APPENDIX A

Initial Environmental Study and Mitigated Negative Declaration, Railroad Depot Site Land Acquisition and Sale, Soil Contamination Remediation, prepared by City of Ukiah, July 2011

California Environmental Quality Act

INITIAL ENVIRONMENTAL STUDY
AND
MITIGATED NEGATIVE DECLARATION

Railroad Depot Site
Land Acquisition and Sale
Soil Contamination Remediation

Department of
Planning and Community Development
July, 2011

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City of Ukiah **Department of Planning and Community Development**	**INITIAL ENVIRONMENTAL STUDY** **Railroad Depot Site Land Acquisition and Sale** **Soil Contamination Remediation**

Project Title: Railroad Depot Site Land Acquisition and Sale/ Soil Contamination Remediation

Project Proponent: City of Ukiah

Project Contact Person: Sage Sangiacomo, Assistant City Manager (707) 463-6213

CEQA Contact Person: Charley Stump, Director of Planning and Community Development (707) 463-6219 / 300 Seminary Avenue, Ukiah, CA 95482

Lead Agency: City of Ukiah Department of Planning and Community Development – 300 Seminary Avenue, Ukiah, CA 95482

Project Description: The project involves two components. First, the Ukiah Redevelopment Agency is proposing to acquire the property and then sell it; and 2) During its ownership, the Ukiah RDA is proposing to contract with a firm to remediate the contamination on the site.

Property Acquisition and Sale

In order to facilitate the development of underutilized properties adjacent to downtown Ukiah, the Ukiah Redevelopment Agency proposes to assemble, purchase, and sell ten (10) acres of primarily vacant land currently under one ownership and divided among four (4) legal parcels.

The Agency desires to acquire and sell the property for reasons including but not limited to the following:

- Potential new State Courthouse site
- Potential new Mendocino County Justice Building site
- Facilitate clean-up of the site
- Potential ancillary retail, residential or mixed-use development
- Utilization of land at prime location within the redevelopment project area
- Catalyze surrounding development and redevelopment
- Increase employment and business opportunities
- Increase revenues to City and Agency
- Promote infill development

- Help facilitate a more integrated development of the Property
- Preservation and enhancement of Gibson Creek

Under the direction of the Ukiah City Council/URA Board, the Agency has proactively pursued facilitating development and revitalization of the Ukiah Downtown area since the Agency's inception in 1989. The Agency has also been working diligently since 2009 to facilitate a site for the new State Courthouse in the downtown area, culminating in the option agreement which was negotiated at length with the preexisting landowners. The City Council/URA Board believes that retaining the courthouse in the downtown area is crucial for downtown revitalization and overall economic development within the City. It also helps to fulfill the City Council Strategic Planning Priority #2: "Maintain Downtown Ukiah's Historic Place as a Regional Center for Civic and Economic Activity."

While it is unknown if the State will select the Depot site for the new courthouse, it remains one of their alternative sites.

Through the ongoing discussions with the property owner, it became apparent that the assembly of the four parcels would not be possible without the Agency's involvement. In order to assemble the land, the City and the Agency have entered into an Option Agreement among the Agency, the City of Ukiah and the North Coast Railroad Authority (NCRA), dated May 14, 2010 ("Option Agreement"). The Agreement is posted on the City of Ukiah's website at www.cityofukiah.com and is available for inspection at the City of Ukiah Department of Planning and Community Development, Ukiah Civic Center, 300 Seminary Ave., Ukiah, CA. 95482.

Under the Option Agreement, the Agency is purchasing a irrevocable 2 year option to purchase at fair market value APN's 002-232-12, 13 and 002-282-18, 19.

As provided in the Agreement, the City and the Agency are not legally obligated to purchase the property or the option or to otherwise perform their obligations under the Agreement until they have completed environmental review in compliance with the California Environmental Quality Act ("CEQA").

The City/RDA also entered an agreement with Weston Solutions, Inc., a brownfield redevelopment company on May 14, 2010 for the sale and transfer of ownership of the site.

Contamination Remediation

Pursuant to the terms its current option agreement with the NCRA, the Agency is proposing to contract with a firm to remediate the contamination on the property. The Remediation Action Plan prepared for the clean-up of the site included an Implementation Work Plan (IWP) as required by the State Regional Water Quality Control Board. The IWP indicates that approximately ½ acre would be disturbed in ten (10) identified areas and 650 to 1,150 cubic yards of soil would be excavated, stockpiled, sampled, loaded, transported, and disposed of as a result of the project. These soils are contaminated with petroleum hydrocarbons and/or polycyclic aromatic hydrocarbons.

The remediation would also include grubbing and surface debris removal, erosion and sedimentation control, post excavation confirmation sampling, providing clean backfill, operating water trucks, performing downwind air monitoring, and the preparation of a Final Remediation Action Completion Report.

Project Location: The project site is located in central Ukiah adjacent to and south of East Perkins Street; adjacent to and west of Leslie Street; and adjacent to and east of the NWP railroad tracks. The site is commonly referred to as the "Railroad Depot" site because it is the old railroad property where the original depot building is still located (see map on page 10). APN 002-232-12,13 and 002-282, 18 and 19.

Purpose of the Initial Environmental Study: This Initial Study has been prepared consistent with CEQA Guidelines Section 15063, to determine if the project, as proposed, would have a significant effect upon the environment.

Summary of Findings: Review of the proposed project to acquire approximately eleven (11) acres of land in the redevelopment plan area would not directly impact the environment because no development is proposed and it would not change or alter in any way the General Plan Land Use designations, zoning classifications and development opportunities on the property. Moreover, any future development would be subject to environmental review and CEQA compliance to determine, based on the type, size and intensity of individual projects whether or not they would have a significant adverse impact on the environment.

However, the Agency is also proposing to remediate the contamination on the site. While this is regarded as an environmental benefit, there could be impacts associated with soil removal, transport, and soil importation. These include potential impacts to the biological resources associated with Gibson Creek, air quality (dust generation), cultural resources, hazards/hazardous materials, and traffic. Mitigation measures are included to eliminate or reduce these impacts to levels of insignificance.

State Agency Review: The Initial Environmental Study and proposed Negative Declaration were sent to the State Clearinghouse for distribution to State agencies for review and comment.

Public Review and Comment Period: July 18, 2011 through August 18, 2011

All written comments on the proposed Negative Declaration must be submitted no later than August 18, 2011 to Charley Stump, Director of Planning and Community Development, 300 Seminary Avenue, Ukiah. Failure to submit written comments by the August 18, 2011 deadline or to testify orally at the joint City Council/Ukiah Redevelopment Agency hearing on September 7, 2011 (tentative) or September 21, 2011 may preclude raising an issue in a subsequent legal action to challenge the decision of the Agency or the City, if that issue was not raised and considered by the City and the Agency during the hearing or in response to written comments.

The Ukiah City Council and Ukiah Redevelopment Agency will discuss and consider acting on the proposed Negative Declaration on September 7, 2011 (tentative) or September 21, 2011 at 6:00 p.m. or soon thereafter as the matter can be heard. The discussion will include public comment and will be conducted in the Ukiah City Council chambers, 300 Seminary Avenue, Ukiah, CA.

Summary Table of Identified Impacts and Mitigation Measures:

Impact	Mitigation	Level of Significance After Mitigation
Air Quality – Dust (PM-10) generation	Prior to any site disturbance, grading or excavation of soil, the project proponents shall submit an application to the Mendocino County Air Quality Management District to determine if a permit is required.	Less than Significant
Air Quality – Dust (PM-10) generation	The project contractor, on behalf of the project proponents, shall prepare a dust control plan for the soil remediation project. The project contractor shall be responsible for ensuring that all adequate dust control measures are implemented in a timely manor during all phases of the project. The dust control plan shall include, at minimum, the following measures: A. Water shall be applied by means of truck(s), hoses, and/or sprinklers as needed prior to any land clearing or earth movement to minimize dust emissions. B. All material excavated, stockpiles, or graded shall be sufficiently watered to prevent fugitive dust from leaving the site or causing a public nuisance. Watering should occur at least twice daily, however frequency of watering shall be based on the type of operation, soil, and wind exposure. C. All on-site vehicle speed shall be limited to 15 miles per hour (mph) on unpaved roads. D. All land clearing, grading, earth moving, and/or excavation activities shall be suspended as necessary, based on site conditions, to prevent excessive windblown dust when winds are expected to exceed 20 mph. E. All inactive portions of the disturbed site, including soil stockpiles, shall be covered or routinely watered to control dust emissions. F. Paved areas adjacent to the site shall be routinely swept or washed as required to remove excess accumulations of silt and/or mud, which may have resulted from grading and excavation at the project site.	Less than Significant
Biological Resources – Damage to Gibson Creek and its riparian corridor	Gibson Creek and its supporting riparian vegetation shall be protected from damage during all phases of the project. The required Stormwater pollution Prevention Plan and Erosion Control Plan shall include specific measures to protect Gibson Creek.	Less than Significant
Biological Resources – Damage to Gibson Creek and its riparian corridor	The Department of Public Works shall monitor the remediation activities and	Less than Significant

	shall ensure that Gibson Creek is protected during all phases of the project.	
Cultural Resources – Disturbance of pre-historic and historic artifacts	If, during site grubbing, grading, soil excavation or any aspect of the soil remediation project, any pre-historic, historic, or significant cultural resources are discovered, all work shall be halted and the contractor/project proponent shall immediately contact the City of Ukiah Director of Planning and Community Development. The City shall engage the services of a qualified professional archaeologist at the expense of the project proponents, to perform a site reconnaissance and to develop a precise mitigation program, if necessary.	
Hazards/Hazardous Substances – Release of hazardous materials	Clean-up of the site shall require a City Grading Permit. All requirements contained in the State approved Remedial Action Plan shall be followed by the Grading Permit applicants.	Less than Significant
Hazards/Hazardous Substances – Impacts to roadways and traffic	(See traffic mitigations below)	Less than Significant
Traffic impacts – Impacts to roads and streets, vehicular traffic, traffic safety	The applicants shall submit a Traffic Control Plan consistent with the requirements contained in the Remedial Action Plan. The Traffic Control Plan shall be subject to the review and approved of the City Engineer. The City Engineer shall have the authority to require additional information or make modifications to the Traffic Control Plan to ensure its success.	Less than Significant
Traffic impacts – Impacts to roads and streets, vehicular traffic, traffic safety	Traffic impacts – Impacts to roads and streets, vehicular traffic, traffic safety	Less than Significant

MANDATORY FINDINGS OF SIGNIFICANCE

Does the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☐	☒
b) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☐	☒
c) Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

DETERMINATION: On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. **A MITIGATED NEGATIVE DECLARATION** will be prepared.

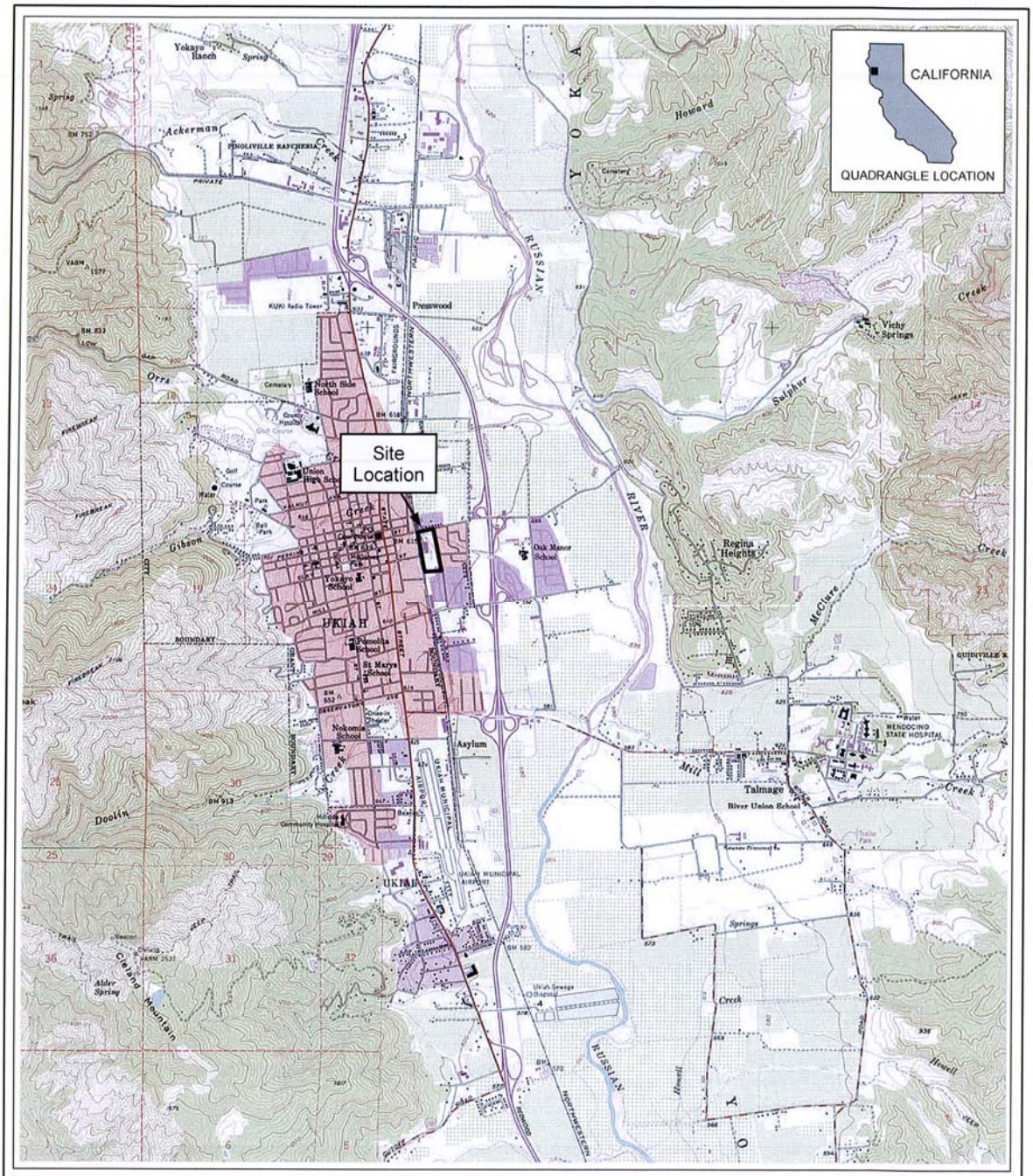
☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

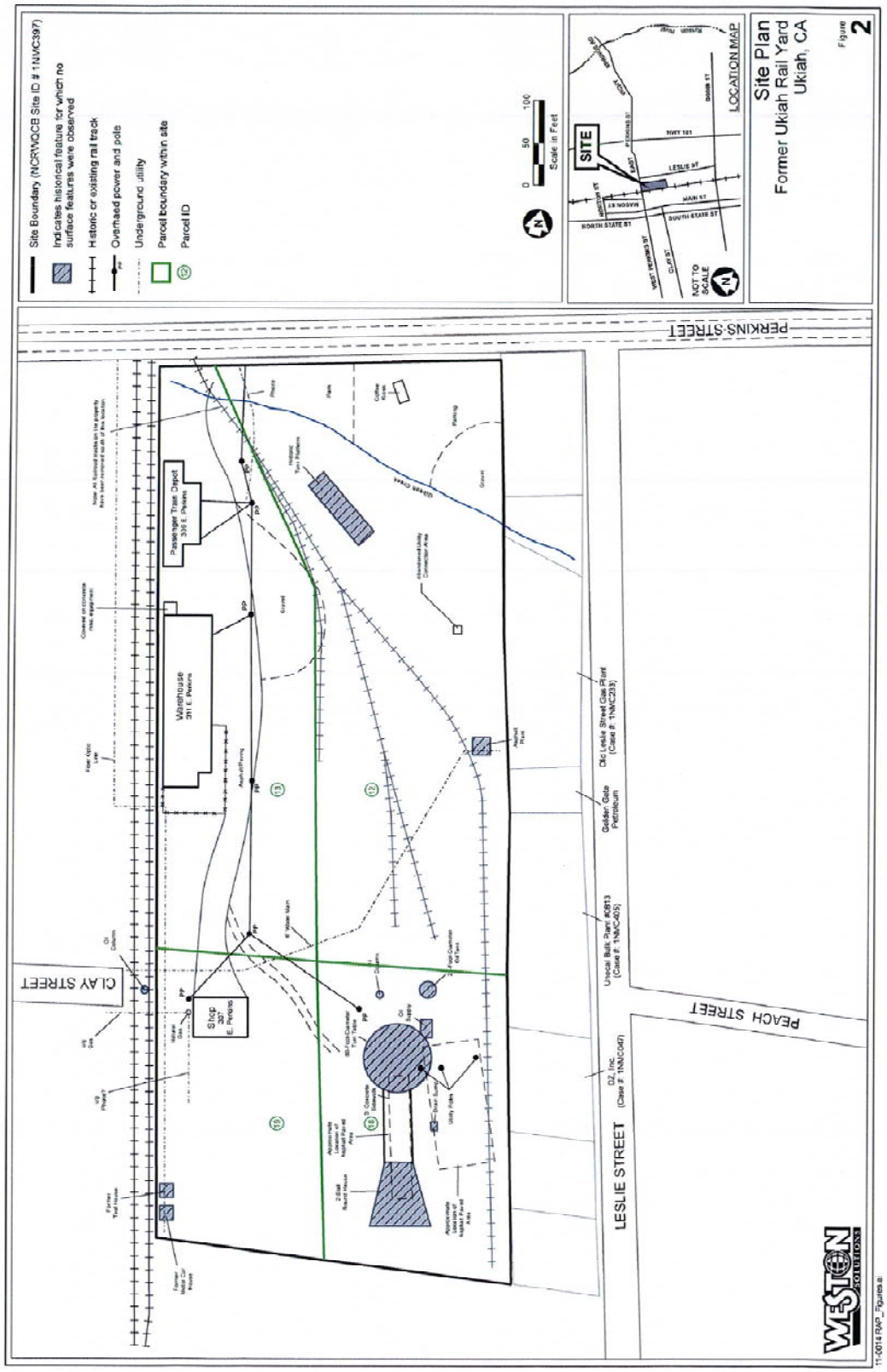
☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Charley Stump, Director
Planning and Community Development

7-13-11
Date:


CALIFORNIA
QUADRANGLE LOCATION
Site Location
UKIAH
RUSSIAN RIVER
Source: USGS 7.5' series topo, Ukiah & Elledge Peak-CA, 1958, 1975.
0 1000 2000
Scale in Feet
Site Vicinity Map
Former Ukiah Rail Yard
Ukiah, CA
Figure
1
11-0014 RAP_Fig1.ai

The approximate 10-acre Railroad Depot site is identified in the photograph below.


Site Boundary (NCRWQCB Site ID # 1NMC397)
Indicates historical feature for which no surface features were observed
Historic or existing rail track
Overhead power and pole
Underground utility
Parcel boundary within site
Parcel ID
Scale in Feet
LOCATION MAP
SITE
NOT TO SCALE
Site Plan
Former Ukiah Rail Yard
Ukiah, CA
Figure 2
PERKINS STREET
CLAY STREET
LESLIE STREET
PEACH STREET
Passenger Train Depot 350 E. Perkins
Warehouse 311 E. Perkins
Shop 321 E. Perkins
Unocal Bulk Plant #0913 (Case #: 1NMC405)
Gelder Gate Petroleum
Old Leslie Street Gas Plant (Case #: 1NMC235)
DZ, Inc. (Case #: 1NMC047)

Site Background

The Railroad Depot site is situated east of and adjacent to historic downtown Ukiah at an elevation of approximately 615 feet above sea level. Gibson Creek unofficially divides the property into two distinct portions. The majority of historic railroad operations operated south of the creek, while more recent development was located north of the creek.

The property had a rail passenger and freight depot dating back to 1893. Early use of a main track, located along the western portion of the site, was for passenger and freight movement. Through the years, side tracks were constructed on the property south of Gibson Creek to service other industrial operations. Additionally, locomotive service facilities and infrastructure, such as an 80-foot diameter turntable, a two-stall roundhouse, and fueling area, were constructed on the southeastern portion of the property (generally south of Clay Street) to accommodate rail activities. Historic activities north of Gibson Creek were limited to a lumber planning mill and an associated office building that operated in the early 1900s.

The property is no longer an active rail yard and currently includes a single-story metal warehouse building (approximately 12,000 square feet), a single-story metal shop building (approximately 3,000 square feet) and a recently restored single story brick passenger train depot building (approximately 2,000) square feet. The other infrastructure associated with the former rail yard has been removed from the site. Scattered debris and debris piles, as well as a few low soil hummocks are present on the site.

Current land use in the vicinity of the property includes light industrial and commercial to the west, commercial (including a hospital) to the north, residential east of Leslie Street, and residential (including a mobile home park) to the south of the property.

The location provides the opportunity to create a strong civic space along the primary street entrance into the downtown, which is underdeveloped and prime for redevelopment. The site is large enough to accommodate the courthouse and justice building, as well as the required open space and parking. The buildings would be limited to two-stories because of the airport approach and departure zone, but with the large amount of land, the building footprints could be enlarged to accommodate the required square footage.

The site is located within walking distance to the downtown, medical offices and hospital, regional shopping opportunities, and restaurant, and is located on a major transportation corridor.

Access to the site would be provided from Perkins Street from the north, Leslie Street from the east, and potentially Clay Street from the west.

Purpose of the Project

The purpose of the acquisition of the property is to facilitate the clean-up and possible future redevelopment of the site. Upon acquisition, the Redevelopment Agency arrange the remediation of the site contamination, and would sell the property to Weston Solutions, Inc., a brownfield developer. Weston may only purchase the property if the State selects the site for the new Mendocino County Courthouse.

In terms of environmental review, the State Administrative Office of the Courts is currently preparing an environmental impact report to analyze two potential downtown sites for the new courthouse, one of which is the subject property. Full disclosure of the potential impacts of such a project will be provided in that document.

The soil remediation and site clean-up is an action to remove contamination from the site and clean-up the environment, and therefore is viewed as a benefit to the environment. However, it is discussed and analyzed in this document.

I. AESTHETICS **Would the project:**	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

Discussion: The proposed acquisition and sale of the property would have a potentially significant adverse impact to aesthetic resources if it would adversely impact a scenic vista, damage a scenic resource, degrade the visual quality of its surroundings, or create substantial light and glare.

Potential Impacts: The proposed purchase and sale of the subject property would not adversely impact scenic resources or violate the criteria listed above because it does not involve any site preparation, construction or development.

There would be short-term aesthetic impacts resulting from the soil excavation, soil transporting, and soil importing activities on the site because the vacant fallow property would change in appearance. However, the site is not a scenic vista, and the soil remediation activities would last approximately 2-4 weeks. This short-term change in the site's appearance is regarded as a less than significant impact.

Any future development would be subject to separate environmental review pursuant to the requirements of the California Environmental Quality Act. The actual size, scope and intensity of any future development project would be analyzed to determine if it would adversely impact aesthetic resources. It would be speculative and unreasonable to assume what size, type and intensity of development might be proposed on the site in the future.

The State Administrative Office of the Courts is preparing an environmental impact report analyzing the potential impacts of building a new courthouse on the subject property, as well as another potential downtown location. That document will include an analysis of potential aesthetic impacts resulting from such a project.

Mitigation Measures: None required.

Impact Significance After Mitigation: N/A

2. AGRICULTURAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	☐	☐	☐	☒

Discussion: The proposed project would have a potentially significant adverse impact to agricultural resources if it would convert prime farmland to a non-agricultural use, conflict with a Williamson Act contract, or disrupt a viable and locally important agricultural use.

Potential Impacts: The proposed purchase and sale of the subject property and the soil remediation would not adversely impact agricultural resources or violate the criteria listed above because the site is not designated farmland, is not being farmed, and no farmland is in close proximity.

Any future development would be subject to separate environmental review pursuant to the requirements of the California Environmental Quality Act. The actual size, scope and intensity of any future development project would be analyzed to determine if it would adversely impact agricultural resources. It would be speculative and unreasonable to assume what size, type and intensity of development might be proposed on the site in the future.

The State Administrative Office of the Courts is preparing an environmental impact report analyzing the potential impacts of building a new courthouse on the subject property, as well as another potential downtown location. That document will include an analysis of all potential environmental impacts resulting from such a project.

Potential Impacts: None identified

Mitigation Measures: None required

Impact Significance After Mitigation: N/A

3. AIR QUALITY

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations.

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☒	☐	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☒	☐	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	☒
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒

Discussion: The proposed project would have a potentially significant adverse impact to air quality if it would conflict with an air quality plan, violate any air quality standard, result in cumulative air quality impacts, expose people to air pollutants, or create significant odors.

Potential Impacts: The proposed purchase and sale of the subject property would not adversely impact air quality or violate the criteria listed above because no site preparation, grading, or actual construction is proposed or required.

Any future development would be subject to separate environmental review pursuant to the requirements of the California Environmental Quality Act. The actual size, scope and intensity of any future development project would be analyzed to determine if it would adversely impact air quality. It would be speculative and unreasonable to assume what size, type and intensity of development might be proposed on the site in the future.

The State Administrative Office of the Courts is preparing an environmental impact report analyzing the potential impacts of building a new courthouse on the subject property, as well as another potential downtown location. That document will include an analysis of all potential environmental impacts resulting from such a project.

Mendocino County is non-attainment for the State PM-10 standard (particulate matter less than 10 microns in size). The primary manmade sources of PM-10 pollution in the area are wood combustion (wood stoves, fireplaces, and outdoor burning), fugitive dust, and automobile traffic. The Mendocino County Air Quality Management District maintains full time monitoring equipment in the City of Ukiah.

The soil remediation project, which would involve soil excavation and transport, as well as the importation of new clean fill material, would produce short-term dust (PM-10). While the project would only involve the disturbance of approximately ½ acre of area, and therefore would not typically require a permit from the Mendocino County Air Quality Management District, measures to mitigate the generation of PM-10 are required.

Mitigation Measures:

1. Prior to any site disturbance, grading or excavation of soil, the project proponents shall submit an application to the Mendocino County Air Quality Management District to determine if a permit is required.

2. The project contractor, on behalf of the project proponents, shall prepare a dust control plan for the soil remediation project. The project contractor shall be responsible for ensuring that all adequate dust control measures are implemented in a timely manor during all phases of the project. The dust control plan shall include, at minimum, the following measures:

    a. Water shall be applied by means of truck(s), hoses, and/or sprinklers as needed prior to any land clearing or earth movement to minimize dust emissions.

    b. All material excavated, stockpiles, or graded shall be sufficiently watered to prevent fugitive dust from leaving the site or causing a public nuisance. Watering should occur at least twice daily, however frequency of watering shall be based on the type of operation, soil, and wind exposure.

    c. All on-site vehicle speed shall be limited to 15 miles per hour (mph) on unpaved roads.

    d. All land clearing, grading, earth moving, and/or excavation activities shall be suspended as necessary, based on site conditions, to prevent excessive windblown dust when winds are expected to exceed 20 mph.

    e. All inactive portions of the disturbed site, including soil stockpiles, shall be covered or routinely watered to control dust emissions.

    f. Paved areas adjacent to the site shall be routinely swept or washed as required to remove excess accumulations of silt and/or mud, which may have resulted from grading and excavation at the project site.

Impact Significance After Mitigation: Less than significant.

BIOLOGICAL RESOURCES **Would the project:**	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☒
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	☐	☒	☐	☒
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☒	☐	☒
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☒
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Discussion: Gibson Creek is one of the two largest streams in the City of Ukiah and supports notable aquatic life including salmon and steelhead trout. This locally important creek crosses the northern portion of the site on its way to the Russian River, and also performs as a crucial flood control facility by carrying storm water to the river during winter storms.

The City places a high value on this creek and has adopted a habitat enhancement and public access study to restore it and transform it into a prized urban amenity.

Potential Impacts: The proposed purchase and sale of the subject property would not adversely impact Gibson Creek or violate the criteria listed above because no site preparation, grading, or actual construction is proposed or required.

