

Preliminary Assessment for the National Park Service, Devils Postpile National Monument

PREPARED FOR

*Sequoia and Kings Canyon National Park
47050 Generals Highway
Three Rivers CA 93271*

PREPARED BY

*Provost and Pritchard Engineering Group, Inc
2505 Alluvial Ave.
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October 2008

Provost and Pritchard Project 192108C1

**PRELIMINARY ASSESSMENTS FOR THE NATIONAL PARK
SERVICE
DEVILS POSTPILE NATIONAL MONUMENT**

47050 GENERALS
HIGHWAY THREE
RIVERS, CA 93271

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SEQUOIA AND KINGS CANYON NATIONAL PARK
47050 GENERALS HIGHWAY
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Executive Summary

Provost and Pritchard Consulting Group, Inc. (P&P) conducted a Preliminary Assessment (PA) at the 100,000 gallon steel water tank in Devils Postpile National Monument. The objective of the PA is to identify and describe past and present practices and processes related to storage, use and disposal of hazardous materials. The release of lead based paint chips and sand blasting debris to soil can in certain conditions result in a release above regulatory criteria.

The site was visited by a P&P Registered Environmental Assessor (REA) experienced with lead releases. The available historical data were collected from interviews with Park Services personnel and the site was evaluated using the PA Scoring software (HRS Quick Score version 2.3) and received a site score of 9.14. Generally sites that score less than 28.50 receive a no further remedial action planned (NFRAP) recommendation.

The site score indicates the the Site should receive a NFRAP and it appears to pose no significant threat to human health or the surrounding environment based on the nature and extent of the HRS score. It should also be noted that concentrations of lead in the soil at the site are below the the California Human Health Screening Levels (CCHLS) of 3,500 mg/kg for commercial/Industrial. However the average concentration as reported by soils samples collected by DEPO staff are slightly above the Total Threshold Limit Concentration (TTLC) for lead of 1,000 mg/kg, as defined in Title 22, California Code of Regulations. This may become an issues if the oils is excavated. If future excavation is planned further testing for disposal should be conducted.

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Acronyms and Abbreviations

CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
cfs	cubic feet per second
DEPO	Devils Postpile National Monument
EPA	Environmental Protection Agency
ft ³	cubic feet
HRS	Hazard Ranking System
Mg/kg	Milligrams per Kilogram
NPS	National Park Service
NFRAP	No Further Remedial Action Planned
PA	Preliminary Assessment
P&P	Provost and Pritchard Consulting Group

1 INTRODUCTION

At the request of the National Park Service (NPS), Provost and Pritchard Consulting Group (P&P) conducted a Preliminary Assessment (PA) in general accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) guidance manual for the historic release (2005) of lead based paint chips and sand blasting debris at the 100,000 gallon above ground potable water tank in Devils Postpile (DEPO) (Figures 1 and 2). The objective of this PA is to identify and describe past and present practices and processes related to the historic release and evaluate the sites Hazard Ranking System score (HRS) .

The scope of the investigation included review of available local, state, and federal agency file information, a potential receptor evolution, a site reconnaissance, and interviews with DEPO personnel. The investigation focused on the 2005 water tank sandblasting operations activities intended to remove the lead based paint from the exterior of the tank. This is a non-routine activity and may have led to a release of lead based paint chips and sandblasting debris into the soil within the vicinity of the tank. On the basis of a review of historical data, site visit and interviews with on-site staff the HRS Score was calculated using the EPA's QuickScore. The data Sheets for the site can be found in Appendix A.

1.1 Site Description

Located on the western slope of the Sierra Nevada range between 7,200 and 8,200 feet (2,200 to 2,500 meters) (Figure 1), the Monument contains an interesting assemblage of flora, fauna and geology (for which the monument was set aside). Devils Postpile is located in the south eastern Sierra Nevada approximately 2 miles southwest of Mammoth Mountain ski resort in Madera County, California at 37.629 N Longitude and 119.0847 Latitude. The tank site is located on a slope north east of the campground (Figure 2).

Devils Postpile National Monument's landscape is a result of eruptions and uniform cooling of basalt lava that created an impressive wall of columns. Later a glacial event exposed the columns and polished smooth the top of this formation enhancing the pattern of hexagons that are a result of the mineral composition of the lava. Several other lava flows have occurred in the Monument and surrounding area. A United States Geologic Survey (USGS) summary of the geologic history of the area follows:

The oldest volcanic rock in the vicinity of the Monument is believed to be the basalt now exposed at The Buttresses, although its exact age is not known.

The valley of the Middle Fork of the San Joaquin River was glaciated, probably more than once, prior to about 760,000 years ago.

Deposition of the tuff near Reds Meadow about 760,000 years ago was concurrent with extensive volcanic activity that created the Long Valley caldera and produced the Bishop Tuff.

Stream erosion, perhaps aided by another glaciation, removed much of the tuff from the central part of the valley.

Rhyodacite lava erupted from vents just downstream from the present site of the Postpile and flowed southward beyond Rainbow Falls.

Andesite lava erupted near Mammoth Pass and cascaded into the Middle Fork valley.

Less than 100,000 years ago basalt, now exposed at the Devils Postpile, erupted north of Pumice Flat and flowed out to cover, at the very least, several square miles of the valley floor.

Stream and glacial erosion again removed much of the accumulated volcanic rock from the Middle Fork valley. The last glaciation, which ended about 10,000 years ago, produced the polish and striations visible on the top of the Devils Postpile.

The Red Cones, and their associated lava flow, were formed sometime after the last glacier vanished from the valley.

Pumice erupted from the Inyo and Mono Craters and covers the area as a surface deposit.

Climate within the park varies greatly by season. Precipitation usually occurs year round with sub tropical thunder storms in the spring and fall and significant rain and snow events in the winter. Average rainfall is about 30 inches. Snow fall exceeds 400-inches per year.

