ecology and environment, inc.
160 SPEAR STREET, SAN FRANCISCO, CALIFORNIA 94105, TEL. 415/777-2811
International Specialists in the Environment

MEMORANDUM

TO: Paul La Courreye, EPA Region IX Site Screening Coordinator

FROM: Chris Lichens, Ecology and Environment, Inc. CL

DATE: September 15, 1989

SUBJECT: Completed Work

cc: Marcia Brooks, E & E, Inc.

Attached is the following completed:

PA X PA Review ____ SSI ____ LSI ____ SIRe ____

Other _____

Site Name: Rockwell International, Santa Susana Field Lab
Former Sodium Burn Pit

EPA ID #: CAD982399719

City, County: Simi Hills, Ventura County

FOR EPA USE ONLY

CERCLIS Lead: F

PA-1 complete
Pal NPRAP
10-2-89

A-7EUT-7PA-7F-7W
BW

c/kj/burnpit/cwm

ecology and environment, inc.
160 SPEAR STREET, SAN FRANCISCO, CALIFORNIA 94105, TEL. 415/777-2811
International Specialists in the Environment

PRELIMINARY ASSESSMENT

SUBMITTED TO: Paul LaCourreye, Screening Site Coordinator
EPA Region IX

DATE: August 18, 1989

PREPARED BY: Karen Johnson, Ecology and Environment, Inc.

THROUGH: Jim James, Ecology and Environment, Inc.

SITE: Rockwell International, Santa Susana Field Lab
Former Sodium Burn Pit
Woolsey Canyon Road, Simi Hills, CA 93063

TDD#: F9-8809-164

EPA ID#: CAD982399719

PROGRAM ACCOUNT#: FCA0951PAA

FIT REVIEW/CONCURRENCE: Chris Fichera, 9/13/89

cc: Don Plain, California Department of Health Services, Sacramento

1. SITE DESCRIPTION

The Rockwell International Santa Susana Field Laboratory (SSFL) is located in the Simi Hills in the southeastern portion of Ventura County (Latitude: 34°13'46" Longitude: 118°43'04") (see Figure 1). The facility lies in a mountainous area south of Simi Valley and west of Chatsworth on Woolsey Canyon Road in Simi Hills, California.

SSFL is divided into four areas designated as Areas I, II, III, and IV (see Figure 2). Areas I and III are owned by the Rocketdyne Division of Rockwell International (2). Area II is owned by the National Aeronautic and Space Administration (NASA). Area IV is owned by the Atomics International Division of Rockwell International. A 90-acre parcel of land in Area IV has been optioned by the Department of Energy (DOE) and contains DOE-owned facilities such as the Energy Technology Engineering Center (ETEC) (see Figure 3) (3).

The Former Sodium Burn Pit (burn pit) is located in area IV approximately 300 yards southwest of the DOE-optioned land (see Figure 4) (1,3). It has an area of approximately 50,000 square feet and includes a large concrete