Any future development would be subject to separate environmental review pursuant to the requirements of the California Environmental Quality Act. The actual size, scope and intensity of any future development project would be analyzed to determine if it would adversely impact the creek. It would be speculative and unreasonable to assume what size, type and intensity of development might be proposed on the site in the future.

The proposed remediation of the site would involve the excavation and removal of contaminated soil, and the importation of clean replacement soil. The soil would be removed from ten areas on the site constituting less than ½ acre of total area excavation. Area excavation 1 is located approximately 50-75 feet from Gibson Creek, and would involve removing approximately 97 cubic yards of soil from a depth of 1.5 feet. Gibson Creek would be fully protected from the excavation and remediation activities. A Stormwater Pollution Prevention Plan and an Erosion Control would be required and all activities would be monitored for compliance with creek protection measures.

The State Administrative Office of the Courts is preparing an environmental impact report analyzing the potential impacts of building a new courthouse on the subject property, as well as another potential downtown location. That document will include an analysis of all potential environmental impacts resulting from such a project.

Mitigation Measures:

3. Gibson Creek and its supporting riparian vegetation shall be protected from damage during all phases of the project. The required Stormwater pollution Prevention Plan and Erosion Control Plan shall include specific measures to protect Gibson Creek.

4. The Department of Public Works shall monitor the remediation activities and shall ensure that Gibson Creek is protected during all phases of the project.

Impact Significance After Mitigation: Less than significant.

5. CULTURAL RESOURCES **Would the project:**	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in 15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to 15064.5?	☐	☐	☐	☒
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☐	☒

Discussion: Figure V.3-DD contained in the Historic and Archaeological Resources Element in the Ukiah General Plan indicates areas of high sensitivity for cultural resources. The subject property is not shown as an area of high sensitivity for historic or archaeological resources.

Potential Impacts: The proposed purchase and sale of the subject property would not adversely impact cultural resources or violate the criteria listed above because no site preparation, grading, or actual construction is proposed or required.

It is unlikely that the soil remediation component of the project would impact pre-historic, historic or cultural resources because the site has been substantially disturbed in the past by railroad and other industrial land uses. However, a standard mitigation measure is recommended to address potential impacts in the event of a discovery. Moreover, the site is not identified ion the Ukiah general Plan as an area of high sensitivity for historic or cultural resources.

Any future development would be subject to separate environmental review pursuant to the requirements of the California Environmental Quality Act. The actual size, scope and intensity of any future development project would be analyzed to determine if it would adversely impact cultural resources. It would be speculative and unreasonable to assume what size, type and intensity of development might be proposed on the site in the future.

The State Administrative Office of the Courts is preparing an environmental impact report analyzing the potential impacts of building a new courthouse on the subject property, as well as another potential downtown location. That document will include an analysis of all potential environmental impacts resulting from such a project.

Mitigation Measure:

5. If, during site grubbing, grading, soil excavation or any aspect of the soil remediation project, any pre-historic, historic, or significant cultural resources are discovered, all work shall be halted and the contractor/project proponent shall immediately contact the City of Ukiah Director of Planning and Community Development. The City shall engage the services of a qualified professional archaeologist at the expense of the project proponents, to perform a site reconnaissance and to develop a precise mitigation program, if necessary.

Impact Significance After Mitigation: N/A

6. GEOLOGY AND SOILS **Would the project:**	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	☐	☐	☐	☒
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☐	☒
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☐	☒
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☐	☒
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☐	☒
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒

Discussion: The City of Ukiah is located within the Russian River Valley, which is within the northern portion of the Coast Ranges of California, which trend to the northwest. The mountain range that lies west of the Russian River Valley and extends to the Pacific Coast is commonly called the Mendocino Range.

The Ukiah Valley is a subarea of the Russian River Valley. The Ukiah Valley is approximately 22 miles long, averages 3 miles wide, and occupies an area approximately 65 square miles. The altitude of the valley floor ranges from approximately 500 feet at the southern end to approximately 700 feet in the northern end. The valley floor at the City of Ukiah is approximately 600 feet above sea level.

The primary soil stratigraphy at the property consists of fill material, silt, clay, sand, and silt/sand mixtures. The fill material, which typically extends to approximately 1 foot below ground level, is located at several areas of the site, primarily in the vicinities of the Historic Tank Platform, the former Roundhouse/Turntable, the existing Warehouse and Shop Buildings, the former fruit packing facility at the central portion of the site, and the portion of the property located north of Gibson Creek (Remedial Action Plan, Weston Solutions, Inc. May, 2011).

Groundwater is typically encountered in two distinct zones, the upper silty sand (approximately 2 to 7 feet) and the lower silt/sand mixture (29 to 30 feet). Groundwater in these zones appear to be under confined conditions due to the overlying low-permeability clay units. Satic water levels in the upper zone generally range from approximately 5 to 13 feet; however, at the central ,portion of the site static water can be as high as 0.1 feet. Static water levels in the lower zone generally range from 21 to 30 feet. Due to the confining conditions of the subsurface lithology, it has been estimated that static groundwater levels are likely to have significant seasonal variations.

Potential Impacts: The purchase and possible sale of the property by the Ukiah Redevelopment Agency would not in and of itself result in a physical change in or significant impacts to the geology or soils of the property, because the purchase and sale would not directly include any site work or development activities.

However, the purpose of the purchase and sale of the property is to facilitate clean-up of the contamination of the property (see Hazards Section of the Initial Study) and prepare it for possible future development, including a potential new State Courthouse building.

Clean-up of the contamination of the site is subject to the review and approval of a Remedial Action Plan and oversight by the North Coast Regional Water Quality Control Board. The purpose of any future clean-up would be to improve and enhance the environmental quality of the site. Any future development including a State Courthouse would be subject to environmental review pursuant to CEQA to determine, based on the size, scope, and intensity of the future development, what potential impacts to the environment would result from the project. Accordingly, it would be speculative and unreasonable to guess or attempt to predict what specific potential impacts to geology and soils would result from some type of future development of the site.

Pursuant to section 1803 of the California Building Code, a geotechnical and soils investigation would be required for future development of the site. Such a report would guide the site planning and design of a future project and ensure that the project would not expose people or structures to potential substantial adverse effects, including risk of loss, injury or death from earthquakes, landslides, soil erosion, or soil failures.

Accordingly, it is concluded that the purchase and possible sale of the property would not result in a physical change in or significant impacts resulting from the geology and soil conditions on the site.

The State Administrative Office of the Courts is preparing an environmental impact report analyzing the potential impacts of building a new courthouse on the subject property, as well as another potential downtown location. That document will include an analysis of all potential environmental impacts resulting from such a project.

Mitigation Measures: None required.

Impact Significance After Mitigation: N/A

7. HAZARDS & HAZARDOUS MATERIALS **Would the project:**	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☒	☐	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☐	☒
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☒	☐	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒

Discussion: Ukiah is generally regarded as a healthy City with relatively clean air and water. While there are some known toxic “spots” resulting from the past storage of hazardous materials underground, the City is not regarded as having a highly contaminated environment.

As indicated previously, the subject property has known contamination from historic railroad and industrial activities. Site investigation performed by potential buyers Weston Solutions, Inc., a company specializing in brownfield clean-up and development, indicated that results of soil sampling, groundwater sampling and soil-vapor sampling indicate the primary impacts at the site above potential levels of concern are limited to petroleum hydrocarbons (diesel and motor oil) and/or PAHs (primarily benzopyrene) in shallow soil (Remedial Action Plan, Weston Solutions, Inc. May, 2011). The Remedial Action Plan for the site indicated that since the impact from these compounds is limited to a fairly small volume in shallow soil, excavation and disposal of soil at an appropriate off-site facility is the most effective means of remediation. The Plan identified 10 small separate areas for soil removal, and that an approximate 650 to 1,150 cubic yards of soil would be removed from a total area of less than ½ acre.

The Remedial Action Plan includes an Implementation Work Plan for soil management, traffic control, waste management and decontamination. The Remedial Action Plan is subject to the review and approval of the North Coast Regional Water Quality Board. This Plan is currently under review by the Board and site clean-up would occur prior to any future development.

Potential Impacts: The purchase and sale of the property would not disturb the site or disrupt the soil, and therefore would not directly expose people to hazardous material. However, if the site is not cleaned-up prior to future development activities, people occupying buildings could be exposed to hazardous vapors and soil material. It is reasonable to assume that no development would occur prior to clean-up of the site because the property is identified by the State Regional Water Quality Control Board as a site with contamination issues (Site ID No. 1NMC397) and approval to development the site would be predicated on successful remediation of the contamination and a declaration of site closure by the Regional Board.

Additionally, any future development would be subject to the requirements of the California Environmental Quality Act, and an Initial Environmental Study would be required to determine if future development would expose people to hazardous substances. At this time, it is premature and would be speculative and unreasonable to assume what size, scale, and intensity of development would possible be proposed in the future.

The State Administrative Office of the Courts is preparing an environmental impact report analyzing the potential impacts of building a new courthouse on the subject property, as well as another potential downtown location. That document will include an analysis of all potential environmental impacts resulting from such a project.

The soil remediation activities could cause soil management, traffic control, and other hazard related impacts if the requirements contained in the State approved Remedial Action Plan are not followed.

Mitigation Measures:

6. Clean-up of the site shall require a City Grading Permit. All requirements contained in the State approved Remedial Action Plan shall be followed and implemented by the Grading Permit applicants.

7. Traffic Control Plan (See mitigation measures contained in the Traffic/Transportation Section of this Study).

Impact Significance After Mitigation: Less than significant.

8. HYDROLOGY AND WATER QUALITY **Would the project:**	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?	☐	☒	☐	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☐	☒
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☐	☒
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	☒
f) Otherwise substantially degrade water quality?	☐	☐	☐	☒
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map? (Source: FEMA)	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☒
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

Discussion: Properties adjacent to Gibson, Doolin, and Orrs Creeks are burdened with flood zone or floodplain designations. According to the Flood Boundary and Floodway Map dated August 5, 1985 (Community Panel Number 060186 0001) the northeastern portion of the property is located in the 100-year floodplain and a larger area to the west of that is situated within the 500-year floodplain.

Pursuant to newly updated flood plain development regulations contained in the City Code (California Building Code Appendix G), which requires larger residential structures such as triplex structures, apartment buildings, and single family residences/townhomes exceeding 3-stories, and commercial structures to be constructed a minimum of 1-foot above the base flood elevation rather than at the base flood elevation. Because of this requirement, future development would not result in people being exposed to the danger of flooding. Moreover, any future development would be subject to environmental review pursuant to the requirements of the California Environmental Quality Act. This required analysis would determine if the future development project, based on its size, scale and intensity would expose people to flood hazards.

Potential Impacts: The purchase and sale of the property would not directly cause increased flooding, redirect flood flows, or expose people to flood hazards, because no development of the site is proposed.

Additionally, any future development would be subject to the requirements of the California Environmental Quality Act, and an Initial Environmental Study would be required to determine if future development would expose people to flood hazardsa. At this time, it is premature and would be speculative and unreasonable to assume what size, scale, and intensity of development would possible be proposed in the future.

The State Administrative Office of the Courts is preparing an environmental impact report analyzing the potential impacts of building a new courthouse on the subject property, as well as another potential downtown location. That document will include an analysis of all potential environmental impacts resulting from such a project.

Soil excavation and remediation activities could potential impact the water quality of Gibson Creek which flows through the northern portion of the site. However, as discussed in the *Biological Resources* section of this initial Environmental Study, the project requires a Stormwater Pollution Prevention Plan and an Erosion Control Plan, which will include measures to protect Gibson Creek and its riparian corridor.

Mitigation Measures: (see *Biological Resources* Section 4)

Impact Significance After Mitigation: Less than significant.

9. LAND USE AND PLANNING **Would the project:**	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

Discussion: If the proposed project were to conflict with any locally adopted planning documents, policies, or strategic planning goals of the City, it would be regarded as a potentially significant adverse impact.

Potential Impacts: The proposed purchase and sale of the subject property and soil remediation would not conflict with any goals or policies contained in the Ukiah General Plan because the purpose of the purchase and sale of the land is to promote and facilitate infill development, ensure an economically viable downtown, protect Gibson Creek, and fulfill the City Council's strategic planning priority to maintain downtown Ukiah's historic place as a regional center for civic and economic activity. All of these purposes fulfill the General Plan Vision Statement, and support various goals and policies contained in the open space/conservation, historic and archaeological resources, community design, land use, and economic development elements.

Any future development would be subject to separate environmental review pursuant to the requirements of the California Environmental Quality Act. The actual size, scope and intensity of any future development project would be analyzed to determine if it would adversely impact land use planning goals and policies. It would be speculative and unreasonable to assume what size, type and intensity of development might be proposed on the site in the future.

The State Administrative Office of the Courts is preparing an environmental impact report analyzing the potential impacts of building a new courthouse on the subject property, as well as another potential downtown location. That document will include an analysis of all potential environmental impacts resulting from such a project.

Mitigation Measures: None required

Impact Significance After Mitigation: N/A

10. MINERAL RESOURCES **Would the project:**	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

Discussion: If the proposed project were to result in the loss of mineral resources or violate any of the criteria listed above, it would be regarded as a potentially significant adverse impact.

Potential Impacts: The proposed purchase and sale of the subject property would not adversely impact mineral resources because no site preparation or construction is proposed.

The soil remediation of the site would not result in a loss of mineral resources because the soil test borings on the site performed for the Phase I and 2 environmental studies revealed no mineral resources.

Any future development would be subject to separate environmental review pursuant to the requirements of the California Environmental Quality Act. The actual size, scope and intensity of any future development project would be analyzed to determine if it would adversely impact mineral resources. It would be speculative and unreasonable to assume what size, type and intensity of development might be proposed on the site in the future.

The State Administrative Office of the Courts is preparing an environmental impact report analyzing the potential impacts of building a new courthouse on the subject property, as well as another potential downtown location. That document will include an analysis of all potential environmental impacts resulting from such a project.

Mitigation Measures: None required

Impact Significance After Mitigation: N/A

11. NOISE **Would the project result in:**	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☐	☒
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☒
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Discussion: The project would have a significant adverse impact if it created very loud noises, noises that violated the local noise statutes contained in the Ukiah City Code, noises that conflicted with the General Plan goals and polices for noise, or violated any of the criteria listed above.

Potential Impacts: The proposed purchase and sale of the subject property would not result in very loud noises or create any noise at all because no site preparation or construction is proposed, and the use of the property would not immediately change as a result of the purchase and sale.

Any future development would be subject to separate environmental review pursuant to the requirements of the California Environmental Quality Act. The actual size, scope and intensity of any future development project would be analyzed to determine if it would create loud noise that would violate the City Code or General Plan. It would be speculative and unreasonable to assume what size, type and intensity of development might be proposed on the site in the future.

The State Administrative Office of the Courts is preparing an environmental impact report analyzing the potential impacts of building a new courthouse on the subject property, as well as

another potential downtown location. That document will include an analysis of all potential environmental impacts resulting from such a project.

The soil excavation and transport, as well as the importation of clean fill material will occur during normal working hours. Soil hauling trucks are expected to generate some short-term noise, but not enough to exceed the noise standards contained in the Ukiah City Code. This is due to the typical and everyday background noise generated by cars, voices, buses, trucks, and other sources typically found in dense urban settings.

Mitigation Measures: None required

Impact Significance After Mitigation: N/A

12. POPULATION AND HOUSING **Would the project:**	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Discussion: The proposed project would adversely impact the local population or housing stock if it induced substantial population growth or displace people from their homes.

Potential Impacts: The proposed purchase and sale of the subject property would not adversely impact population and housing because no site preparation, demolition, or construction is proposed.

The soil remediation component of the project would not adversely impact housing or induce growth in the area because it merely involves excavating contaminated soil and replacing it with clean soil.

Any future development would be subject to separate environmental review pursuant to the requirements of the California Environmental Quality Act. The actual size, scope and intensity of any future development project would be analyzed to determine if it would adversely impact the local population and the local housing stock. It would be speculative and unreasonable to assume what size, type and intensity of development might be proposed on the site in the future.

The State Administrative Office of the Courts is preparing an environmental impact report analyzing the potential impacts of building a new courthouse on the subject property, as well as

another potential downtown location. That document will include an analysis of all potential environmental impacts resulting from such a project.

Mitigation Measures: None required

Impact Significance After Mitigation: N/A

13. PUBLIC SERVICES **Would the project result in:**	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services**:**				
a) Fire protection?	☐	☐	☐	☒
b) Police protection?	☐	☐	☐	☒
c) Schools?	☐	☐	☐	☒
d) Parks?	☐	☐	☐	☒
e) Other public facilities?	☐	☐	☐	☒

Discussion: The project would cause significant adverse impacts to public services if it resulted in a requirement for increase public service facilities or staffing.

Potential Impacts: The proposed purchase and sale of the subject property would not adversely impact public services resources because no site preparation or construction is proposed, and no immediate change in the use of the property would result.

The soil remediation component of the project would not adversely impact public services because it merely involves excavating contaminated soil and replacing it with clean soil.

Any future development would be subject to separate environmental review pursuant to the requirements of the California Environmental Quality Act. The actual size, scope and intensity of any future development project would be analyzed to determine if it would adversely impact public services. It would be speculative and unreasonable to assume what size, type and intensity of development might be proposed on the site in the future.

The State Administrative Office of the Courts is preparing an environmental impact report analyzing the potential impacts of building a new courthouse on the subject property, as well as

another potential downtown location. That document will include an analysis of all potential environmental impacts resulting from such a project.

Mitigation Measures: None required

Impact Significance After Mitigation: N/A

14. RECREATION **Would the project:**	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

Discussion: If the project results in an increase in the use or need for recreation facilities, or in the need for additional recreation personnel to care for or provide recreation facilities and services, it would constitute a significant adverse impact on local recreation.

Potential Impacts: The proposed purchase and sale of the subject property would not adversely impact recreation resources because no site preparation or construction is proposed, and no increase in the local population would result.

The soil remediation component of the project would not adversely impact recreational services because it merely involves excavating contaminated soil and replacing it with clean soil.

Any future development would be subject to separate environmental review pursuant to the requirements of the California Environmental Quality Act. The actual size, scope and intensity of any future development project would be analyzed to determine if it would adversely impact recreation resources. It would be speculative and unreasonable to assume what size, type and intensity of development might be proposed on the site in the future.

The State Administrative Office of the Courts is preparing an environmental impact report analyzing the potential impacts of building a new courthouse on the subject property, as well as another potential downtown location. That document will include an analysis of all potential environmental impacts resulting from such a project.

Mitigation Measures: None required

Impact Significance After Mitigation: N/A

15. TRANSPORTATION/TRAFFIC **Would the project:**	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	☐	☒	☐	☐
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	☐	☐	☐	☒
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that result in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e) Result in inadequate emergency access?	☐	☐	☐	☒
f) Result in inadequate parking capacity?	☐	☐	☐	☒
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	☐	☐	☐	☒

Discussion: The project would have a significant adverse impact on transportation facilities and services if it resulted in a substantial increase in vehicle trips to and from the site, altered substantially streets and roadways, significant parking issues, or conflict with local General Plan goals and policies for transportation and traffic.

Potential Impacts: The proposed purchase and sale of the subject property would not directly impact transportation facilities and services or traffic congestion and safety because no site preparation or construction is proposed and no immediate change in the use of the property would result. However, the sale and acquisition and sale of the property could lead to the soil contamination clean-up of the site, which could cause traffic impacts related to soil removal/transportation and importation. Mitigation measures for these potential impacts are included in the Hazard/Hazardous Materials section of this Initial Environmental Study.

Any future development would be subject to separate environmental review pursuant to the requirements of the California Environmental Quality Act. The actual size, scope and intensity of any future development project would be analyzed to determine if it would adversely impact transportation/traffic. It would be speculative and unreasonable to assume what size, type and intensity of development might be proposed on the site in the future.

The State Administrative Office of the Courts is preparing an environmental impact report analyzing the potential impacts of building a new courthouse on the subject property, as well as another potential downtown location. That document will include an analysis of all potential environmental impacts resulting from such a project.

According to the Remedial Action Plan prepared by Weston Solutions, Inc., dated June, 2011, the soil remediation component of the project would involve up to a maximum of twenty 18-wheel trucks entering and leaving the site on any given day to transport excavated soil or import clean soil. The duration of these activities is expected to last approximately 15 working days (Monday through Friday) and would not violate the City noise ordinance or standard allowable work hours.

Mitigation Measures:

8. The applicants shall submit a Traffic Control Plan consistent with the requirements contained in the Remedial Action Plan. The Traffic Control Plan shall be subject to the review and approved of the City Engineer. The City Engineer shall have the authority to require additional information or make modifications to the Traffic Control Plan to ensure its success.

9. The applicants shall implement the approved Traffic Control Plan consistent with the provisions therein.

Impact Significance After Mitigation: N/A

16. UTILITIES AND SERVICE SYSTEMS **Would the project:**	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒

16. UTILITIES AND SERVICE SYSTEMS **Would the project:**	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☒
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

Discussion: A project would have a potentially significant impact on utility systems if it resulted in new construction that would substantial diminish the capacity of a wastewater treatment facility, substantially increase the need for water resources, or require the increased capacity of any utility system.

Potential Impacts: The proposed purchase and sale of the subject property would not adversely impact utility systems because no site preparation, demolition or construction is proposed.

The soil remediation component of the project would not adversely impact utility services because it merely involves excavating contaminated soil and replacing it with clean soil.

Any future development would be subject to separate environmental review pursuant to the requirements of the California Environmental Quality Act. The actual size, scope and intensity of any future development project would be analyzed to determine if it would adversely impact local or regional utility systems. It would be speculative and unreasonable to assume what size, type and intensity of development might be proposed on the site in the future.

The State Administrative Office of the Courts is preparing an environmental impact report analyzing the potential impacts of building a new courthouse on the subject property, as well as another potential downtown location. That document will include an analysis of all potential environmental impacts resulting from such a project.

Mitigation Measures: None required

Impact Significance After Mitigation: N/A

17. CLIMATE CHANGE **Would the project:**	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Directly contribute to greenhouse gas emissions?	☐	☐	☐	☒
b) Contribute cumulatively to greenhouse gas emissions?	☐	☐	☐	☒

Discussion of Greenhouse Gas Emissions

The purchase and sale of the property would not directly result in an increase in greenhouse gas emissions because no site preparation, construction, or development is proposed and it would not change the existing General Plan designation or zoning classification on the subject property. No vehicle trips or other factors causing emissions or pollutants would result from the purchase and sale of the site. Future development of the property would be regarded as infill development and would be served by alternative transportation systems, existing infrastructure, bicycle lanes, and sidewalks. Additionally, a number of *Energy* related policies and programs are contained in the 1995 General Plan. These included requiring all future buildings to be constructed in compliance with Title 24 regulations and encouraging future development to attempt to reduce heating and cooling costs with building orientation and landscaping.

The soil remediation component of the project would involve the excavation and replacement of approximately 650-1150 cubic yards of soil on the site. While this would involve a number of vehicle trips by 18-wheel trucks, it is considered minor in regards to greenhouse gas emissions and global climate change. Additionally, soil excavation and transportation is performed with heavy equipment and large trucks. While using hand-tools and small more fuel efficient trucks would reduce emissions, it would be highly inefficient and cost prohibitive.

Any future development would be subject to separate environmental review pursuant to the requirements of the California Environmental Quality Act. The actual size, scope and intensity of any future development project would be analyzed to determine if it would adversely impact local or regional utility systems. It would be speculative and unreasonable to assume what size, type and intensity of development might be proposed on the site in the future.

The State Administrative Office of the Courts is preparing an environmental impact report analyzing the potential impacts of building a new courthouse on the subject property, as well as another potential downtown location. That document will include an analysis of all potential environmental impacts resulting from such a project.

Accordingly, it is concluded that the proposed project in and of itself would not alter the way future development would contribute or not contribute to climate change/global warming. No impact.

MITIGATION MONITORING AND REPORTING: AB 3180 requires all public agencies to adopt a monitoring and reporting program whenever they adopt an EIR or "Mitigated Negative Declaration." This Initial Environmental Study includes two mitigation measures and therefore a mitigation monitoring program is included below:

Mitigation Measure	Responsible Party	Timing	Funding	Sign-off
Prior to any site disturbance, grading or excavation of soil, the project proponents shall submit an application to the Mendocino County Air Quality Management District to determine if a permit is required.	Project proponents/Contractor	Prior to any site activities	Project proponent	
The project contractor, on behalf of the project proponents, shall prepare a dust control plan for the soil remediation project. The project contractor shall be responsible for ensuring that all adequate dust control measures are implemented in a timely manor during all phases of the project. The dust control plan shall include, at minimum, the following measures: A. Water shall be applied by means of truck(s), hoses, and/or sprinklers as needed prior to any land clearing or earth movement to minimize dust emissions. B. All material excavated, stockpiles, or graded shall be sufficiently watered to prevent fugitive dust from leaving the site or causing a public nuisance. Watering should occur at least twice daily, however frequency of watering shall be based on the type of operation, soil, and wind exposure.	Project proponents/Contractor	Prior to any site activities	Project proponent	

C. All on-site vehicle speed shall be limited to 15 miles per hour (mph) on unpaved roads. D. All land clearing, grading, earth moving, and/or excavation activities shall be suspended as necessary, based on site conditions, to prevent excessive windblown dust when winds are expected to exceed 20 mph. E. All inactive portions of the disturbed site, including soil stockpiles, shall be covered or routinely watered to control dust emissions. F. Paved areas adjacent to the site shall be routinely swept or washed as required to remove excess accumulations of silt and/or mud, which may have resulted from grading and excavation at the project site.				
Gibson Creek and its supporting riparian vegetation shall be protected from damage during all phases of the project. The required Stormwater pollution Prevention Plan and Erosion Control Plan shall include specific measures to protect Gibson Creek.	Project proponents/Contractor	Prior to any site activities and during all phases of the project	Project proponent	
The Department of Public Works shall monitor the remediation activities and shall ensure that Gibson Creek is protected during all phases of the project.	DPW Staff	During all phases of the project	Project proponent	
If, during site grubbing, grading, soil excavation or any aspect of the soil remediation project, any pre-historic, historic, or significant cultural resources are	Project contractor/proponent with City Staff oversight	During all phases of the project	Project proponent	

discovered, all work shall be halted and the contractor/project proponent shall immediately contact the City of Ukiah Director of Planning and Community Development. The City shall engage the services of a qualified professional archaeologist at the expense of the project proponents, to perform a site reconnaissance and to develop a precise mitigation program, if necessary.				
Clean-up of the site shall require a City Grading Permit. All requirements contained in the State approved Remedial Action Plan shall be followed by the Grading Permit applicants. The applicants shall submit a Traffic Control Plan consistent with the requirements contained in the Remedial Action Plan. The Traffic Control Plan shall be subject to the review and approved of the City Engineer. The City Engineer shall have the authority to require additional information or make modifications to the Traffic Control Plan to ensure its success.	Project proponent with City Department of Public Works Staff oversight Project proponent with City Department of Public Works Staff oversight	Prior to grading activities To be submitted with Grading Permit application	Project proponent Project proponent	
The applicants shall implement the approved Traffic Control Plan consistent with the provisions therein.	Project proponent with City Department of Public Works Staff oversight	During all phases of the project	Project proponent	

RESOURCES USED TO PREPARE THIS INITIAL ENVIRONMENTAL STUDY

1. City of Ukiah General Plan and EIR, 1995, 2011 (Draft Housing Element Update)

2. City of Ukiah Redevelopment Plan and EIR, 1989

3. City of Ukiah Downtown Revitalization Master Plan, 1992

4. City of Ukiah Draft Downtown Zoning Code, 2011

5. Ukiah Municipal Airport Master Plan Report, 1996

6. City of Ukiah Citywide Traffic Circulation Study, prepared by Omni Means Engineers and Planners, February 27, 2007

7. Soil Survey of Mendocino County, Eastern Part, and Trinity County, Southwestern Part, California, U.S. Department of Agriculture - Soil Conservation Service, January, 1991.