1.2 Water Tank Operational History

The existing water tank was installed prior to 1940 (Photograph 1). The tank has been in seasonal use since its installation (Mr. John Fernandes, DEPO Maintenance Supervisor). The tank is drained at the end of each season in late October or early November. The tank is treated and refilled at the beginning of each spring season in approximately late April or early May. The Water tank is the sole potable water storage facility for DEPO

In 2005, DEPO contracted with AA-1 Services, Inc. of Paramount, California to sandblast and recoat the exterior of the 100,000 gallon potable water tank. Reportedly the tank had not been repainted since its installation (Fernandes, 2008). The tank's paint had weathered to the point that paint was peeling and flaking (Photograph 2). AA-1 Service constructed what appeared to be negative pressure containment system by wrapping scaffolding surrounding the tank with a plastic material (Photographs 3 and 4). Penetrations were made for air and vacuum tubes and what appears to be a personal air monitor or a temperature probe (Photograph 5, 6 and 7).

1.3 Waste Characteristics

The primary type of waste generated on site was a onetime release of lead based paint chips related to the sandblasting operations for external tank cleaning in preparation recoating. It is also likely that some amount of the blasting materials was also released to the soil during the blasting operations in 2005. However the sandblasting material is not considered an environmental hazard.

1.4 Previous Investigation

In November 2005, a sampling event was conducted of the soil at ten locations within the containment area by Mr. John Fernandes. The samples were collected to verify the the cleanup procedures of the painting contractor (AA-1 Service). Soils samples were collected by Mr.Fernandes as a direct result of a contract violation by AA-1 Service requiring that all clearance sampling be conducted with NPS contract officer technical representative (COTR) present.

The exact locations from which the soil samples were collected are not known, however notes included in the file and discussions with Mr. Fernandes suggest that the samples were collect from within the foot print of the containment area at approximately 15-foot on centers (Figure 2).

The laboratory testing results of the ten soil sample (conducted by Sierra Environmental Monitoring, Inc.) collected by Mr. Fernandes indicated that lead was present in each of the samples above the the method reporting limit of 5.0 milligrams per kilograms (mg/kg). The average concentration is approximately 1,049 mg/kg. The maximum lead concentration detected was 2,100 mg/kg and the minimum concentration was 20 mg/kg.

The complete analytical report is included in Appendix C.

1.5 Regulatory Activity

There has been no regulatory agency activity pertinent to the site.

2 RECORDS REVIEW

Records reviewed by P&P include: correspondence in DEPO files, Laboratory analytical results, NPS Case Incident Report, applicable topographic and geologic maps, and a field reconnaissance.

Historical Data

The DEPO project files reviewed contained photographs, laboratory analytical data, contracts, the Case Incident Report and miscellaneous data unrelated to the release. Selected photographs and the case incident report are included herein for reference.

Interviews

The following individuals were interviewed by P&P to obtain information about the site.

DEPO personnel:

- Ms. Deanna Dulen: Superintendent
- Mr. John Fernandes: Maintenance Supervisor

3 SITE VISIT

The site visit was conducted on September 11, 2008. The visit was performed by Mr. David Norman REA (PP) with guidance and general assistance from Mr. John Hernandez. Mr. Mike Sorenson, Environmental & Health and Safety Supervisor from Sequoia and Kings Canyon National Parks (SEKI) was also present during the site visit. Mr. Sorenson is assisting DEPO with Park environmental compliance. In general, the visit was completed in the following manner:

The tank site was observed for general location with respect to potential receptors, soil type (Photograph 1).

A sketch map was made of site configuration (using the survey map provided by Richard Arber; dated February 2008), distances were approximated.

Site soils, geology and drainage features were noted.

Photographs were taken of the tank and surrounding area.

Selected 2005, Photographs of the tank sandblast operation and the current site condition taken during the site assessment can be found in Appendix B.

4 PATHWAY AND ENVIRONMENTAL HAZARD ASSESSMENT

The following sections characterize the pathway potential for groundwater, surface water, soil and air, and assesses the environmental hazard posed by the lead based pint chip release to soil adjacent to the tank.

4.1 Groundwater Pathway Hydrogeologic Setting

Subsurface materials at the site consist of recent basaltic lava flows and andesitic tuff, ash pumice soils (USGS, 2008). Soil depth ranges from less than one-inch to feet below which is basaltic bedrock. Groundwater is primarily contained in the fractures of the bed rock. A potable water well was recently drilled near the tank as a portion of a water system upgrade project. The well is located approximately 500 south of the tank and is reportedly 220 feet deep. No groundwater recharge is expected to occur through the shallow soils to the bedrock in the vicinity of the site.

4.1.1 Groundwater Targets

The only groundwater targets (i.e., drinking water wells or surface water intakes supplying drinking water) within the target distance limit (a 4-mile radius) of the site is the new well installed at the site for potable water. The drinking water well is located approximately 500 feet south of the site. The well supplies the parks headquarters, camp grounds and a few surrounding residences with drinking water. The well is completed to a depth of 220 feet, cased to a depth of, and has a capacity of 35 gallons per minute (Fernandes, 2008).

4.1.2 Groundwater Conclusions

A target population exists for the groundwater pathway. However, the drinking water well is completed deep into bed rock so a migration pathway is likely not present. It is also unlikely that the downstream population drawing drinking water from the San Joaquin River is impacted by surface water runoff from the site. No sacrificial evidence of contamination was present during site inspection. Area vegetation did not appear to be stressed. Discolored soil was not observed in the area of the above-grade pipe or the submerged leach pipe.

4.2 Surface Water Pathway Hydrologic Setting

The site is set adjacent to the San Joaquin River – located approximately 1,500 feet from and 150 above the San Joaquin River (Site Plan, Figure 2 Appendix A). The San Joaquin River and has peak seasonal flows of during June to September (Dulen 2008, verbal communication 2008).