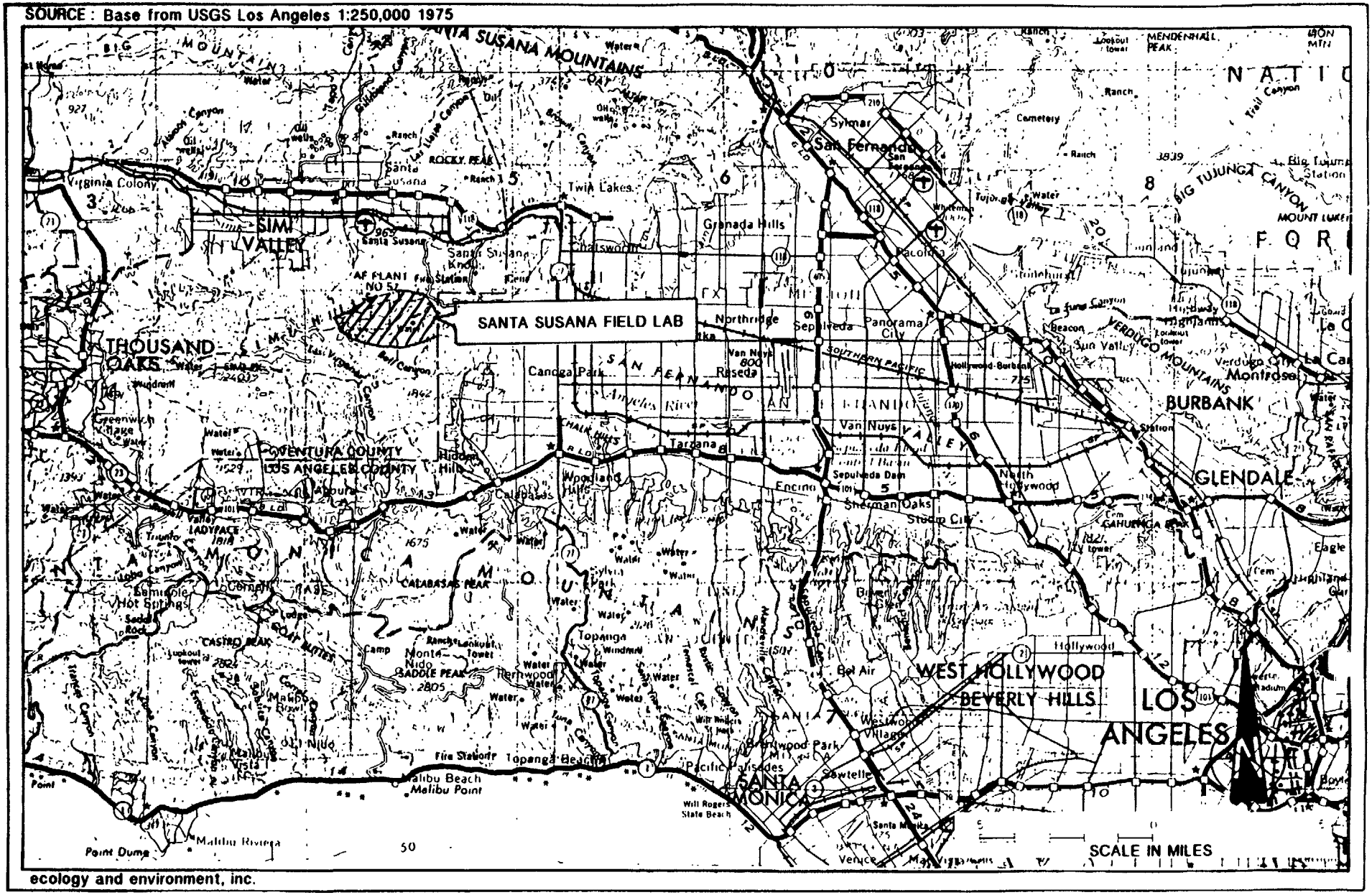

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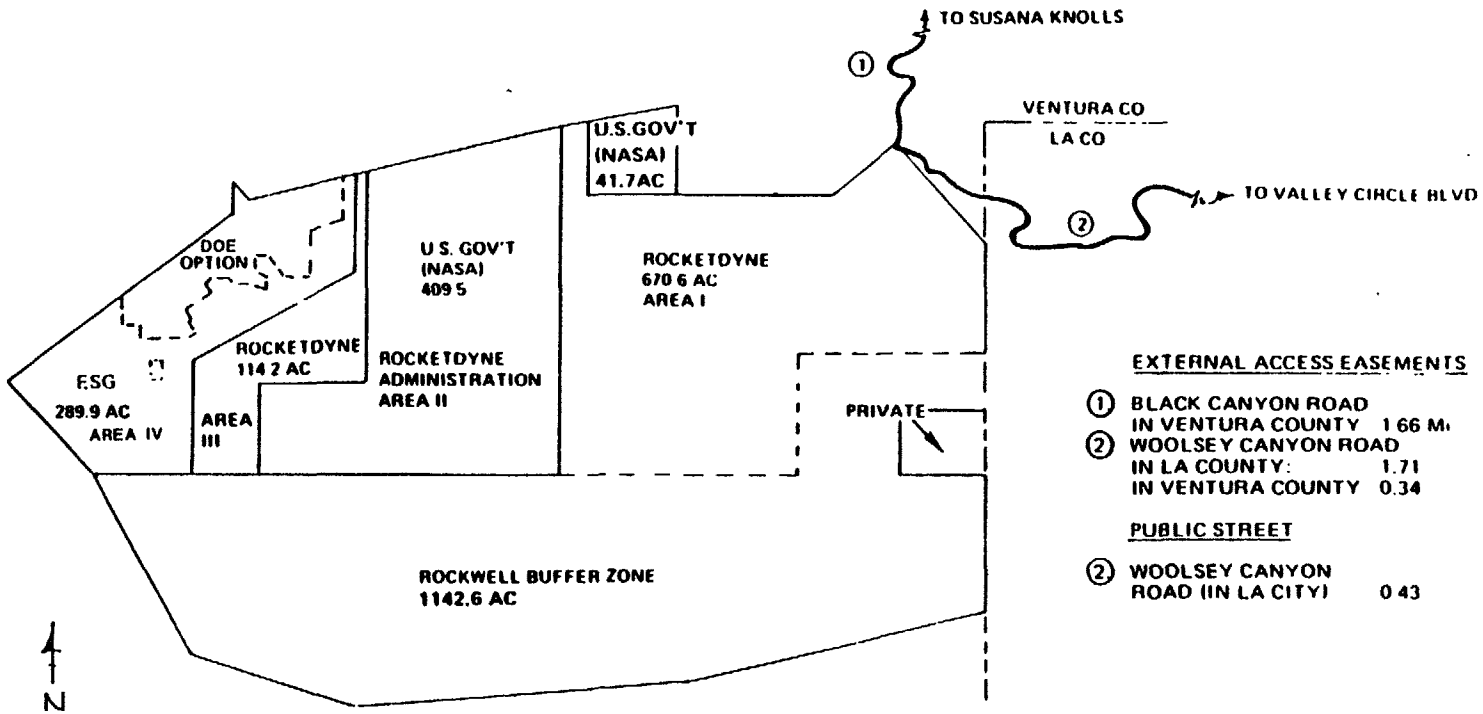
Figure 1 LOCATION OF ROCKWELL INTERNATIONAL SANTA SUSANA FIELD LAB

SOURCE : Rockwell International, CERCLA Phase I-Installation Assessment for DOE Facilities at SSFL. April 25, 1986.



SUBDIVISIONS				
OWNER	JURISDICTION	ACRES		OPTION
ROCKWELL	AI	289.9	→	90 26
	ROCKETDYNE	784.8		
	ROCKWELL (BUFFER)	1142.6	2217.3	
GOVERNMENT	NASA (FORMER AFP 57)	409 5		
	NASA (FORMER AFP 64)	41 7	451 2	
TOTAL ACRES			2668.5	

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Figure 2 AREAS WITHIN SANTA SUSANA FIELD LAB

SOURCE : Rockwell International, CERCLA Phase I-Installation Assessment for DOE Facilities at SSFL. April 25, 1986.