8. A History of the Salmonid Decline in the Russian River, Steiner Environmental Consulting, August, 1996.

9. U.S.G.S. Topographical Map, Ukiah Quadrangle, 1958 (photo inspected 1975).

10. City Air Photographs, 2006

11. Greenhouse Gas, Climate Change, and Energy, National Energy Information Center (NEIC) - Energy Information Administration).

12. Ukiah Redevelopment Agency 5-year Implementation Plan 2007-2012

13. Mendocino County Economic and Demographic Profile, 2010

14. City of Ukiah Historical and Architectural Resources Inventory Report, 1984-85, 1999

15. Remedial Action Plan: Former Rail Yard, Ukiah, CA., Weston Solutions, June 2011

16. Draft Technical Memorandum of Floodplain Analysis and Recommendations – Railroad Depot Site, City of Ukiah, Weston Solutions, April 25, 2011.

17. Option Agreement to Purchase Real Property: City of Ukiah-NCRA, dated May 14, 2011.

18. Agreement for Development and Sale of Property: City of Ukiah RDA-Weston Solutions, dated May 14, 2011.

City of Ukiah

Planning and Community Development

NEGATIVE DECLARATION

Railroad Depot Site Land Acquisition and Sale

PROJECT: Railroad Depot Site Land Acquisition and Sale

DATE: June 17, 2011

PROJECT PROPONENT: City of Ukiah

PROJECT LOCATION: The project site is located in central Ukiah adjacent to and south of East Perkins Street; adjacent to and west of Leslie Street; and adjacent to and east of the NWP railroad tracks. The site is commonly referred to as the "Railroad Depot" site because it is the old railroad property where the original depot building is still located.

PROJECT DESCRIPTION: In order to facilitate the development of underutilized properties adjacent to downtown Ukiah, the Ukiah Redevelopment Agency proposes to assemble, purchase, and sell ten (10) acres of primarily vacant land currently under one ownership and divided among four (4) legal parcels.

The Agency desires to acquire and sell the property for reasons including but not limited to the following:

- Potential new State Courthouse site
- Potential new Mendocino County Justice Building site
- Facilitate clean-up of the site
- Potential ancillary retail, residential or mixed-use development
- Utilization of land at prime location within the redevelopment project area
- Catalyze surrounding development and redevelopment
- Increase employment and business opportunities
- Increase revenues to City and Agency
- Promote infill development
- Help facilitate a more integrated development of the Property
- Preservation and enhancement of Gibson Creek

Under the direction of the Ukiah City Council/URA Board, the Agency has proactively pursued facilitating development and revitalization of the Ukiah Downtown area since the Agency's inception in 1989. The Agency has also been working diligently since 2009 to facilitate a site for the new State Courthouse in the downtown area, culminating in the option agreement which was negotiated at length with the preexisting landowners. The City Council/URA Board believe that retaining the courthouse in the downtown area is crucial for downtown revitalization and overall economic development within the City. It also helps to fulfill the City Council Strategic Planning Priority #2: "Maintain Downtown Ukiah's Historic Place as a Regional Center for Civic and Economic Activity."

While it is unknown if the State will select the Depot site for the new courthouse, it remains one of their alternative sites.

Through the ongoing discussions with the property owner, it became apparent that the assembly of the four parcels would not be possible without the Agency's involvement. In order to assemble the land, the City and the Agency have entered into an Option Agreement among the Agency, the City of Ukiah and the North Coast Railroad Authority (NCRA), dated May 14, 2010 ("Option Agreement"). The Agreement is posted on the City of Ukiah's website at www.cityofukiah.com and is available for inspection at the City of Ukiah Department of Planning and Community Development, Ukiah Civic Center, 300 Seminary Ave., Ukiah, CA. 95482.

Under the Option Agreement, the Agency is purchasing a irrevocable 2 year option to purchase at fair market value APN's 002-232-12, 13 and 002-282-18, 19.

As provided in the Agreement, the City and the Agency are not legally obligated to purchase the property or the option or to otherwise perform their obligations under the Agreement until they have completed environmental review in compliance with the California Environmental Quality Act ("CEQA").

The City/RDA also entered an agreement with Weston Solutions, Inc., a brownfield redevelopment company on May 14, 2010 to sell and transfer ownership of the site.

The project also involves the remediation of contaminated soil on the property. The Remediation Action Plan prepared for the clean-up of the site includes an Implementation Work Plan (IWP) as required by the State Regional Water Quality Control Board. The IWP indicates that approximately 650 to 1,150 cubic yards of soil would be excavated, stockpiled, sampled, loaded, transported, and disposed of as a result of the project. These soils are contaminated with petroleum hydrocarbons and/or polycyclic aromatic hydrocarbons from historic industrial land uses on the site.

The remediation would also include grubbing and surface debris removal, erosion and sedimentation control, post excavation confirmation sampling, providing clean backfill, operating water trucks, performing downwind air monitoring, and the preparation of a Final Remediation Action Completion Report.

ENVIRONMENTAL SETTING: The site is mostly vacant except for the restored railroad depot building, an older warehouse structure, and a smaller structure in the southwestern portion of the site. Dense urban development surrounds the site, and the NWP railroad tracks are adjacent to the site on the west. Gibson Creek flows through the property on the northern portion of the property, but no other sensitive environmental resources are located on the site.

FINDINGS SUPPORTING A NEGATIVE DECLARATION:

1. Based upon the analysis, findings and conclusions contained in the Initial Environmental Study, the project, as mitigated, does not have the potential to degrade the quality of the local or regional environment;

2. Based upon the analysis, findings and conclusions contained in the Initial Environmental Study, the project, as mitigated, will not result in short-term impacts that will create a disadvantage to long-term environmental goals;

3. Based upon the analysis, findings and conclusions contained in the Initial Environmental Study, the project, as mitigated will not result in impacts that are individually limited, but cumulatively considerable; and

4. Based upon the analysis, findings and conclusions contained in the Initial Environmental Study, the project, as mitigated will not result in environmental impacts that will cause substantial adverse effects on human beings, either directly or indirectly.

5. The Initial Environmental Study examined areas of potential impacts and based on the conclusions reached in the Initial Environmental Study, it has been determined that the acquisition and sale of the railroad depot site in and of itself would not have significant adverse impacts on the environment for the following reasons:

    a. The project does not involve any site preparation, construction or development. Any future development would require separate environmental review and CEQA compliance. In fact, the State of California is contemplating the site for a possible new courthouse and is preparing a detailed environmental impact report for that potential project.

6. The Initial Environmental Study examined areas of potential impacts and based on the conclusions reached in the Initial Environmental Study, it has been determined that the soil contamination/remediation component of the project, as mitigated, would not have significant adverse impacts on the environment for the following reasons:

a. Reasonable and feasible mitigation measures have been identified and incorporated into the project to successfully off-set impacts related to air quality, biological resources, cultural resources, hazards/hazardous materials, and traffic/transportation.

STATEMENT OF DECLARATION: After appraisal of the possible impacts of this project, the City of Ukiah has determined that the project will not have a significant effect on the environment, and further, that this Negative Declaration constitutes compliance with the requirements for environmental review and analysis required by the California Environmental Quality Act.

The Initial Environmental Study and all resources information used to perform the initial environmental analysis may be reviewed at the City of Ukiah Department of Planning and Community Development, Ukiah Civic Center, 300 Seminary Avenue, Ukiah, California.

Charley Stump, Director
Planning and Community Development
City of Ukiah

Date

APPENDIX B

Remedial Action Plan, Former Ukiah Rail Yard, Ukiah, CA,
prepared by Weston Solutions, August 2011

REMEDIAL ACTION PLAN
FORMER UKIAH RAIL YARD
UKIAH, CA

Mendocino County APNs 002-232-12 and 13 and 002-282-18 and 19

NCRWQCB Site ID # 1NMC397

Final
August 2011

Prepared by

Weston Solutions, Inc.
190 Queen Anne Avenue North
Suite 200
Seattle, WA 98109-4926

WO# 14816.001.003

REMEDIAL ACTION PLAN
FORMER UKIAH RAIL YARD
UKIAH, CA

NCRWQCB Site ID # 1NMC397

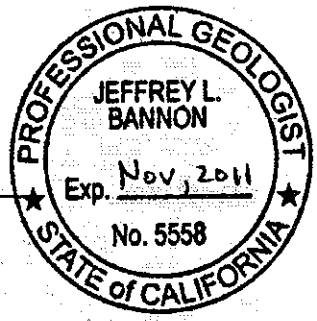
Work Order Number: 14816.001.003

Final August 2011

Prepared by: _____
Donald W. Clarke III, PG, Project Geologist
Weston Solutions, Inc.

Reviewed by: _____
Greg Stuesse, PE, LG, Project Manager
Weston Solutions, Inc.

Approved by: _____
Jeffrey L. Bannon, PG, Technical Manager
Weston Solutions, Inc.



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LIST OF ABBREVIATIONS AND ACRONYMS

APN	Assessor's Parcel Numbers
bgs	below ground surface
CHHSL	California Human Health Screening Levels
COCs	chemicals of concern
COPCs	chemicals of potential concern
EBA	EBA Engineering
ESA	Environmental Site Assessment
Geomatrix	Geomatrix Consultants
GPS	global positioning system
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MDL	method detection limit
NAPL	Non-Aqueous Phase Liquids
NCRA	North Coast Railroad Authority
NCRWQCB	North Coast Regional Water Quality Control Board
OEHHA	Office of Environmental Health Hazard Assessment
PAH	polycyclic aromatic hydrocarbons
PCBs	polychlorinated biphenyls
PCE	tetrachloroethylene
PHG	Public Health Goals
PQL	practical quantitation limit
Property	Former Ukiah Rail Yard, Ukiah, CA
RAP	Remedial Action Plan
Report	Site Characterization Report
SOW	scope of work
STLC	Soluble Threshold Limit Concentration
SVOCs	semi-volatile organic compounds
TPH	total petroleum hydrocarbon
TPH-D	diesel-range TPH
TPH-G	gasoline-range TPH
TPH-MO	motor oil-range TPH
TTLC	Total Threshold Limit Concentrations
USGS	U.S. Geological Survey
µg/kg	micrograms per kilogram
µg/L	micrograms per liter
VOCs	volatile organic compounds
WESTON	Weston Solutions, Inc.

SECTION 1

INTRODUCTION

Weston Solutions, Inc. (WESTON®) has prepared this Remedial Action Plan (RAP) to summarize the previous environmental investigation activities and the proposed remediation approach at the Former Ukiah Rail Yard property (Property or Site) located in Ukiah, CA (Figure 1). This RAP has been revised to incorporate comments provided by the North Coast Regional Water Quality Control Board's (NCRWQCB) on June 7, 2011. This document was also submitted for public comment during the period of June 30 to July 29, 2011. None of the received comments requested changes to the RAP.

The RAP provides the rationale and procedures for proposed remediation activities at the Site to reduce the potential threat posed by residual contaminants in Site soils so that the Property can be developed for beneficial use. The RAP incorporates all of the sampling data from WESTON's Site Characterization investigation conducted in December 2010 to April 2011 (included as Attachment A). The RAP is predicated on commercial land use of the Property after redevelopment. Land use covenants will need to be instituted to stipulate future land use requirements.

This RAP includes identification of chemicals of potential concern, action levels for removals, the rationale for removal, description of the execution of the work, measures for confirmation of the cleanup, and management of materials.

The RAP includes the following information necessary to evaluate the proposed remediation recommendation:

- Site background information
- Regional and Site geology and hydrogeology
- Results of extensive Site Investigation sampling
- Review of applicable clean-up goals
- Recommendations and extent of soil remediation
- Quality assurance/quality control (QA/QC) measures
- Remediation schedule
- Health and safety plan

SECTION 2

SITE BACKGROUND

The Property is located in the City of Ukiah, California. The Property is situated south of East Perkins Street and west of Leslie Street and consists of approximately 11 acres (Figures 1 and 2). The Mendocino County Assessor's Parcel Numbers (APNs) for the Property are 002-232-12 and -13 and 002-282-18 and -19. This parcel is also known as the North Coast Railroad Authority (NCRA) Property. The Property is listed on the NCRWQCB regulatory database as Case # 1NMC397.

The Property is situated on the eastern side of Ukiah, at an elevation of approximately 615 feet above sea level. Gibson Creek, a tributary to the Russian River, crosses the northeastern corner of the Property, flowing toward the east-southeast. Gibson Creek unofficially divides the Property into two distinct portions ("North of Gibson Creek" and "South of Gibson Creek"). This distinction has been made because the majority of historic rail operations and current business operate south of Gibson Creek. Alternately, the majority of the Property north of Gibson Creek has recently been developed as a public park and parking area for an adjacent bank.

The Property had a passenger and freight depot dating back to at least 1893. Early use of a main track, located along the western portion of the Property, was for passenger and freight movement. Through the years, side tracks were constructed on the Property south of Gibson Creek to service other industrial operations. Additionally, locomotive service facilities and infrastructure, such as an 80-foot diameter turntable, a 2-stall roundhouse, and fueling area, were constructed on the southeastern portion of the Property (generally south of Clay Street) to accommodate rail activities. Historic activities north of Gibson Creek were limited to a lumber planning mill and an associated office building that operated in the early 1900s

The Property is no longer an active rail yard and currently includes a single-story metal warehouse building (approximately 12,000 square feet), a single-story metal shop building (approximately 3,000 square feet) and a single-story brick passenger train depot building (approximately 2,000 square feet). The other infrastructure associated with the former rail yard has been removed from the Site. Scattered debris and debris piles, as well as a few low soil hummocks are locally present.

Current land use in the vicinity of the Property includes light industrial and commercial to the west, commercial (including a hospital) to the north, residential east of Leslie Street, and residential (including a trailer park) to the south of the Property.

SECTION 3

GEOLOGIC AND GEOGRAPHIC SETTING

The City of Ukiah is located within the Russian River Valley, which is within the northern portion of the Coast Ranges of California, which trend to the northwest. The mountain range that lies west of the Russian River Valley and extends to the coast is commonly called the Mendocino Range.

The Ukiah Valley is a subarea of the Russian River Valley. The Ukiah Valley is approximately 22 miles long, averages approximately 3 miles wide, and occupies an area approximately 65 square miles. The altitude of the valley floor ranges from approximately 500 feet at the southern end to approximately 700 feet in the northern end. The valley floor at the City of Ukiah is approximately 600 feet above sea level.

A more detailed discussion of the geologic and geographic setting is presented in the WESTON Site Characterization Report, located in Attachment A.

3.1 Regional Geology and Hydrogeology

The Ukiah Valley groundwater basin is located in southeastern Mendocino County. The basin occupies parts of the Ukiah and the Redwood Valleys to the north and their tributary valleys. The extent of the north-south trending basin is defined by the low-lying regions of the Ukiah and Redwood Valleys as well as those sloping areas along the valley margins

The Russian River traverses the entire length of the Ukiah Valley groundwater basin and is met by many tributaries from both the east and west sides of Redwood and Ukiah Valleys. Annual precipitation in the basin ranges from approximately 45 inches in the north to about 35 inches in the south (State of California, 2004).

Alluvium is the groundwater-bearing unit of primary importance within the Ukiah Valley Groundwater Basin. The alluvium primarily consists of unconsolidated gravel, sand, silt, and minor amounts of clay deposited in channels and on floodplains of the Russian River and its tributaries, on alluvial fans, and as colluvium on interfan slopes. Groundwater in the alluvium generally occurs under unconfined conditions (State of California, 2004).

Northwest-trending faults and folds control the course of the middle and upper Russian River, and are the dominant geologic structural features throughout the northern Coast Ranges. Several faults traverse the valleys, and recurrent movement has occurred at several localities in the Ukiah Valley area (USGS, 1965). The Maacama fault is the closest fault to the City of Ukiah, and is located along the eastern edge of the Ukiah Valley (State of California, 2010). This fault is considered to be active.

3.2 Local Geology and Hydrogeology

Observations by WESTON field staff during the environmental site characterization conducted in December 2010, January 2011, and April 2011 indicate that the primary soil stratigraphy at the Property consists of: fill material, silt, clay, sand, and silt/sand mixtures. The fill material,

which typically extends to approximately 1 foot below ground surface (bgs), was observed at several areas of the site, primarily in the vicinities of the Historic Tank Platform, the former Roundhouse/Turntable, the existing Warehouse and Shop Buildings, the former fruit packing facility at the central portion of the Property, and the portion of the Property located north of Gibson Creek.

Groundwater was typically encountered in two distinct zones, the upper silty sand (approximately 2 to 7 feet bgs) and the lower silt/sand mixture (29 to 30 feet bgs). Groundwater in these zones appeared to be under confined conditions at the time of the investigation due to the overlying low-permeability clay units. Static water levels in the upper zone generally ranged from approximately 5 to 13 feet bgs; however, at the central portion of the site static water was measured as high as 0.1 feet bgs. Static water levels in the lower zone generally ranged from 21 to 30 feet bgs. Due to the confining conditions of the subsurface lithology, it is estimated that static groundwater levels are likely to have significant seasonal variations.

SECTION 4

PREVIOUS INVESTIGATIONS

Previous subsurface investigations were performed by Geomatrix in 1992, 1995 and 1999, EBA in 2008, and WESTON in 2010 and 2011. Summaries of these investigations are provided below and associated sample locations are presented on Figure 3. A more detailed discussion of previous environmental activities at the Property are included in the Site Characterization Report, dated May 2010 (WESTON, 2011b), located in Attachment A.

4.1 Geomatrix 1992 Phase I ESA and 1995 Phase II Investigation

Between 1992 and 1995, Geomatrix Consultants, Inc. (Geomatrix) conducted Phase I and Phase II Environmental Site Assessment (ESA) investigations, respectively, for the Ukiah Station property, which included the Property (south of Perkins Street) and the rail facilities located on the north side of Perkins Street.

Geomatrix performed soil sampling of the Property in 1995 and collected composite samples for semivolatile organic compounds (SVOCs), total petroleum hydrocarbons as diesel and motor oil (TPH-D and TPH-MO, respectively), and metals. Additionally, discrete samples were collected for analysis of volatile organic compounds (VOCs). According to Geomatrix's findings, no VOCS, SVOCs, TPH-D, or TPH-MO were detected in samples collected from the Property. Somewhat elevated concentrations of lead and zinc were detected in samples collected at the northern part of the Site north of Perkins Street, but at concentrations significantly less than remedial criteria. Based on these findings, Geomatrix recommended no further action be performed at the Property.

4.2 Geomatrix 1999 Soil and Groundwater Investigation

In 1999, Geomatrix performed additional soil sampling, as well as groundwater sampling, at the Property. Soil samples were analyzed for TPH-D, TPH-MO, polycyclic aromatic hydrocarbons (PAHs), and metals, with analytical results compared to Preliminary Remediation Goals (PRGs) for industrial use, where applicable.

The boring locations were primarily selected based upon historic site features and observations made during the Phase I/II investigations. In addition, an existing groundwater well MW-8, which was reported to have been installed as part of an adjacent property investigation, was sampled during the event. Selected soil samples were analyzed for TPH-D, TPH-MO, PAHs, and metals. Groundwater samples were analyzed for TPH-D, PAHs, and VOCs.

Petroleum Hydrocarbons

Very low levels of TPH-D were detected in two locations at the Site, with a maximum concentration of 30 milligrams per kilogram (mg/kg). TPH-MO was detected at 11 borings, with a maximum concentration of 620 mg/kg.

Polycyclic Aromatic Hydrocarbons

Low levels of at least one PAH compound was detected in nearly all of the borings analyzed for PAHs, but only one sample exceeded any established PRG for a PAH compound. This was benzo(a)pyrene, which was detected at 476 micrograms per kilogram (µg/kg) versus the PRG of 360 µg/kg.

Metals

Of the metals detected in the 1999 investigation, only lead and arsenic were identified as being detected in concentrations above levels of potential concern. Both lead and arsenic were detected in one sample each at concentrations above ten times their respective Soluble Threshold Limit Concentration. Arsenic was detected in a total of 15 samples at concentrations above the USEPA Region 9 Preliminary Remedial Goal (PRG) for industrial soil at the time of 3 mg/kg. Arsenic concentrations were relatively elevated in the samples in which it was detected, and ranged from 23 mg/kg to 56 mg/kg. Arsenic was not detected above the laboratory reporting limit of 5 mg/kg in 34 samples. The lack of low range detections appears unusual, particularly compared with Geomatrix's 1995 sampling, in which arsenic was detected in 18 of 18 composite soil samples at concentrations ranging from 4.1 mg/kg to 8.6 mg/kg. The reason for the apparent disparity in arsenic results between sampling events is unclear, but could be related to possible analytical interference in the 1999 samples.

PCE

Analytical results of the 1999 sampling investigation for groundwater at the Property indicated that the only constituent detected was tetrachloroethylene (PCE), which was detected in two samples and ranged from 5.7 micrograms per liter (µg/L) at UB27 to 6.0 µg/L at MW-8. Both of these locations are in the southeastern portion of the Property.

4.3 EBA 2008 Report of Investigation

In 2008, EBA Engineering (EBA) conducted a soil and groundwater investigation at the location of a proposed skate park (EBA, 2008). The sample locations from the previous investigations conducted by EBA are included on Figure 3.

The investigation included the portion of the subject Property located adjacent to the former Leslie Street Gas Manufacturing Plant. The investigation included the advancement of 18 soil borings, identified as B-1 through B-18, to depths ranging from 8 to 12 feet bgs. Soil samples were collected from each boring at 0.5, 2, and 5 feet bgs and selected samples were analyzed for PAHs, VOCs, metals, and petroleum hydrocarbons. Typically all of the 0.5 foot-bgs samples were submitted for all analysis; however, 2 and 5 foot-bgs samples were only selectively analyzed. In addition, grab groundwater samples were collected from 6 of the 18 locations and analyzed for PAHs, VOCs, metals, and petroleum hydrocarbons. Groundwater was first encountered between 9.5 and 11 feet bgs.

Analysis of the soil samples collected during the investigation indicated detectable concentrations of TPH-D ranging from 23 to 490 mg/kg; detectable concentrations of TPH-MO

ranging from 28.7 to 1,090 mg/kg; detectable concentrations of benzo(a)pyrene ranging from 3.10 to 512 mg/kg; and detectable concentrations of PCE ranging from 2.03 to 2.09 µg/kg. One sample exhibited an arsenic concentration of 86.6 mg/kg, which was determined to be significantly above the background concentration. No additional metals were detected significantly above their respective background concentrations. TPH-G was not detected in any of the submitted soil samples. Additional PAHs were detected at concentrations below residential PRGs.

Analysis of the groundwater samples collected during the investigation indicated detectable concentrations of PCE ranging from 1.54 to 2.67 µg/L. Although PCE was present at concentrations above the CA Public Health Goal (PHG) of 0.06 µg/L, concentrations were below the California Maximum Contaminant Level (CA MCL) of 5 µg/L. Detectable concentrations of several PAHs were exhibited in the samples; however, none of the concentrations exceeded their respective PRGs. Detected metal concentrations did not exceed their respective MCLs.

EBA concluded based upon the analytical results that soils in the vicinity of the former asphalt plant were impacted with motor oil range hydrocarbons; that the near-surface soils at various locations across the site were impacted with PAHs, primarily benzo(a)pyrene; and that the groundwater beneath the site contained detectable concentrations of PCE.

4.4 WESTON (2010/2011)

Environmental site investigation activities were conducted by WESTON at the Property during three separate sampling events:

- 1 December to 15 December 2010 (area south of Gibson Creek)
- 6 and 7 January 2011 (environmental sampling conducted south of Gibson Creek as part of a subsequent geotechnical investigation)
- 4 April to 8 April 2011 (area north of Gibson Creek)

The sampling activities were conducted to evaluate potential impacts to soil vapor, soil and groundwater associated with chemical releases that may have occurred during historical operations at the Property or potentially have migrated onto the Property from other properties in the vicinity. Findings of the investigation are presented in the Site Characterization Report, which is included as Attachment A.

Site investigation activities were conducted in accordance with the Site Investigation Work Plan (WESTON, 2010) and the Work Plan Addendum (WESTON, 2011a). Samples collected by WESTON included:

- 29 soil vapor samples from 29 locations
- 132 soil samples from 50 locations
- 29 groundwater grab samples from 19 locations

WESTON's sample locations are shown on Figure 4 of this plan. All data from the site investigation performed by WESTON were compared against commercial/industrial screening

levels presented in the Site Investigation Work Plan. These screening levels, as well as cleanup standards and proposed cleanup goals, are discussed further in Section 6. The screening levels differ by media for the various compounds of potential concern, and generally reflect the most conservative published screening values. A complete listing of the screening levels for soil vapor, soil, and groundwater are provided in Tables 1 and 2 of the Site Characterization Report (Attachment A). The screening levels for the compounds detected above these screening levels are summarized in the table below.

Compound	Medium	Screening Level	Source
Middle Distillates TPH-D	Soil	83 mg/kg	SF Bay RWQCB
Middle Distillates TPH-D	Groundwater	0.10 mg/L	OEHHA PHG
Residual Fuels TPH-MO	Soil	2,500 mg/kg	SF Bay RWQCB
Residual Fuels TPH-MO	Groundwater	Not Detected (0.10 mg/L)	OEHHA PHG
PCE	Soil Vapor	1.6 µg/L	CHHSL for shallow soil vapor, industrial land use
PCE	Soil	700 µg/kg	SF Bay RWQCB
PCE	Groundwater	0.06 µg/L	OEHHA PHG
Benzo(a)pyrene	Soil	130 µg/kg	CHHSL for soil, industrial land use
Benzo(a)pyrene	Groundwater	0.007 µg/L	OEHHA PHG
Benzo(a)anthracene	Soil	1,300 µg/kg	SF Bay RWQCB
Benzo(b)fluoranthene	Soil	1,300 µg/kg	SF Bay RWQCB
Dibenzo(a,h)anthracene	Soil	210 µg/kg	SF Bay RWQCB
Arsenic	Soil	0.24 mg/kg	CHHSL for soil, industrial land use
Lead	Groundwater	0.2 µg/L	OEHHA PHG

SF Bay RWQCB – Groundwater as a Drinking Water Resource (http://www.swrcb.ca.gov/sanfranciscbay/esl.shtml)
CHHSL – California Human Health Screening Levels (http://oehha.ca.gov/risk/chhsltbl091709.html)
OEHHA PHG – Office of Environmental Health Hazard Assessment, Public Health Goal

Soil Vapor

During the investigation, a total of 29 soil vapor samples were collected from across the Property. Twenty-five of the 29 soil vapor samples had detectable concentration of tetrachloroethylene (PCE) that ranged from 0.10 micrograms per liter (µg/L) to 1.7 µg/L. As shown on Table 1, only one sample, which was collected from boring SV-31, had a PCE concentration that exceeded the site screening level of 1.6 micrograms per liter (µg/L). No additional analytes were detected above site screening levels during the soil vapor sampling portion of the investigation. Soil vapor PCE concentrations were typically higher in the southeastern portion of the Property in the vicinity of the historic turn table and historic round house.

Soil

During the investigation a total of 132 soil matrix samples were collected from across the Property. These samples were collected from a total of 50 locations that included 29 direct push drilling locations, four hollow-stem auger drilling locations and 17 test pit locations. Selected samples were analyzed for volatile organic compounds (VOCs); lead; arsenic; total petroleum hydrocarbons (TPH) in the gasoline, diesel, and motor oil range; polychlorinated biphenyls (PCBs); and polycyclic aromatic hydrocarbons (PAHs). The specific analytical methods used for each sample varied and were primarily selected using field observations, previous environmental data, and historical Site features. Table 2 presents a summary of detected analytes in soil samples above screening levels.

None of the soil matrix samples had concentrations of VOCs (i.e., PCE), lead, TPH-gasoline (TPH-G), or PCBs above site screening levels.