4.2.1 Surface Water Targets

The San Joaquin River is the primary target within the surface water target distance

(15 miles hydraulically downgradient). As discussed in Section 4. 1, no known population relies on the San Joaquin River for drinking water within the target distance. No known Federal or California listed or special species of concern, is known to inhabit the the San Joaquin River or the park at elevations consistent with the location of the site (Dulen, verbal communication 2008). Fishing is permitted in the river.

4.2.2 Surface Water Conclusions

It is unlikely that the San Joaquin River is impacted by surface water runoff from the site because the distance and flow path, geographic boundaries are large. The concentrations of lead known to exist in the soil near the water tank are not expected to inhibit plant growth. Area vegetation did not appear to be stressed. Discolored soil was not observed in the area near the tank.

4.3 *Soil Exposure and Air Pathway Physical Conditions*

The tank site and is located geographically east and topographically above of the campgrounds, park buildings, trails and facilities. The site is accessible to parks service employees via a walking trail uphill (to the east) from the camp grounds and the unpaved access road from the east (Figure 2).The site is generally not visible or accessible to visitors.

4.3.1 Soil and Air Targets

There are no private residences within 200 feet (the soil pathway target distance limit) of the site; however, several species of endangered or threatened wildlife are known to inhabit the areas of elevation in which the site is located. The potential for the presence of these animals makes the site a terrestrial sensitive environment. However, lead is not typically taken up by native plants and is generally not considered highly bioaccumulative.

Several employee residences are located within the air target distance limit (four miles) of the site. The residences are down slope to the south of the site, approximately 1,200 feet. Due to the nature of the contaminants and the soil types on site and the hilly forested terrain, which is restrictive of airflow between the source and the target, it is unlikely that an airborne exposure pathway exists.

The park's campgrounds are located with 1,000 feet west and 125 feet below the site. Due to the nature of the contaminants and the soil types on site and the hilly forested terrain, which is restrictive of airflow between the source and the target, it is unlikely that an airborne exposure pathway exists.

4.3.2 Soil Exposure and Air Pathway Conclusions

The soil exposure pathway appears to pose no significant threat to human health and the surrounding environment due the nature of the release. Concentrations of lead in the

soil at the site are below the the California Human Health Screening Levels (CCHLS) of 3,500 mg/kg for commercial/Industrial use and slightly above the Total Threshold Limit Concentration (TTLC) for lead of 1000 mg/kg, as defined in Title 22, California Code of Regulations.

The airborne exposure pathway appears to pose no threat to human health or the surrounding environment and local wildlife due to the nature of the contaminate (Lead paint chips).

5 SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

Principal pathways include soil and, potentially, groundwater and surface water runoff. Targets of concern are local resident (seasonal employees) and worker population within target distance limits, and persons recreationally camping in the park and fishing the San Joaquin River. Due to the nature and reported concentrations of the contaminant of concern, it is not recommended that the site be considered for further action under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process. It should be noted that Concentrations of lead in the soil at the site are below the the California Human Health Screening Levels (CCHLS) of 3,500 mg/kg for commercial/Industrial use the CCHLS is above the Total Threshold Limit Concentration (TTLC) for lead of 1000 mg/kg, as defined in Title 22, California Code of Regulations.

The site was evaluated using the PA Scoring software (results are provided in Appendix A). The site PA score for the site is 9.14. In general, under the PA process, sites that score 28.50 or greater receive a further action recommendation, while sites that score less than 28.50 receive a no further remedial action planned (NFRAP) recommendation. Therefore, this report recommends the site for NFRAP under CERCLA.

6 SIGNATURES OF PROFESSIONAL

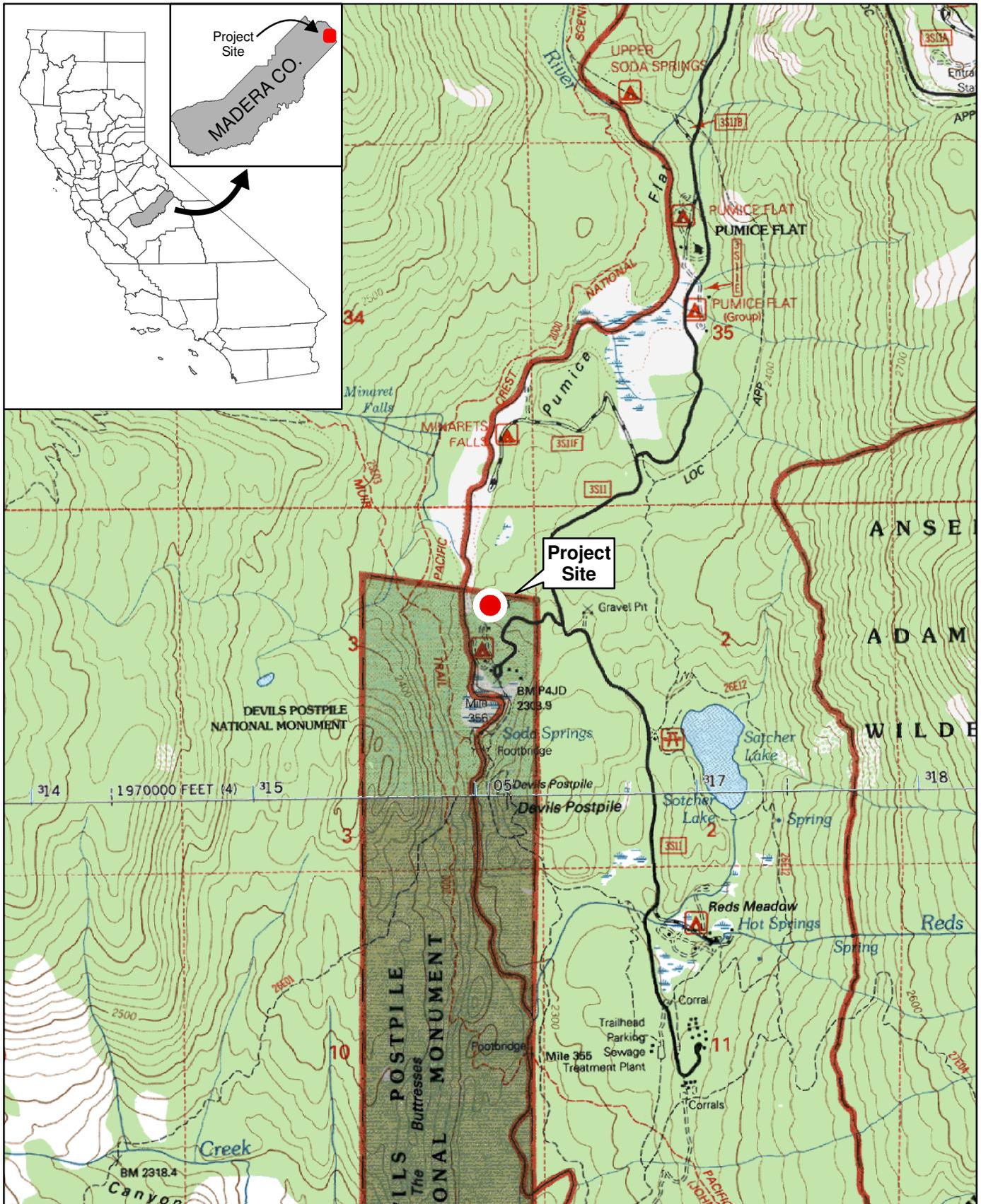
This report was prepared in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Report Prepared by:

A handwritten signature in black ink, appearing to read "David Norman", is written over a horizontal line. The signature is cursive and fluid.

David Norman REA

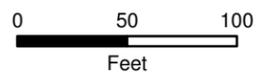
FIGURES



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FIGURE 1
VICINITY MAP
 Devils Postpile National Monument
 Project Site Location



Legend

- ✦ Approximate Sample Locations
- Tank Buffer - 5 ft

FIGURE 2

SITE LOCATION

Devils Postpile National Monument
Water Tank With Site Topography

APPENDICES

Appendix A

Preliminary Assessment Score Sheet and Data Summary Form

TABLE 3-1 --GROUND WATER MIGRATION PATHWAY SCORESHEET

Factor categories and factors	Maximum Value	Value Assigned
Aquifer Evaluated:		
Likelihood of Release to an Aquifer:		
1. Observed Release	550	0
2. Potential to Release:		
2a. Containment	10	10
2b. Net Precipitation	10	10
2c. Depth to Aquifer	5	1
2d. Travel Time	35	35
2e. Potential to Release [(lines 2a(2b + 2c + 2d)]	500	460
3. Likelihood of Release (higher of lines 1 and 2e)	550	460
Waste Characteristics:		
4. Toxicity/Mobility	(a)	100
5. Hazardous Waste Quantity	(a)	1
6. Waste Characteristics	100	3
Targets:		
7. Nearest Well	(b)	20
8. Population:		
8a. Level I Concentrations	(b)	300
8b. Level II Concentrations	(b)	324
8c. Potential Contamination	(b)	417
8d. Population (lines 8a + 8b + 8c)	(b)	1041
9. Resources	5	0
10. Wellhead Protection Area	20	0
11. Targets (lines 7 + 8d + 9 + 10)	(b)	1061
Ground Water Migration Score for an Aquifer:		
12. Aquifer Score [(lines 3 x 6 x 11)/82,5000] ^c	100	17.7476363636 364
Ground Water Migration Pathway Score:		
13. Pathway Score (S_{gw}), (highest value from line 12 for all aquifers evaluated) ^c	100	17.7476363636 364

^a Maximum value applies to waste characteristics category

^b Maximum value not applicable

^c Do not round to nearest integer

TABLE 4-1 --SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORESHEET

Factor categories and factors	Maximum Value	Value Assigned
Watershed Evaluated: Upper San Joaquin		
Drinking Water Threat		
Likelihood of Release:		
1. Observed Release	550	0
2. Potential to Release by Overland Flow:		
2a. Containment	10	3
2b. Runoff	10	1
2c. Distance to Surface Water	5	9
2d. Potential to Release by Overland Flow [(lines 2a)(2b + 2c)]	35	30
3. Potential to Release by Flood:		
3a. Containment (Flood)	10	0
3b. Flood Frequency	50	0
3c. Potential to Release by Flood (lines 3a x 3b)	500	0
4. Potential to Release (lines 2d + 3c, subject to a maximum of 500)	500	30
5. Likelihood of Release (higher of lines 1 and 4)	550	30
Waste Characteristics:		
6. Toxicity/Persistence	(a)	10000
7. Hazardous Waste Quantity	(a)	1
8. Waste Characteristics	100	10
Targets:		
9. Nearest Intake	50	50
10. Population:		
10a. Level I Concentrations	(b)	52
10b. Level II Concentrations	(b)	0
10c. Potential Contamination	(b)	0
10d. Population (lines 10a + 10b + 10c)	(b)	52
11. Resources	5	0
12. Targets (lines 9 + 10d + 11)	(b)	102
Drinking Water Threat Score:		
13. Drinking Water Threat Score [(lines 5x8x12)/82,500, subject to a max of 100]	100	0.37
Human Food Chain Threat		
Likelihood of Release:		
14. Likelihood of Release (same value as line 5)	550	30
Waste Characteristics:		
15. Toxicity/Persistence/Bioaccumulation	(a)	50000
16. Hazardous Waste Quantity	(a)	1
17. Waste Characteristics	1000	10
Targets:		
18. Food Chain Individual	50	20
19. Population:		
19a. Level I Concentration	(b)	3
19b. Level II Concentration	(b)	0
19c. Potential Human Food Chain Contamination	(b)	1
19d. Population (lines 19a + 19b + 19c)	(b)	4
20. Targets (lines 18 + 19d)	(b)	24
Human Food Chain Threat Score:		
21. Human Food Chain Threat Score [(lines 14x17x20)/82500, subject to max of 100]	100	0.09
Environmental Threat		
Likelihood of Release:		
22. Likelihood of Release (same value as line 5)	550	30
Waste Characteristics:		
23. Ecosystem Toxicity/Persistence/Bioaccumulation	(a)	50000000
24. Hazardous Waste Quantity	(a)	1
25. Waste Characteristics	1000	56

