acid	removed in 1984
T-7	12,000	1979	fiberglass, nonvaulted	diesel	removed in 1991
T-8	12,000	1979	fiberglass, nonvaulted	diesel	removed in 1991
T-9	12,000	1979	fiberglass, nonvaulted	diesel	removed in 1991
T-10	10,000	1959	metal, nonvaulted	diesel	removed in 1991
T-12	85	1980	fiberglass, nonvaulted	solvent waste	converted to aboveground in 1986
T-13	10,000	1977	fiberglass, nonvaulted	diesel	removed in 1988
T-17	40	1971	metal, vaulted	hydraulic fluid	removed in 1985

Reference: Groundwater Technology, Inc., Phase 1 Environmental Report: Areas of Potential Chemical Release to Soil and Groundwater, December 28, 1993.

Table 6. List of Reports Documenting UST Removal

Title	Date	Author	Subject
Closure Report, Removal of Underground Tanks, Hughes Aircraft Company	Jan. 29, 1985	IT Corporation	describes December 1984 removal of sulfuric acid/waste oil storage tank pair T-5, T-6; NOTE: chlorinated and other VOCs and the semivolatile compound bis(2-ethylhexyl)phthalate were discovered in soil immediately under the tank pair
Final Closure Report, Removal of Underground Tanks, Hughes Aircraft Company	Mar. 12, 1985	IT Corporation	describes excavation of 14 cubic yards of soil from floor of T-5, T-6 tank pit
Tank Disposal Forms	June 15, 1988	American Metal Recycling, Inc.	document the scrapping of tanks T-3 and T-13 (removed by Cal Science Engineering); NOTE: later assessment reports describe petroleum hydrocarbons and chlorinated VOCs in soil around T-3*
Underground Storage Tank Closure Report for Hughes Missile Systems Group	Sept. 11, 1991	American Environmental Management Corp. (AEMC)	describes August 1991 removal of gasoline storage tank pair T-1, T-2; NOTE: gasoline was discovered in soil in pump island area
Diesel Underground Storage Tank Closure Report for Hughes Missile Systems Group	Oct. 28, 1991	AEMC	describes September 1991 removal of diesel storage tank cluster T-7, T-8, T-9 and tank T-10; NOTE: diesel was discovered in soil in the vicinity of tank cluster T-7, T-8, T-9**; no diesel was discovered in soil near T-10

* In September 1991, ENSR Consulting and Engineering excavated 1321 cubic yards of hydrocarbon- and chlorinated VOC-containing soil from the T-3 tank site.

** In January and April-May 1992, AEMC excavated 2153 tons of diesel-containing soil from the T-7, T-8, T-9 tank cluster site.

Reference: Groundwater Technology, Inc., Phase 1 Environmental Report: Areas of Potential Chemical Release to Soil and Groundwater, December 28, 1993.

Table 7. Past Chemical Use and Storage Practices Per Building/Area
Former Raytheon Facility, Canoga Park, California

Building	Room	Chemical Use, Storage and Containment Areas	Chemicals Used or Stored	Time Period	Remarks
271	100	Underground Storage Tank (T-4)	Water (used for sonar testing)	1959 - before 1966	135,000 gallon capacity masonry pit, unlined
Grounds* (260)		Spray Ponds (Cooling)	Chlorine	1959-1984	Water from cooling ponds discharged to the storm sewer system under an NPDES permit #W-34202 issued 9/69
260		Underground Storage Tank (T-3)	Waste Oil	1979-1988	4,000 gallon capacity, fiber-glass, non-vaulted tank
260		Underground Storage Tank (T-5)	Waste Oil, Sulfuric Acid	1959-1984	500 gallon capacity, metal, vaulted, glass-lined tank
260		Underground Storage Tank (T-6)	Waste Oil, Sulfuric Acid	1959-1984	500 gallon capacity, metal, vaulted, glass-lined tank
260		Underground Storage Tank (T-12)	Solvent Waste including Acetone 1,1,1, TCA, Isopropyl Alcohol	1980-1986	85 gallon capacity, fiberglass, non-vaulted tank; converted to above ground storage tank in 1986
260		Underground Storage Tank (T-13)	Fuel Oil	1977-1988	10,000 gallon capacity, fiberglass, non-vaulted tank
260		Underground Storage Tank (T-17)	Hydraulic Oil	1971-1985	40 gallon capacity, metal vaulted tank
260		Aboveground Storage Tank (T-14)	Solvent Waste including Acetone, 1,1,1, TCA, Isopropyl Alcohol	1980-1986	85 gallon capacity tank, converted to 60 gallon capacity tank in 1986

[1] usage less than or equal to 1 gal/year
*Building 260 is equivalent to the general grounds area of the Facility

Table 7. Past Chemical Use and Storage Practices Per Building/Area
Former Raytheon Facility, Canoga Park, California (continued)

Building	Room	Chemical Use, Storage and Containment Areas	Chemicals Used or Stored	Time Period	Remarks
269	1115A	Degreaser	1,1,1 TCA	1967-1985	Permit allowed 1,1,1 TCA, Methylene Chloride, Trichloro-flouroethane
269	1005A	Film Processing Sinks	Silver	1959-1982	
269	1125, 1125A,B 1145, 1145A	Plating Room	Copper, Nickel, HCl, Chromic Acid, Gold-cyanide	1959- ?	Degreaser and clarifier pit present (1125A & B, 1145A currently room 1125C)
269	1175	Etcher	?	? - 1985	
269	1295B,C	Cleaning Station	TCE, TCA, isopropyl alcohol, resists, thinner, developer, HCl, Nitric Acid, iodine, potassium iodine, ceric sulfate, ammonium persulfate	?	Active in 1971, was dismantled sometime before 1979
269	1475C	Cleaning Station	TCE, TCA, isopropyl alcohol, resists, thinner, developer, HCl, Nitric Acid, idodine, potassium iodine, ceric sulfate, ammonium persulfate	?	Active in 1971, was dismantled sometime before 1979
269	1570	Spray Paint	Epochlorohydrin Chromium	?-1989	57 gal/yr.
269	1570A	Painting/Coating Painting/Coating	Chromium Lead	?-1989 ?-1989	18 gal/yr.