Only one soil sample from the 2010-2011 investigation had concentrations of PAHs that exceeded site screening levels. This sample was collected from the near-surface soil at test pit TP-14, which was located adjacent west of a debris pile at the east-central portion of the Property. The sample had elevated concentrations of four PAHs [i.e., benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and dibenzo(a,h)anthracene] that exceeded screening levels.

Nine soil samples had concentrations of TPH-D that exceeded the site screening level of 83 mg/kg. These concentrations ranged from 130 mg/kg to 5,360 mg/kg and these samples were generally collected from southeastern portion of the Property in the vicinity of the historic turn table and round house, from the east-central portion of the Site in the vicinity of the historic asphalt plant, and from the southwestern portion of the Site adjacent to the southern warehouse building.

Only one soil sample had a TPH-MO concentration (2,870 mg/kg) that exceeded the screening level of 2,500 mg/kg. This sample was collected from boring SV-7, which was located adjacent north of the southern warehouse building.

All 15 of the soil samples analyzed for arsenic had concentrations that exceeded the site screening level of 0.24 milligrams per kilogram (mg/kg). The detected concentrations ranged

from 3.74 mg/kg to 19.46 mg/kg. Thirteen of the samples ranged between 3.74-8.72 mg/kg, which is considered to represent background at this Site. The two samples with the highest concentrations of arsenic were also analyzed for leachable arsenic. Neither of these samples had detectable concentrations of leachable arsenic. WESTON collected soil samples targeting locations where higher arsenic concentrations were detected during the 1999 sampling event. Arsenic concentrations in the soil samples collected by WESTON were significantly lower than concentrations detected in 1999. The reasons that the previous elevated results could not be replicated are not clear, but may be attributable to disturbance of shallow soils by earthwork at the Site during the interim period which scattered the localized occurrences; interference causing high bias during analysis of the 1999 samples; or that the impacts identified previously were extremely localized and later samples could not be collected in the exact locations.

Groundwater

During the investigation a total of 29 groundwater grab samples were collected from 17 direct push boring locations and two hollow-stem auger locations across the Property. The sample depths ranged from 6 to 29.5 feet bgs and were selectively analyzed for VOCs; total organic carbon (TOC); CAM 17 Metals; nitrate as nitrogen; sulfate; TPH-G, diesel, and -motor oil ranges, and PAHs. The analyses selected for each sample varied and were primarily based on field observations, previous analytical data, and historical site features. Table 3 presents a summary of detected analytes in groundwater samples above screening levels.

Twenty-one of the groundwater grab samples had concentrations of PCE that exceeded the site screening level of 0.06 microgram per liter (µg/L). PCE concentrations ranged from 0.77 µg/L to 4.92 µg/L and were generally higher in samples collected from the southeastern portion of the Site in the vicinity of the historic turn table and round house. No other VOCs were detected in the samples above the laboratory detection limit.

One groundwater sample had a benzo(a)pyrene concentration (0.085 µg/L) that exceeded the site screening level of 0.007 µg/L. This sample was collected from shallow (12 feet bgs) groundwater at boring DP-4, which is located at the southern portion of the Property adjacent west of the historic turn table. No additional PAHs were detected in groundwater during the investigation.

One groundwater sample had a TPH-D concentration (8.26 mg/L) and TPH-MO concentration (4.73 mg/L) that exceeded the site screening levels for both TPH-D (0.10 mg/L) and TPH-MO (0.10 mg/L). This sample was collected from the deeper groundwater (23 feet bgs) at boring DP-6, which is located at the southeastern portion of the Property in the vicinity of the historic turn table and round house. None of the samples had a detectable concentration of TPH-G.

One groundwater sample had a lead concentration (9.686 µg/L) that exceeded the site screening level of 0.200 µg/L. This sample was collected from the deeper groundwater (25 feet bgs) at boring DP-5, which is located in the vicinity of the historic turn table and round house. No additional CAM 17 metals were detected in groundwater above their respective site screening levels (if applicable) during the investigation.

SECTION 5

CONCEPTUAL SITE MODEL

The conceptual site model (CSM) depicts the relationship between existing contamination, migration to or through various media, potential exposure routes and receptors. The CSM for the Site is presented as Figure 5. The CSM was prepared assuming current site conditions prior to remedial action, and commercial land use of the Property after redevelopment.

A chemical contaminant is initially released to the environment via a leak or spill (primary release mechanism), and migrate through or to various media via a secondary release mechanism. The secondary release mechanisms identified at the Site include the following:

- Volatilization of chemicals in soil vapor, soil, or groundwater and migration to indoor and outdoor air (migration of soil gas)
- Wind erosion of surface soils and atmospheric dispersion of dust in outdoor air (fugitive dust)
- Downward migration of contaminants through soil, potentially intersecting groundwater (infiltration/percolation)
- Erosion of surface soil by storm water runoff, with contaminants becoming entrained and transported off-site (stormwater runoff)

Exposure pathways for chemical contaminants to human receptors may or may not exist for a given medium or exposure route. An example of a situation where no exposure pathway exists would be contamination that is migrating to groundwater, but the water is not produced for consumption and therefore, there is no potential for individuals at the Site to be exposed.

For an exposure pathway to be considered complete, four elements must be present. These include a contamination source, a transport mechanism, an exposure point (i.e., medium such as air, water, or soil), and an exposure route (e.g., oral, dermal, or inhalation). If any of these four elements is missing, the pathway is incomplete.

The potential receptors at the Site would include future commercial workers, vistors, construction workers and maintenance workers. These receptor types do not necessarily share exposure pathways. For example, as indicated on the CSM (Figure 5), construction workers could be exposed to volatized contaminants in outdoor air during excavation or grading, but not indoor air because the Site would not yet be developed. Commercial workers would occupy buildings at the Site after development and be potentially subject to exposure to volatiles migrating to indoor air. Although commercial workers would not be likely to spend significant time outdoors, the pathway for potential exposure to volatile contaminants in outdoor air would still be considered complete.

The primary complete exposure pathways at the Site include inhalation of vapor from volatile compounds in indoor air, inhalation of volatile chemicals and fugitive dust in outdoor air, and direct contact with soil (ingestion, contact, and absorption). For construction workers only, complete exposure pathways would also include inhalation of vapors, ingestion, and contact/absorption from groundwater or surface water. Potential exposure to groundwater could

occur during dewatering for excavation or constructing deep foundations, and exposure to stormwater could occur during construction activities following rain events.

As indicated on Figure 5, the potential risk from the first two complete pathways cited (inhaling volatile compounds in indoor or outdoor air) is not significant at the Site, because concentrations of volatile compounds (principally PCE) in shallow soil vapor and groundwater are exceedingly low (all but one soil vapor result are below the CHHSL for shallow soil PCE vapor under a commercial/industrial use scenario). Similarly, potential risk is considered to be low for commercial workers/visitors at the Site via exposure from inhalation of fugitive dust or direct exposure to soil (ingestion or dermal contact), because this population would generally be spending their time indoors and as a result their potential exposure to outdoor soil or dust would be very limited.

There is a potential human health risk arising from exposure via inhalation of particulates and direct contact with contaminants in shallow soil. The proposed remediation (removal of impacted shallow soils) is focused on mitigating that potential risk. Removal of affected soils will also eliminate the potential source of contaminant migration from soil to groundwater and therefore the potential for construction workers to be exposed to either affected groundwater or surface water.

Impacts to soil at depth (i.e. below ten feet bgs) are not considered to present a potential exposure threat due to the depth of occurrence. Only three soil samples from two locations had impacts above a screening level at depth (TPH-D at concentrations ranging from 587 mg/kg to 5,360 mg/kg at depths of 15 to 20 feet bgs at DP-5 and DP-6). Therefore, remediation of these deep impacts will not be conducted.

SECTION 6

COMPOUNDS OF POTENTIAL CONCERN AND PROPOSED CLEANUP GOALS

As presented in Section 4.4, several compounds or analytes were detected on the Site at concentrations above their respective commercial/industrial screening levels. The compounds of potential concern to be remediated in shallow soils include the following:

- Total Petroleum Hydrocarbons, diesel range (TPH-D)
- Total Petroleum Hydrocarbons, motor oil range (TPH-MO)
- PAHs, primarily benzo(a)pyrene

During WESTON's investigation in 2010-2011, an attempt was made to replicate results in locations or areas where elevated concentrations of certain constituents had previously been detected. The earlier results could not be reproduced in several instances, such as for arsenic in general and for TPH-D in two locations. In those cases, the decision to conduct remedial action was based upon the new data.

Because of the nature of the impacts at the Site, which consist primarily of non-volatile chemicals (petroleum hydrocarbons and/or PAHs) in shallow soils, the most feasible approach to remediation is removal and off-site disposal of affected soil. The screening values for these chemicals are based on conservative assumptions and are highly protective of human health and the environment. As presented in Table 1 of the Site Characterization Report (Attachment A), screening levels assuming future use under a commercial/industrial scenario were selected. Land use covenants will need to be instituted to stipulate future land use requirements. These screening levels will therefore be utilized as clean-up criteria for the following compounds of potential concern:

- Middle Distillate TPH (TPH-D) 83 mg/kg
- Fuel Remnant TPH (TPH-MO) 2,500 mg/kg
- Benzo(a)pyrene 130 µg/kg
- Benzo(a)anthracene 1,300 µg/kg
- Benzo(b)fluoranthene 1,300 µg/kg
- Chrysene 23,000 µg/kg
- Dibenzo(a,h,)anthracene 210 µg/kg
- Indeno(1,2,3-cd)pyrene 2,100 µg/kg

Certain compounds in various media were not considered to be compounds of potential concern at the Site and remediation for these compounds is not planned. These compounds include:

- TPH-D in deep (15 to 20 feet bgs) soil
- Arsenic in soil
- PCE in soil vapor
- PCE in groundwater
- TPH-D and TPH-MO in groundwater

- Benzo(a)pyrene in groundwater
- Lead in groundwater

The rationale for exclusion of these compounds is discussed below. Additional information on location and concentration of these compounds is provided in the Site Characterization Report (Attachment A).

TPH-D in Deep Soil

Middle distillate (i.e., diesel range) petroleum hydrocarbons were detected above the screening level in deeper soil samples in the vicinity of the historic turn table and round house at sample locations DP-5 and DP-6 . As shown on Figure 9 of Attachment A, TPH-D concentrations were detected at depths of 15 and 20 feet bgs at DP-5 and at 20 feet bgs in DP-6, but did not exceed the screening level at depths of 10 feet and 29 feet at both locations. This figure also shows that TPH-D concentrations at DP-10 (located less than 100 feet to the east) did not exceed the SLs in the deeper soil samples collected. These results indicate that elevated TPH-D concentrations in soil are limited to deeper soil in a small portion of the Property.

Groundwater samples collected in the vicinity of the historic turn table and round house also demonstrate that TPH-D concentrations above the screening level is isolated to a small portion of the Property. As shown on Figure 16 of Attachment A, only the groundwater sample collected at 23 feet in DP-6 had TPH-D concentrations that exceeded the screening level. The remaining groundwater samples collected in this area (nine samples collected at depths ranging from 6 feet to 23 feet) did not have detectable TPH-D concentrations. Two of these samples (DP-10 at 14 feet and 23 feet) were collected directly downgradient of DP-6. Because the release of diesel-range hydrocarbons likely occurred during the operation of the historic turn table and round house over 30 years ago, these concentrations appear to be stable. These results demonstrate that TPH-D concentrations are isolated to a small portion of the Property and are unlikely to migrate offsite.

Because the TPH-D concentrations at 15-20 feet appear to be isolated, the depth of occurrence precludes direct human exposure, and results of groundwater sampling indicate that these concentrations are unlikely to migrate off-site, remedial action of deeper petroleum hydrocarbon contamination in soil is not proposed.

Arsenic in Soil

Arsenic was detected in all 15 soil samples analyzed by WESTON in concentrations above the OEHHA CHHSL for industrial soil of 0.24 mg/kg. However, based on WESTON's arsenic sampling results, background concentrations of arsenic at the Site appear to be in the 4 to 8 mg/kg range. No detections of arsenic in concentrations significantly above background (i.e., greater than 3 times background) were detected, therefore, arsenic is not considered a compound of potential concern at the Site and remediation of soils for arsenic does not appear to be warranted.

PCE in Soil Vapor

PCE was detected in only one of 29 soil vapor samples analyzed at a concentration above the screening level of 1.6 µg/L(SV-31 at 1.7 µg/L; see Attachment A, Figure 5). Because only one sample was detected slightly above the screening level , PCE in soil vapor is not considered a compound of potential concern at the Site and remediation for PCE is not planned.

PCE in Groundwater

Low concentrations of PCE were detected in 21 of the 29 groundwater samples collected at the Property. Although these concentrations were above the public health goal of 0.06 µg/L, all were below the California maximum contaminant level (MCL) drinking water standard of 5 µg/L. Because there are no elevated concentrations suggesting a release at the Site, and these low PCE concentrations were detected in groundwater throughout the Property, the PCE concentrations in groundwater may be due to an upgradient source.

It also appears that PCE concentrations in groundwater are decreasing over time. As provided in Section 4 above, groundwater samples collected in the southeastern portion of the Property in 1999 had PCE concentrations ranging from 5.7 µg/L to 6.0 µg/L. Groundwater samples collected from this area in December 2010 had PCE concentrations concentrations ranging from 0.77 µg/L to 4.25 µg/L. Further, the shallow groundwater underlying the Site is not being produced for any beneficial uses. Therefore, remediation of the groundwater at the Site to mitigate PCE does not appear to be necessary.

TPH in Groundwater

TPH-D and TPH-MO were only detected in one groundwater sample. This sample was collected from the deeper groundwater interval (23 feet bgs) at boring DP-6, which is located at the southeastern portion of the Property near the historic turn table and round house (see Figures 16 and 17 of Attachment A). Groundwater samples from DP-10 were collected directly downgradient of DP-6 at depths of 14 feet and 23 feet. TPH-D and TPH-MO concentrations were not detected in either sample. Because the release of diesel-range hydrocarbons likely occurred during the operation of the historic turn table and round house over 30 years ago, these concentrations appear to be stable. These results demonstrate that TPH-D and TPH-MO concentrations in groundwater are isolated to a small portion of the Property and are unlikely to migrate offsite.

Benzo(a)pyrene in Groundwater

One detection of benzo(a)pyrene in the groundwater above the public health goal of 0.007 µg/Lwas observed, but this is considered to be an isolated occurrence. As shown on Figure 15 of Attachment A. benzo(a)pyrene was detected in DP-4 in a groundwater sample collected at 12 feet bgs. Further, the areas of soil impacted with benzo(a)pyrene (which comprise the source for potential groundwater impact at the Site) will be excavated and removed from the property. The isolated detection of benzo(a)pyrene in the groundwater does not appear to warrant remediation of groundwater.

Lead in Groundwater

One deeper groundwater sample contained total lead in a concentration (9.686 µg/L) above the Public Health Goal screening level of 0.200 µg/L. Due to the single isolated detection, the depth of occurrence, and concentration below the maximum contaminant limit goal of 15 µg/L, this detection is not considered significant and remediation of groundwater for lead is not warranted.

SECTION 7

DESCRIPTION OF THE REMEDIAL ACTION

Site investigation results of soil sampling, groundwater sampling and soil-vapor sampling indicate the primary impacts at the Site above potential levels of concern are limited to petroleum hydrocarbons and/or PAHs in shallow soils. Since the impact from these compounds is limited to a fairly small volume in shallow soil, excavation and disposal at an appropriate off-site facility is the most effective means of remediation, and a formal alternative analysis was not deemed necessary. This approach will readily meet the following overall objectives:

- Short term effectiveness
- Long term effectiveness
- High degree of protection of human health and the environment
- High likelihood of community and agency acceptance

These objectives will be achieved because the soil removal remedy can be completed in a timely manner, the soil remediation will be permanent, the contamination source will be physically removed from the Site, and the remediation activities will not significantly affect or inconvenience nearby residents and businesses. In addition, the proposed remedial approach will allow future development of the Property.

Details regarding the soil removal process are presented in the Implementation Work Plan in Attachment B. Key tasks that are detailed in the Implementation Work Plan include: planning and pre-construction activities, permitting, mobilization, soil excavation and backfill, soil management, personnel and equipment decontamination, traffic control, and waste management and disposal.

7.1 Description of Removal Areas

Based on the results of sampling conducted at the Site, ten separate areas have been designated for soil removal. The approximate aerial extent of the removal is depicted on Figure 6. A table of volumes to be removed at each area is also included on Figure 6. The total volume of soil anticipated to be removed based on the current estimate is approximately 650 cubic yards. This estimate is considered preliminary and the final configuration and volume of the excavations will depend on results of confirmation sampling.

As per the notes on Figure 6, the assumed depth of excavation is one foot below the depth of the sample exhibiting a contaminant concentration above the screening level, and the lateral extent of the excavation where no data exists to define the boundary is assumed to be 15 feet from the original sample. The actual excavation boundary will vary depending on field observations and confirmation sample results.

General descriptions of each area to be remediated are discussed below.

Area 1

Two samples showed benzo(a)pyrene at a depth of 0.5 feet at concentrations ranging from 199 to 257 µg/kg. The anticipated volume of soil to be removed at Area 1 is approximately 97 cubic yards.

Area 2

One sample from 0.5 feet bgs indicated that benzo(a)pyrene was present at 512 µg/kg, accompanied by two other PAHs above the respective screening levels [benzo(b)fluouranthene and indeno(1,2,3-DC)pyrene]. The anticipated volume of soil to be removed at Area 2 is approximately 50 cubic yards. This area is an example of excavation limits defined by 15-foot stepouts from the original sample (estimated area 30 x 30 feet).

Area 3

One sample from 0.5 feet bgs indicated that benzo(a)pyrene was present at 262 µg/kg. The anticipated volume of soil to be removed at Area 3 is approximately 50 cubic yards.

Area 4

One sample from 0.5 feet bgs showed TPH-D at a concentration of 2,010 mg/kg. The anticipated volume of soil to be removed at Area 4 is approximately 43 cubic yards.

Area 5

One sample from 0.5 feet bgs showed TPH-D at a concentration of 272 mg/kg. The anticipated volume of soil to be removed at Area 5 is approximately 40 cubic yards.

Area 6

One sample from 0.5 feet bgs showed TPH-D at a concentration of 130 mg/kg and a benzo(a)pyrene concentration of 953 µg/kg. Three other PAHs were also detected above the respective screening levels including benzo(a)anthracene, benzo(b)fluouranthene, and dibenzo(a,h)anthracene. A second sample from 0.5 feet bgs in this area contained 476 µg/kg of benzo(a)pyrene. The anticipated volume of soil to be removed at Area 6 is approximately 74 cubic yards.

Area 7

One sample from 0.5 feet bgs indicated that benzo(a)pyrene was present at 183 µg/kg. The anticipated volume of soil to be removed at Area 7 is approximately 34 cubic yards.

Area 8

One sample from 5 feet bgs showed TPH-D at a concentration of 188 mg/kg. The anticipated volume of soil to be removed at Area 8 is approximately 200 cubic yards. Monitoring well MW-8 is located in the vincity of this proposed excavation and will be decommissioned prior to

excavation activities in accordance with the California Department of Water Resources Well Standards (DWR Bulletins 74-81 and 74-90) via a permit from the Mendocino County Environmental Health Division. Mr. Scott Ferriman (Blue Rock Environmental, Inc.) confirmed that MW-8 was no longer needed for groundwater monitoring associated with DZ, Inc.

Area 9

One sample from 0.5 feet bgs showed TPH-D at a concentration of 302 mg/kg. The anticipated volume of soil to be removed at Area 9 is approximately 33 cubic yards.

Area 10

One sample from 0.5 feet bgs contained TPH-D at a concentration of 791 mg/kg and TPH-MO at a concentration of 2,870 mg/kg. The anticipated volume of soil to be removed at Area 10 is approximately 33 cubic yards.

7.2 General Excavation Procedures

The following provides a general discussion of the excavation approach to be employed at the Site. Details of the excavation procedures are provided in the Implementation Work Plan in Attachment B.

Depending upon lateral extent and depth, excavations may be made using a backhoe, excavator, and/or tread-mounted or rubber tire loaders. Addition of a blade across the loader or excavator bucket teeth and will create a cleaner excavation with less potential for raking remnants of contaminated material into the excavation bottom and causing false positive results in bottom confirmation samples.

Excavated soil is anticipated to be managed by staging in temporary piles on plastic sheeting until loaded in dump trucks for transport off-site. This will eliminate the potential for stand-by time by the transport vehicles while waiting for soil to be excavated and will prevent the need to re-route haul roads to accommodate changes in excavation areas.

Based on the results of sampling conducted to date, the excavated soil is anticipated to be handled as non-hazardous waste. While the destination facility has not been determined at this point, it is anticipated that a thermal treatment or a Class II landfill would be able to accept this material and be an appropriate disposal facility.

In order to avoid potential tracking of contamination or loose soil from the Site, traffic on-site will be routed over a rumble strip which will dislodge soil and dust that may be clinging to transport vehicle tires. If soil is muddy and cannot be readily removed in the above manner, tires will be pressure washed at a decontamination station prior to leaving the Site. Rinse water will be collected, sampled for waste characterization, and periodically disposed of off-site at an appropriate facility. Vehicles will be inspected prior to leaving the Property.

7.3 Remedial Action Completion Report

Following confirmation that all areas of concern have been remediated to proposed cleanup goals, a Remedial Action Completion Report (RACR) will be prepared. The RACR will document the procedures followed, the results of confirmation sampling and excavation extent, and soil handling/waste management.

It is anticipated that a post-remediation risk assessment will not be conducted because the cleanup concentrations established for the Site are risk-based values. The cleanup goals adopted for this project are very conservative and, once remediation is implemented, will result in acceptable human health hazard index below 1.0 and excess cancer risk at or below 1×10^{-6}.

SECTION 8

CONFIRMATION SAMPLING AND ANALYSIS

Sampling will be conducted as part of the remediation process to confirm that clean-up goals have been achieved. The confirmation sampling program will be integrated into the excavation process so that the results of sampling can further direct the soil removal as necessary to attain the remediation goals.

Details regarding sample collection is provided in the Implementation Work Plan (see Attachment B). The following section describes the sampling program proposed as part of this remedial action.

8.1 Confirmation Sampling of Excavation

Soil samples will be collected from the base and sidewalls of each excavation to evaluate residual concentrations of the compounds of concern. This data will be utilized to document the concentrations remaining in place or to direct the need for further excavation. The number of samples necessary to confirm the effectiveness of the soil removal is primarily dependent upon the distribution of the chemical as determined by existing data, the proximity of existing data points to delineate the approximate extent of impact, and the extent and depth of the excavation.

The proposed confirmation sampling strategy for each identified excavation and approximate number of samples are estimated in Table 4. The actual number of samples collected will depend on the size of each excavation. Bottom samples will be collected approximately one every 225 square feet. Sidewall confirmation samples will be collected approximately every 30 feet laterally, at the approximate depth of the investigation soil sample(s) that triggered the need for the excavation.

8.2 Confirmation Sample Collection

Samples will be collected approximately 2 to 4 inches beyond the excavation surface. All soil samples will be discrete (non-composited) samples. In general, confirmation samples will be collected using a hand auger, from the excavator or backhoe bucket, or using trowels. The sample material will be carefully transferred to appropriate containers which will be labeled as to identification, date and time, and sampler's initials. The sample containers will be placed in resealable plastic bags and stored on ice in a cooler. The samples will be transferred to a California Department of Health Services (DHS)-certified analytical laboratory accompanied by proper chain of custody (COC) documentation. The COC will include notation of the analyses requested. All samples will be collected in accordance with USEPA SW-846.

For excavations exceeding 4 feet in depth, confirmation samples will be collected remotely, using either the excavating bucket, or a hand auger with extensions as necessary, so no person will need to enter the excavation. Open, shallow excavations that will predominate can be entered by personnel directly for collection of confirmation samples.

The confirmation samples will be collected once the estimated limit of the excavation extent has been reached. Effort will be made to collect confirmation samples the same day that the

proposed initial limits of an excavation have been reached. Following confirmation sampling of an excavation, measures will be taken to prevent entrance of personnel or equipment in order to minimize the potential for recontamination.

All samples collected will be assigned a unique WESTON identification code based on a consistent sample designation scheme. The sample designation scheme is designed to suit the needs of the field sampler and data management.

Sample numbers consist of four components separated by a dash. These components are the area identity, location identity, the media type and the sample identity, as shown below:

Area ID	-	**Location ID**	-	**Media**	-	**Sample ID**
A nn	-	TT sss	-	MM	-	t nnn

The four components may be defined as follows:

Area ID

The location ID component consists of two parts as follows:

A nn

The first character "A" represent the excavation area (i.e., Area 01, Area 02, etc.).

A01 – Excavation Area 1
A02 – Excavation Area 2

The "nn" section represents the station's alphanumeric identification, consisting of the excavation area number (i.e., 01-99).

Location ID

The location ID component consists of three parts as follows:

TT sss

The first two characters "TT" represent the sample location type (i.e., side wall sample, bottom sample).

SW – Side Wall
BT – Bottom

The "sss" section represents the station's alphanumeric identification, consisting of the station number (001-999) for each sample collected.

Media Type

The media type component is a two-character code that defines the media type of the sample. The following table lists the various media codes:

SL – Soil

ND – Not Designated (used for trip blanks, ambient blanks, rinsate blanks, and performance samples)

Sample ID

The sample ID component is composed of two parts: a sample type field "t" and a sample sequence field "nnn". It is a four character component that makes a sample number unique by specifying the sample sequence or depth. The format of the sample ID component is as follows:

t nnn

Where "t" is a single digit indicating the sample type. A list of all sample types follows:

0 — Field Sample

1 — Field Duplicate

The "nnn" field indicates the specific sampling sequence or top of the sample depth interval in tenths of feet.

Following this convention, an example sample designation of "A04-SW004-SL-0010" would be for a soil sample collected from side wall sample 004 from excavation 4 at a depth of 1.0 feet bgs.

8.3 Laboratory Analysis

Samples will be analyzed only for the compounds of potential concern present in a given area (e.g., confirmation samples in an area being excavated to address middle distillate TPH only will not be analyzed for PAHs). The proposed analyses for each excavation area are included on Table 4. The analytical methods to be utilized are:

Soil Sample Methods, Containers, and Holding Times

Analyses	Analytical Method	Sample Container and Preservation	Holding Time
TPH-D and TPH-MO	USEPA Method 8015B modified with silica gel cleanup	4 ounce glass jar with Teflon-lined lid; cool to 4°C	14 days to extraction; 40 days to analyze extract
PAHs	USEPA Method 8270C-SIM	4 ounce glass jar with Teflon-lined lid; cool to 4°C	14 days to extraction; 40 days to analyze extract

Confirmation samples will be analyzed using an expedited turnaround time to be determined by the site manager. Reporting limits for the analyses will be at or below removal action levels.

8.4 Decontamination and Quality Control Laboratory Analysis

All non-disposable sampling equipment will be cleaned between samples using a soap wash, potable water rinse, and distilled water rinse. If non-disposable sampling equipment is used, an equipment rinsate blank sample will be collected for each compound of potential concern (i.e.; TPH-D, TPH-MO and/or PAHs) to confirm the effectiveness of the decontamination procedure. If dedicated/disposable sampling equipment is used, equipment blank samples will not be collected.

In addition, at least one field duplicate (co-located) sample will be collected at a rate of 10% to evaluate reproducibility of the data.

8.5 Confirmation Data Analysis

If results of all confirmation samples at an area are below the proposed cleanup values, the area will be considered remediated and ready for backfilling and/or grading.

If any results from the confirmation exceed the removal action levels, one of the following actions will occur:

- Collect at least two additional samples from the immediate area of exceedance. If both of the sample results are below the cleanup values, the location will be considered remediated as described above. If either sample exceeds the cleanup value, additional excavation will be conducted in the impacted area.
- Alternately, additional lateral or vertical sampling will be conducted to delineate the extent of the impact, followed by further excavation to the redefined boundary.