Targets:

26. Sensitive Environments		
26a. Level I Concentrations	(b)	50
26b. Level II Concentrations	(b)	50
26c. Potential Contamination	(b)	50
26d. Sensitive Environments (lines 26a + 26b + 26c)	(b)	150
27. Targets (value from line 26d)	(b)	150

Environmental Threat Score:

28. Environmental Threat Score [(lines 22x25x27)/82,500 subject to a max of 60] 60 3.05

Surface Water Overland/Flood Migration Component Score for a Watershed

29. Watershed Score^c (lines 13+21+28, subject to a max of 100) 100 3.51

Surface Water Overland/Flood Migration Component Score

30. Component Score (S_{sw})^c (highest score from line 29 for all watersheds evaluated) 100 3.51

^a Maximum value applies to waste characteristics category

^b Maximum value not applicable

^c Do not round to nearest integer

TABLE 4-25 --GROUND WATER TO SURFACE WATER MIGRATION COMPONENT SCORESHEET

Factor categories and factors	Maximum Value	Value Assigned
Aquifer Evaluated:		
Drinking Water Threat		
Likelihood of Release to an Aquifer:		
1. Observed Release	550	550
2. Potential to Release:		
2a. Containment	10	3
2b. Net Precipitation	10	6
2c. Depth to Aquifer	5	3
2d. Travel Time	35	35
2e. Potential to Release [(lines 2a(2b + 2c + 2d)]	500	132
3. Likelihood of Release (higher of lines 1 and 2e)	550	550
Waste Characteristics:		
4. Toxicity/Mobility	(a)	100
5. Hazardous Waste Quantity	(a)	1
6. Waste Characteristics	100	3
Targets:		
7. Nearest Well	(b)	0
8. Population:		
8a. Level I Concentrations	(b)	10.5
8b. Level II Concentrations	(b)	
8c. Potential Contamination	(b)	
8d. Population (lines 8a + 8b + 8c)	(b)	10.5
9. Resources	5	5
10. Targets (lines 7 + 8d + 9)	(b)	15.5
Drinking Water Threat Score:		
11. Drinking Water Threat Score [(lines 3 x 6 x 10)/82,500, subject to max of 100]	100	0.31
Human Food Chain Threat		
Likelihood of Release:		
12. Likelihood of Release (same value as line 3)	550	550
Waste Characteristics:		
13. Toxicity/Mobility/Persistence/Bioaccumulation	(a)	500
14. Hazardous Waste Quantity	(a)	1
15. Waste Characteristics	1000	3
Targets:		
16. Food Chain Individual	50	
17. Population		
17a. Level I Concentration	(b)	10.5
17b. Level II Concentration	(b)	
17c. Potential Human Food Chain Contamination	(b)	
17d. Population (lines 17a + 17b + 17c)	(b)	10.5
18. Targets (lines 16 + 17d)	(b)	10.5
Human Food Chain Threat Score:		
19. Human Food Chain Threat Score [(lines 12x15x18)/82,500,subject to max of 100]	100	1.11
Environmental Threat		
Likelihood of Release:		
20. Likelihood of Release (same value as line 3)	550	550
Waste Characteristics:		
21. Ecosystem Toxicity/Persistence/Bioaccumulation	(a)	500000
22. Hazardous Waste Quantity	(a)	1
23. Waste Characteristics	1000	18
Targets:		
24. Sensitive Environments		
24a. Level I Concentrations	(b)	10.5
24b. Level II Concentrations	(b)	
24c. Potential Contamination	(b)	

24d. Sensitive Environments (lines 24a + 24b + 24c)	(b)	10.5	
25. Targets (value from line 24d)	(b)		10.5
Environmental Threat Score:			
26. Environmental Threat Score [(lines 20x23x25)/82,500 subject to a max of 60]	60		1.26
Ground Water to Surface Water Migration Component Score for a Watershed			
27. Watershed Score ^c (lines 11 + 19 + 28, subject to a max of 100)	100		2.68
28. Component Score (S _{gs}) ^c (highest score from line 27 for all watersheds evaluated, subject to a max of 100)	100		2.68