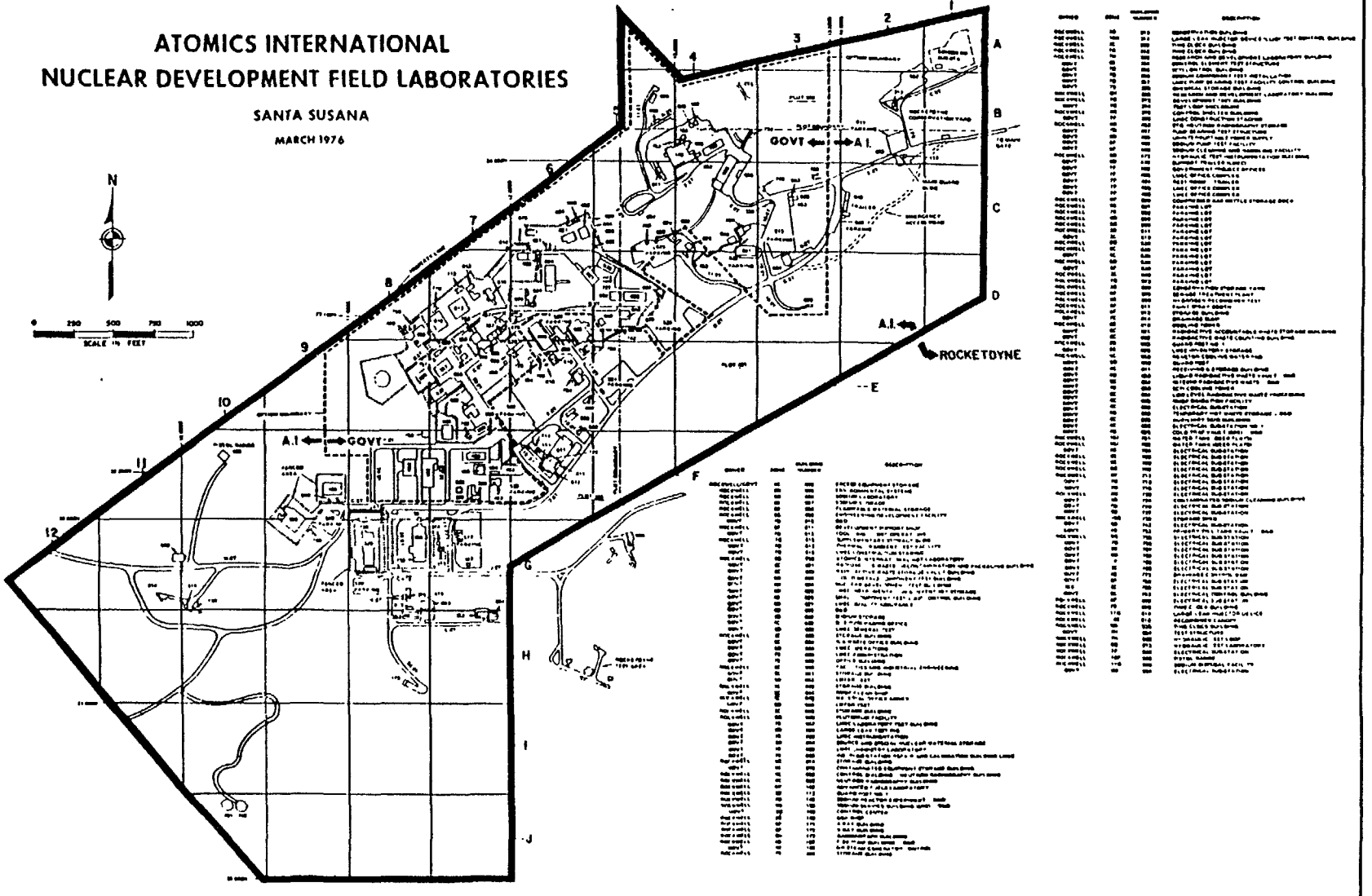

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Figure 3 AREA IV AND DOE-OPTION