At completion of additional excavation under either of the above scenarios, additional confirmation samples will be collected to document that cleanup values have been achieved.

The process will continue, expanding the excavation laterally or vertically, until cleanup standards have been achieved or the excavation reaches a depth of 10 feet bgs.

SECTION 9

QUALITY ASSURANCE/QUALITY CONTROL PLAN

A quality assurance/quality control (QA/QC) plan has been developed for this project to ensure that the remediation program meets or exceeds the performance requirements set forth in this RAP. This plan is presented in Attachment C.

SECTION 10

SCHEDULE

The estimated schedule for implementation of the proposed remediation is presented below. The estimated time frame will vary depending on several factors including permitting requirements, excavated soil volume, and weather conditions. Some tasks may be conducted concurrently which would reduce the overall duration of the remedial action.

Estimated Remedial Action Implementation Schedule

Task	Duration in Working Days
Obtain approval to proceed	0 days
Conduct planning and pre-construction activities	30 days
Mobilization and setup	5 days
Excavate contaminated soil and perform confirmation sampling	10 days
Laboratory analysis and evaluate soil confirmation data	10 days
Characterize contaminated material and obtain approval from disposal facility	15 days
Transport contaminated material to disposal facility	5 days
Backfill excavations following contaminated soil removal	10 days
Prepare closure report for submittal to NCRWQCB	30 days

SECTION 11

HEALTH AND SAFETY

WESTON has prepared a Site-Specific Safety and Health Plan (SSHP) for the work to be performed in accordance with all applicable OSHA and Cal-OSHA regulations as well as specifications contained in 29 CFR 1910.120. A draft version of this plan is included in Attachment D as an example and assumes that the remedial activities will be performed by WESTON. Following the selection of contractors, the final SSHP will be prepared prior to commencing remedial action activities. The SSHP includes a brief description of the site history and scope of work, a list of WESTON personnel and their qualifications, the contaminants and hazards found at the Site, and the personal protection equipment to be used and the air monitoring to be performed. All personnel involved in the site work will be required to read and sign the SSHP prior to beginning work on the Site. Health and safety meetings will be conducted and documented at the start of work each day on the Site. The briefings will discuss the work scheduled for the day and review all safety issues associated with the safe performance of that work.

SECTION 12

REFERENCES

Geomatrix Consultants, Inc. (Geomatrix), 1995. *Phase I and Phase II Soil and Groundwater Report.* Ukiah, CA. Project Number: 2770. July 1995.

Geomatrix, 1999. *Results of Soil and Groundwater Sampling.* Prepared by Geomatrix Consultants for Union Pacific Railroad Company. Project Number: 2770.10. July, 1999.

Weston Solutions, Inc. (WESTON), 2010. *Site Investigation Work Plan, Former Ukiah Rail Yard*. Ukiah, CA. Project ID: 14816.001.001. December 2010.

WESTON, 2011a. *Site Investigation Work Plan Addendum, Former Ukiah Rail Yard*. Ukiah, CA. Project ID: 14816.001.004. March 2011

WESTON, 2011b. *Site Characterization Report, Former Ukiah Rail Yard*. Prepared by Weston Solutions, Inc. May 2011.

TABLES

Table 1 - Detected Soil Vapor Concentrations

Ukiah Rail Yard Property Ukiah, California

Samples collected December 2010

Chemical	Sample Location	Depth (ft bgs)	Concentrations (ug/L)	Screening Level (ug/L)
Tetrachloroethylene (PCE)	SV-1	8	0.83	1.6
	SV-4	10	0.58	1.6
	SV-6	8	0.55	1.6
	SV-9	9.5	0.10	1.6
	SV-12	10	0.33	1.6
	SV-13	8.5	0.39	1.6
	SV-13	8.5 (duplicate)	0.39	1.6
	SV-14	5.5	0.67	1.6
	SV-15	10.5	0.10	1.6
	SV-16	10 (3 pore volumes)	0.11	1.6
	SV-16	10 (7 pore volumes)	0.14	1.6
	SV-17	7.5	0.62	1.6
	SV-18	8	0.31	1.6
	SV-19	8	0.60	1.6
	SV-20	10	0.13	1.6
	SV-22	8	0.17	1.6
	SV-24	8	0.54	1.6
	SV-24	8 (duplicate)	0.27	1.6
	SV-25	10	1.3	1.6
	SV-26	10	0.83	1.6
	SV-27	10	1.0	1.6
	SV-29	7.5	0.42	1.6
	SV-30	8	0.83	1.6
	SV-31	9.5	**1.7**	1.6
	SV-32	10	0.51	1.6
	SV-33	10	0.27	1.6
	SV-34	9	1.3	1.6
	SV-35	10	1.6	1.6
Toluene	SV-11	16	0.13	890

Notes:

Depth is given in feet below ground surface (ft bgs)

Bold indicates concentrations exceed screening level

Table 2 - Soil Concentrations Greater than Screening Levels

Ukiah Rail Yard Property Ukiah, California

Samples collected December 2010, January 2011, and April 2011

Chemical	Sample Location	Depth (ft bgs)	Concentrations	Screening Level
Metals (mg/kg)				
Arsenic	DP009	0.5	19.46	0.24
	DP009	2.0	5.02	0.24
	DP009	5.0	12.20	0.24
	DP014	0.5	5.25	0.24
	DP015	0.5	4.85	0.24
	DP016	0.5	4.71	0.24
	DP017	0.5	4.59	0.24
	SV003	0.5	4.85	0.24
	SV003	2.0	4.32	0.24
	SV023	0.5	4.88	0.24
	SV023	2.0	4.22	0.24
	SV027	2.0	3.74	0.24
	SV027	0.5	8.72	0.24
	SV028	0.5	4.32	0.24
	SV028	2.0	4.12	0.24
PAHs (µg/kg)				
Benzo(a)pyrene	TP014	0.5	953	130
Benzo(a)anthracene	TP014	0.5	1,320	1,300
Benzo(b)fluoranthene	TP014	0.5	1,480	1,300
Dibenzo(a,h)anthracene	TP014	0.5	342	210
Total Petroleum Hydrocarbons (mg/kg)				
Middle Distillates (TPH-D)	DP005	15.0	5,360	83
	DP005	20.0	587	83
	DP006	20.0	1,120	83
	DP006	0.5	302	83
	DP010	5.0	188	83
	TP014	0.5	130	83
	TP016	0.5	272	83
	TP017	0.5	2,010	83
	SV007	0.5	791	83
Residual Fuels (TPH-M)	SV007	0.5	2,870	2,500

Notes:

Depth is given in feet below ground surface (ft bgs)

Table 3 - Groundwater Concentrations Greater than Screening Levels

Ukiah Rail Yard Property Ukiah, California

Samples collected December 2010, January 2011, and April 2011

Chemical	Sample Location	Depth (ft bgs)	Concentrations	Screening Level
Metals (µg/L)				
Lead	DP005	25	9.69	0.2
PAHs (µg/L)				
Benzo(a)pyrene	DP004	12	0.09	0.007
Total Petroleum Hydrocarbons (mg/L)				
Middle Distillates	DP006	23	8.26	0.10
Residual Fuels	DP006	23	4.73	0.10
VOCs (µg/L)				
PCE (Tetrachloroethene)	BG002	7.5	2.70	0.06
	BG002	22.0	0.77	0.06
	BG003	6.0	1.11	0.06
	DP001	13.0	2.23	0.06
	DP004	12.0	1.65	0.06
	DP005	12.0	2.73	0.06
	DP006	14.0	3.42	0.06
	DP006	23.0	1.06	0.06
	DP007	9.0	1.14	0.06
	DP008	12.0	1.33	0.06
	DP009	9.5	2.35	0.06
	DP010	14.0	4.01	0.06
	DP010	23.0	4.25	0.06
	DP011	11.0	2.90	0.06
	DP011	21.0	2.78	0.06
	DP012	12.0	1.70	0.06
	DP013	11.0	1.46	0.06
	DP013	21.0	1.75	0.06
	DP014	8.5	2.40	0.06
	DP014	29.5	1.75	0.06
	DP015	8.5	2.61	0.06
	DP016	8.0	2.67	0.06
	DP017	6.0	3.07	0.06
	DP017	28.0	4.92	0.06

Notes:

Depth is given in feet below ground surface (ft bgs)

The Screening Level for PCE is the California PHG. The California MCL is 5.0 µg/L

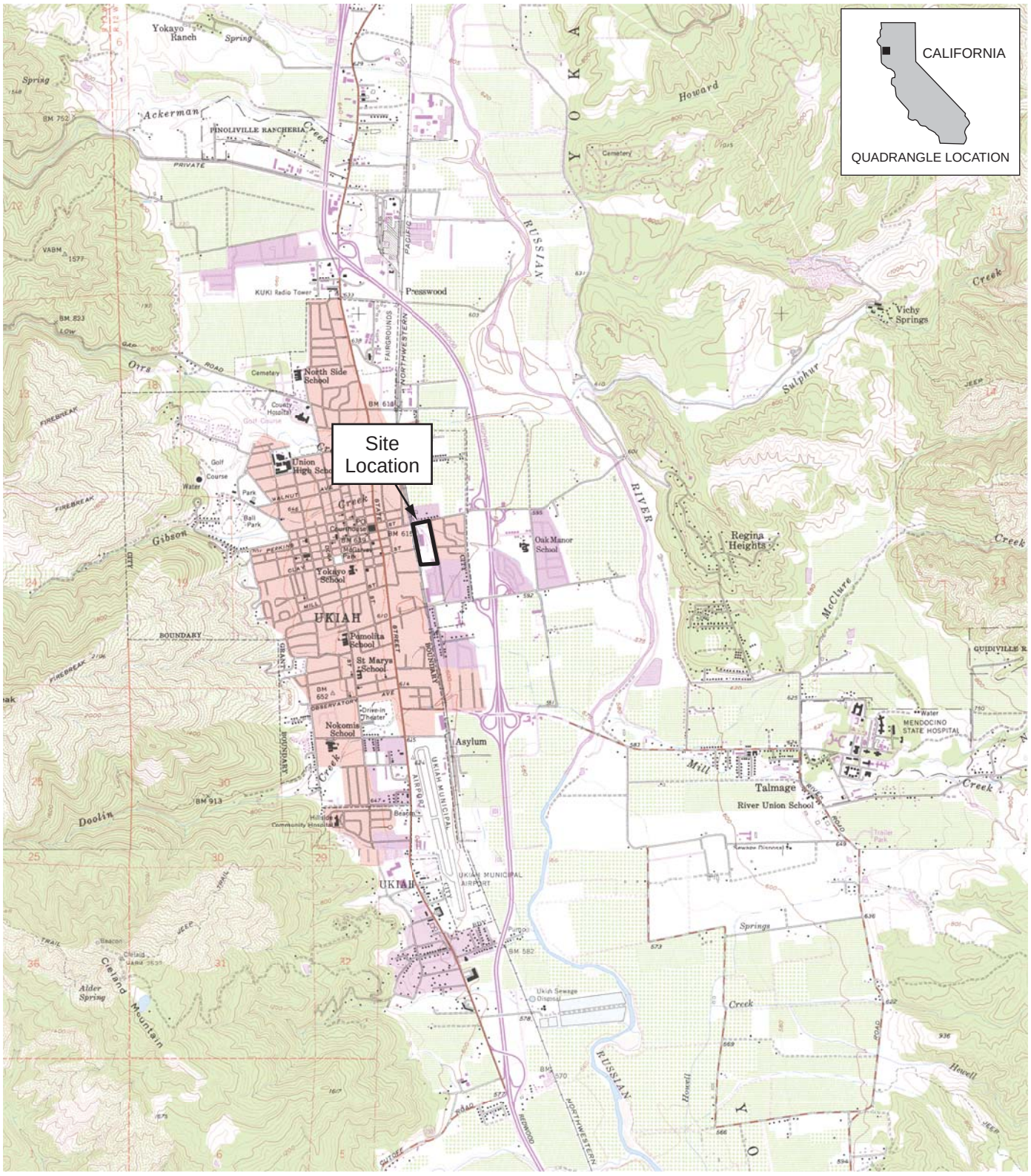
Table 4 - Summary of Planned Confirmation Samples by Excavation Area
Ukiah Rail Yard Property Ukiah, California

Excavation Area	Approximate Area (sq ft)	Number of Bottom Samples	Approximate Perimeter (lin ft)	Number of Sidewall Samples	Number of Total Samples	Analyses
1	1746	8	185	7	15	PAHs
2	900	4	120	4	8	PAHs
3	900	4	120	4	8	PAHs
4	774	4	110	4	8	TPH-D
5	720	4	110	4	8	TPH-D
6	1332	6	146	5	11	PAHs & TPH-d
7	612	3	104	4	7	PAHs
8	900	4	120	4	8	TPH-D
9	594	3	100	4	7	TPH-D
10	594	3	100	4	7	TPH-D & TPH-MO

Notes:

Actual number of bottom and sidewall soil samples will vary depending on the final extent of each excavation area.

FIGURES

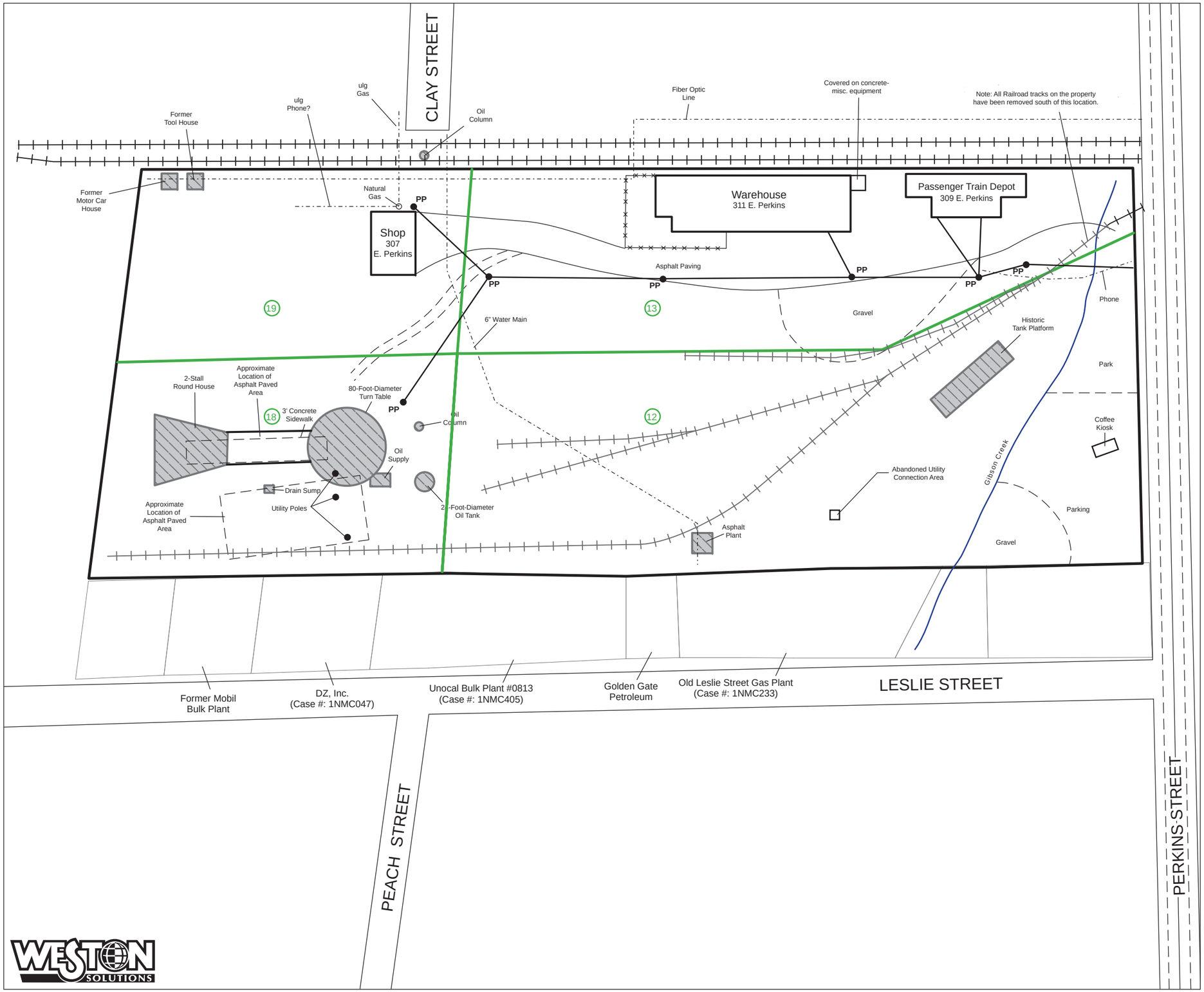


Source: USGS 7.5' series topo, Ukiah & Elledge Peak-CA, 1958, 1975.

Site Vicinity Map
Former Ukiah Rail Yard
Ukiah, CA

Figure
1

11-0017 RAP_Fig1.ai



Site Boundary (NCRWQCB Site ID # 1NMC397)

Indicates historical feature for which no surface features were observed

Historic or existing rail track

Overhaed power and pole

Underground utility

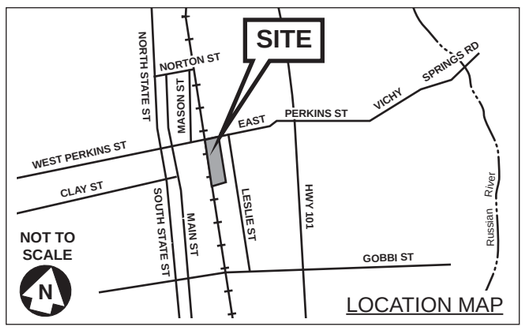
Parcel boundary within site

12 Parcel ID

N

0 50 100

Scale in Feet



LOCATION MAP

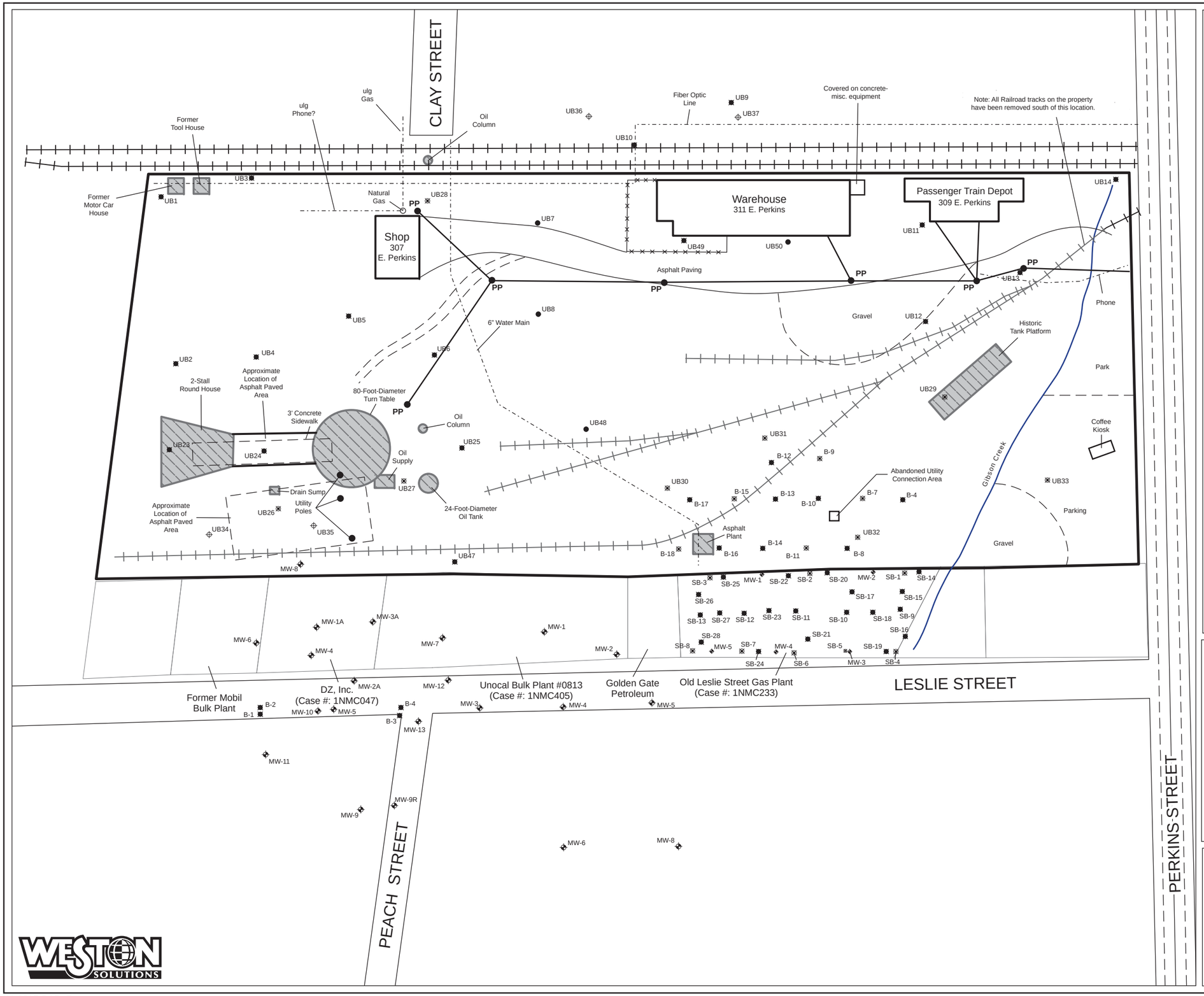
Site Plan

Former Ukiah Rail Yard
Ukiah, CA

Figure
2

WESTON SOLUTIONS

11-0017 RAP_Figures.ai



Site Boundary (NCRWQCB Site ID # 1NMC397)

Indicates historical feature for which no surface features were observed

Historic or existing rail track

Overhaed power and pole

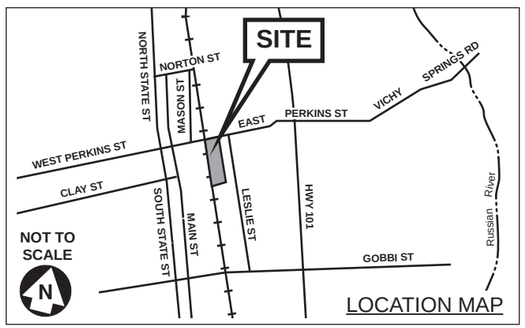
Underground utility

Historic Sample Locations

- Monitoring well
- Soil Boring location
- Grab Groundwater location
- Soil and Grab Groundwater location

0 50 100

Scale in Feet



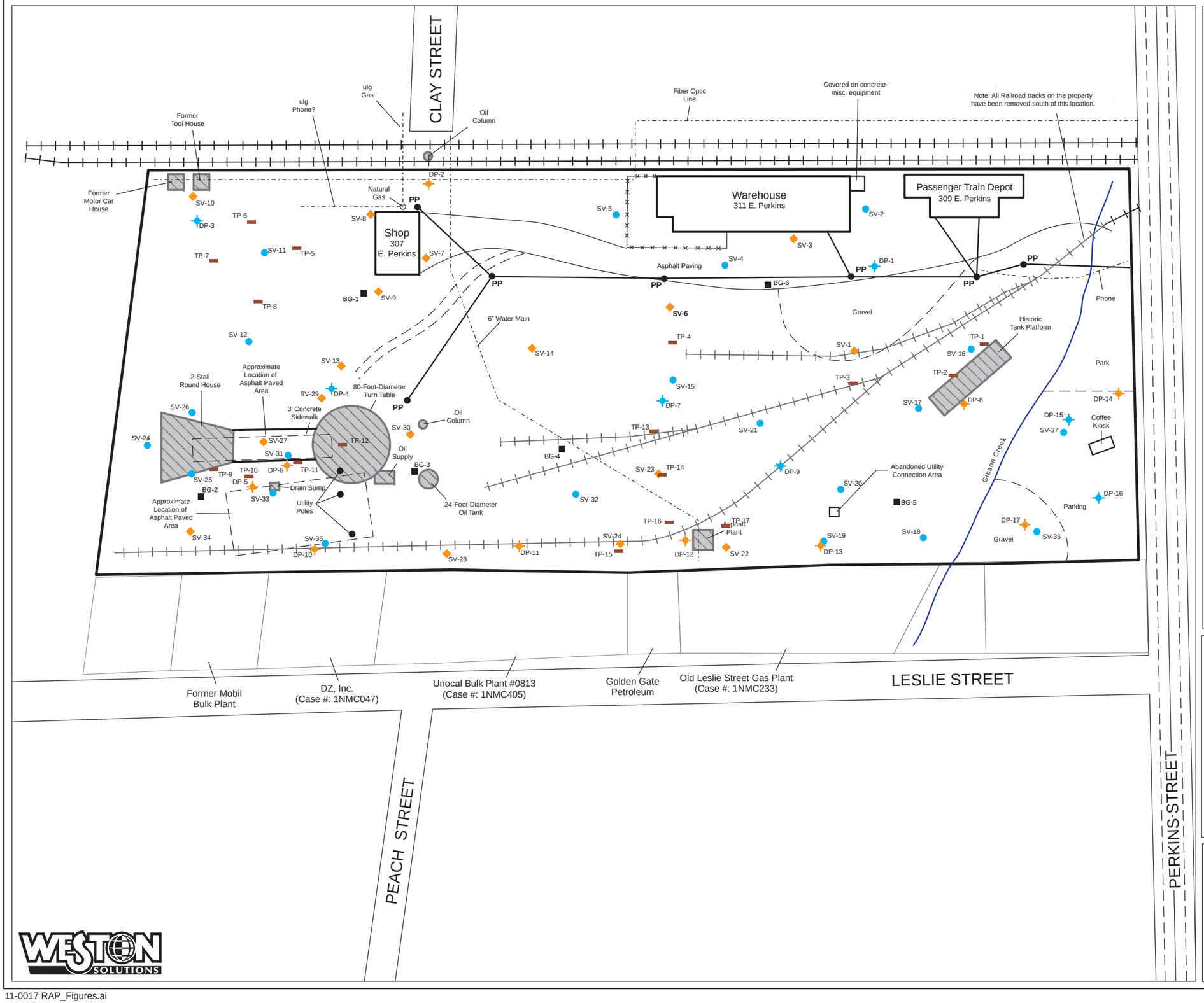
LOCATION MAP

Previous Environmental Investigation Sample Locations
Former Ukiah Rail Yard
Ukiah, CA

Figure

3

WESTON SOLUTIONS



Site Boundary (NCRWQCB Site ID # 1NMC397)

Indicates historical feature for which no surface features were observed

Historic or existing rail track

Overhaed power and pole

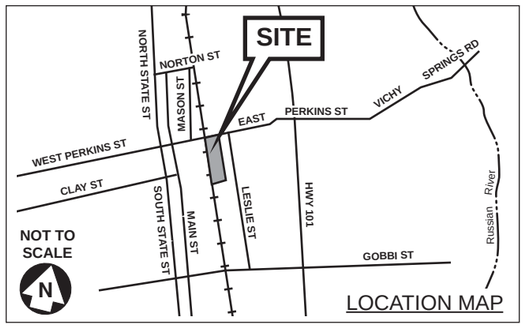
Underground utility

Dec 2010/Jan & Apr 2011 Sample Locations

- Direct Push Location to First Water
- Direct Push Location to approximately 30 ft. bgs
- Soil Vapor Sample Location
- Soil Vapor and Soil Sample Location
- Test Pit Location
- Geotech Boring Location