Table 7. Past Chemical Use and Storage Practices Per Building/Area
Former Raytheon Facility, Canoga Park, California (continued)

Building	Room	Chemical Use, Storage and Containment Areas	Chemicals Used or Stored	Time Period	Remarks
270	1138C	Degreaser	1,1,1 TCA	1983-1985	Permit allowed use of 1,1,1 TCA, Methylene Chloride & Trichloro-flouroethane
268	2280D	Gold Plating	Gold-cyanide	?	Room construction modified 10/12/87
268	1348	Wave Solder Vapor Phase Solder	Lead Lead	?-1988 ?-1988	 Active 1981
272	East of garage storage building	Drum Storage Area	?	?	Active in a 1965 aerial photograph; area unbermed, paved; drums were not placed on wooden pallets
262	1280	Cleaning Solvent Cleaning Spray Paint, Coating, Lubrication	1,1,1 TCA Dichloromethene Dichloromethane	?--1987	1 1 1
263	1300	Paint Spray Room	?	?-1987	In 1987, moved to Bldg. 271, Room 350
265	1390	Spray Painting/Coating	Dichloromethane	?-1987	
265	1188	Spray Painting/Coating Lubrication	Dichloromethane	?-1988	
Grounds* 260	-	Aboveground Storage Tank (T-12)	Solvent Waste Including Acetone, 1,1,1 TCA, Isopropyl Alcohol	1986-present	60 gallon capacity

*Building 260 is equivalent to the general grounds area of the Facility

Table 7. Past Chemical Use and Storage Practices Per Building/Area
Former Raytheon Facility, Canoga Park, California (continued)

Building	Room	Chemical Use, Storage and Containment Areas	Chemicals Used or Stored	Time Period	Remarks
Grounds* (260)	-	Aboveground Storage Tank (T-14)	Solvent Waste Including Acetone, 1,1,1 TCA, Isopropyl Alcohol	1986-present	60 gallon capacity
260	-	Underground Storage Tank (T-1)	Gasoline	1974-present	12,000 gallon capacity
260	-	Underground Storage Tank (T-1)	Gasoline	1975-present	10,000 gallon capacity
260	-	Underground Storage Tanks (T-7, T-8, T-9)	Fuel Oil	1979-present	12,000 gallon capacity
260	-	Underground Storage Tank (T-10)	Fuel Oil	1959-present	10,000 gallon capacity
260	-	Underground Waste Sump (P-1)	Photographic Process Waste	1981-present	1,683 gallon capacity, polypropylene-lined concrete sump
260	-	Underground Non-waste Sump (P-2)	Neutralized Acids Plating Rinse Water	1959-present	Polypropylene-lined concrete sump
262	1292	Cleaning	1,1,1 TCA	?-present	1
262	1208	Cleaning Solvent Cleaning	1,1,1 TCA Dichloromethene	?-present	1 1
262	130A	Paint Storage	Dichloromethane	?-present	500 gal/yr.**

1usage less than or equal to 1 gal/year
2usage less than or equal to 5 gals/year
* Building 260 is equivalent to the general grounds of the Facility
**Approximate usage

Table 7. Past Chemical Use and Storage Practices Per Building/Area
Former Raytheon Facility, Canoga Park, California (continued)

Building	Room	Storage and Containment Areas	Used or Stored	Time Period	Remarks
271	120	Paint Spray Booth	1,1,1 TCA Dichloromethane	1986-present	430 gal/yr.*
263	Carpenter Shop	Flammable Materials Storage Area	Paint, Lacquers Solvents	?-present	Active 1966
263	1302	Boiler Room Cleaning, Degreaser	Solvent 1,1,1 TCA	?-present ?-present	2
281	211	Controlled Material Stores, Insecticide	Dichloromethane	?-present	1
281	1261	Maintenance Shop Metal Machining	Mineral Oil	?-present	4 gal/yr.*
		Antifreeze	Ethylene Glycol	?-present	24 gal/yr.*
265	2310	Cleaning Soldering	1,1,1 TCA Lead	?-present	1
265	1188	Solvent Cleaning	Dichloromethene	?-present	2
265	3174	Cleaning Soldering	1,1,1 TCA Lead	?-present	1
274	305	Solvent Cleaning	1,1,1 TCA, Freon, Hydraulic fluid	?-present	2
276	1252	Cleaning	1,1,1 TCA	?-present	5 gal/yr.*
276	1282	Developer, Fixer	Silver	?-present	60 gal/yr.*
277	1528	Lubrication	Mineral Oil	?-present	2
268	3002 1176	Solvent Cleaning, Spray Painting/Coating Lubrication	Dichloromethane	?-present	1
268	2378	Spray Painting/Coating, Lubrication	Dichloromethane	?-present	1
		Solvent Cleaning	Dichloromethene	?-present	2

1usage less than or equal to 1 gal/year
2usage less than or equal to 5 gals/year
*Approximate usage

Table 7. Past Chemical Use and Storage Practices Per Building/Area
Former Raytheon Facility, Canoga Park, California (continued)

Building	Room	Containment Areas	or Stored	Period	Remarks
268	1348	Solvent Cleaning,	Dichloromethene	?-present	1
268	2208	Cleaning	1,1,1 TCA	?-present	1
		Solvent Cleaning	Dichloromethane	?-present	1
268	2284	Cleaning	1,1,1 TCA	?-present	1
268	2290	Cleaning	1,1,1 TCA	?-present	1
268	2292	Solvent Cleaning	Dichloromethene	?-present	2
268	2305	Electrostatic Plating (Toner)	Isoparifinic hydrocarbon solvent	?-present	
268	1286	Solvent Cleaning	Dichloromethene	?-present	2
268	600B	Solvent Cleaning Spray Painting/Coating, Lubrication	Dichloromethane	?-present	2
268	1220	Solvent Cleaning	Dichloromethene	?-present	16 gal/yr.*
		Cleaning	1,1,1 TCA	?-present	1
268	2268	Solvent Cleaning	Dichloromethene	?-present	2
268	2226	Solvent Cleaning	Dichloromethene	?-present	
268	2274	Solvent cleaning	Dichloromethene	?-present	2
			1,1,1 TCA	?-present	1
			Dichloromethane	?-present	
268	2220D 2220C	Vapor Degreaser Copper Etch Bench	1,1,1 TCA (?) Ferric Chloride	?-present	Active 1982
268	2280	Degreaser	1,1,1 TCA	?-present	Previously gold plating conducted here (See Table IA).
		Cleaning	1,1,1 TCA		
268	2220	Clarifier (Mic Lab)	Aluminum Sulfate, Acetic Acid, Silver	1984-present	Receives waste from Mic Lab (Rooms 2220A through E)
		Etcher	Ferric Chloride	?-present	
		Degreaser	1,1,1 TCA	?-present	