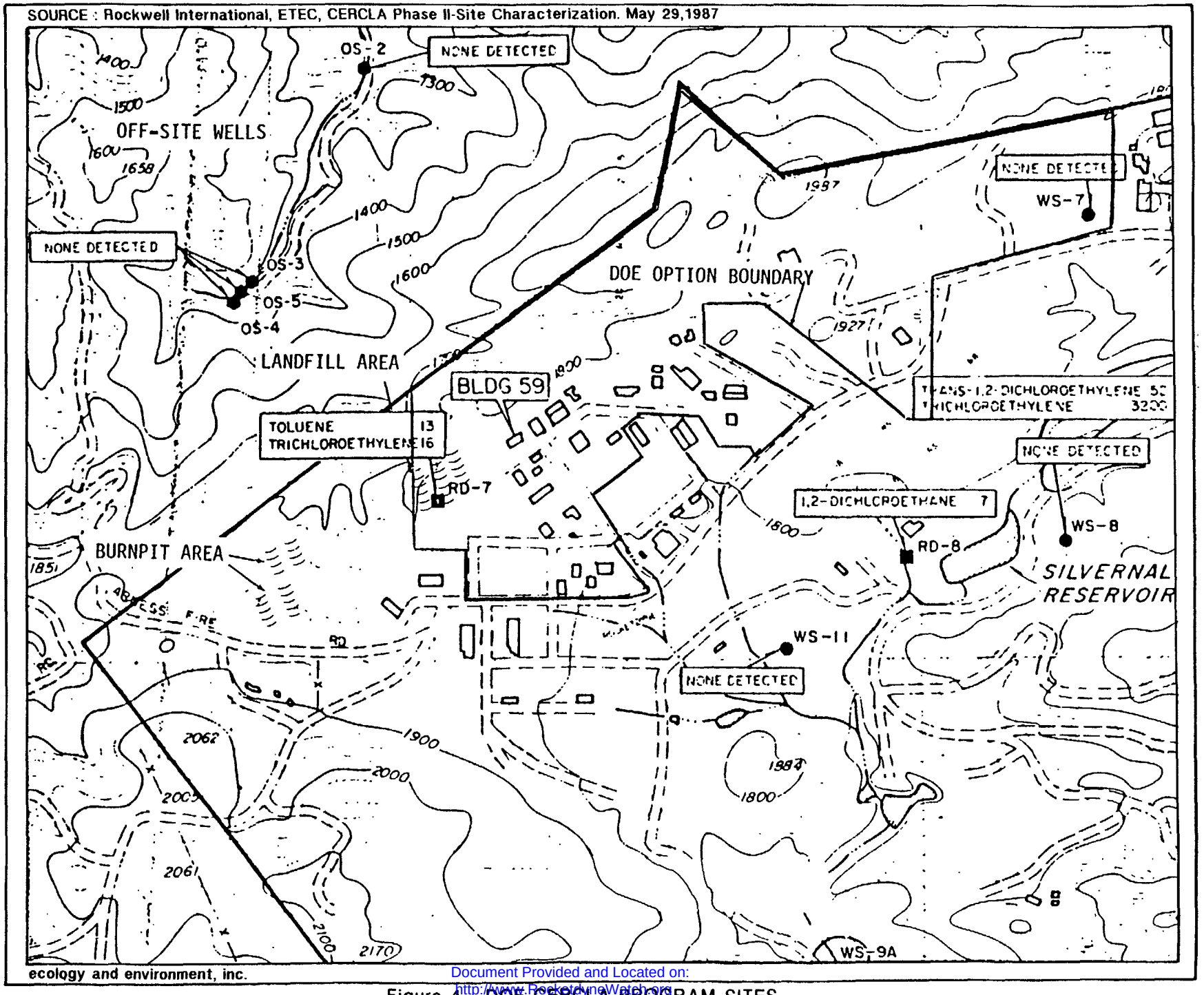

Figure 4 DOE-CERCLA PROGRAM SITES

pad adjacent to a concrete water pool. It also consists of upper and lower ponds, both unlined and downslope from the pool. An area just west of the upper pond was used for storage and burial of materials (see Figure 5) (3). The burn pit was used from 1966 to the late 1970s for the disposal of metallic sodium and sodium-potassium mixtures, solvents, and radioactively-contaminated equipment.

In 1987, the U.S. Environmental Protection Agency's Field Investigation Team performed a preliminary assessment (PA) on Areas I, III, and IV of the SSFL (2). The PA did not cover DOE facilities in Area IV, including the burn pit. Some of the information in this report refers generally to the SSFL, but the Former Sodium Burn Pit, as described above, is the only hazardous waste site addressed by this PA. In this report, "facility" is used in reference to the SSFL in general, and "site" is used exclusively in reference to the burn pit.

2. APPARENT PROBLEM

ETEC has been a DOE (and its predecessor agencies) liquid metal test facility supporting the Breeder Technology Program since 1966 (4). The burn pit was created for the disposal of liquid sodium and sodium-potassium mixtures used in this program. After a reactor system was drained, small quantities of liquid metal were often trapped in the elbows, valves, vessels, or insulation materials of the system. These residues were removed by exposing the contaminated component to water and creating an exothermic reaction between the metal and water. This reaction is very explosive. The component was exposed to water either by placing it into the concrete water pool or by putting it into an unlined pond and hosing it down. After the reaction stopped, the component was either removed and sold for scrap or buried in place (3). Some of these components were also contaminated with cesium-137.

The site was also used for the open burning of any combustible material. Solvents were disposed of in the burn pit over an unknown period of time (8).

In the late 1970s, Rockwell launched a concerted effort to clean up the burn pit area. A new sodium disposal facility, permitted under the Resource Conservation and Recovery Act, was constructed within the DOE-optioned area. After the facility was completed, the use of the burn pit subsided. All visible debris was removed and taken to the new facility. The water pool was drained by an unknown hazardous waste disposal company. The walls of the pool were found to be contaminated with low levels of radioactive material and were scraped clean (3). It is not known where the hazardous or radioactive wastes were disposed.

In 1986, DOE initiated a five phase program to identify, characterize and remediate inactive hazardous waste disposal sites at the SSFL. Soil samples collected from trenches dug through the burn pit during Phase II of this program revealed contamination with polychlorinated biphenyls (PCBs), trichloroethylene (TCE), tetrachloroethylene (PCE), toluene, carbon tetrachloride, oil, diesel fuel, chromium, lead, and other solvents and metals (see Table 1) (3).