0 50 100

Scale in Feet



LOCATION MAP

WESTON Sample Locations

Former Ukiah Rail Yard
Ukiah, CA

Figure **4**

WESTON SOLUTIONS

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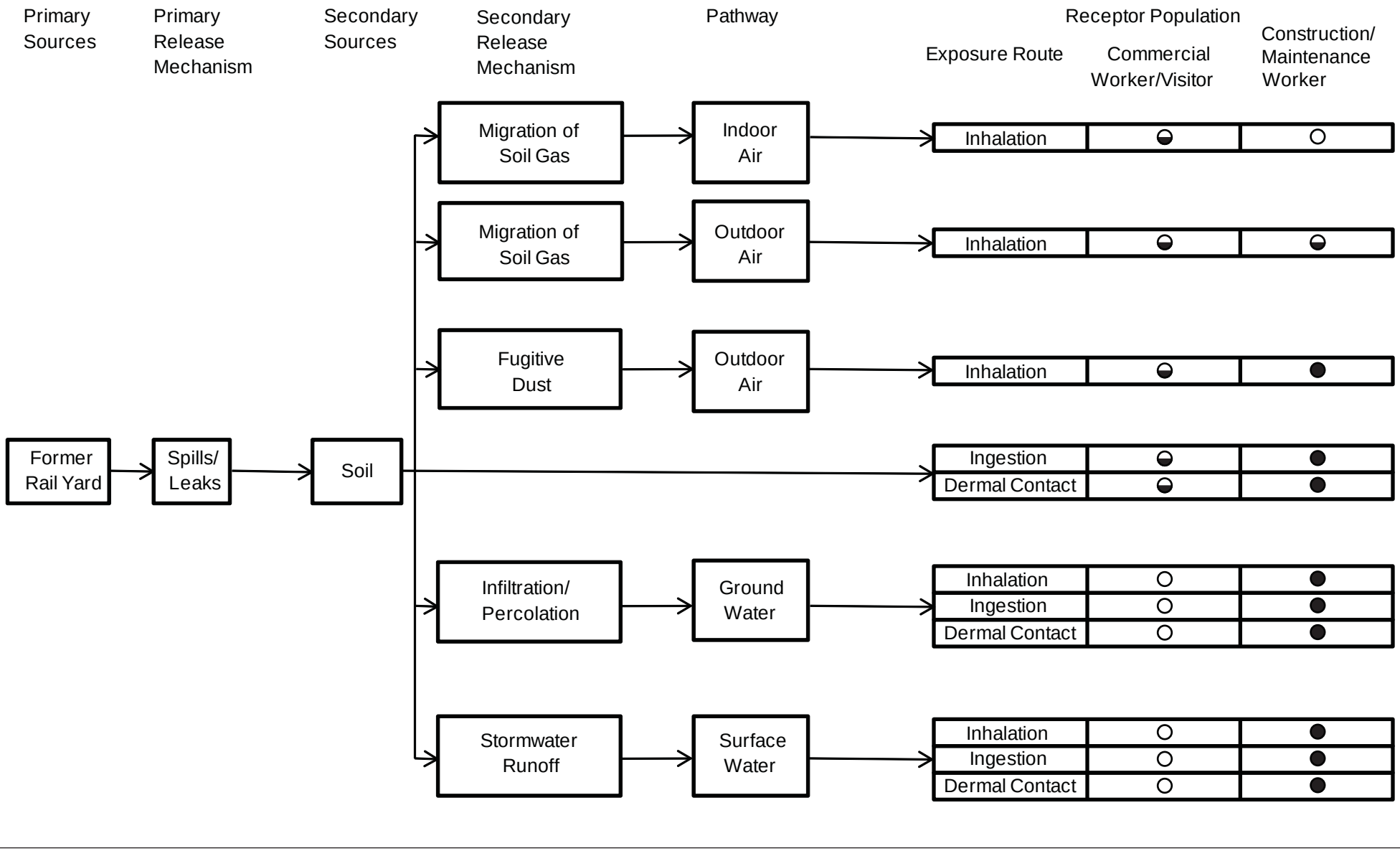


● Potentially complete pathway

◒ Potentially complete pathway but judged to be minor

○ Incomplete pathway

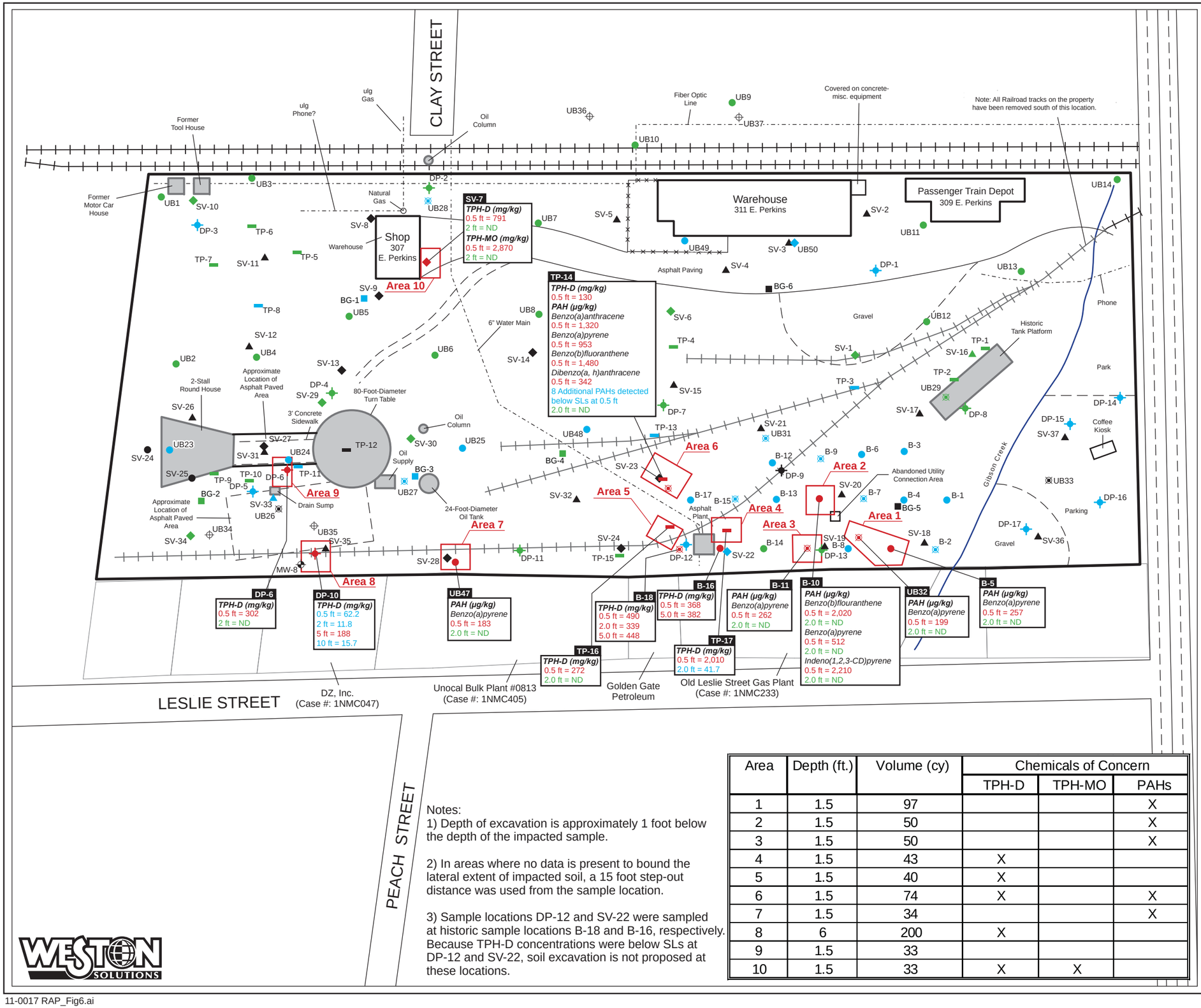
Conceptual Site Model Prior to Remedial Action

Former Ukiah Rail Yard

Ukiah, CA

Figure **5**

11-0017 RAP_Fig5.ai



Area	Depth (ft.)	Volume (cy)	Chemicals of Concern		
			TPH-D	TPH-MO	PAHs
1	1.5	97			X
2	1.5	50			X
3	1.5	50			X
4	1.5	43	X		
5	1.5	40	X		
6	1.5	74	X		X
7	1.5	34			X
8	6	200	X		
9	1.5	33			
10	1.5	33	X	X	

Notes:
1) Depth of excavation is approximately 1 foot below the depth of the impacted sample.

2) In areas where no data is present to bound the lateral extent of impacted soil, a 15 foot step-out distance was used from the sample location.

3) Sample locations DP-12 and SV-22 were sampled at historic sample locations B-18 and B-16, respectively. Because TPH-D concentrations were below SLs at DP-12 and SV-22, soil excavation is not proposed at these locations.

Site Boundary (NCRWQCB Site ID # 1NMC397)

Indicates historical feature for which no surface features were observed (2010)

Historic or existing rail track

Underground utility

Proposed Areas of Excavation

Historic Sample Locations (1995, 1999, 2008)

- Monitoring well
- Soil Boring location
- Grab Groundwater location
- Soil and Grab Groundwater location

Dec 2010/Jan & Apr 2011 Sample Locations (WESTON)

- DP-1: Direct Push Location
- SV-1: Soil Vapor Sample Location
- SV-3: Soil Vapor and Soil Sample Location
- TP-1: Test Pit Location
- BG-1: Geotech Boring Location

Concentrations in soil ≥ 10' Below Ground Surface

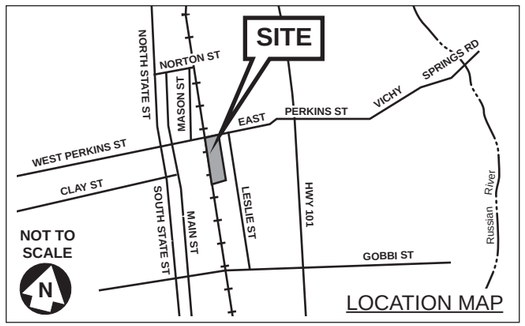
- > SL (TPH-D, TPH-MO, and/or PAHs)
- < SL (TPH-D, TPH-MO, and/or PAHs)
- ND (TPH-D, TPH-MO, and/or PAHs)

Note: Sample locations in black indicate no soil data for TPH-D, TPH-MO, and/or PAHs.

N

0 50 100

Scale in Feet



LOCATION MAP

Proposed Areas of Excavation and Soil Concentrations

Former Ukiah Rail Yard
Ukiah, CA

Figure
6

WESTON SOLUTIONS

11-0017 RAP_Fig6.ai

ATTACHMENT A

SITE CHARACTERIZATION REPORT

SITE CHARACTERIZATION REPORT
FORMER UKIAH RAIL YARD
UKIAH, CALIFORNIA

Mendocino County APNs 002-232-12 and 13
and 002-282-18 and 19

North Coast Regional Water Quality Control Board
Case # 1NMC397

May 2011

Prepared by

Weston Solutions, Inc.
190 Queen Anne Avenue North
Suite 200
Seattle, WA 98109-4926

WO# 14816.001.004

SITE CHARACTERIZATION REPORT
FORMER UKIAH RAIL YARD
UKIAH, CALIFORNIA

NCRWQCB Site ID # 1NMC397

Work Order Number: 14816.001.004

Prepared by: _____

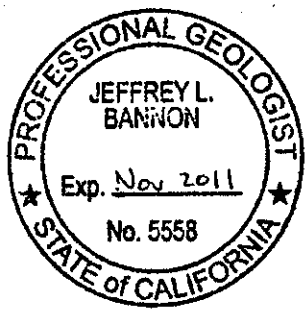
Kevin Broom, LG, Project Geologist
Weston Solutions, Inc.

Reviewed by: _____

Greg Stuesse, PE, LG, Project Manager
Weston Solutions, Inc.

Approved by: _____

Jeffrey L. Bannon, PG, Technical Manager
Weston Solutions, Inc.



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LIST OF ABBREVIATIONS AND ACRONYMS

APN	Assessor's Parcel Numbers
bgs	below ground surface
CHHSL	California Human Health Screening Levels
COCs	chemicals of concern
COPCs	chemicals of potential concern
EBA	EBA Engineering
ESA	Environmental Site Assessment
Geomatrix	Geomatrix Consultants
GPS	global positioning system
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MDL	method detection limit
NAPL	Non-Aqueous Phase Liquids
NCRA	North Coast Railroad Authority
NCRWQCB	North Coast Regional Water Quality Control Board
OEHHA	Office of Environmental Health Hazard Assessment
PAH	polycyclic aromatic hydrocarbons
PCBs	polychlorinated biphenyls
PCE	tetrachloroethylene
PHG	Public Health Goals
PQL	practical quantitation limit
Property	Former Ukiah Rail Yard, Ukiah, CA
RAP	Remedial Action Plan
Report	Site Characterization Report
SOW	scope of work
STLC	Soluble Threshold Limit Concentration
SVOCs	semi-volatile organic compounds
TPH	total petroleum hydrocarbon
TPH-D	diesel-range TPH
TPH-G	gasoline-range TPH
TPH-MO	motor oil-range TPH
TTLC	Total Threshold Limit Concentrations
USGS	U.S. Geological Survey
µg/kg	micrograms per kilogram
µg/L	micrograms per liter
VOCs	volatile organic compounds
WESTON	Weston Solutions, Inc.

SECTION 1

INTRODUCTION

Weston Solutions, Inc. (WESTON®) prepared this Site Characterization Report (Report) to document an environmental investigation at the Former Ukiah Rail Yard property (Property) located in Ukiah, California.

1.1 SITE DESCRIPTION

The Property is located south of East Perkins Street and west of Leslie Street in Ukiah, California and consists of approximately 11 acres (Figures 1 and 2). The Mendocino County Assessor's Parcel Numbers (APNs) for the Property are 002-232-12 and 13 and 002-282-18 and 19. This parcel is also known as the North Coast Railroad Authority (NCRA) Property. The Property is listed on the North Coast Regional Water Quality Control Board's (NCRWQCB) regulatory database (Case # 1NMC397).

The Property had a passenger and freight depot dating back to at least 1893. Early use of a main track located along the western portion of the property was for passenger and freight movement. Through the years, side tracks were constructed on the property to service other industrial operations.

North of Gibson Creek

Historic activities north of Gibson Creek were limited to a lumber planning mill and an associated office building that operated in the early 1900s. These structures were identified on a Sanborn Map dated 1911, but were not shown on a similar Sanborn Map dated 1929. The area remained undeveloped and the eastern portion was primarily used for parking. This portion of the Property is currently used as overflow parking associated with a bank branch office and a public park.

South of Gibson Creek

Locomotive service facilities and infrastructure, such as an 80-foot diameter turntable, a 2-stall roundhouse, and fueling area, were constructed on the southeastern portion of the Property (generally south of Clay Street) to accommodate rail activities. The Property is no longer an active rail yard and currently includes a single-story metal warehouse building (approximately 12,000 square feet), a single-story metal shop building (approximately 3,000 square feet) and a single-story brick passenger train depot building (approximately 2,000 square feet) . The other infrastructure associated with the former rail yard has been removed from the Site. Scattered debris and debris piles, as well as a few low soil hummocks are locally present.

1.2 PREVIOUS ENVIRONMENTAL INVESTIGATIONS (ON-SITE)

Several environmental studies have been completed at and in the vicinity of the Property to evaluate subsurface conditions, including the nature and extent of contaminants in soil and groundwater that exceed established cleanup criteria.

Geomatrix 1992 Phase I ESA and 1995 Phase II Investigation

Between 1992 and 1995, Geomatrix Consultants, Inc. (Geomatrix) conducted Phase I and Phase II Environmental Site Assessment (ESA) investigations for the Ukiah Station property, which included the Property (south of Perkins Street) and the rail facilities located on the north side of Perkins Street.

During their Phase I investigation, which was performed in August 1992, Geomatrix reviewed the structure record index and valuation maps provided to them by the Southern Pacific Transportation Company. These documents indicated the southern portion of the Property historically included a two-stall roundhouse and a turntable. Additional facilities that appeared to be related to roundhouse operations included: a drain sump, an oil sump, an oil column, and a large aboveground oil tank. Although the precise service dates of these structures were not listed in the structure record index, the index did indicate that some of these structures were constructed in 1919. In addition, a Sanderlock and Dawson tank platform, a motor car house, and a tool house were located on the Property. No additional information was reported regarding these structures. Although not discussed in the text of the Geomatrix report, an additional oil column was indicated on their site figure. This oil column was located between the main and side tracks, adjacent west of the Property and near the termination of Clay Street. The approximate locations of these historic structures, as plotted by Geomatrix, are shown on Figure 3.

During the Geomatrix Phase I site reconnaissance, the consultants indicated that inspections of the existing Warehouse Building and the existing Passenger Depot Building were conducted. No environmental concerns were identified with regard to either of these buildings. During the inspection the existing Warehouse Building was being operated as a beverage distribution facility. Geomatrix noted that the adjacent-east properties located along Leslie Street were occupied by Earl's Auto and Tire, Ukiah Recycle and Salvage, and Automotive Service Center. During the reconnaissance, stained soils, which appeared to be impacted by waste oil, were observed along the eastern fence line of the Property, adjacent to the former Union Oil of California facility [Unocal Bulk Plant #0813 site].

During the Phase II investigation, 12 borings were advanced at randomly selected locations along the western half of the Property. In addition, two borings were advanced from the western side of the main rail track, across from the approximate area of the existing Warehouse Building. The sample locations, which were identified by Geomatrix as UB1 through UB14, are shown in Figure 3. At each boring, samples were collected from four discrete depths and composited for laboratory analysis. These samples were analyzed for total petroleum hydrocarbons (TPH) TPH-D (diesel-range), TPH-MO (motor oil-range), semi-volatile organic compounds (SVOCs), and metals. In addition, one discrete soil sample was collected from four borings and analyzed for volatile organic compounds (VOCs). During the investigation, groundwater elevations were reported to range from approximately 8 to 16 feet below ground surface (bgs). None of the analyzed samples exhibited detectable concentrations of TPH-D, TPH-MO, or SVOCs; and all of the exhibited metal concentrations were reported to be within the screening criteria.

Geomatrix 1999 Soil and Groundwater Investigation

In 1999, Geomatrix conducted a soil and groundwater investigation at the Property and the former railroad facilities located north of Perkins Street (Geomatrix, 1999). The investigation on the Property (south of Perkins Street) included the advancement of 11 borings with soil and/or groundwater samples collected from each boring.

The boring locations were primarily selected based upon historic site features and observations made during the Phase I/II investigations. In addition, an existing groundwater well MW-8, which was reported to have been installed as part of an adjacent property investigation, was sampled during the event. Selected soil samples were analyzed for TPH-D, TPH-MO, polycyclic aromatic hydrocarbons (PAHs), and metals. Groundwater samples were analyzed for TPH-D, PAHs, and VOCs.

Analytical results of the 1999 sampling investigation for soils at the Property indicated that: TPH-D was detected at two locations and ranged from 2.4 to 30 milligrams per kilogram (mg/kg); TPH-M was detected at 11 locations and ranged from 4 to 620 mg/kg; PAHs above industrial PRGs were detected in a single sample (UB30) at a concentration of 476 micrograms per kilogram (µg/kg) benzo(a)pyrene; and metals were not detected at any locations above their respective Total Threshold Limit Concentrations (TTLCs), although one sample exceeded ten times the arsenic Soluble Threshold Limit Concentration (STLC) and four samples exceeded ten times the lead STLC.

Analytical results of the 1999 sampling investigation for groundwater at the Property indicated that the only constituent detected was tetrachloroethylene (PCE), which was detected in two samples and ranged from 5.7 micrograms per liter (µg/L) at UB27 to 6.0 µg/L at MW-8. Both of these locations are in the southeastern portion of the Property.

EBA 2008 Report of Investigation

In 2008, EBA Engineering (EBA) conducted a soil and groundwater investigation at the location of a proposed skateboard park (EBA, 2008). Sample locations from the EBA Report are shown on Figure 3.

The investigation included the portion of the subject Property located adjacent to the former Leslie Street Gas Manufacturing Plant. The investigation included the advancement of 18 soil borings, identified as B-1 through B-18, to depths ranging from 8 to 12 feet bgs. Soil samples were collected from each boring at 0.5, 2, and 5 feet bgs and selected samples were analyzed for PAHs, VOCs, metals, and petroleum hydrocarbons. Typically all of the 0.5 foot-bgs samples were submitted for all analysis; however, 2 and 5 foot-bgs samples were only selectively analyzed. In addition, grab groundwater samples were collected from 6 of the 18 locations and analyzed for PAHs, VOCs, metals, and petroleum hydrocarbons. Groundwater was first encountered between 9.5 and 11 feet bgs.

Analysis of the soil samples collected during the investigation indicated detectable concentrations of TPH-D ranging from 23 to 490 mg/kg; detectable concentrations of TPH-MO ranging from 28.7 to 1,090 mg/kg; detectable concentrations of benzo(a)pyrene ranging from 3.10 to 512 mg/kg; and detectable concentrations of PCE ranging from 2.03 to 2.09 µg/kg. One

sample exhibited an arsenic concentration of 86.6 mg/kg, which was determined to be significantly above the background concentration. No additional metals were detected significantly above their respective background concentrations. TPH-G was not detected in any of the submitted soil samples. Additional PAHs were detected at concentrations below residential PRGs.

Analysis of the groundwater samples collected during the investigation indicated detectable concentrations of PCE ranging from 1.54 to 2.67 µg/L. Although PCE was present at concentrations above the CA Public Health Goal (PHG) of 0.06 µg/L, concentrations were below the California Maximum Contaminant Level (CA MCL) of 5 µg/L. Detectable concentrations of several PAHs were exhibited in the samples; however, none of the concentrations exceeded their respective PRGs. Detected metal concentrations did not exceed their respective MCLs.

EBA concluded based upon the analytical results that soils in the vicinity of the former asphalt plant were impacted with motor oil range hydrocarbons; that the near-surface soils at various locations across the site were impacted with PAHs, primarily benzo(a)pyrene; and that the groundwater beneath the site contained detectable concentrations of PCE.

1.3 PREVIOUS ENVIRONMENTAL INVESTIGATIONS (OFF-SITE)

There are three known sites located immediately adjacent to the eastern boundary of the Property. These sites are registered with the NCRWQCB as Cleanup Program Sites and are open as either undergoing Site Assessment or Remediation. The status and associated site data can be obtained on the California State's Water Resource Control Board's GeoTracker database (http://geotracker.swrcb.ca.gov/).

These sites are listed below (from north to south) and described in the following subsections.

- Old Leslie Street Gas Plant (NCRWQCB Case #: 1NMC233)
- Unocal Bulk Plant #0813 (NCRWQCB Case #: 1NMC405)
- DZ, Inc. (NCRWQCB Case #: 1NMC047)

Old Leslie Street Gas Plant

The property is located at 120-A Leslie Street in Ukiah, California which is just south of Perkins Street and on the western side of Leslie Street. Gibson Creek is located along the northern property boundary. The Property is currently vacant with no visible structures, and is primarily vegetated with grass and a few trees.

Site History

This property was initially developed in 1910 as a gas plant and operated until 1967 when a natural gas pipeline was completed to service Ukiah. The plant used several methods for producing gas, including oil (1910 – early 1930s), butane (early 1930s – mid 1940s), and propane (mid 1940s - 1967).

The property had several onsite structures for gas generation and storage activities, including buildings for gas manufacture (e.g., boiler rooms, compression houses), oil tanks, and

compressed gas storage tanks. Historic features/operations in the central portion of the Property included a 20,000 cubic foot "gas holder" tank and an electric gas booster pump. A former asphalt plant was located immediately west of the Property on the Former Ukiah Rail Yard property (1929 Sanborn Map); the asphalt plant may have used byproducts of the oil gas production (residual tar) from the gas plant to manufacture asphalt. The plant was dismantled shortly after the arrival of the natural gas pipeline in 1967.

Environmental Activities

Several environmental studies have been completed at and in the vicinity of the property to evaluate subsurface conditions, including the nature and extent of contamination in soil and groundwater. The Property has been assigned Site ID # 1NM233 by the NCRWQCB.

In March 1987 four surface grab soil samples were collected at the Property from the ground surface to depths of 6 inches. These activities were completed by the then owner, Pacific Gas and Electric Company (PG&E) to ascertain potential contamination at the subject property.

Two site investigations were completed by EBA Engineering (EBA) in July 2003 (EBA 2003) and September 2004 (EBA 2005a). As a combined effort, these site investigations resulted in the completion of 28 soil borings using direct-push methods (designated as SB-1 through SB-28) and five permanent monitoring wells completed to depths of 30 feet below ground surface (designated as MW-1 through MW-5). In addition to groundwater samples collected from the monitoring wells, one-time, discrete grab groundwater samples were collected from seven of the soil borings during the 2003 investigation (SB-1 through SB-6, and SB-8).

In July 2005, EBA completed the fourth quarterly groundwater sampling event at the Property, and represented the first full hydrologic cycle monitored at the Property. The groundwater monitoring included wells MW-1 through MW-5 and were sampled October 2004, January 2005, April 2005, and July 2005 (EBA, 2005b).

Summary of Environmental Conditions

The results of previous environmental studies indicate that chemicals of potential concern (COPCs) in soil are generally limited to the central portion of the property at depths less than 5 feet bgs. Two borings (SB-2 and SB-11) share all three COPCs at similar depths indicating that soil in the central-western portion of the property is most impacted. The vertical extent of soil impacted with diesel- and motor oil-range TPH (TPH-D and TPH-MO) has not been determined in borings SB-2 and SB-11.

In groundwater, the data indicates that PCE is present at concentrations above the CA Public Health Goal (PHG) but below the California Maximum Contaminant Level (CA MCL). Concentrations of PCE are lowest in the furthest hydraulically down gradient samples (SB-6 and SB-3). Although the depth to groundwater has been observed to fluctuate seasonally at the property, the general groundwater flow direction is toward the east-southeast.

There are approximately 23, 55-gallon steel drums located on the property (13 soil, 9 water and 1 empty). The contents and origin of these drums are unknown, but are likely related to previous environmental site investigations associated with the property.

These sites are generally impacted with TPH (in the diesel and motor-oil range), PAHs, and metals (predominantly arsenic and lead) in soil (to depths ranging from the surface to 12 feet bgs). Chemicals-of-concern (COCs) in groundwater include TPH and PCE. Non-Aqueous Phase Liquids (NAPL) – free product – has been observed in at least three groundwater monitoring wells east of the subject property. These chemical constituents are consistent with former bulk fueling facilities.

The depth to groundwater has been observed to fluctuate seasonally at the DZ, Inc. and Old Leslie Street Gas Plant sites in some monitoring wells by as much as 15 feet (typically from October/November to February/March of the following year). Groundwater depth typically ranges from 5 to 15 feet bgs.

Unocal Bulk Plant #0813

The property is located at 122 Leslie Street in Ukiah, California which is just south of Perkins Street and on the western side of Leslie Street.

Site History

The site is a former Union Oil Company of California (Unocal) Bulk Fuel Facility located west of the intersection of Leslie Street and Peach Street in Ukiah, California. The site operated as a bulk fuel storage facility from at least 1950 to 1974. During the facility's operation, the site contained five 20,000-gallon aboveground storage tanks (ASTs) containing heating oil, kerosene, diesel, and regular and unleaded gasoline. Following cessation of facility operations in 1974, the ASTs, dispenser rack, and some of the associated product piping was removed. From approximately 1976 to 1986, the site was used as a construction support yard, containing work trucks, gravel, asphalt, and other road construction equipment. Then from approximately 1986 to 1998, the site was occupied by a recycling business, which stored glass, aluminum, paper, and plastic prior to transportation to a recycling plant. The Property has been assigned Site ID # 1NMC405 by the NCRWQCB.

Environmental Activities

Site assessment activities have been ongoing at the site since 1998 and have included groundwater sampling, air sparging and soil-vapor extraction. To date, 11 soil borings have been advanced, and nine groundwater monitoring wells, 18 air sparge wells, and an ozone sparge system have been installed on-site and off-site.

Summary of Environmental Conditions

The most recent results listed on GeoTracker are from a semi-annual groundwater monitoring event conducted in October 2010 showed that NAPL was measured in an off-site well (MW-5) located east of Leslie Street. No NAPL was observed in any other site wells.