*Approximate usage

Table 7. Past Chemical Use and Storage Practices Per Building/Area
Former Raytheon Facility, Canoga Park, California (continued)

Building	Room	Chemical Use, Storage and Containment Areas	Chemicals Used or Stored	Time Period	Remarks
269	1475	Cleaning	1,1,1 TCA	1984-present	20 gal/yr.*
269	1348B	Vapor Degreaser	1,1,1 TCA	?-present	
269	1565B	Degreaser	1,1,1 TCA	?-present	
269	1400	Developer, Fixer	Silver	?-present	72 gal/yr.*
269	1295A	Laboratory Operations	Benzene	?-present	1
269	1255	Metal Machining	Mineral Oil	?-present	457 gal/yr.*
	1175	Vapor Degreaser	1,1,1 TCA	?-present	260 gal/yr.*
269	1175	Chrome Plating	Chromium	?-present	50 lbs/year*
		Two Etchers	Ferric Chloride	?-present	
		Hot Oil Solder Tank	Lead	1984-present	
		Process Plating	(Lead, Copper, Tin, Nickel, Gold, Sulfuric Acid, Fluoboric Acid, HCl, Cyanide)		
269	1005A	Bonding	Epochlorohydrin	?-present	
		Bonding	Ethylene Dichloride	?-present	
269	1040	Photo Lab Developer Replenisher	Silver	?-present	500 gal/yr.*
269	1005	Painting/Coating	Chromium	?-present	
	1115A	Vapor Degreaser	1,1,1 TCA	?-present	100 gal/yr.*
270	2015	Degreaser	1,1,1 TCA (?)	?-present	
		Cleaning	1,1,1 TCA	?-present	
		Bonding	Ethylene Dichloride	?-present	1
		Solvent cleaning	Dichloromethane	?-present	1
		Equipment Cleaning	Chromic/Sulfuric Acids	?-present	1
270	2025	Lead Screening	Lead Borosilicate	?-present	
270	1213	Spray Painting/Coating, Lubrication	Dichloromethane	?-present	1

*Approximate usage

Table 7. Past Chemical Use and Storage Practices Per Building/Area
Former Raytheon Facility, Canoga Park, California (continued)

Building	Room	Storage and Containment Areas	Used or Stored	Time Period	Remarks
270	1056	Solvent Cleaning	Dichloromethane	?-present	2
270	2024B	Vapor Degreaser	1,1,1 TCA	?-present	900 gal/yr.*
	2034	Solvent Cleaning	Dichloromethane	?-present	1
270	2034A	Wave Soldering Machine	Lead	?-present	
		Vapor Phase Soldering Machine	Lead	?-present	
270	2404	Solvent Cleaning	Dichloromethane	?-present	1
270	1200	Vapor Degreaser	1,1,1 TCA	?-present	903 gal/yr.*
270	1138	Laboratory Operations	Benzene	?-present	1
		Two Vapor Degreasers	1,1,1 TCA	?-present	100 gal/yr.*
		Spray Painting/Coating, Lubrication	Dichloromethane	?-present	1
		Coolant	Freon	?-present	
270	1636, 1504	Solvent Cleaning	Dichloromethane	?-present	1
282	Garage	Gasoline Dispensing	Benzene	1966-present	
		Gasoline Dispensing	Ethylene Dichloride	1966-present	4,700 gal/yr.*
		Gasoline Dispensing	Unleaded Gasoline	1966-present	56,400 gal/yr.*
		Lubrication	Motor Oil		330 gal/yr.*
		Antifreeze	Ethylene glycol		24 gal/yr.*
		Gasoline Dispensing	Leaded gasoline		14,800 gal/yr.*
			Kerosene		55 gal/yr.*
272	All	Hazardous Materials Storage	Non-flammable Solvents	Prior to 1979-present	
			Caustic chemicals		
			Flammable liquids		
			Non-flammable materials		
		Waste Storage	Acid Waste Storage	1987-present	
			Base Waste Storage		
			TCE		
272	100	Solvent Cleaning	Dichloromethane	?-present	

*Approximate usage

Table 7. Past Chemical Use and Storage Practices Per Building/Area
Former Raytheon Facility, Canoga Park, California (continued)

Building	Room	Storage and Containment Areas	Used or Stored	Time Period	Remarks
Unnumbered	53	Hazardous Waste Storage Shed	Flammable Solvents Lab Packs, Non-flammable Solvents, Flammable Liquids	1982-present	

*Approximate usage

Reference: McLaren Hart, Potential Source Area Investigation, November 30, 1989.
"Time period" of "present" indicates through at least November 1989.

Table 3A
Environmental Summary of 2008 DTSC SWMU No. 6
(1997 DTSC SWMU No. 4)
Parking Lot between Buildings 274 & 276
Former Canoga Park Facility, 8433 Fallbrook Avenue, Canoga Park, California

Description (per June 5, 1997 DTSC Letter)	Reports	Environmental Investigations/ Remedial Actions	Current Status/ Recommendation
• Parking lot; paved sometime after 1960; • Between 1963 and 1965, pavement extended west to Building 276; • Source of Freon 11 in groundwater in vicinity of well CM-10.	Report: *Report on Facility-Wide Site Assessment*, Hughes Missile Systems Company, Canoga Park, California (GTI, January 4, 1994) Report: *Report on Soil Gas Survey,* Former Hughes Missiles Systems Company, Canoga Park, California (GTI , August 1, 1995) Report: *Report on Soil Gas Survey,* Former Hughes Missiles Systems Company, Canoga Park, California (GTI , September, 1995) Report: *Additional Site Assessment Report, Sampling and Analysis for Vicinity of CM-10 and Parking Area Adjacent to Building 265,274, and 276* (Fluor Daniel GTI, 1998) Annual Groundwater Monitoring and Groundwater Remediation System Reports Submitted through 2007	• DTSC-suspected source of Freon-11 contamination in groundwater in well CM-10. • 1993 – soil samples collected in parking lot for VOCs, hydrocarbons and metals analyses; all VOCs and hydrocarbons nondetect, metals below regulatory threshold values (STLC and TTLC). • June 1995 – soil vapor survey in parking lot; highest Freon-11 concentration (183 ppb) detected near main sewer line join. • September 1995 – soil vapor survey delineated soil gas plume; highest concentrations (>1,000 ppb) along edge of original pavement north of main sewer line join. • May 1998 – Freon-11 groundwater investigation; highest concentrations (>150 µg/L) detected in center of soil gas plume.	Source of Freon-11 in groundwater delineated during 1995 soil gas surveys. Freon-11 concentrations in groundwater have been below MCL (150 µg/L) in well CM-10 since June 1995 and in well MW-31 since Dec. 1999. Although this area has been identified as the source for Freon-11 contamination in vicinity of well CM-10, this SWMU should be removed from the list as natural attenuation of Freon-11 has been demonstrated per the declining concentrations in CM-10 and MW-31.