^a Maximum value applies to waste characteristics category

^b Maximum value not applicable

^c Do not round to nearest integer

TABLE 5-1 --SOIL EXPOSURE PATHWAY SCORESHEET

Factor categories and factors	Maximum Value	Value Assigned
Likelihood of Exposure:		
1. Likelihood of Exposure	550	550
Waste Characteristics:		
2. Toxicity	(a)	10000
3. Hazardous Waste Quantity	(a)	1
4. Waste Characteristics	100	10
Targets:		
5. Resident Individual	50	0
6. Resident Population:		
6a. Level I Concentrations	(b)	5
6b. Level II Concentrations	(b)	0
6c. Population (lines 6a + 6b)	(b)	5
7. Workers	15	5
8. Resources	5	5
9. Terrestrial Sensitive Environments	(c)	25
10. Targets (lines 5 + 6c + 7 + 8 + 9)	(b)	40
Resident Population Threat Score		
11. Resident Population Threat Score (lines 1 x 4 x 10)	(b)	220000
Nearby Population Threat		
Likelihood of Exposure:		
12. Attractiveness/Accessibility	100	10
13. Area of Contamination	100	5
14. Likelihood of Exposure	500	5
Waste Characteristics:		
15. Toxicity	(a)	10000
16. Hazardous Waste Quantity	(a)	1
17. Waste Characteristics	100	10
Targets:		
18. Nearby Individual	1	1
19. Population Within 1 Mile	(b)	1
20. Targets (lines 18 + 19)	(b)	2
Nearby Population Threat Score		
21. Nearby Population Threat (lines 14 x 17 x 20)	(b)	100
Soil Exposure Pathway Score:		
22. Pathway Score ^d (S _s), [(11+21)/82,500, subject to max of 100]	100	2.67

^a Maximum value applies to waste characteristics category

^b Maximum value not applicable

^c No specific maximum value applies to factor. However, pathway score based solely on terrestrial sensitive environments is limited to a maximum of 60

^d Do not round to nearest integer

Appendix B
2005 Site Photographs



Photograph 1: 100,000 Water Tank Post Painting



Photograph 2: Water Tank and Weathered Paint (NPS Photos 2005)



Photograph 3: Containment Scaffold (NPS Photos 2005)



Photograph 4: Containment (NPS Photos 2005)

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Site Photographs

Appendix B

*Devils Post Pile
National Monument*



Photograph 5: Negative Air Flow Tubing (NPS Photos 2005)



Photograph 6: Air Monitor (NPS Photos 2005)

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2505 Alluvial Ave
Clovis, CA 93611-9166
(559) 326-1100

Site Photographs

Appendix B

*Devils Post Pile
National Monument*



Photograph 7: Containment (NPS Photos 2005)

Appendix C
Past Analytical Data



Laboratory Report

Report ID: 71955

Sierra
Environmental
Monitoring, Inc.

Devil's Postpile National Monument
Attn: Deanna Dulen
P.O. Box 3999
Mammoth Lakes, CA 93546

Date: 11/8/2005
Client: DPP-114
Taken by: J. Fernandes
PO #:

Dear Deanna Dulen,

It is the policy of Sierra Environmental Monitoring, Inc to strictly adhere to a comprehensive Quality Assurance Plan that insures the data presented in this report are both accurate and precise. Sierra Environmental Monitoring, Inc. maintains accreditation in the State of Nevada (NV-15) and the State of California (ELAP 2526).

The data presented in this report were obtained from the analysis of samples received under a chain of custody. Unless otherwise noted below, samples were received in good condition, properly preserved and within the hold time for the requested analyses. Any anomalies associated with the analysis of the samples have been flagged with appropriate explanation in the Analysis Report section of this Laboratory Report.

General Comments:

- There are no general comments for this report.

Individual Sample Comments:

- There are no specific comments that are associated with these samples.

Approved By:

A handwritten signature in black ink, appearing to read "John C. Seher", is written over a horizontal line.

Sierra Environmental Monitoring, Inc.

Date:

11/8/2005

This report is applicable only to the sample received by the laboratory. The liability of the laboratory is limited to the amount paid for this report. This report is for the exclusive use of the client to whom it is addressed and upon the condition that the client assumes all liability for the further distribution of the report or its contents.



Laboratory Report

Report ID: 71955

Sierra
Environmental
Monitoring, Inc.

Devil's Postpile National Monument
Attn: Deanna Dulen
P.O. Box 3999
Mammoth Lakes, CA 93546

Date: 11/8/2005
Client: DPP-114
Taken by: J. Fernandes
PO #:

Analysis Report

Sample ID:	Customer Sample ID	Date Sampled	Time Sampled	Date Received	Parameter	Method	Result	Units	Reporting Limit	Analyst	Date Analyzed	Data Flag
S200511-0417	Site 1	11/2/2005	9:30 AM	11/4/2005	Lead - ICP-MS	EPA 200.8	1800	mg/Kg	10	Layman	11/8/2005	J1
					Total Recoverable Metals - Acid Dig	EPA 200.2	Completed			Kleinworth	11/7/2005	

Sample ID:	Customer Sample ID	Date Sampled	Time Sampled	Date Received	Parameter	Method	Result	Units	Reporting Limit	Analyst	Date Analyzed	Data Flag
S200511-0418	Site 2	11/2/2005		11/4/2005	Lead - ICP-MS	EPA 200.8	890	mg/Kg	5	Layman	11/8/2005	J1
					Total Recoverable Metals - Acid Dig	EPA 200.2	Completed			Kleinworth	11/7/2005	

Sample ID:	Customer Sample ID	Date Sampled	Time Sampled	Date Received	Parameter	Method	Result	Units	Reporting Limit	Analyst	Date Analyzed	Data Flag
S200511-0419	Site 3	11/2/2005		11/4/2005	Lead - ICP-MS	EPA 200.8	520	mg/Kg	1	Li	11/7/2005	J1
					Total Recoverable Metals - Acid Dig	EPA 200.2	Completed			Kleinworth	11/7/2005	

Sample ID:	Customer Sample ID	Date Sampled	Time Sampled	Date Received	Parameter	Method	Result	Units	Reporting Limit	Analyst	Date Analyzed	Data Flag
S200511-0420	Site 4	11/2/2005		11/4/2005	Lead - ICP-MS	EPA 200.8	1500	mg/Kg	10	Layman	11/8/2005	J1
					Total Recoverable Metals - Acid Dig	EPA 200.2	Completed			Kleinworth	11/7/2005	