Chemical analytical results indicate that TPH-G and TPH-D are present in groundwater collected from groundwater monitoring wells located on-site and offsite. According to the report, two possible sources of TPH-D and TPH-MO range hydrocarbons are present; one downgradient of the site and one downgradient of the adjacent parcel to the north of the subject site.

DZ, Inc.

The site is located in a residential and commercial area at 134 Leslie Street, Ukiah, California.

Site History

DZ, Inc. bought the property in 1985 and removed six aboveground storage tanks containing diesel, jet fuel, and regular and unleaded gasoline. No underground storage tanks were identified at the site; however, underground steel piping ran from the above ground tanks to the loading rack along the eastern site boundary. An auto body repair shop was formerly located in the northeastern part of the site. The site is currently occupied by an automotive repair facility (Blue Rock Environmental, Inc., 2010).

Environmental Activities

DZ, Inc. tried to sell the property in 1989, and was required by a potential buyer to conduct a site assessment. Shallow soil sampling for hydrocarbons was performed as part of the assessment. Analytical results revealed elevated concentrations of diesel, oil and grease in the soil along the southern boundary of the site (Blue Rock Environmental, Inc., 2010).

A soil vapor extraction (SVE)/air-sparge (AS) remedial system constructed in October 2002 at the site recovered approximately 728 lbs of petroleum hydrocarbons from the subsurface. The SVE system has removed much of the volatile petroleum constituents from the site. The SVE remedial system was shut down on December 9, 2005 due to mechanical failure. The remedial system was evaluated and subsequently converted into a bio-sparge mode only, as much of the volatile components appear to have been recovered by vapor extraction. Corrective action at the site is currently being performed under the supervision of the NCRWQCB (Site ID # 1NMC047). The site is currently being monitored on an annual basis and the next sampling event is scheduled for October 2011.

Summary of Environmental Conditions

Hydrocarbon sheen was observed at three on-site monitoring wells (MW-1A, MW-2A, and MW4), and two off-site monitoring wells (MW-5 and MW-10 located directly east of DZ, Inc across Leslie Street) during the October 2010 monitoring event. Absorbent pads continue to be used to remove measurable NAPL from the site (Blue Rock Environmental, Inc., 2010).

SECTION 2

GEOLOGIC AND HYDROGEOLOGIC SETTING

Ukiah is located within the Russian River Valley, which is within the northern portion of the Coast Ranges province of California. The rocks in the Russian River valley can be divided into three general groups. These groups are consolidated rocks of Jurassic and Cretaceous age, deformed poorly consolidated or unconsolidated continental, volcanic, and marine rocks of Cenozoic age, and undeformed and unconsolidated alluvial deposits of Quaternary age, including terrace deposits of Pleistocene age, dissected alluvium of Pleistocene and Recent age, and alluvium of Recent Age (USGS, 1965).

The oldest rocks in the area are those of the Franciscan and Knoxville Formations of Jurassic and Cretaceous age. These formations constitute the bedrock in most of the northern Coast Ranges and consist of consolidated sandstone, shale, chert, serpentine, and metamorphic and igneous rocks. These formations are in excess of 7,000 feet in thickness, and typically exhibit extensive fracturing and shearing (USGS, 1965).

2.1 REGIONAL GEOLOGY AND HYDROGEOLOGY

Continental deposits of Cenozoic age include compacted and semi-indurated silty clay and gravel deposited as interbedded floodplain, alluvial fan, and lacustrine deposits. Volcanic deposits include interbedded lava flows, tuff, breccia, and volcanic sand and gravel conglomerates. Marine deposits include fossiliferous marine sand, sandstone, and silty clay containing pebbly beds and minor gravel lenses. These formations range in thickness up to 2,000 feet (USGS, 1965).

Terrace deposits consist of unconsolidated and poorly sorted fluvial deposits of gravel, sand, silt, and clay. These deposits may be locally cemented and indurated near surface layers. Alluvial layers consist of unconsolidated and generally poorly sorted lenticular deposits of clay, silt, sand, and gravel. Portions of these deposits are locally dissected. These deposits range in thickness up to 200 feet (USGS, 1965).

Northwest-trending faults and folds control the course of the middle and upper Russian River, and are the dominant structural features throughout the northern Coast Ranges. Several faults traverse the valleys, and recurrent movement has occurred in Recent time at several localities in the Ukiah Valley area (USGS, 1965). The Maacama fault is the closest fault to Ukiah, and is located along the eastern edge of the Ukiah Valley (State of California, 2010). This fault is considered to be active.

The Ukiah Valley groundwater basin, located in southeastern Mendocino County, is approximately 22 miles long and 5 miles wide at the widest point, and is the largest of several groundwater basins along the Russian River. The basin occupies parts of the Ukiah and the Redwood Valleys to the north, and their tributary valleys. The extent of the north-south trending basin is defined by the low-lying regions of the Ukiah and Redwood Valleys as well as those sloping areas along the valley margins and includes Quaternary and Tertiary-age sediments. The basin surface elevation varies from approximately 700 feet in the upper portions of the Redwood

Valley, to approximately 500 feet in the lower, southern areas of the Ukiah Valley (State of California, 2004).

The Russian River traverses the entire length of the Ukiah Valley groundwater basin and is met by many tributaries from both the east and west sides of Redwood and Ukiah Valleys. The main tributaries include Forsythe Creek, which joins with the Russian River north of the city of Calpella, and the East Fork of the Russian River, which joins the main branch of the Russian River north of Ukiah. Precipitation in the basin ranges from approximately 45 inches in the north to about 35 inches in the south (State of California, 2004).

Groundwater-bearing units of primary importance within the Ukiah Valley Groundwater Basin include Recent alluvium, as well as alluvium of Pliocene and Pleistocene age. The terrace deposits and dissected alluvium of Pleistocene age are of lesser importance with regard to groundwater production. Underlying these deposits is moderately to highly fractured basement rock consisting of the Franciscan and Knoxville Formations. Even when highly fractured these formations have limited permeability, and are considered to yield only small quantities of water locally (State of California, 2004).

The alluvium primarily consists of unconsolidated gravel, sand, silt, and minor amounts of clay deposited in channels and on floodplains of the Russian River and its tributaries, on alluvial fans, and as colluvium on interfan slopes. A subdivision of Recent alluvium includes river-channel deposits defined by those areas where gravelly stream channel deposits are currently being deposited. River-channel deposits are generally very high yielding loose gravels and sands; in some cases these deposits contain boulders. Recent alluvium is thickest in the central portion of the basin and extends from the surface to depths of 50 to 80 feet. Groundwater in the alluvium generally occurs under unconfined conditions (State of California, 2004).

Terrace deposits are characterized as alluvial deposits of primarily Pleistocene age, ranging from a thin veneer of red gravelly clay soil, to deposits of sandy or silty gravel up to 200 feet thick. Terrace deposits generally overly the Pliocene- and Pleistocene-age alluvium and occur discontinuously along the flanks of the Ukiah Valley and more continuously within the Redwood Valley on both sides of the Russian River. Groundwater in the terrace deposits is unconfined to locally confined (State of California, 2004).

2.2 SITE GEOLOGY AND HYDROGEOLOGY

Based upon observations made by WESTON during the on-site sampling investigations conducted between December 2010 and April 2011, the soil stratigraphy beneath the site primarily consists of, in descending order: sandy silt, clay, silty sand, clay, and silt/sand mixture. Fill material, which typically extended to approximately 1 foot bgs, was observed at several areas of the site, primarily in the vicinities of the Historic Tank Platform, the former Roundhouse/Turntable, the existing Warehouse and Shop Buildings, the former fruit packing facility at the central portion of the site, and the portion of the site located north of Gibson Creek.

The upper sandy silt unit was generally characterized as brown to dark brown with low plasticity and occasional gravels and pebbles. This unit typically extended to a depth of approximately 2 to 5 feet bgs; however, the unit was noticeably absent from the southwestern, central, and northern

(North of Gibson Creek) portions of the site. In some areas, most notably in the vicinities of the Warehouse and Shop Buildings, the unit extended to as deep as 7 feet bgs.

The upper clay unit was generally characterized as brown to dark brown with medium plasticity, variable percentages of silt and sand, and occasional gravel. This unit typically extended from the base of the overlying sandy silt to a depth of approximately 6 to 9 feet bgs. In some areas, most notable at the western and southwestern portions of the site, the unit was observed to extend as deep as 15 feet bgs.

The upper silty sand unit was generally characterized as medium brown to dark brown with about 10 to 20 percent gravel; however, in some areas the unit was observed with significantly higher silt or gravel content. This unit typically extended from the base of the overlying clay to the total depth of the boring, typically 8 to 12 feet bgs. In deeper borings this unit was observed to extend to a depth ranging from approximately 18 to 23 feet bgs. The unit was noticeably absent in the deeper borings at the southwestern portion of the site.

The lower clay unit was generally characterized as olive brown to dark yellowish brown with medium to high plasticity; however, at the portion of the site north of Gibson Creek this unit was characterized as brown to dark brown. The unit typically extended from the base of the overlying silty sand to a depth of approximately 22 to at least 31 feet bgs. The unit was noticeably absent in several of the borings located along the eastern boundary of the site.

The lower silt/sand mixture unit was generally characterized as a medium brown to dark yellowish brown clayey sand to sandy silt with some gravel and pebbles. The unit was observed in the deep borings at the northern portion of the site and extended from the base of the overlying clay to the total depth of these borings, 29 to 30 feet bgs.

During WESTON's subsurface investigation, groundwater was typically encountered in two distinct zones, the upper silty sand and the lower silt/sand mixture. Groundwater in these zones appeared to be under confined conditions at the time of the investigation due to the overlying low-permeability clay units. Static water levels in the upper zone generally ranged from approximately 5 to 13 feet bgs; however, at the central portion of the site static water was measured as high as 0.1 feet bgs. Static water levels in the lower zone generally ranged from 21 to 30 feet bgs. Due to the confining conditions of the subsurface lithology, it is estimated that static groundwater levels are likely to have significant seasonal variations.

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SECTION 3

SITE INVESTIGATION ACTIVITIES

Environmental site investigation activities were conducted by WESTON at the Property on three separate occasions in December 2010, January 2011 (as part of a subsequent geotechnical investigation), and April 2011. The December 2010 and January 2011 investigations were focused on the portion of the Property south of Gibson Creek and the April 2011 investigation was focused on the portion of the Property north of Gibson Creek.

Environmental sampling was conducted on the Property south of Gibson Creek between 01 December and 15 December 2010 and also from 06 January and 07 January 2011. Sampling activities conducted north of Gibson Creek occurred between 04 April and 08 April 2011. These sampling activities were conducted to evaluate potential impacts to soil vapor, soil, and groundwater associated with chemical releases that may have occurred during historical operations at the Property or potentially have migrated onto the Property from other properties in the vicinity.

The following scope of work was conducted to meet the objectives of this site characterization.

- Sample location selection and utility locating
- Soil vapor sampling
- Soil matrix sampling
- Groundwater grab sampling

Sampling activities were conducted in accordance with the December 2010 Site Investigation Work Plan and the Work Plan Addendum, dated March 2011 (WESTON 2010 and WESTON 2011, respectively).

3.1 SAMPLE LOCATION SELECTION AND UTILITY LOCATING

Sampling locations were selected using a combination of focused sampling around historic features supplemented with in-filling locations to evaluate the entire site. Data from previous investigations was used to identify areas where additional sampling was needed to further define detected chemical concentrations. Proposed sample locations were identified using a Trimble® backpack-mounted Global Positioning System (GPS) with sub-meter accuracy. Underground Service Alert of Northern California and Nevada (USA North) was notified prior to each sampling event to locate and mark underground utilities prior to the commencement of field activities.

In addition, a private locating firm was retained by WESTON to conduct a more detailed underground utility survey and to verify at least a 10-foot radius clearance around each boring location. The private utility survey was completed prior to the commencement of drilling activities. Only a single location, DP-2, needed to be significantly relocated due to the presence of underground utilities. The major underground utilities identified during utility locating activities are included on Figure 2.

3.2 SOIL VAPOR SAMPLING

Soil vapor sampling was conducted to: 1) screen for potential sources of volatile organic compounds (VOCs) on site (particularly PCE); 2) evaluate potential distribution of VOCs in the groundwater; and 3) provide data for evaluation of the potential for vapor intrusion into indoor air. The sampling approach utilized a combination of focused sampling around historic features supplemented with in-filling locations to screen the entire site in an informal grid.

The soil gas sampling methodology in the Los Angeles RWQCB's January 2003 soil gas guidance was used for the investigation, as provided in WESTON's Work Plan.

South of Gibson Creek (December 2010)

Soil vapor borings were advanced at a total of 35 locations across the Property with single probes installed at 29 of the 35 locations. Probes were not installed at the remaining six locations (SV-2, SV-3, SV-7, SV-8, SV-21, and SV-23) due to unfavorable subsurface conditions (i.e., fine, dense sediments and/or saturated soils). The 29 soil vapor probes were installed at depths ranging from 5.5 to 16 feet bgs using a direct push rig. The locations of the soil vapor probes are shown on Figure 4.

WESTON retained the services of an on-site mobile lab and specialized personnel to conduct the soil gas sampling. Proper procedures including purge tests and leak tests were followed. Based upon initial purge tests completed at SV-16, a purge volume of seven system volumes was utilized for all 29 of the sample locations.

Confirmation soil vapor samples were collected in SUMMA Canisters at two locations (SV-1; SV-31) to verify the analytical data provided by the mobile lab. An attempt was made to collect confirmation samples at two additional locations (SV-25; SV-35); however, these samples could not be collected due to the intrusion of groundwater into the probe location.

North of Gibson Creek (April 2011)

Two soil vapor probes (SV-36 and SV-37) were installed to depths of approximately 6 feet bgs to collect soil vapor samples into 1-Liter SUMMA Canisters. However, sampling attempts were not successful because the depth clayey soil extended below the shallow groundwater such that the vacuum created by the purge SUMMA Canister during the purging process extracted groundwater through the probes rather than soil vapor[1]. The groundwater in the probes indicated that groundwater levels likely rose into each probe's sand pack and ultimately probe tip. Although sampling activities were attempted during dry weather conditions, groundwater was

[1] A 6-Liter SUMMA Canister was used to purge the soil vapor probes. The purging process included attaching and opening the 6-Liter "purge" SUMMA Canister to the end of dual canister sampling manifold. The manifold, in series, included a vacuum tight valve attached to the soil vapor probe, a 2-micron filter, a vacuum gauge (for reading the vacuum level on the probe), a flow controller (approximately 125 mL/minute), a vacuum gauge (for reading the remaining vacuum level on the canisters and for leak checking purposes), and connections for both purge and sample SUMMA Canisters. The connection valve to the sample canister was closed during the purging process.

observed in each of the soil vapor probes approximately 15 minutes after purging began. Both soil vapor probes were abandoned after sampling activities were not successful.

3.3 SOIL SAMPLING

Soil samples were collected from 50 locations at the Property. Forty-six locations were south of Gibson Creek that included 25 direct push drilling locations, four hollow-stem auger drilling locations and 17 test pits excavated with a backhoe. Four were collected north of Gibson Creek using direct-push sampling methodology. Sample depths varied by location and ranged from 0.5 to 30 feet bgs.

Analytical methods for samples included: VOCs using Method 8260+OX; CAM 17 metals using Method SW6020; TPH for gasoline, diesel and motor oil range using Method SW8015B; polychlorinated biphenyls (PCBs) using Method SW8082; and PAHs using Method SW8270C. The specific analytical methods used for each sample varied and were primarily selected using field observations, previous environmental data, and historical site features. Sample locations are shown on Figure 4.

The two soil samples with the highest arsenic concentration (DP-09 and SV-27) were also analyzed for leachable arsenic using CAL WET, which is a 48-hour leaching test. The leach testing was performed using deionized water.

3.4 GROUNDWATER GRAB SAMPLING

Groundwater grab samples were collected from 19 locations (DP-1 through DP-17; BG-2 and BG-3) at the Property using direct-push sampling techniques. Fifteen samples were collected south of Gibson Creek between 08 and 10 December 2010, and on 7 January 2010. Six samples were collected north of Gibson Creek on 05 April 2011 (two samples [shallow groundwater and deep groundwater] were collected from two locations). Sample depths varied by location and ranged from 6 to 29.5 feet bgs.

Analytical methods for samples may have included: VOCs using Method 8260+OX; total organic carbon (TOC) using Method A5310C; CAM 17 Metals using Method E200.8; nitrate (as nitrogen) and sulfate using Method E300.0; TPH for gasoline, diesel, and motor oil range organics using Method SW8015B; and PAHs using Method SW8270C. The specific analytical methods used for each sample varied and were primarily selected using field observations, previous environmental data, and historical site features. Sample locations are shown on Figure 4.

3.5 SAMPLE DESIGNATION

All samples collected were assigned a unique WESTON sample number. Each sample number consists of three components (sample location, media type, sample depth in tenths of feet) separated by a dash.

These components are the sampling location, the media type and the sample identity, as shown below:

Location ID	-	Media	-	Sample ID
T sss	-	**Mm**	-	**t nnn**

The three components may be defined as follows:

Location ID

The location ID component consists of three parts as follows:

T sss

The first character "C" represents the sample location type (i.e., soil vapor point, direct push boring, or test pit.

SV – Soil Vapor

DP – Direct Push Boring

TP – Test Pit

The "sss" section represents the station's alphanumeric identification, consisting of the station number (001-999) for each sample collected.

Media Type

The media type component is a two-character code that defines the media type of the sample. The following table lists the various media codes:

GW —Groundwater

SL —Soil

ND —Not Designated (used for trip blanks, ambient blanks, rinsate blanks, and performance samples)

Sample ID

The sample ID component is composed of two parts: a sample type field "t" and a sample sequence field "nnn". It is a four character component that makes a sample number unique by specifying the sample sequence or depth. The format of the sample ID component is as follows:

t nnn

Where "t" is a single digit indicating the sample type. A list of all sample types follows:

0 — Field Sample

1 — Field Duplicate

2 — VOC Trip Blank

The "nnn" field indicates the specific sampling sequence or top of the sample depth interval in tenths of feet.

Following this convention, the sample designated "DP010-SL-0050" is for a soil sample collected from Direct Push Boring 10 (DP-10) at 5 feet bgs. The actual sample depths are provided in addition to the sample number in the attached tables.

3.6 SCREENING LEVELS

In accordance with the Work Plan (WESTON 2010) and subsequent to review from the NCRWQCB, site screening levels for soil, groundwater and soil vapor were assigned using established PHGs and California Human Health Screening Levels (CHHSLs), which were provided by the Office of Environmental Health Hazard Assessment (OEHHA), and the document "Screening For Environmental Concerns at Sites With Contaminated Soil and Groundwater," which was provided by the San Francisco Bay RWQCB. For some analytes the laboratory practical quantitation limit (PQL) and/or method detection limit (MDL) values were greater than the Agency screening level. For these analytes the laboratory PQL was assigned as the screening level for the Property. The assigned site screening levels are presented in Tables 1 and 2.

SECTION 4

SITE INVESTIGATION FINDINGS

WESTON conducted Site Investigation sampling at the approximately 11-acre Former Ukiah Rail Yard property (Property) in Ukiah, California. Environmental sampling was conducted during three separate field events in December 2010, January 2011 (as part of a geotechnical investigation), and April 2011. The December 2010 and January 2011 investigations were focused on the portion of the Property south of Gibson Creek and the April 2011 investigation was focused on the portion of the Property north of Gibson Creek.

The sampling activities were conducted to evaluate potential impacts to soil vapor, soil and groundwater associated with chemical releases that may have occurred during historical operations at the Property or potentially have migrated onto the Property from other properties in the vicinity. Detected soil vapor concentrations are shown on Table 3. Tables 4 and 5 show concentrations of soil that were detected (Table 4) and detected at concentrations greater than screening levels (Table 5). Tables 6 and 7 show concentrations in groundwater that were detected (Table 6) and detected at concentrations greater than screening levels (Table 7).

The following table presents the number of samples per matrix that were collected during each sampling event.

Sampling Event	Soil Vapor	Soil	Groundwater
December 2010/January 2011	29	110	23
April 2011	0[1]	22	6

[1] Two soil vapor probes were installed during the April 2011 sampling event; however, sampling attempts were not successful because groundwater intruded into the sampling probe. See Section 2.2 for a detailed discussion.

4.1 SOIL VAPOR

During the investigation, a total of 29 soil vapor samples were collected from across the Property. Twenty-five of the 29 soil vapor samples had detectable concentration of PCE that ranged from 0.10 µg/L to 1.7 µg/L. As shown on Table 3 and Figure 5, only the sample collected from boring SV-31 had a PCE concentration (1.7 µg/L) that was slightly above the site screening level of 1.6 µg/L. No additional analytes were detected above site screening levels during the soil vapor sampling portion of the investigation. Soil vapor PCE concentrations were typically higher in the southeastern portion of the Property in the vicinity of the historic turn table and historic round house.

Attempts to collect soil vapor samples from two soil vapor probes north of Gibson Creek in April 2011 were not successful because clayey soil extended below the depth of shallow groundwater at each soil vapor probe.

4.2 SOIL

During the investigation a total of 132 soil matrix samples were collected from across the Property (110 south of Gibson Creek in December 2010/January 2011 and 22 north of Gibson Creek in April 2011). These samples were collected from a total of 50 locations that included 29 direct push drilling locations, four hollow-stem auger drilling locations, and 17 test pit locations.

Selected samples were analyzed for volatile organic compounds (VOCs); TPH in the gasoline, diesel, and motor oil range; PCBs; PAHs; and CAM 17 Metals. The specific analytical methods conducted for each sample varied and were primarily selected using field observations, previous environmental data, and historical site features. Soil sample laboratory results for key chemical compounds including PCE, PAHs, TPH, and arsenic are presented on Figures 6 through 12.

None of the soil matrix samples had concentrations of VOCs (i.e., PCE), lead, TPH-G, or PCBs above their respective site screening levels.

TPH-D

Nine soil samples had concentrations of TPH-D (middle distillates) that exceeded the site screening level of 83 mg/kg (see Figures 8 and 9). These concentrations ranged from 130 mg/kg to 5,360 mg/kg. The sample locations where TPH-D was detected were generally in the southeastern portion of the Property in the vicinity of the historic turn table and round house, the east-central portion of the site in the vicinity of the historic asphalt plant, and from the southwestern portion of the site adjacent to the southern shop building. Only two sample locations (DP-5 and DP-6) had TPH-D concentrations in soil above the screening level at depths greater than 5 feet bgs. As shown on Figure 9, TPH concentrations were detected at depths of 15 feet bgs at DP-5 and at 20 feet bgs in DP-5 and DP-6. These soil samples were detected below the depth of first groundwater of approximately 12 feet bgs.

TPH-MO

One soil sample had a concentration of TPH-MO (residual fuels) that exceeded the site screening level of 2,500 mg/kg (see Figures 10 and 11). This sample was collected from boring SV-7 (2,870 mg/kg) at a depth of 0.5 feet bgs, which was located adjacent north of the southern shop building. This sample was collected at a depth of 0.5 feet bgs; the deeper sample collected at 2.0 feet bgs was not detected. The 0.5-foot sample was collected directly below asphalt paving.

PAHs

One sample had concentrations of PAHs that exceeded site screening levels (see Figure 7). This sample was collected from the near-surface soil at test pit TP-14, which was located adjacent west to a debris pile at the east-central portion of the Property. The sample had elevated concentrations of four PAHs [benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene] that exceeded their respective site screening levels.

Arsenic

All 15 of the soil samples analyzed for arsenic had concentrations that exceeded the site screening level of 0.24 mg/kg but most were similar to the typical background concentration of 4

to 8 mg/kg. The detected concentrations ranged from 3.74 mg/kg to 19.46 mg/kg at depths ranging from 0.5 feet bgs to 5 feet bgs.

The two samples with the highest concentrations of arsenic (DP-09 and SV-27; both at 0.5 feet bgs) were also analyzed for leachable arsenic. Neither of these samples had detectable concentrations of leachable arsenic. Figure 12 shows the arsenic concentrations detected at each of the samples collected by WESTON, as well as the arsenic results from soil samples collected in 1999 from previous investigations. WESTON collected soil samples at the location of some of the higher arsenic concentrations detected during the 1999 sampling event. Arsenic concentrations in the soil samples collected by WESTON were significantly lower than in the soil samples collected in 1999.

4.3 GROUNDWATER

During the investigation a total of 29 groundwater grab samples were collected from 17 direct push boring locations and two hollow-stem auger locations across the Property. The sample depths ranged from 6 to 29.5 feet bgs and were selectively analyzed for VOCs; total organic carbon (TOC); CAM 17 Metals; nitrate as nitrogen; sulfate; TPH-gasoline, diesel, and motor oil range organics, and PAHs. The specific analytical methods used for each sample varied and were primarily selected using field observations, previous environmental data, and historical site features.

PCE

Twenty-one of the groundwater grab samples had concentrations of PCE that exceeded the site screening level of 0.06 µg/L. As shown on Figures 13 and 14, PCE concentrations ranged from 0.77 µg/L to 4.92 µg/L and were generally higher in samples collected from the southeastern portion of the Property in the vicinity of the historic turn table and round house, and in the northeastern portion of the Property north of Gibson Creek. No additional VOCs were detected in the samples above the laboratory detection limit.

TPH-D/TPH-MO

As shown on Figures 16 and 17, one groundwater sample had a TPH-diesel range (middle distillates) concentration (8.26 milligrams per liter [mg/L]) and TPH-motor oil range (residual fuels) concentration (4.73 mg/L) that exceeded the site screening levels for both TPH-diesel range (0.010 mg/L) and motor oil range (0.175 mg/L). This sample was collected from the deeper groundwater (23 feet bgs) at boring DP-6, which is located at the southeastern portion of the Property in the vicinity of the historic turn table and round house. None of the samples had a detectable concentration of TPH-G.

PAHs

One groundwater sample had a concentration of benzo(a)pyrene (0.085 µg/L) that exceeded the site screening level of 0.007 µg/L (see Figure 15). This sample was collected from shallow (12 feet bgs) groundwater at boring DP-4, which is located at the southern portion of the Property adjacent west of the historic turn table. No additional PAHs were detected in groundwater above the screening levels during the investigation.

Metals

One groundwater sample had a lead concentration (9.686 µg/L) that exceeded the site screening level of 0.200 µg/L. This sample was collected from the deeper groundwater (25 feet bgs) at boring DP-5, which is located in the vicinity of the historic turn table and round house. No additional CAM 17 Metals were detected above their respective site screening levels (if applicable) during the investigation.

SECTION 5

SUMMARY AND CONCLUSIONS

WESTON completed this site investigation at the Property in three separate events: the first in December 2010, the second in January 2011 (as part of a geotechnical evaluation), and the third in April 2011. The December 2010 and January 2011 investigations were focused on the area of the Property south of Gibson Creek, while the April 2011 investigation was focused on the area of the Property north of Gibson Creek.

The site investigations included environmental sampling of soil vapor, soil, and groundwater across the Property to 1) evaluate known areas of impacted soil and groundwater, 2) characterize environmental conditions across the Property where data gaps exist, and 3) provide necessary characterization and risk inputs to complete due diligence on the Property and prepare a Remedial Action Plan.

Chemical analytical results indicate that chemical constituents detected at concentrations greater than their associated screening levels are PCE in soil vapor (one sample slightly above SL); TPH-D, TPH-MO, PAHs and arsenic in soil; and PCE, TPH-D, TPH-MO, PAHs, and lead in groundwater. Chemical analytical results from soil and groundwater samples collected in April 2011 north of Gibson Creek did not have any chemical concentrations greater than screening levels with the exception of arsenic in soil and PCE in groundwater. Additional information is provided below.

Soil Vapor

Twenty-five of the 29 soil vapor samples had detectable concentration of PCE that ranged from 0.10 micrograms per liter (µg/L) to 1.7 µg/L. Only one sample collected from boring SV-31 had a PCE concentration that exceeded the site screening level of 1.6 micrograms per liter (µg/L). Soil vapor PCE concentrations were typically higher in the southeastern portion of the Property in the vicinity of the historic turn table and historic round house. Although PCE concentrations were detected, these low-level concentrations would not pose a health risk for commercial redevelopment of the Property.