Notes:
DTSC = Department of Toxic Substance Control
MCL = maximum contaminant level
ppb = parts per billion
STLC = solid threshold limit concentration
SWMU = solid waste management unit
TTLC = total threshold limit concentration
µg/L = microgram per Liter
VOCs = volatile organic compounds

Table 3B
Environmental Summary of 2008 DTSC SWMU No. 7
(1997 DTSC SWMU No. 5)
Cooling Unit near Building 274
Former Canoga Park Facility, 8433 Fallbrook Avenue, Canoga Park, California

Description (per June 5, 1997 DTSC Letter)	Reports	Environmental Investigations/ Remedial Actions	Current Status/ Recommendation
• Cooling unit situated outside the northeast corner of Building 274. • Unit removed in 1998. • Suspected source of Freon 11 in groundwater.	Report: *Report on Soil Gas Survey,* Former Hughes Missiles Systems Company, Canoga Park, California (GTI , August 1, 1995) Report: *Report on Soil Gas Survey,* Former Hughes Missiles Systems Company, Canoga Park, California (GTI , September, 1995) Report: *Additional Site Assessment Report, Sampling and Analysis for Vicinity of CM-10 and Parking Area Adjacent to Building 265,274, and 276* (Fluor Daniel GTI, 1998) Annual Groundwater Monitoring and Groundwater Remediation System Reports Submitted through 2007	• DTSC-suspected source of Freon-11 contamination in groundwater in well CM-10. • June 1995 – soil vapor survey; highest Freon-11 concentration (183 ppb) detected near main sewer line join; sample collected near unit only 6 ppb. • September 1995 – soil vapor survey delineated soil gas plume; highest concentrations (>1,000 ppb) along edge of original pavement north of main sewer line joint near parking lot; soil vapor sample collected near actual Bldg. 274 Cooling unit, only 19 ppb.	This SWMU should be removed from the list as source of Freon-11 in well CM-10 has been determined (probable spill along edge of original pavement in parking area between Buildings 274 & 276). In addition, natural attenuation of Freon-11 in groundwater has been demonstrated (Freon-11 concentrations have been below MCL in well CM-10 since 6/95 and in well MW-31 since 12/99).

Notes:
DTSC = Department of Toxic Substance Control
MCL = maximum contaminant level
ppb = parts per billion
SWMU = solid waste management unit

Table 3C
Environmental Summary of 2008 DTSC AOC No. 6
(1997 DTSC AOC No. 8)
Building 274 Drains and Feeder Sewer Lines
Former Canoga Park Facility, 8433 Fallbrook Avenue, Canoga Park, California

Description (per June 5, 1997 DTSC Letter)	Reports	Environmental Investigations/ Remedial Actions	Current Status/ Recommendation
• Bldg. 274 constructed in 1980/1981; • Solvent cleaning was conducted and negligible amounts of hydraulic fluids were used; • Aerial photographs indicate that area north of Bldg 274 not paved until at least 1960; between 1963 and 1965, the pavement was extended west to Bldg 276.	Report: *Report on Facility-Wide Site Assessment*, Hughes Missile Systems Company, Canoga Park, California (GTI, January 4, 1994) Report: *Report on Soil Gas Survey,* Former Hughes Missiles Systems Company, Canoga Park, California (GTI , August 1, 1995) Report: *Report on Soil Gas Survey,* Former Hughes Missiles Systems Company, Canoga Park, California (GTI , September, 1995) Report: *Additional Site Assessment Report, Sampling and Analysis for Vicinity of CM-10 and Parking Area Adjacent to Building 265, 274, and 276* (Fluor Daniel GTI, 1998) Report: Report: *Annual Groundwater Monitoring and Groundwater Remediation System Report, July through November 2003* (TN&A, 2003) Annual Groundwater Monitoring and Groundwater Remediation System Reports Submitted through 2007	• Building 274 is suspected by DTSC as source of Freon-11 in well CM-10. • 1993 – soil samples collected in parking lot for VOCs, hydrocarbons and metals analyses; all VOCs and hydrocarbons nondetect, metals below TTLC and STLC values. • June 1995 – soil vapor survey conducted in parking lot; highest Freon 11 concentration (183 ppb) detected near main sewer line join; Freon-11 concentrations decreased as distance from soil gas plume in parking area increased. • September 1995 – soil vapor survey delineated Freon-11 soil gas plume; highest concentrations (>1,000 ppb) along edge of original pavement north of main sewer line join. • May 1998 – Freon-11 groundwater investigation; highest concentrations (>150 µg/L) detected in center of soil gas plume.	The delineated soil gas plume in the parking lot between Buildings 274 & 276 is considered to be sole source of Freon-11 concentrations in groundwater in the vicinity of well CM-10 (probable spill along edge of original pavement in parking area between Buildings 274 & 276). Natural attenuation of Freon-11 in groundwater has been demonstrated (Freon-11 concentrations have been below MCL in well CM-10 since 6/95 and in well MW-31 since 12/99). Building 274 was demolished and the foundation removed in 1998. This should be removed from the AOC/SWMU list.