Laboratory Report

Report ID: 71955

**Sierra
Environmental
Monitoring, Inc.**

Devil's Postpile National Monument
Attn: Deanna Dulen
P.O. Box 3999
Mammoth Lakes, CA 93546

Date: 11/8/2005
Client: DPP-114
Taken by: J. Fernandes
PO #:

Analysis Report

Sample ID:	Customer Sample ID	Date Sampled	Time Sampled	Date Received				
S200511-0421	Site 5	11/2/2005		11/4/2005				
Parameter	Method	Result	Units	Reporting Limit	Analyst	Date Analyzed	Data Flag	
Lead - ICP-MS	EPA 200.8	2100	mg/Kg	20	Layman	11/8/2005	Jl	
Total Recoverable Metals - Acid Dig	EPA 200.2	Completed			Kleinworth	11/7/2005		

Sample ID:	Customer Sample ID	Date Sampled	Time Sampled	Date Received				
S200511-0422	Site 6	11/2/2005		11/4/2005				
Parameter	Method	Result	Units	Reporting Limit	Analyst	Date Analyzed	Data Flag	
Lead - ICP-MS	EPA 200.8	2100	mg/Kg	20	Layman	11/8/2005	Jl	
Total Recoverable Metals - Acid Dig	EPA 200.2	Completed			Kleinworth	11/7/2005		

Sample ID:	Customer Sample ID	Date Sampled	Time Sampled	Date Received				
S200511-0423	Site 7	11/2/2005		11/4/2005				
Parameter	Method	Result	Units	Reporting Limit	Analyst	Date Analyzed	Data Flag	
Lead - ICP-MS	EPA 200.8	500	mg/Kg	1	Li	11/7/2005	Jl	
Total Recoverable Metals - Acid Dig	EPA 200.2	Completed			Kleinworth	11/7/2005		

Sample ID:	Customer Sample ID	Date Sampled	Time Sampled	Date Received				
S200511-0424	Site 8	11/2/2005		11/4/2005				
Parameter	Method	Result	Units	Reporting Limit	Analyst	Date Analyzed	Data Flag	
Lead - ICP-MS	EPA 200.8	20	mg/Kg	1	Li	11/7/2005	Jl	
Total Recoverable Metals - Acid Dig	EPA 200.2	Completed			Kleinworth	11/7/2005		



Laboratory Report
Report ID: 71955

**Sierra
Environmental
Monitoring, Inc.**

Devil's Postpile National Monument
Attn: Deanna Dulen
P.O. Box 3999
Mammoth Lakes, CA 93546

Date: 11/8/2005
Client: DPP-114
Taken by: J. Fernandes
PO #:

Analysis Report

Sample ID:	Customer Sample ID	Date Sampled	Time Sampled	Date Received								
S200511-0425	Site 9	11/2/2005		11/4/2005	Parameter	Method	Result	Units	Reporting Limit	Analyst	Date Analyzed	Data Flag
					Lead - ICP-MS	EPA 200.8	1000	mg/Kg	10	Layman	11/8/2005	J1
					Total Recoverable Metals - Acid Dig	EPA 200.2	Completed			Kleinworth	11/7/2005	

Sample ID:	Customer Sample ID	Date Sampled	Time Sampled	Date Received								
S200511-0426	Site 10	11/2/2005	9:45 AM	11/4/2005	Parameter	Method	Result	Units	Reporting Limit	Analyst	Date Analyzed	Data Flag
					Lead - ICP-MS	EPA 200.8	610	mg/Kg	1	Li	11/7/2005	J1
					Total Recoverable Metals - Acid Dig	EPA 200.2	Completed			Kleinworth	11/7/2005	

Data Flag Legend:

J1 - The batch MS and/or MSD were outside acceptance limits. The batch LCS was acceptable.



Laboratory Report
Report ID: 71955

**Sierra
 Environmental
 Monitoring, Inc.**

Devil's Postpile National Monument
 Attn: Deanna Dulen
 P.O. Box 3999
 Mammoth Lakes, CA 93546

Date: 11/8/2005
Client: DPP-114
Taken by: J. Fernandes
PO #:

Quality Control Report

<i>Parameter</i>	<i>LCS, % Recovery</i>	<i>MS, % Recovery</i>	<i>MSD, % Recovery</i>	<i>RPD, %</i>	<i>Method Blank</i>
Lead - ICP-MS	101.0	138.0	73.0	62.30	<1 mg/Kg

Legend: *LCS- Laboratory Control Standard* *MS- Matrix Spike* *MSD- Matrix Spike Duplicate*
RPD- Relative Percent Difference

~~MAMMOTH COMMUNITY WATER DISTRICT~~
CHAIN OF CUSTODY

1110

Soil Around Water Tank

SAMPLE TYPE: Drinking Water ~~Wastewater~~ ~~Surface Water~~

COLLECTION DATE	TIME	SAMPLE IDENTIFICATION	Cl residual
Nov 2 05	9:30	Site 1	
Nov 2 05		Site 2	
Nov 2 05		Site 3	
Nov 2 05		Site 4	
Nov 2 05		Site 5	
Nov 2 05		Site 6	
Nov 2 05		Site 7	
Nov 2 05		Site 8	
Nov 2 05		Site 9	
Nov 2 05	9:45	Site 10	

SIGNATURE OF COLLECTOR: John Fernandez

SIGNATURE OF OTHERS IN POSSESSION: Pete Lumby

NAME: Devils Post Pile
 ADDRESS: PO Box 3949 Mammoth Lakes CA 93546
 PHONE: 760-924-5505
 NAME OF WATER SYSTEM: _____

ANALYSIS REQUESTED:

~~DRINKING WATER:~~ Colilert P/A Special Analysis: of soil for Lead Content

~~WASTEWATER:~~ Coliform BOD Fecal 15 MBAS Total 15 DO Nitrate

~~SURFACE WATER:~~ Total 10 Fecal 10

~~received~~ relinquished → Fed Ex # 7902 2797 0557
 LABORATORY PORTION (TO BE COMPLETED BY LABORATORY PERSONNEL)