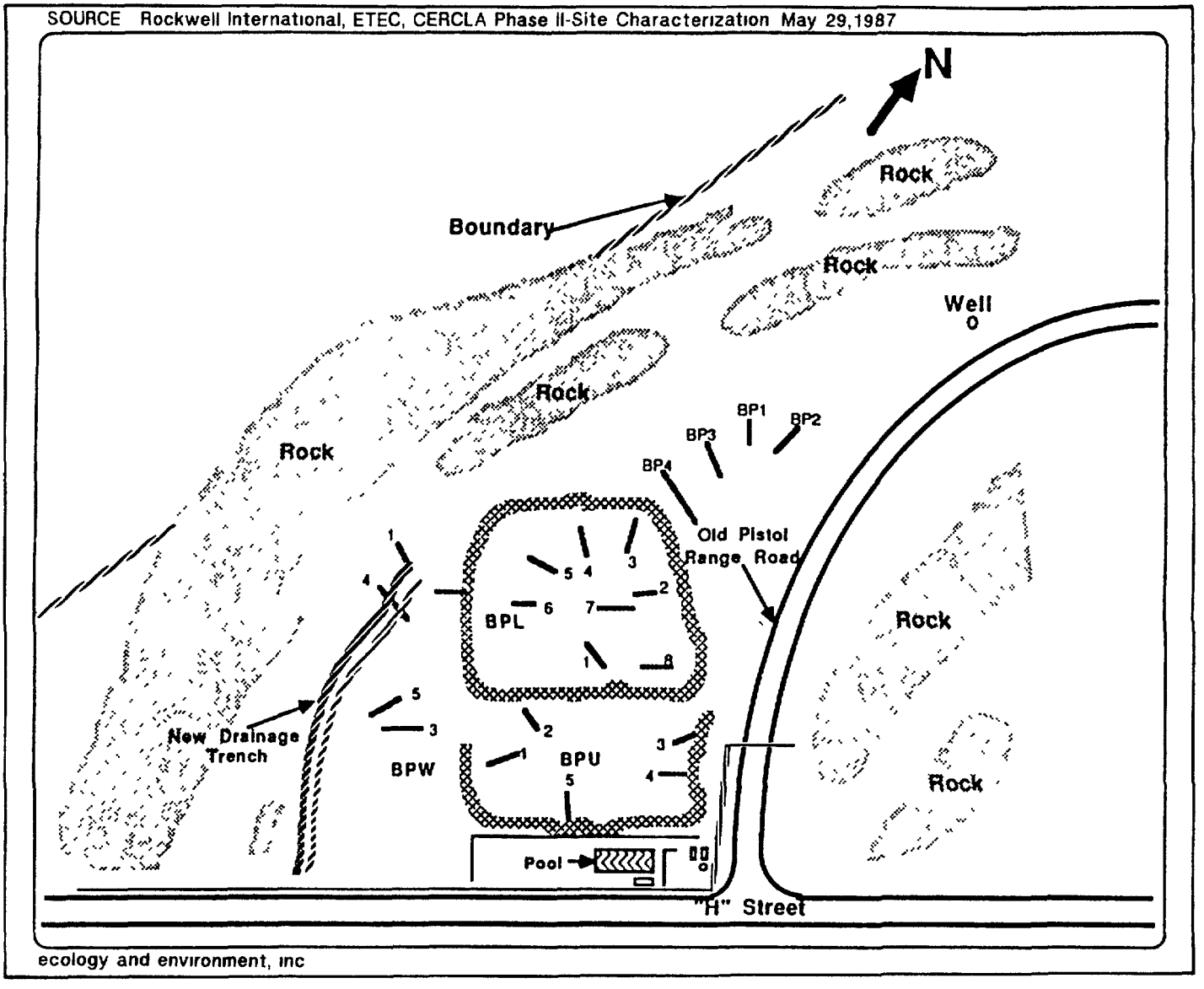

Figure 5 BURN PIT SKETCH MAP

Table 1

CONCENTRATIONS OF CONTAMINANTS FOUND DURING THE PHASE II SITE CHARACTERIZATION STUDY

Parameter	Concentrations (in mg/kg with depth from surface)						
	BPW-3 1.0 ft	BPW-3 4.5 ft	BPW-5 3.0 ft	BPL-1 1.0 ft	BPL-2 1.5 ft	BPL-2 4.0 ft	BPL-2 6.0 ft
Polychlorinated biphenyls (PCBs)	2.0	12.	0.2	2.4	1.0	2.6	1.1
Trichloroethene (TCE)	nd	nd	22	nd	nd	740	34
Tetrachloroethene (PCE)	nd	nd	nd	nd	1.7	1200	nd
Toluene	nd	nd	nd	nd	nd	800	11
Carbon tetrachloride	nd	nd	nd	nd	nd	500	nd
Oil and grease	2600	105	24	492	89	3600	144
Diesel fuel	202	50	nd	nd	nd	375	160
Chromium	320	13	34	14	34	710	12
Lead	864	10	17	18	14	153	19

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In 1980, a radiation survey was made of the unlined ponds (dry), and the lower pond was found to be radioactively contaminated. Cesium-137 was identified as the principal gamma-emitting constituent (3). This contamination will be removed during future remediation efforts (3).

3. HRS FACTORS

3.1 Observed Release

No observed releases of contaminants to groundwater, surface water or air from the burn pit have been documented. Groundwater samples from monitoring well RD-7, installed approximately 300 yards northwest of the burn pit, have shown contamination with TCE and toluene. Both of these compounds were found in soil samples from the burn pit (3). However, due to the complex geohydrology of the area, it is not possible to determine if the burn pit is the source of the contamination in RD-7.

Although a DOE employee noted that water occasionally overran the pit to the surrounding area, there is no documentation to confirm that contaminants were carried out of the burn pit area (8). Routine sampling of the surface water drainages performed by facility operators has not revealed any chemical or radioactive contamination (3). The potential for an observed release to surface water is high due to the steep terrain, moderate rainfall intensity and moderate distance to the nearest surface water. However, there are no surface water targets that would be affected by a release.

The only air monitoring on-site was performed during the 1987 trenching operation. At that time, ammonia, toluene, tetrahydrofuran, ethanolamine, and carbon tetrachloride were recorded down in one of the trenches, but no contaminants were detected by monitoring equipment at the surface (3).