Notes:
AOC = area of concern
DTSC = Department of Toxic Substance Control
MCL = maximum contaminant level
ppb = parts per billion
STLC = solid threshold limit concentration
SWMU = solid waste management unit
TTLC = total threshold limit concentration
µg/L = microgram per Liter
VOCs = volatile organic compounds

Table 4. List of Building-by-Building Chemical Usage/Waste Generation

Building	Chemicals Used
261	none
262	cleaning fluids, solvents (TCA, dichloromethane), paint, lubricating oil
263	paint, lacquers, solvents (TCA), degreasers
264 (dining room)	none
265	spray paint, solvents (TCA, dichloromethane), solder (lead)
268	solvents (TCA, dichloromethane, isoparaffin), lubricants, spray paint, ferric chloride etchant, photographic lab waste (aluminum sulfate, acetic acid, silver), gold-cyanide, solder (lead)
269	degreasers, film processing waste (silver), plating chemicals (copper, tin, nickel, lead, chromium, hydrochloric acid, sulfuric acid, fluoboric acid, chromic acid, gold-cyanide), solvents (TCE, TCA, IPA), nitric acid, ferric chloride etchant, iodine, potassium iodide, ceric sulfate, ammonium persulfate, epichlorohydrin, ethylene dichloride, benzene, mineral oil
270	degreasers, solvents (TCA, dichloromethane), sulfuric acid, chromic acid, lead borosilicate, solder (lead), ethylene dichloride, benzene, Freon
271	spray paint, solvents (TCA, dichloromethane)
272	storage of various solvents, acids, and bases, other caustic, flammable and nonflammable liquids, miscellaneous drum storage to east of building; also solvent cleaning
274	solvents (TCA), Freon, hydraulic fluid
275 (recreation area)	none
276	solvents (TCA), film processing waste (silver)
277	mineral oil
281	insecticide, antifreeze (ethylene glycol), mineral oil, dichloromethane
282 (garage)	gasoline (benzene, lead, ethylene dichloride), motor oil, antifreeze (ethylene glycol), kerosene, hydraulic fluid
Hazardous Waste Storage Shed (unnumbered)	since 1982: storage of flammable and nonflammable solvents, other flammable liquids, lab packs

TCA = 1,1,1-Trichloroethane
TCE = Trichloroethene
IPA = Isopropyl Alcohol

Reference: Groundwater Technology, Inc., Phase 1 Environmental Report: Areas of Potential Chemical Release to Soil and Groundwater, December 28, 1993.

Table 7. Past Chemical Use and Storage Practices Per Building/Area
Former Raytheon Facility, Canoga Park, California

Building	Room	Chemical Use, Storage and Containment Areas	Chemicals Used or Stored	Time Period	Remarks
271	100	Underground Storage Tank (T-4)	Water (used for sonar testing)	1959 - before 1966	135,000 gallon capacity masonry pit, unlined
Grounds* (260)		Spray Ponds (Cooling)	Chlorine	1959-1984	Water from cooling ponds discharged to the storm sewer system under an NPDES permit #W-34202 issued 9/69
260		Underground Storage Tank (T-3)	Waste Oil	1979-1988	4,000 gallon capacity, fiber-glass, non-vaulted tank
260		Underground Storage Tank (T-5)	Waste Oil, Sulfuric Acid	1959-1984	500 gallon capacity, metal, vaulted, glass-lined tank
260		Underground Storage Tank (T-6)	Waste Oil, Sulfuric Acid	1959-1984	500 gallon capacity, metal, vaulted, glass-lined tank
260		Underground Storage Tank (T-12)	Solvent Waste including Acetone 1,1,1, TCA, Isopropyl Alcohol	1980-1986	85 gallon capacity, fiberglass, non-vaulted tank; converted to above ground storage tank in 1986
260		Underground Storage Tank (T-13)	Fuel Oil	1977-1988	10,000 gallon capacity, fiberglass, non-vaulted tank
260		Underground Storage Tank (T-17)	Hydraulic Oil	1971-1985	40 gallon capacity, metal vaulted tank
260		Aboveground Storage Tank (T-14)	Solvent Waste including Acetone, 1,1,1, TCA, Isopropyl Alcohol	1980-1986	85 gallon capacity tank, converted to 60 gallon capacity tank in 1986

[1] usage less than or equal to 1 gal/year
*Building 260 is equivalent to the general grounds area of the Facility

Table 7. Past Chemical Use and Storage Practices Per Building/Area
Former Raytheon Facility, Canoga Park, California (continued)

Building	Room	Chemical Use, Storage and Containment Areas	Chemicals Used or Stored	Time Period	Remarks
269	1115A	Degreaser	1,1,1 TCA	1967-1985	Permit allowed 1,1,1 TCA, Methylene Chloride, Trichloro-flouroethane
269	1005A	Film Processing Sinks	Silver	1959-1982	
269	1125, 1125A,B 1145, 1145A	Plating Room	Copper, Nickel, HCl, Chromic Acid, Gold-cyanide	1959- ?	Degreaser and clarifier pit present (1125A & B, 1145A currently room 1125C)
269	1175	Etcher	?	? - 1985	
269	1295B,C	Cleaning Station	TCE, TCA, isopropyl alcohol, resists, thinner, developer, HCl, Nitric Acid, iodine, potassium iodine, ceric sulfate, ammonium persulfate	?	Active in 1971, was dismantled sometime before 1979
269	1475C	Cleaning Station	TCE, TCA, isopropyl alcohol, resists, thinner, developer, HCl, Nitric Acid, idodine, potassium iodine, ceric sulfate, ammonium persulfate	?	Active in 1971, was dismantled sometime before 1979
269	1570	Spray Paint	Epochlorohydrin Chromium	?-1989	57 gal/yr.
269	1570A	Painting/Coating Painting/Coating	Chromium Lead	?-1989 ?-1989	18 gal/yr.

Table 7. Past Chemical Use and Storage Practices Per Building/Area
Former Raytheon Facility, Canoga Park, California (continued)

Building	Room	Chemical Use, Storage and Containment Areas	Chemicals Used or Stored	Time Period	Remarks
270	1138C	Degreaser	1,1,1 TCA	1983-1985	Permit allowed use of 1,1,1 TCA, Methylene Chloride & Trichloro-flouroethane
268	2280D	Gold Plating	Gold-cyanide	?	Room construction modified 10/12/87
268	1348	Wave Solder Vapor Phase Solder	Lead Lead	?-1988 ?-1988	 Active 1981
272	East of garage storage building	Drum Storage Area	?	?	Active in a 1965 aerial photograph; area unbermed, paved; drums were not placed on wooden pallets
262	1280	Cleaning Solvent Cleaning Spray Paint, Coating, Lubrication	1,1,1 TCA Dichloromethene Dichloromethane	?--1987	1 1 1
263	1300	Paint Spray Room	?	?-1987	In 1987, moved to Bldg. 271, Room 350
265	1390	Spray Painting/Coating	Dichloromethane	?-1987	
265	1188	Spray Painting/Coating Lubrication	Dichloromethane	?-1988	
Grounds* 260	-	Aboveground Storage Tank (T-12)	Solvent Waste Including Acetone, 1,1,1 TCA, Isopropyl Alcohol	1986-present	60 gallon capacity