PERSON RECEIVING SAMPLE: Stacey Smithson (Stacey Smithson)

LABORATORY SAMPLE #: _____

DATE AND TIME OF SAMPLE RECEIPT: 11/4/05 @ 1:05 pm

CONDITION OF SAMPLE: _____

HOLDING TIME:		YES	NO
SAMPLE TO ANALYSIS	30 hours for drinking water		
	8 hours for surface or recreational water		
	6 hours for waste water		

Appendix D
File Review Documents

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
CASE INCIDENT RECORD

1. ORGANIZATION CODE 8590	2. ORGANIZATION (PARK) NAME Devils Postpile NM	3. LOCATION CODE	4. CASE/INCIDENT NO. 05-026	5. SAR NO.	6. MAJOR SAR ACCT NO.		
6. LOCATION OF INCIDENT Devils Postpile Water Tank		7. NATURE OF INCIDENT Unknown. Substance in Water Tank		8. REPORTING RANGER J Fernandes	9. BADGE NO.		
10 OFFENSE/INCIDENT CODE 90-10-00	11 INCIDENT DATE 10/02/05	12. INCIDENT TIME	13. WHEN CLEARED DATE 10/15/2006	14 WHEN CLEARED TIME			
CODES: REPORTING PARTY = RP, VICTIM = V, WITNESS = W, PATIENT = P							
CODE	INVOLVED PERSONS	ADDRESS	PHONE	SEX	RACE	AGE	DATE OF BIRTH
V	DEPO Staff	P.O.Box 3999 Mammoth Lakes, CA 93546	760-934-8170				

SUMMARY:

On 9/23/05 an external lead abatement and painting project of the Devils Postpile water tank began. The commencement of the project was a result of surveys and tests completed during the previous year. (See PMIS Project 92538- AA-1 Contract) On each day of the project John Fernandes, DEPO Maintenance Mechanic and COTR, conducted site inspections, to assure compliance with contract stipulations and compliance with safety guidelines. John took periodic photographs of the projects progression. On 9/26/05 there were several infractions to include: improper medical certification documentation of workers, and paperwork documenting paint contents. In addition, a quality control plan was not in place if the project manager left the site, nor was documentation on hand stipulating that AA-1 Company would accept responsibility if the water became contaminated. Both of which were stipulated during previous meetings. On 10/2/05 at approximately 1530 John Fernandes observed an unknown substance floating on the top of the water as well as on the float ball and the fill pipe. He also noticed paint, paint thinner and sandblasted paint and material left outside the tank, in the open and accessible to the public. As per direction from SEKI Public Health Sanitarian, water samples were taken. They were sent to the Sierra Environmental Monitoring lab in Reno, NV.

The contractor rarely complied with the terms of the contract without repeated requests by the COTR for compliance. After numerous unfulfilled requests, the COTR John Slaughter consulted with the CO and work was stopped until the contract specifications were met. These included: Health certificates for employees, Quality Control Plan, and delayed information on changed specifications of paints and blasting material.

Several other contract violations occurred.

They were not going to monitor the temperatures of the paint curing as specified in contract.

Instead of removing the blast material from the site within 24 hours it took 2 weeks.

Paint, thinner, and oily rags were left outside instead of placed into nearby bearproof locker provided to contractor for storage.

Water and soil tests were not taken with NPS COTR present as agreed upon that resulted in increased expense for NPS to accomplish testing with appropriate chain of custody. Additionally, contractor test results were not the same as the NPS results that showed contamination of water and soil. This is a possible criminal activity, the falsification of water and soil samples that were needed to determine environmental health and public safety. SEKI Contracting Officer, SEKI Chief of Maintenance, and SEKI Public Health Sanitarian did not consider this significant to pursue in closeout of contract.

DEPO staff found a solution to prevent the release of up to ten pounds of encapsulated lead blast contaminant into the soil as recommended by SEKI staff. The DEPO solution was to develop a filtration system to catch the lead and then to have the filtered water put into the septic system that was pumped and released at an approved site.

REPORTING RANGER (Signature and Date) <i>John Fernandes</i> John Fernandes	APPROVED BY (Signature and Date) <i>Deanna Dulan</i> /s/ Deanna Dulan March 6, 2006	CASE STATUS <i>3-6-2006</i>
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UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
CASE INCIDENT RECORD

1. ORGANIZATION CODE 8590	2. ORGANIZATION (PARK) NAME Devils Postpile NM	3. LOCATION CODE	4. CASE/INCIDENT NO. 05-026	5. SAR NO.	6. MAJOR SAR ACCT NO.		
6. LOCATION OF INCIDENT Devils Postpile Water Tank		7. NATURE OF INCIDENT Unknown. Substance in Water Tank		8. REPORTING RANGER J Fernandes	9. BADGE NO.		
10 OFFENSE/INCIDENT CODE 90-10-00	11 INCIDENT DATE 10/02/05	12. INCIDENT TIME	13. WHEN CLEARED DATE 10/15/2006	14 WHEN CLEARED TIME			
CODES: REPORTING PARTY = RP, VICTIM = V, WITNESS = W, PATIENT = P							
CODE V	INVOLVED PERSONS DEPO Staff	ADDRESS P.O.Box 3999 Mammoth Lakes, CA 93546	PHONE 760-934-8170	SEX	RACE	AGE	DATE OF BIRTH

SUMMARY:

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REPORTING RANGER (Signature and Date) <i>John Fernandes</i> John Fernandes	APPROVED BY (Signature and Date) <i>Deanna Dulan</i> /s/ Deanna Dulan March 6, 2006	CASE STATUS <i>3-6-2006</i>
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