3.2 Direct Contact/Fire and Explosion

The burn pit area is no longer in use and is fenced off to prevent unauthorized contact. The SSFL is isolated in the Simi Hills and public access to the facility is restricted by warning signs and steep terrain (5).

Metallic sodium is very reactive with water and, if there is any buried metallic sodium which has previously escaped reaction, it could present a potential explosion hazard, if exposed. Exposure of unreacted sodium to water should only occur during remedial activities and should not affect the public.

3.3 Waste Type/Quantity

No records were kept by the operators that document the exact type or quantity of wastes disposed of at the burn pit. Soil samples collected during Phase II site characterization show contamination with PCBs, PCE, TCE, toluene, carbon tetrachloride, oil, diesel fuel, chromium, lead, and other solvents and metals. Radioactive cesium-137 was also identified in the soil near the lower unlined pond (3).

ETEC personnel estimated that approximately 28,640 cubic feet of radioactive wastes, 14,400 cubic feet of chemical waste, and 11,025 cubic feet of mixed hazardous waste will be generated by soil excavation during the burn pit decontamination effort (9). The waste disposal sites and the remediation dates have not yet been determined.

3.4 Groundwater

The principal aquifers at the SSFL are the upper Cretaceous Chatsworth Formation and Quaternary alluvium. The Chatsworth Formation is composed primarily of massive, consolidated sandstone interbedded with siltstone and claystone. The occurrence and movement of groundwater in the Chatsworth Formation is controlled by a well-developed system of fractures and joints, and there is nothing to prevent the downward migration of water from the surface to the zone of saturation. Under natural conditions, groundwater generally flows radially away from the SSFL, north-northwest in the area of the burn pit (3). During recent years, however, the direction of flow has been altered by extensive groundwater pumping at the facility in an effort to control contaminant migration throughout the SSFL (5). Depth to water in wells in Area IV ranges from 45 to 60 feet below ground surface, and may fluctuate 10 to 15 feet annually (3).

A discontinuous layer of alluvium overlays the Chatsworth Formation beneath the facility. The alluvium is generally less than 20 feet thick and consists of mixtures of unconsolidated sand, silt, and clay. Wells drilled to 30 feet in the vicinity of the burn pit were dry, indicating that the alluvium is not saturated in this area (3).

Permeabilities vary greatly at the SSFL. No wells have been drilled through the burn pit to establish a site-specific hydraulic conductivity. Aquifer testing performed throughout the facility indicated that the permeability of the Chatsworth formation can range from 0.01 to 1,000 gallons per day per square foot (gpd/ft^2). Even the permeability of the overlying alluvium can vary greatly, ranging from 0.1 to 1,000 gpd/ft^2 (3).

The groundwater in the Chatsworth Formation is not used as a major source of drinking water. SSFL is provided with bottled water from several licensed suppliers for use as drinking water. The Metropolitan Water District of Southern California supplies the local water purveyors with drinking water from imported surface water. No municipal drinking water is derived from groundwater (6).

A preliminary assessment for Area II performed in 1988 identified 400 private domestic wells within 3 miles of the facility. A hydrologist for the Ventura County Department of Water Resources felt that "many" of the 400 domestic wells may be inactive. This conclusion is based on the current availability of municipal water supplies and the relatively high salinity of the groundwater (approximately 670 parts per million total dissolved solids) (10).

The nearest, active domestic or irrigation well is located approximately 1 mile north of the burn pit. SSFL has 17 water supply wells that were constructed prior to 1960. Some of these wells are less than 1 mile from the burn pit. They provide about 58 million gallons of water per year for sanitary, cooling, and other industrial uses (3).

The net seasonal (November to April) precipitation in the area is approximately 1.5 inches (11).

3.5 Surface Water

The pond areas, downslope from the concrete water pool, are incompletely bermed, and there is a potential for surface water drainage to adjacent areas (3). A DOE employee stated that water occasionally overran the pit to surrounding areas, although it never went off of the SSFL (8).

SSFL is located near the top of the Simi Hills. Ninety percent of the facility drains to the southeast into the Los Angeles River Basin, and the other 10 percent drains north into the Simi Valley. The burn pit is located in this latter 10 percent. Surface water runoff from the burn pit flows generally north toward the Simi Valley through Runkle and Meier Canyons (3). These canyons meet up with Arroyo Simi within 3 miles of the site (1). The slopes of the burn pit and the canyons are greater than eight percent. Only ephemeral streams flow through these channels, and the intermittent surface water is not used for any purpose (6). There are no known sensitive environments within 1 mile of the site (7).

The 1-year, 24-hour rainfall for the area is approximately 3 inches (12).

3.6 Air

There is no evidence to indicate that there has been an observed release of hazardous substances to air from this site. The presence of soil contamination, however, does suggest that there is a potential for contaminant releases to air. During Phase II trenching activities, air monitors detected ammonia, toluene, tetrahydrofuran, ethanolamine, and carbon tetrachloride in the air in one of the trenches. However, the compounds were not detected by surface monitoring equipment, and therefore do not constitute an air release.

3.7 Other HRS Factors

There is no residential population within 1 mile of the site. The area within 4 miles of the site includes portions of the densely-populated Simi and San Fernando Valleys. The population of this area in 1986 was 57,627 (4).

4. PROPOSED REVISED HRS CONSIDERATIONS

There are no characteristics about this site or its wastes that would significantly alter its prescreening results using the proposed revised Hazard Ranking System. Due to the isolated location of the burn pit, there is minimal chance of on-site exposure. There are no actual or

potential impacts on sensitive environments, surface water recreation, or the human food chain. There is a potential for release of contaminants to air from the contaminated soil, but previous air monitoring indicates that this likelihood is small.