*Building 260 is equivalent to the general grounds area of the Facility

Table 7. Past Chemical Use and Storage Practices Per Building/Area
Former Raytheon Facility, Canoga Park, California (continued)

Building	Room	Chemical Use, Storage and Containment Areas	Chemicals Used or Stored	Time Period	Remarks
Grounds* (260)	-	Aboveground Storage Tank (T-14)	Solvent Waste Including Acetone, 1,1,1 TCA, Isopropyl Alcohol	1986-present	60 gallon capacity
260	-	Underground Storage Tank (T-1)	Gasoline	1974-present	12,000 gallon capacity
260	-	Underground Storage Tank (T-1)	Gasoline	1975-present	10,000 gallon capacity
260	-	Underground Storage Tanks (T-7, T-8, T-9)	Fuel Oil	1979-present	12,000 gallon capacity
260	-	Underground Storage Tank (T-10)	Fuel Oil	1959-present	10,000 gallon capacity
260	-	Underground Waste Sump (P-1)	Photographic Process Waste	1981-present	1,683 gallon capacity, polypropylene-lined concrete sump
260	-	Underground Non-waste Sump (P-2)	Neutralized Acids Plating Rinse Water	1959-present	Polypropylene-lined concrete sump
262	1292	Cleaning	1,1,1 TCA	?-present	1
262	1208	Cleaning Solvent Cleaning	1,1,1 TCA Dichloromethene	?-present	1 1
262	130A	Paint Storage	Dichloromethane	?-present	500 gal/yr.**

1usage less than or equal to 1 gal/year
2usage less than or equal to 5 gals/year
* Building 260 is equivalent to the general grounds of the Facility
**Approximate usage

Table 7. Past Chemical Use and Storage Practices Per Building/Area
Former Raytheon Facility, Canoga Park, California (continued)

Building	Room	Storage and Containment Areas	Used or Stored	Time Period	Remarks
271	120	Paint Spray Booth	1,1,1 TCA Dichloromethane	1986-present	430 gal/yr.*
263	Carpenter Shop	Flammable Materials Storage Area	Paint, Lacquers Solvents	?-present	Active 1966
263	1302	Boiler Room Cleaning, Degreaser	Solvent 1,1,1 TCA	?-present ?-present	2
281	211	Controlled Material Stores, Insecticide	Dichloromethane	?-present	1
281	1261	Maintenance Shop Metal Machining Antifreeze	Mineral Oil Ethylene Glycol	?-present ?-present	4 gal/yr.* 24 gal/yr.*
265	2310	Cleaning Soldering	1,1,1 TCA Lead	?-present	1
265	1188	Solvent Cleaning	Dichloromethene	?-present	2
265	3174	Cleaning Soldering	1,1,1 TCA Lead	?-present	1
274	305	Solvent Cleaning	1,1,1 TCA, Freon, Hydraulic fluid	?-present	2
276	1252	Cleaning	1,1,1 TCA	?-present	5 gal/yr.*
276	1282	Developer, Fixer	Silver	?-present	60 gal/yr.*
277	1528	Lubrication	Mineral Oil	?-present	2
268	3002 1176	Solvent Cleaning, Spray Painting/Coating Lubrication	Dichloromethane	?-present	1
268	2378	Spray Painting/Coating, Lubrication Solvent Cleaning	Dichloromethane Dichloromethene	?-present ?-present	1 2

1usage less than or equal to 1 gal/year
2usage less than or equal to 5 gals/year
*Approximate usage

Table 7. Past Chemical Use and Storage Practices Per Building/Area
Former Raytheon Facility, Canoga Park, California (continued)

Building	Room	Containment Areas	or Stored	Period	Remarks
268	1348	Solvent Cleaning,	Dichloromethene	?-present	1
268	2208	Cleaning	1,1,1 TCA	?-present	1
		Solvent Cleaning	Dichloromethane	?-present	1
268	2284	Cleaning	1,1,1 TCA	?-present	1
268	2290	Cleaning	1,1,1 TCA	?-present	1
268	2292	Solvent Cleaning	Dichloromethene	?-present	2
268	2305	Electrostatic Plating (Toner)	Isoparifinic hydrocarbon solvent	?-present	
268	1286	Solvent Cleaning	Dichloromethene	?-present	2
268	600B	Solvent Cleaning Spray Painting/Coating, Lubrication	Dichloromethane	?-present	2
268	1220	Solvent Cleaning	Dichloromethene	?-present	16 gal/yr.*
		Cleaning	1,1,1 TCA	?-present	1
268	2268	Solvent Cleaning	Dichloromethene	?-present	2
268	2226	Solvent Cleaning	Dichloromethene	?-present	
268	2274	Solvent cleaning	Dichloromethene	?-present	2
			1,1,1 TCA	?-present	1
			Dichloromethane	?-present	
268	2220D 2220C	Vapor Degreaser Copper Etch Bench	1,1,1 TCA (?) Ferric Chloride	?-present	Active 1982
268	2280	Degreaser	1,1,1 TCA	?-present	Previously gold plating conducted here (See Table IA).
		Cleaning	1,1,1 TCA		
268	2220	Clarifier (Mic Lab)	Aluminum Sulfate, Acetic Acid, Silver	1984-present	Receives waste from Mic Lab (Rooms 2220A through E)
		Etcher	Ferric Chloride	?-present	
		Degreaser	1,1,1 TCA	?-present	

*Approximate usage

Table 7. Past Chemical Use and Storage Practices Per Building/Area
Former Raytheon Facility, Canoga Park, California (continued)