5. OTHER REGULATORY INVOLVEMENT

Although the burn pit was outside the DOE-optioned area, it was used exclusively for the cleaning and disposal of components for the many reactor test programs conducted by DOE and its predecessor agencies. For this reason, DOE requested that the site be included for study under DOE Order 5480.14. This order implements a five-phase DOE Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) program to identify and evaluate inactive hazardous waste disposal sites on DOE installations and, where necessary, to effect remedial actions at these sites. To date, Phase I and Phase II site characterization studies have been performed for DOE facilities at the SSFL, and DOE intends to include the burn pit in future characterization and remediation plans (3).

The California Department of Health Services (DOHS) is the lead agency overseeing the groundwater contamination clean-up efforts at the SSFL in general. The Los Angeles Regional Water Quality Control Board (RWQCB) is also participating in the groundwater remediation activities being conducted by Rockwell (2).

6. REMOVAL CONSIDERATIONS

The former sodium burn pit does not pose an immediate threat to human health or the environment. There is some potential for off-site migration of contaminants via surface water runoff, but previous samples from the surface water drainages have not detected any off-site contaminant migration. Surface water is not used for any purpose within 3 miles of the site.

7. CONCLUSIONS

The Former Sodium Burn Pit is an inactive site once used for the cleaning and disposal of components for several reactor testing programs. These programs were operated by Rockwell International at Department of Energy facilities at the Santa Susana Field Lab in the Simi Hills. Since 1966, the burn pit was used for the disposal of liquid sodium and sodium-potassium mixtures by reacting the metals with water. The site was also used for the disposal of solvents and radioactively-contaminated components. A site characterization study ordered by the U.S. Department of Energy has revealed soil contaminated with polychlorinated biphenyls, trichloroethylene, tetrachlorethylene, carbon tetrachloride, oil, diesel fuel, chromium, lead, and other solvents and metals in the burn pit area. A radiation survey indicated that some portions of the burn pit area are contaminated with cesium-137.

Remediation of the site is being planned under a five-phase program implemented by the U.S. Department of Energy under the Comprehensive Environmental Response, Compensation, and Liability Act. A Phase II - Site Characterization Study has already been performed for the burn pit.

Groundwater is not a major source of drinking water within 3 miles of the site. There are possibly as many as 400 domestic wells within 3 miles of the site, but many of these wells may no longer be active. Potable water is supplied to local water purveyors by the Metropolitan Water District of Southern California from distant surface waters. Groundwater wells do provide some water to the Santa Susana Field Lab for sanitation, industrial, and cooling purposes. Surface water is not used within 3 miles of the site.

Based on a preliminary Hazard Ranking System estimate, it does not appear as though the Former Sodium Burn Pit at the Rockwell International Santa Susana Field Lab will be eligible for inclusion on the National Priorities List. This conclusion is based on the following factors of the Hazard Ranking System:

- o Low groundwater drinking water targets within 3 miles; and
- o No surface water targets within 3 miles.

8. EPA RECOMMENDATION

	Initial	Date
No Further Action Under CERCLA	[signature]	10.2-89
High Priority SSI		
Medium Priority SSI		

Notes:

c/kj/burnpit/prel

REFERENCES

1. U.S. Geological Survey, Calabasas, California Quadrangle, 1967.

2. Ng, Adam S., Preliminary Assessment Summary of Rockwell/Rocketdyne Santa Susana Field Laboratory, Simi Hills, California, ICF Technology Inc. for EPA-FIT, December 14, 1987.

3. Rockwell International - Energy Technology Engineering Center, CERCLA Program Phase II - Site Characterization, May 29, 1987.

4. Rockwell International, CERCLA Program Phase I - Installation Assessment for DOE Facilities at SSFL, April 25, 1986.

5. Ueshiro, Randy, Rockwell International, and Karen Johnson, Ecology and Environment, Inc., telephone conversation, February 14, 1989.

6. Townsend, Chip, Ventura County Water Works District #8, and Karen Johnson, Ecology and Environment, Inc., telephone conversation, February 9, 1989.

7. U.S. Fish and Wildlife Service, Pacific Coast Ecological Inventory Map, Los Angeles, CA, 1981.

8. Lavagnino, Gary, DOE, and Karen Johnson, Ecology and Environment, Inc., telephone conversation, January 10, 1989.

9. Lafflam, Steve, Rockwell International, to Karen Johnson, Ecology and Environment, Inc., letter, February 20, 1989.

10. Hoffman, LaVerne, Ventura County Department of Water Resources, and Karen Johnson, Ecology and Environment, Inc., telephone conversation, July 6, 1989.

11. U.S. Department of Commerce, Environmental Science Services Administration, Environmental Data Service, Climatic Atlas of the United States, 1968.

12. U.S. Department of Commerce, Rainfall Frequency Atlas of the United States: Technical Paper No. 40, 1983.

c/kj/burnpit/prel

CONTACT REPORT

AGENCY/AFFILIATION: DOE		
DEPARTMENT:		
ADDRESS/CITY: Oakland		
COUNTY/STATE/ZIP:		
CONTACT(S)	**TITLE**	**PHONE**
1. Gary Lavagnino		(415) 273-6597
2.		
E & E PERSON MAKING CONTACT: Karen Johnson		**DATE:** 1/10/89
SUBJECT: DOE work on-site		
SITE NAME: Rockwell SSFL Burn pit and landfill		**EPA ID#:** CAD0951PAA CAD0952PAA

DOE is taking an active role investigation both site and is expecting to fund cleanup.

Burn pit - used in Na testing and treating. Often also used as solvent pit. Occasionally overran the pit to surrounding area, but never off-site. High levels of metals, solvents, and Cs-157 found in soil samples.

Landfill - Construction began for Bldg 56 with a large basement (to hold small nuclear reactor). The dirt from the hole for the basement was dumped over a cliff. Drums and other stuff was stored (later) on top of cliff. Oil stains were found on dirt. Trenches have been dug in fan of dirt and no contamination beyond surface oil stains have been detected.

Lots of good soil data. Will tell Steve Lafflam to go ahead and give to me everything that has already been sent to regulatory agencies (including HRS). The GW data for the area of the site is poor, but they're getting funding for new monitoring wells and more studies. There are about 145 wells on the Rockwell facility. All are showing high TCE contamination. He estimates that nearly 1/2 million gallons of TCE have been released to the environment from the facility as a whole.

Rockwell, under the guidance of the RWQCB, is working to cleanup, using air stripping towers.

ref. 8

F123

CONTACT REPORT

AGENCY/AFFILIATION: Rockwell International		
DEPARTMENT: SSFL		
ADDRESS/CITY:		
COUNTY/STATE/ZIP:		
CONTACT(S)	**TITLE**	**PHONE**
1. Randy Ueshira		(818) 700-5665
2.		
E & E PERSON MAKING CONTACT: Karen Johnson		**DATE:** 2/14/89
SUBJECT:		
SITE NAME: Rockwell SSFL I and II	**EPA ID#:** CAD982399719 * CAD982399776	

Called Randy to ask for pgs. 6 and 25 of Phase II. Also asked for clarification on Burn Pit wastes. He will send a ETEC rpt which may help. Na is not radioactive. Cs137 contaminated equipment was also cleaned and buried there.
The pH of the Na waste water is probably 12-14 (more likely 14). It is 3% NaOH. This is what the current Na Disposal Facility is RCRA permitted to produce and should have been the same in past.
TCE in RD-7 is a puzzle. There are no records to indicate TCE ever put in landfill. Because of current efforts to cleanup facility, GW flow is towards middle of site, so the engineers don't think its coming from other part of facility. (Maybe did once, long ago?)
Both the burn pit and landfill area are fenced to prevent access.

ref. 5

F123

CONTACT REPORT

AGENCY/AFFILIATION: Rockwell International		
DEPARTMENT: Santa Susanna Field Lab		
ADDRESS/CITY: Woolsey Canyon Rd. Simi Hills		
COUNTY/STATE/ZIP: Ventura Co., CA, 93063		
CONTACT(S)	**TITLE**	**PHONE**
1. Steve Lafflam	Env. Mgr	(818) 700-6101
2.		
E & E PERSON MAKING CONTACT: Karen Johnson		**DATE:** 1/6/89
SUBJECT: Rockwell SSFL - new CERCLA sites		
SITE NAME: Rockwell SSFL - new CERCLA sites		**EPA ID#:** CAD 982399719 CAD 982399776

I called to ask about sites mentioned in Amended CERCLA Notification Letter of 12/87.

He said that originally these sites were in an area operated by DOE. DOE felt they were not under EPA control and did their own 5 Phase CERCLA program. Rocketdyne filed a CERCLA Notification for only those sites they controlled.

On 10/84, Rockwell assumed control of part of the DOE area, including the sodium burn pit and landfill. They decided they should file the amendment with EPA since DOE had not notified the EPA previously about these sites.

When asked if I could get copies of the DOE studies (PA and HRS scoring in particular), Mr. Lafflam stated that I should contact Gary Lavagnino, DOE in Oakland, (415) 273-6597. The DOE report is still in draft form and he didn't feel he should pass it on.

I confirmed that this burn pit and landfill are not the ones included in the Hargis report (and from that, the original Rockwell P.A.)

F123

CONTACT REPORT

AGENCY/AFFILIATION: Ventura County Public Works		
DEPARTMENT: Flood Control		
ADDRESS/CITY: Ventura		
COUNTY/STATE/ZIP:		
CONTACT(S)	**TITLE**	**PHONE**
1. Jerry Nowak		(805) 654-2002
2.		
E & E PERSON MAKING CONTACT: Karen Johnson		**DATE:** 2/14/89
SUBJECT: Runkle Reservoir		
SITE NAME: Rockwell SSFL I and II		**EPA ID#:** CAD982399719 CAD982399776

The "Runkle Reservoir" located on the USGS Quad is merely a debris basin and bleeds any water it collects within a day or so.

CONTACT REPORT

AGENCY/AFFILIATION: Ventura County Water Works District #8		
DEPARTMENT:		
ADDRESS/CITY: Simi Valley		
COUNTY/STATE/ZIP: Ventura, CA		
CONTACT(S)	**TITLE**	**PHONE**
1. Chip Townsend	Water Supervisor	(805) 583-0393
2.		
E & E PERSON MAKING CONTACT: Karen Johnson		**DATE:** 2/9/89
SUBJECT: Water use in Simi Valley		
SITE NAME: Rockwell SSFL #1 and #2	**EPA ID#:** CAD982399719 CAD982399776	

All water for the Simi Valley (including the Rockwell Facility) is provided by WWD#8. They get the water from MWD from the Colorado River or N. CA. No GW is used at all. Meier Cyn residents also use MWD water (from Las Virgines Water district). The Arroyo Simi is not used in the Simi Valley. Chip thinks that the water that occasionally flows down to Oxnard is diverted there and used as recharge for the aquifer beneath the Oxnard Plain.

ref. 6

F123

POOR LEGIBILITY

ONE OR MORE PAGES IN THIS DOCUMENT ARE DIFFICULT TO READ
DUE TO THE QUALITY OF THE ORIGINAL