Building	Room	Chemical Use, Storage and Containment Areas	Chemicals Used or Stored	Time Period	Remarks
269	1475	Cleaning	1,1,1 TCA	1984-present	20 gal/yr.*
269	1348B	Vapor Degreaser	1,1,1 TCA	?-present	
269	1565B	Degreaser	1,1,1 TCA	?-present	
269	1400	Developer, Fixer	Silver	?-present	72 gal/yr.*
269	1295A	Laboratory Operations	Benzene	?-present	1
269	1255	Metal Machining	Mineral Oil	?-present	457 gal/yr.*
	1175	Vapor Degreaser	1,1,1 TCA	?-present	260 gal/yr.*
269	1175	Chrome Plating	Chromium	?-present	50 lbs/year*
		Two Etchers	Ferric Chloride	?-present	
		Hot Oil Solder Tank	Lead	1984-present	
		Process Plating	(Lead, Copper, Tin, Nickel, Gold, Sulfuric Acid, Fluoboric Acid, HCl, Cyanide)		
269	1005A	Bonding	Epochlorohydrin	?-present	
		Bonding	Ethylene Dichloride	?-present	
269	1040	Photo Lab Developer Replenisher	Silver	?-present	500 gal/yr.*
269	1005	Painting/Coating	Chromium	?-present	
	1115A	Vapor Degreaser	1,1,1 TCA	?-present	100 gal/yr.*
270	2015	Degreaser	1,1,1 TCA (?)	?-present	
		Cleaning	1,1,1 TCA	?-present	
		Bonding	Ethylene Dichloride	?-present	1
		Solvent cleaning	Dichloromethane	?-present	1
		Equipment Cleaning	Chromic/Sulfuric Acids	?-present	1
270	2025	Lead Screening	Lead Borosilicate	?-present	
270	1213	Spray Painting/Coating, Lubrication	Dichloromethane	?-present	1

*Approximate usage

Table 7. Past Chemical Use and Storage Practices Per Building/Area
Former Raytheon Facility, Canoga Park, California (continued)

Building	Room	Storage and Containment Areas	Used or Stored	Time Period	Remarks
270	1056	Solvent Cleaning	Dichloromethane	?-present	2
270	2024B	Vapor Degreaser	1,1,1 TCA	?-present	900 gal/yr.*
	2034	Solvent Cleaning	Dichloromethane	?-present	1
270	2034A	Wave Soldering Machine	Lead	?-present	
		Vapor Phase Soldering Machine	Lead	?-present	
270	2404	Solvent Cleaning	Dichloromethane	?-present	1
270	1200	Vapor Degreaser	1,1,1 TCA	?-present	903 gal/yr.*
270	1138	Laboratory Operations	Benzene	?-present	1
		Two Vapor Degreasers	1,1,1 TCA	?-present	100 gal/yr.*
		Spray Painting/Coating, Lubrication	Dichloromethane	?-present	1
		Coolant	Freon	?-present	
270	1636, 1504	Solvent Cleaning	Dichloromethane	?-present	1
282	Garage	Gasoline Dispensing	Benzene	1966-present	
		Gasoline Dispensing	Ethylene Dichloride	1966-present	4,700 gal/yr.*
		Gasoline Dispensing	Unleaded Gasoline	1966-present	56,400 gal/yr.*
		Lubrication	Motor Oil		330 gal/yr.*
		Antifreeze	Ethylene glycol		24 gal/yr.*
		Gasoline Dispensing	Leaded gasoline		14,800 gal/yr.*
			Kerosene		55 gal/yr.*
272	All	Hazardous Materials Storage	Non-flammable Solvents	Prior to 1979-present	
			Caustic chemicals		
			Flammable liquids		
			Non-flammable materials		
		Waste Storage	Acid Waste Storage	1987-present	
			Base Waste Storage		
			TCE		
272	100	Solvent Cleaning	Dichloromethane	?-present	

*Approximate usage

Table 7. Past Chemical Use and Storage Practices Per Building/Area
Former Raytheon Facility, Canoga Park, California (continued)

Building	Room	Storage and Containment Areas	Used or Stored	Time Period	Remarks
Unnumbered	53	Hazardous Waste Storage Shed	Flammable Solvents Lab Packs, Non-flammable Solvents, Flammable Liquids	1982-present	

*Approximate usage

Reference: McLaren Hart, Potential Source Area Investigation, November 30, 1989.
"Time period" of "present" indicates through at least November 1989.

Department of Toxic Substances Control

Jesse R. Huff, Director
1011 N. Grandview Avenue
Glendale, California 91201-2205

Pete Wilson
Governor

Peter M. Rooney
Secretary for
Environmental
Protection

July 27, 1998

CERTIFIED MAIL

Mr. Ken Rutkowski
Vice President
DeVry, Inc.
One Tower Lane, Suite 1000
Oakbrook Terrace, Illinois 60181-4624

Dear Mr. Rutkowski:

DEVRY INSTITUTE OF TECHNICAL, WEST HILL SITE, 22801 ROSCOE BOULEVARD, WEST HILLS, CALIFORNIA (PARCEL CREATED FROM FORMER HUGHES MISSILE SYSTEMS CANOGA PARK FACILITY, 8433 FALLBROOK AVENUE, CANOGA PARK, CALIFORNIA (EPA ID NO. CAD041162124

Mr. Bill Woodson of Langdon and Wilson contacted the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) in DeVry Inc.'s behalf regarding a parcel that was created out of the former Hughes Missile Systems Company (HMSC) Canoga Park facility in Canoga Park. A condition has been required by the City of Los Angeles with respect to construction on any of the parcels created out of the former HMSC facility due to releases of hazardous waste that had occurred previously at various parts of the facility. This condition is that DTSC indicate that there is either no problem or that it has been satisfactorily cleaned up.

The HMSC site, as a whole, remains subject to Resource Conservation and Recovery Act (RCRA) corrective action requirements because HMSC had received a permit to store hazardous wastes under RCRA and because there have been documented releases of hazardous wastes at various parts of the facility.

As a result of the request by Mr. Woodson, DTSC has reviewed its files concerning the former Hughes Missile Systems Canoga Park facility as well as the following materials submitted by Mr. Woodson, on July 9, 1998 and July 15, 1998:

"Technical Memorandum, Records Review, and Limited Site Investigation, Hughes Missile System Company, 8433 Fallbrook Avenue, Canoga Park", prepared by Earth Tech, dated November 28, 1994

"Corrective Action Plan Addendum, Hughes Missile System Company, 8433 Fallbrook Avenue, Canoga Park", prepared by Groundwater Technology, Inc., dated March 29, 1994

"Phase I Environmental Report: Areas of Potential Chemical Release to Soil and Groundwater, Hughes Missile System Company, Canoga Park, California", prepared by Groundwater Technology, Inc., dated December 28, 1993

"Report of Geotechnical Investigation Proposed DeVry Institute of Technology Facility", prepared by Law/Crandall, dated February 6, 1997

One set of seven aerial photograph enlargements, dated from 1952 to 1979

Based upon our review, we have not determined that any release has occurred on the DeVry parcel of the former HMSC property and DTSC does not at this time believe any investigation or remediation is necessary subject to the following conditions:

1. It must be noted that the main sewer line, into which HMSC discharged various materials — perhaps including some of the compounds found in ground water elsewhere on the site — crosses the DeVry parcel. It is possible that this segment of the sewer line may need to be investigated although that is not being required at this time.

2. DTSC wishes to be notified at least seven (7) calendar days in advance of the initiation of excavation in order to observe and possibly sample the sidewalls and/or bottom of the excavations for the proposed driveway and any other structures.

3. Since corrective action is not complete with regards to remaining parcels, there may be a need for further installation of borings and groundwater monitoring wells. DeVry must provide access for such installation and allow maintenance of existing and future wells.

4. If DTSC determines the need for further investigation on the DeVry parcel, DTSC reserves the right to do so under its statutory authority. If such investigations identify contaminated areas requiring corrective action, DeVry or any subsequent owner may be required to provide access to such areas to facilitate all necessary remediation activities. Such activities may include, but are not limited to soil excavation and/or groundwater

extraction and treatment. Providing such access may require the owner to vacate and/or demolish existing and/or future facilities on the site.

If you have questions regarding the foregoing, please call Mr. Phil Blum at (818) 551-2961.

Sincerely,

for

Philip B. Chandler, CEG, RG
Supervising Hazardous Substances
Engineering Geologist
Southern California Permitting Branch

Certified Mail
Z 464 584 410
Return Receipt Requested

cc: Mr. Bill Woodson
Langdon and Wilson
1055 Wilshire Boulevard
Los Angeles, California 90017

Mr. Dan Konieczka
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One Tower Lane, Suite 1000
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California Regional Water Quality Control Board

Los Angeles Region

Linda S. Adams
Agency Secretary

Recipient of the 2001 *Environmental Leadership Award* from Keep California Beautiful

Arnold Schwarzenegger
Governor

320 W. 4th Street, Suite 200, Los Angeles, California 90013
Phone (213) 576-6600 FAX (213) 576-6640 - Internet Address: http://www.waterboards.ca.gov/losangeles

January 26, 2007

Ms. Jean Roberts, Manager
Safety, Health, Environmental Affairs
Raytheon Company
P.O. Box 11337
Tucson, AZ 85834-1337

Dear Ms. Roberts:

REQUEST TO ABANDON SELECTED GROUNDWATER MONITORING WELLS – RAYTHEON SYSTEMS COMPANY (FORMER HUGHES MISSILE SYSTEM COMPANY), 8433 FALLBROOK AVENUE, CANOGA PARK, CALIFORNIA (SLIC NO. 0693, SITE ID NO. 2043T00)

The Los Angeles Water Quality Control Board (Regional Board) staff received and reviewed, *Request for Interim Shutdown of the Groundwater Recovery and Treatment System (GRTS), Modification to M&RP No. 7483 and Request for No Further Action for Southern Parcels, Former Raytheon Facility, 8433 Fallbrook Avenue, Canoga Park, California, Compliance File No. CI-8567*, dated June 28, 2006, prepared by TN & Associates, Inc. on your behalf, for the above-referenced location (Site). In the letter, you also requested to abandon some groundwater monitoring wells.

Please note that in this letter, the Regional Board is responding to your request for abandoning groundwater monitoring wells only; and the Regional Board have responded or will be responding to the others in a separate letter(s) upon completion of the reviews.

Raytheon began operating the GRTS in 1995 under Waste Discharge Requirements (WDR) Order No. 95-012, and Monitoring and Reporting Program (MRP) No. CI-7483. The system was shut down in 1998 to accommodate redevelopment activities at the Site. The GRTS was re-started in 1995 until recently shut down in April 2006 due to low influent volatile organic compounds (VOCs) levels and higher sulfate levels as required in the WDR. In September 2003, a pilot test was performed to assess the potential for EISB to further remediate the VOC concentrations in groundwater. This pilot test included the injection of lactic acid, and based on the EISB pilot test results, Raytheon implemented a full-scale EISB program to accelerate degradation of chlorinated ethenes in shallow groundwater. This program is being performed under the WDR Order No. R4-2005-0030, MRP No. CI-8947. Soil Vapor Extraction (SVE) and air sparge (AS) systems were also used for remediation on site, and they were shut down in 2005 to prepare for the implementation of an enhanced in-situ bioremediation (EISB) program. On January 25, 2007, the Regional Board approved an interim shut-down of GRTS and required that the GRTS system remains in operational condition to be used as a contingency measure if it is found that the EISB program is not effective.

Raytheon requests to abandon groundwater wells, CM-2, CM-3, CM-4, CM-7, CM-8, CM-9, MW-21S, MW-21D, MW-22S, MW-22D, VE-2, and VE-3 because they were either installed too shallow and are always dry, were installed at distal locations not down gradient from any existing plumes or were pilot test wells.

Based on our review of the information submitted, we approve your request to abandon the groundwater wells, CM-2, CM-3, CM-4, CM-7, CM-8, CM-9, VE-2, and VE-3. However, the groundwater monitoring wells, MW-21S, MW-21D, MW-22S, and MW-22D, shall remain on-site and continue to monitor annually until our review of your request for "No-Further Action" for Southern Parcels is complete.

Please follow the proper well abandonment procedures as stated in Department of Water Resources Bulletin 74-90. You are required to submit a well abandonment report to the Regional Board sixty-days after completing the proper abandonment procedures for the above referenced wells in the area.

Should you have any questions, please contact Thizar Tintut-Williams at (213) 576-6723.

Sincerely,

for David A. Bacharowski, AEO
Jonathan S. Bishop
Executive Officer

/ttw

cc: Ms. Heather Collins – California Department of Health Services
Mr. Chris Nagler, WaterMaster, California Department of Water Resources
Mr. Bernard Franklin, Los Angeles County, Department of Public Health
Mr. Hoover Ng, Water Replenishment District- Southern California
Mr. Timothy Garvey, TN & Associates, Inc.
Mr. Jacques Marcillac, TN & Associates, Inc.