Soil

Nine soil samples had concentrations of TPH-D that exceeded the site screening level of 83 mg/kg. TPH-D concentrations ranged from 130 mg/kg to 5,360 mg/kg and these samples were generally collected from southeastern portion of the Property in the vicinity of the historic turn table and round house, from the east-central portion of the Site in the vicinity of the historic asphalt plant, and from the southwestern portion of the Site adjacent to the southern shop building.

Only one soil sample had a TPH-MO concentration (2,870 mg/kg) that exceeded the screening level of 2,500 mg/kg. This sample was collected from boring SV-7, which was located adjacent north of the southern shop building.

PAHs were detected in only one soil sample at concentrations above the site screening levels. This sample was collected from the near-surface soil (0.5 feet) at test pit TP-14, which was located adjacent west of a debris pile at the east-central portion of the Property. The sample had concentrations of four PAHs [i.e., benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and dibenzo(a,h)anthracene] that exceeded screening levels.

All 15 of the soil samples analyzed for arsenic had concentrations that exceeded the site screening level (0.24 mg/kg). The detected concentrations ranged from 3.74 mg/kg to 19.46 mg/kg. Thirteen of the samples ranged between 3.74-8.72 mg/kg, which is considered to represent background at this Site. The two samples with the highest concentrations of arsenic were also analyzed for leachable arsenic. Neither of these samples had detectable concentrations of leachable arsenic. WESTON collected soil samples targeting locations where higher arsenic concentrations were detected during the 1999 sampling event. Arsenic concentrations in the soil samples collected by WESTON were significantly lower than concentrations detected in 1999. This may be attributed to disturbance of shallow soils by earthwork at the Site during the interim period which scattered the localized occurrences; interference causing high bias during analysis of the 1999 samples; or that the impacts identified previously were extremely localized and later samples could not be collected in the exact locations.

None of the soil matrix samples had concentrations of VOCs (i.e., PCE), lead, TPH-gasoline (TPH-G), or PCBs above site screening levels. TPH-D, TPH-MO and PAH concentrations above the screening levels were primarily detected in shallow soil (>6 feet bgs), and could be excavated and transported off-site for proper disposal.

Groundwater

Twenty-one of the groundwater grab samples had concentrations of PCE that ranged from 0.77 µg/L to 4.92 µg/L. Although these concentrations exceeded the site screening level of 0.06 µg/L, PCE concentrations were below the CA MCL of 5 µg/L. No other VOCs were detected in the samples above the laboratory detection limit.

One groundwater sample had a TPH-D concentration (8.26 mg/L) and TPH-MO concentration (4.73 mg/L) that exceeded the site screening levels for both TPH-D (0.10 mg/L) and TPH-MO (0.10 mg/L). This sample was collected from the deeper groundwater (23 feet bgs) at boring DP-6, which is located at the southeastern portion of the Property in the vicinity of the historic turn table and round house.

One groundwater sample had a benzo(a)pyrene concentration (0.085 µg/L) that exceeded the site screening level of 0.007 µg/L. This sample was collected from shallow (12 feet bgs) groundwater at boring DP-4, which is located at the southern portion of the Property adjacent west of the historic turn table. No additional PAHs were detected in groundwater during the investigation.

One groundwater sample had a lead concentration (9.686 µg/L) that exceeded the site screening level of 0.200 µg/L. This sample was collected from the deeper groundwater (25 feet bgs) at boring DP-5, which is located in the vicinity of the historic turn table and round house. No

additional CAM 17 metals were detected in groundwater above their respective site screening levels (if applicable) during the investigation.

Although PCE was detected above the public health goal of 0.06 µg/L, all concentrations were below the CA MCL drinking water standard of 5 µg/L. Because there are no elevated concentrations suggesting a release at the Property, and these low PCE concentrations were detected in groundwater throughout the Property, the PCE concentrations in groundwater may be due to an upgradient source. TPH-D, TPH-MO, benzo(a)pyrene and lead concentrations were detected in only one groundwater sample, and appear to be isolated occurrences. None of the groundwater samples had detectable concentrations of TPH-G.

SECTION 6

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TABLES

Table 1 - Soil and Groundwater Screening Levels
Ukiah Rail Yard Property
Ukiah, California

Chemical	Soil		Groundwater	Soil		Groundwater	
	Commercial/Industrial Scenario		Commercial/Industrial Scenario				
	OEHHA CHHSLs* [1] (mg/kg)	SF Bay RWQCB** (mg/kg)	OEHHA PHG*** (µg/L)	PQL (mg/kg)	MDL (mg/kg)	PQL (µg/L)	MDL (µg/L)
Metals							
Arsenic	**0.24**	1.6	**0.004**	0.25	0.011	1	0.043
Copper	**38,000**	230	**300**	0.25	0.01	1	0.035
Lead	**320**	750	**0.2**	0.25	0.006	0.2	0.031
Nickel	**16,000**	150	**12**	0.25	0.0068	1	0.039
Zinc	**100,000**	600	—	1	0.094	5	0.23
Total Petroleum Hydrocarbons							
Gasolines (g)	—	**83**	**ND (50)**	1	0.064	50	13
Middle Distillates (d)	—	**83**	**100**	1	0.28	50	16
Residual Fuels (m)	—	**2,500**	**ND (175)**	5	0.97	175	90
PCBs							
Total PCBs	**0.3**	0.74	**0.09**	0.1	0.009	0.5	0.009
PAHs							
Benzo(a)pyrene	**0.13**	0.13	**0.007**	0.005	0.001	0.1	0.02
Benzo(a)anthracene	—	**1.3**	**0.07**	0.005	0.001	0.1	0.02
Benzo(b)fluoranthene	—	**1.3**	**0.07**	0.005	0.001	0.1	0.02
Benzo(j)fluoranthene	—	—	**0.07**				
Benzo(k)fluoranthene	—	**1.3**	**0.07**	0.005	0.001	0.1	0.02
Chrysene	—	**23**	**0.7**	0.005	0.001	0.1	0.027
Dibenz(a,j)acridine	—	—	**0.07**	n/a	n/a	n/a	n/a
Dibenz(a,h)acridine	—	—	**0.07**	n/a	n/a	n/a	n/a
Dibenz(a,h)anthracene	—	**0.21**	**0.0085**	0.005	0.001	0.1	0.02
7H-Dibenzo(c,g)carbazole	—	—	**0.007**	n/a	n/a	n/a	n/a
Dibenzo(a,e)pyrene	—	—	**0.007**	n/a	n/a	n/a	n/a
Dibenzo(a,h)pyrene	—	—	**0.0007**	n/a	n/a	n/a	n/a
Dibenzo(a,I)pyrene	—	—	**0.0007**	n/a	n/a	n/a	n/a
Indeno(1,2,3-c,d)pyrene	—	**2.1**	**0.07**	0.005	0.001	0.1	0.02
5-Methylchrysene	—	—	**0.007**	n/a	n/a	n/a	n/a
Naphthalene	—	**2.8**	**21**	0.005	0.001	0.1	0.022
VOCs							
Tetrachloroethylene (PCE)	—	**0.7**	**0.06**	0.005	0.0008	0.5	0.14
Trichloroethylene (TCE)	—	**0.46**	**1.7**	0.005	0.0011	0.5	0.13
cis-1,2-Dichloroethene	—	**0.19**	**100**	0.005	0.00099	0.5	0.15
trans-1,2-Dichloroethene	—	**0.67**	**10** [4]	0.005	0.0015	0.5	0.16
Vinyl Chloride	—	**0.047**	**0.05**	0.01	0.0015	0.5	0.15
Benzene	—	**0.04**	**0.15**	0.005	0.00097	0.5	0.14
Toluene	—	**2.9**	**42** [2]	0.005	0.0013	0.5	0.12
Ethylbenzene	—	**3.3**	**3.2** [3]	0.005	0.0012	0.5	0.16
Xylenes	—	**2.3**	**17** [2]	0.005	0.0011 - 0.0014	0.5	0.14 - 0.15

* http://oehha.ca.gov/risk/chhsltbl091709.html

** Groundwater as a Drinking Water Resource (http://www.swrcb.ca.gov/sanfranciscobay/esl.shtml)

*** MCLs, DLRs, and PHGs for Regulated Drinking Water Contaminants (updated September 16, 2010) or *Beneficial Use-Protective Water Quality Limits for Components of Petroleum-Based Fuels* (Central Valley Region RWQCB, 1 April 2004).

[1] The screening numbers for arsenic are for contamination resulting from human activity. Concentrations of naturally occurring arsenic may be far above the screening number. When levels of arsenic at a site are a concern, the agency with authority over remediation decisions should be consulted.

[2] Screening level is based on taste and odor.

[3] Value based on revised OEHHA cancer potency factor.

[4] Value based on California MCL.

Values in **Bold** are the proposed screening levels.

— No Value

Table 2 - Soil-Gas Screening Levels for Volatile Chemicals below Buildings

Ukiah Rail Yard Property
Ukiah, California

Chemical	Commercial/Industrial Scenario Soil-Gas-Screening Number (µg per liter of soil gas)		
	Buildings Constructed with Engineered Fill below Sub-slab Gravel	Buildings Constructed without Engineered Fill below Sub-slab Gravel	Basis[1]
Benzene	2.8 E-01	1.2 E-01	(ca)
Carbon Tetrachloride	2.1 E-01	8.5 E-02	(ca)
1,2-Dichloroethane	3.6 E-01	1.7 E-01	(ca)
cis-1,2-Dichloroethylene	1.2 E+02	4.4 E+01	(nc)
trans-1,2-Dichloroethylene	2.4 E+02	8.9 E+01	(nc)
Ethylbenzene	3.6 E+00[4]	1.4 E+00[4]	(ca)
Mercury (elemental)	5.6 E-01	1.3 E-01	(nc)
Methyl *tert*-Butyl Ether	2.9 E+01	1.3 E+01	(ca)
Naphthalene	3.1 E-01	1.1 E-01	(ca)
Tetrachloroethylene	1.6 E+00	6.0 E-01	(ca)
Tetraethyl Lead	4.5 E-03	5.8 E-04	(nc)
Toluene	8.9 E+02	3.8 E+02	(nc)
1,1,1-Trichloroethane	7.0 E+03	2.8 E+03	(nc)
Trichloroethylene	4.4 E+00	1.8 E+00	(ca)
Vinyl Chloride	9.5 E-02	4.5 E-02	(ca)
m-Xylene	2.4 E+03	8.9 E+02	(nc)
o-Xylene	2.1 E+03[3]	8.8 E+02[3]	(nc)
p-Xylene	2.2 E+03	8.9 E+02	(nc)

Screening levels listed above are from the California Human Health Screening Levels (CHHSLs) published by OEHHA (http://www.oehha.ca.gov/risk/chhsltable.html)

[1] (ca) denotes that the screening number is based on a carcinogenic potency factor, (nc) denotes that the screening number is based on a reference level in Table 3 for chronic toxic effects other than cancer, (max) denotes the screening number is based on the maximum concentration allowed, 100,000 mg/kg, and not toxicity.

[2] (ca) denotes that the screening number is based on a carcinogenic potency factor, (nc) denotes that the screening number is based on a reference level in Table 3 for chronic toxic effects other than cancer.

[3] Recommended soil-gas-screening number for xylenes. The representative value for xylenes is based on the calculated lowest health-protective one amongst the three isomers.

[4] Added in 2010

Table 3 - Detected Soil Vapor Concentrations

Ukiah Rail Yard Property Ukiah, California

Samples collected December 2010

Chemical	Sample Location	Depth (ft bgs)	Concentrations (ug/L)	Screening Level (ug/L)
Tetrachloroethylene (PCE)	SV-1	8	0.83	1.6
	SV-4	10	0.58	1.6
	SV-6	8	0.55	1.6
	SV-9	9.5	0.10	1.6
	SV-12	10	0.33	1.6
	SV-13	8.5	0.39	1.6
	SV-13	8.5 (duplicate)	0.39	1.6
	SV-14	5.5	0.67	1.6
	SV-15	10.5	0.10	1.6
	SV-16	10 (3 pore volumes)	0.11	1.6
	SV-16	10 (7 pore volumes)	0.14	1.6
	SV-17	7.5	0.62	1.6
	SV-18	8	0.31	1.6
	SV-19	8	0.60	1.6
	SV-20	10	0.13	1.6
	SV-22	8	0.17	1.6
	SV-24	8	0.54	1.6
	SV-24	8 (duplicate)	0.27	1.6
	SV-25	10	1.3	1.6
	SV-26	10	0.83	1.6
	SV-27	10	1.0	1.6
	SV-29	7.5	0.42	1.6
	SV-30	8	0.83	1.6
	SV-31	9.5	**1.7**	1.6
	SV-32	10	0.51	1.6
	SV-33	10	0.27	1.6
	SV-34	9	1.3	1.6
	SV-35	10	1.6	1.6
Toluene	SV-11	16	0.13	890

Notes:

Depth is given in feet below ground surface (ft bgs)

Bold indicates concentrations exceed screening level

Two additional soil vapor probes (SV-36 and SV-37) were installed in April 2011 North of Gibson Creek.

Field conditions prevented sample collection from these probes.

Table 4 -Detected Soil Concentrations

Ukiah Rail Yard Property Ukiah, California

Samples collected December 2010, January 2011, and April 2011

Chemical	Sample Location	Depth (ft bgs)	Concentration
Metals (mg/kg)			
Arsenic	DP009	0.5	19.46
	DP009	2.0	5.02
	DP009	5.0	12.20
	DP014	0.5	5.25
	DP015	0.5	4.85
	DP016	0.5	4.71
	DP017	0.5	4.59
	SV003	0.5	4.85
	SV003	2.0	4.32
	SV023	0.5	4.88
	SV023	2.0	4.22
	SV027	0.5	8.72
	SV027	2.0	3.74
	SV028	0.5	4.32
	SV028	2.0	4.12
Lead	DP005	0.5	49.22
	DP005	2.0	10.07
	DP005	5.0	7.97
	SV027	0.5	36.55
	SV027	2.0	10.82
VOCs (µg/kg)			
Tetrachloroethene	DP010	11.5	1.69
	DP014	2.0	8.67
	DP015	2.0	13.9
	DP016	2.0	10.0
	DP017	2.0	1.71
	TP014	0.5	5.91

Table 4 -Detected Soil Concentrations

Ukiah Rail Yard Property Ukiah, California

Samples collected December 2010, January 2011, and April 2011

Chemical	Sample Location	Depth (ft bgs)	Concentration
PAHs (µg/kg)			
Anthracene	TP014	0.5	383
	TP016	0.5	8
Benzo(a)anthracene	BG001	0.5	8
	BG003	0.5	39
	DP014	0.5	5
	DP016	0.5	4
	TP014	0.5	1,320
	TP016	0.5	38
Benzo(a)pyrene	BG001	0.5	5
	BG003	0.5	65
	DP010	5.0	7
	DP014	0.5	7
	DP016	0.5	5
	DP017	0.5	3
	SV022	5.0	11
	TP013	0.5	6
	TP014	0.5	953
	TP016	0.5	16
Benzo(b)fluoranthene	BG001	0.5	4
	BG003	0.5	50
	BG003	2.0	10
	DP014	0.5	10
	DP015	0.5	48
	DP016	0.5	7
	DP017	0.5	3
	TP014	0.5	1,480
	TP016	0.5	31
Benzo(g,h,i)perylene	BG003	0.5	155
	DP014	0.5	17
	DP016	0.5	14
	SV022	5.0	13
	TP014	0.5	803
	TP016	0.5	43
Benzo(k)fluoranthene	BG001	0.5	3
	BG003	2.0	4
	DP014	0.5	5
	DP016	0.5	4
	TP014	0.5	537
	TP016	0.5	13

Table 4 -Detected Soil Concentrations

Ukiah Rail Yard Property Ukiah, California

Samples collected December 2010, January 2011, and April 2011

Chemical	Sample Location	Depth (ft bgs)	Concentration
Chrysene	BG001	0.5	4
	BG003	0.5	45
	DP014	0.5	11
	DP015	0.5	71
	DP016	0.5	6
	DP017	0.5	3
	TP014	0.5	975
	TP016	0.5	13
Dibenzo(a,h)anthracene	TP014	0.5	342
Fluoranthene	BG001	0.5	4
	BG003	0.5	73
	BG003	2.0	5
	BG003	5.0	3
	DP014	0.5	11
	DP016	0.5	10
	DP017	0.5	3
	TP013	0.5	3
	TP014	0.5	1,150
	TP016	0.5	30
Indeno(1,2,3-CD)pyrene	DP014	0.5	12
	TP014	0.5	595
	TP016	0.5	30
Phenanthrene	DP014	0.5	8
	DP016	0.5	7
	DP017	0.5	4
	TP014	0.5	366
	TP016	0.5	22
Pyrene	BG001	0.5	5
	BG003	0.5	86
	BG003	2.0	3
	DP014	0.5	11
	DP016	0.5	10
	DP017	0.5	3
	TP013	0.5	10
	TP014	0.5	1,400
	TP016	0.5	61

Table 4 -Detected Soil Concentrations

Ukiah Rail Yard Property Ukiah, California

Samples collected December 2010, January 2011, and April 2011

Chemical	Sample Location	Depth (ft bgs)	Concentration
Total Petroleum Hydrocarbons (mg/kg)			
Middle Distillates (TPH-D)	BG001	0.5	15
	BG003	0.5	59
	BG003	2.0	16
	BG003	5.0	10
	DP001	0.5	15
	DP003	0.5	19
	DP005	0.5	49
	DP005	15.0	5,360
	DP005	20.0	587
	DP006	0.5	302
	DP006	20.0	1,120
	DP010	0.5	62
	DP010	2.0	12
	DP010	5.0	188
	DP010	10.0	16
	DP012	5.0	15
	DP014	0.5	28.0
	DP015	0.5	70.1
	DP016	0.5	23.3
	SV007	0.5	791
	SV022	0.5	22
	SV022	5.0	38
	TP008	0.5	13
	TP011	0.5	43
	TP013	0.5	27
	TP014	0.5	130
	TP016	0.5	272
	TP017	0.5	2,010
	TP017	2.0	42

Table 4 -Detected Soil Concentrations

Ukiah Rail Yard Property Ukiah, California

Samples collected December 2010, January 2011, and April 2011

Chemical	Sample Location	Depth (ft bgs)	Concentration
Residual Fuels (TPH-M)	BG001	0.5	16
	BG002	10.0	10.3
	BG003	0.5	136.0
	BG003	2.0	19.9
	BG003	5.0	12.8
	DP001	0.5	18.2
	DP003	0.5	95.0
	DP005	0.5	75.3
	DP005	15.0	2,450.0
	DP005	20.0	353.0
	DP006	0.5	563.0
	DP006	20.0	592.0
	DP010	0.5	113.0
	DP010	2.0	14.1
	DP010	5.0	514.0
	DP010	10.0	16.5
	DP012	5.0	14.3
	DP014	0.5	123
	DP015	0.5	637
	DP016	0.5	86.8
	SV007	0.5	2,870.0
	SV022	0.5	13.6
	SV022	5.0	31.1
	TP003	0.5	10.6
	TP008	0.5	75.9
	TP011	0.5	99.7
	TP012	0.5	11.9
	TP014	0.5	585.0
	TP016	0.5	1,470.0
	TP017	0.5	2,100.0
	TP017	2.0	84.8

Table 5 - Soil Concentrations Greater than Screening Levels

Ukiah Rail Yard Property Ukiah, California

Samples collected December 2010, January 2011, and April 2011

Chemical	Sample Location	Depth (ft bgs)	Concentrations	Screening Level
Metals (mg/kg)				
Arsenic	DP009	0.5	19.46	0.24
	DP009	2.0	5.02	0.24
	DP009	5.0	12.20	0.24
	DP014	0.5	5.25	0.24
	DP015	0.5	4.85	0.24
	DP016	0.5	4.71	0.24
	DP017	0.5	4.59	0.24
	SV003	0.5	4.85	0.24
	SV003	2.0	4.32	0.24
	SV023	0.5	4.88	0.24
	SV023	2.0	4.22	0.24
	SV027	2.0	3.74	0.24
	SV027	0.5	8.72	0.24
	SV028	0.5	4.32	0.24
	SV028	2.0	4.12	0.24
PAHs (µg/kg)				
Benzo(a)pyrene	TP014	0.5	953	130
Benzo(a)anthracene	TP014	0.5	1,320	1,300
Benzo(b)fluoranthene	TP014	0.5	1,480	1,300
Dibenzo(a,h)anthracene	TP014	0.5	342	210
Total Petroleum Hydrocarbons (mg/kg)				
Middle Distillates (TPH-D)	DP005	15.0	5,360	83
	DP005	20.0	587	83
	DP006	20.0	1,120	83
	DP006	0.5	302	83
	DP010	5.0	188	83
	TP014	0.5	130	83
	TP016	0.5	272	83
	TP017	0.5	2,010	83
	SV007	0.5	791	83
Residual Fuels (TPH-M)	SV007	0.5	2,870	2,500

Table 6 - Detected Groundwater Concentrations

Ukiah Rail Yard Property Ukiah, California

Samples collected December 2010, January 2011, and April 2011

Chemical	Sample Location	Depth (ft bgs)	Concentrations
Metals (µg/L)			
Barium	DP001	13.0	65.25
	DP002	28.0	76.30
	DP004	12.0	79.80
	DP005	12.0	94.87
	DP005	25.0	110.30
	DP006	14.0	87.50
	DP006	23.0	84.87
	DP007	9.0	63.04
	DP008	12.0	62.64
	DP008	24.0	51.40
	DP009	9.5	54.94
	DP010	14.0	83.98
	DP010	23.0	72.20
	DP011	11.0	102.60
	DP011	11.0	81.20
	DP011	21.0	68.99
	DP012	12.0	69.03
	DP012	25.0	59.53
	DP013	11.0	47.47
	DP013	11.0	45.58
	DP013	21.0	53.32
	DP014	8.5	51.80
	DP014	29.5	49.20
	DP015	8.5	55.00
	DP016	8.0	53.90
	DP017	6.0	57.70
	DP017	28.0	65.30
Chromium	DP007	9.0	1.17
	DP009	9.5	1.40
	DP011	11.0	1.84

Table 6 - Detected Groundwater Concentrations

Ukiah Rail Yard Property Ukiah, California

Samples collected December 2010, January 2011, and April 2011

Chemical	Sample Location	Depth (ft bgs)	Concentrations
Cobalt	DP001	13.0	2.79
	DP002	28.0	2.49
	DP004	12.0	1.68
	DP005	12.0	1.72
	DP005	25.0	4.07
	DP006	14.0	2.72
	DP006	23.0	3.55
	DP007	9.0	2.93
	DP008	12.0	2.17
	DP008	24.0	1.78
	DP009	9.5	2.61
	DP010	14.0	3.73
	DP010	23.0	2.90
	DP011	11.0	3.38
	DP011	21.0	4.45
	DP012	12.0	1.25
	DP012	25.0	5.49
	DP013	11.0	1.02
	DP013	21.0	2.73
	DP014	8.5	2.14
	DP015	8.5	1.44
	DP016	8.0	2.34
	DP017	6.0	1.89
	DP017	28.0	2.50
Copper	BG002	22.0	2.65
	BG003	6.0	2.22
	DP011	11.0	1.43
Lead	DP005	25.0	9.69
Molybdenum	DP002	28.0	2.58
	DP005	25.0	6.32
	DP006	23.0	2.15
	DP007	9.0	2.24
	DP010	14.0	1.79
	DP010	23.0	1.19
	DP011	21.0	3.75
	DP012	25.0	3.16
	DP013	21.0	1.38
	DP014	8.5	1.91
	DP015	8.5	2.36
	DP016	8.0	3.48
	DP017	6.0	1.94
	DP017	28.0	5.65

Table 6 - Detected Groundwater Concentrations

Ukiah Rail Yard Property Ukiah, California

Samples collected December 2010, January 2011, and April 2011

Chemical	Sample Location	Depth (ft bgs)	Concentrations
Nickel	BG002	7.5	2.82
	BG002	22.0	4.03
	BG003	6.0	3.66
	DP001	13.0	3.36
	DP002	28.0	3.38
	DP004	12.0	2.79
	DP005	12.0	2.78
	DP005	25.0	6.98
	DP006	14.0	3.25
	DP006	23.0	6.11
	DP007	9.0	5.11
	DP008	12.0	1.91
	DP008	24.0	2.88
	DP009	9.5	3.89
	DP010	14.0	4.50
	DP010	23.0	4.71
	DP011	11.0	5.94
	DP011	11.0	1.62
	DP011	21.0	4.92
	DP012	12.0	2.21
	DP012	25.0	5.58
	DP013	11.0	1.10
	DP013	21.0	4.95
	DP014	8.5	2.95
	DP014	29.5	1.22
	DP015	8.5	2.60
	DP016	8.0	2.93
	DP017	6.0	3.98
	DP017	28.0	2.93
Vanadium	DP011	11.0	1.60

Table 6 - Detected Groundwater Concentrations

Ukiah Rail Yard Property Ukiah, California

Samples collected December 2010, January 2011, and April 2011

Chemical	Sample Location	Depth (ft bgs)	Concentrations
Zinc	BG002	7.5	3.01
	BG002	22.0	3.20
	BG003	6.0	2.71
	DP001	13.0	1.51
	DP002	28.0	3.74
	DP004	12.0	3.74
	DP005	12.0	3.74
	DP005	25.0	1.83
	DP006	14.0	4.89
	DP006	23.0	8.79
	DP007	9.0	5.81
	DP008	12.0	8.56
	DP008	24.0	2.87
	DP009	9.5	8.90
	DP010	14.0	2.47
	DP010	23.0	4.39
	DP011	11.0	5.77
	DP011	11.0	1.60
	DP011	21.0	3.49
	DP012	12.0	1.73
	DP012	25.0	2.92
	DP013	11.0	8.49
	DP013	21.0	13.56
	DP014	8.5	2.29
	DP014	29.5	1.20
	DP015	8.5	1.53
	DP016	8.0	3.34
	DP017	6.0	3.04
	DP017	28.0	6.81
PAHs (µg/L)			
Benzo(a)pyrene	DP004	12	0.09
Total Petroleum Hydrocarbons (mg/L)			
Middle Distillates (TPH-D)	DP006	23	8.26
Residual Fuels (TPH-M)	DP006	23	4.73

Table 6 - Detected Groundwater Concentrations

Ukiah Rail Yard Property Ukiah, California

Samples collected December 2010, January 2011, and April 2011

Chemical	Sample Location	Depth (ft bgs)	Concentrations
VOCs (µg/L)			
PCE (Tetrachloroethene)	BG002	7.5	2.70
	BG002	22.0	0.77
	BG003	6.0	1.11
	DP001	13.0	2.23
	DP004	12.0	1.65
	DP005	12.0	2.73
	DP006	14.0	3.42
	DP006	23.0	1.06
	DP007	9.0	1.14
	DP008	12.0	1.33
	DP009	9.5	2.35
	DP010	14.0	4.01
	DP010	23.0	4.25
	DP011	11.0	2.90
	DP011	21.0	2.78
	DP012	12.0	1.70
	DP013	11.0	1.46
	DP013	21.0	1.75
	DP014	8.5	2.40
	DP014	29.5	1.75
	DP015	8.5	2.61
	DP016	8.0	2.67
	DP017	6.0	3.07
	DP017	28.0	4.92
Groundwater Parameters			
Nitrate as Nitrogen (mg/L)	DP007	9.0	0.91
	DP010	14	1.54
Sulfate (mg/L)	DP007	9.0	7.63
	DP010	14.0	8.35
	DP013	11.0	6.28
Total Organic Carbon	DP007	9.0	4.00
	DP010	14.0	2.60
	DP013	11.0	1.30

Table 7 - Groundwater Concentrations Greater than Screening Levels

Ukiah Rail Yard Property Ukiah, California

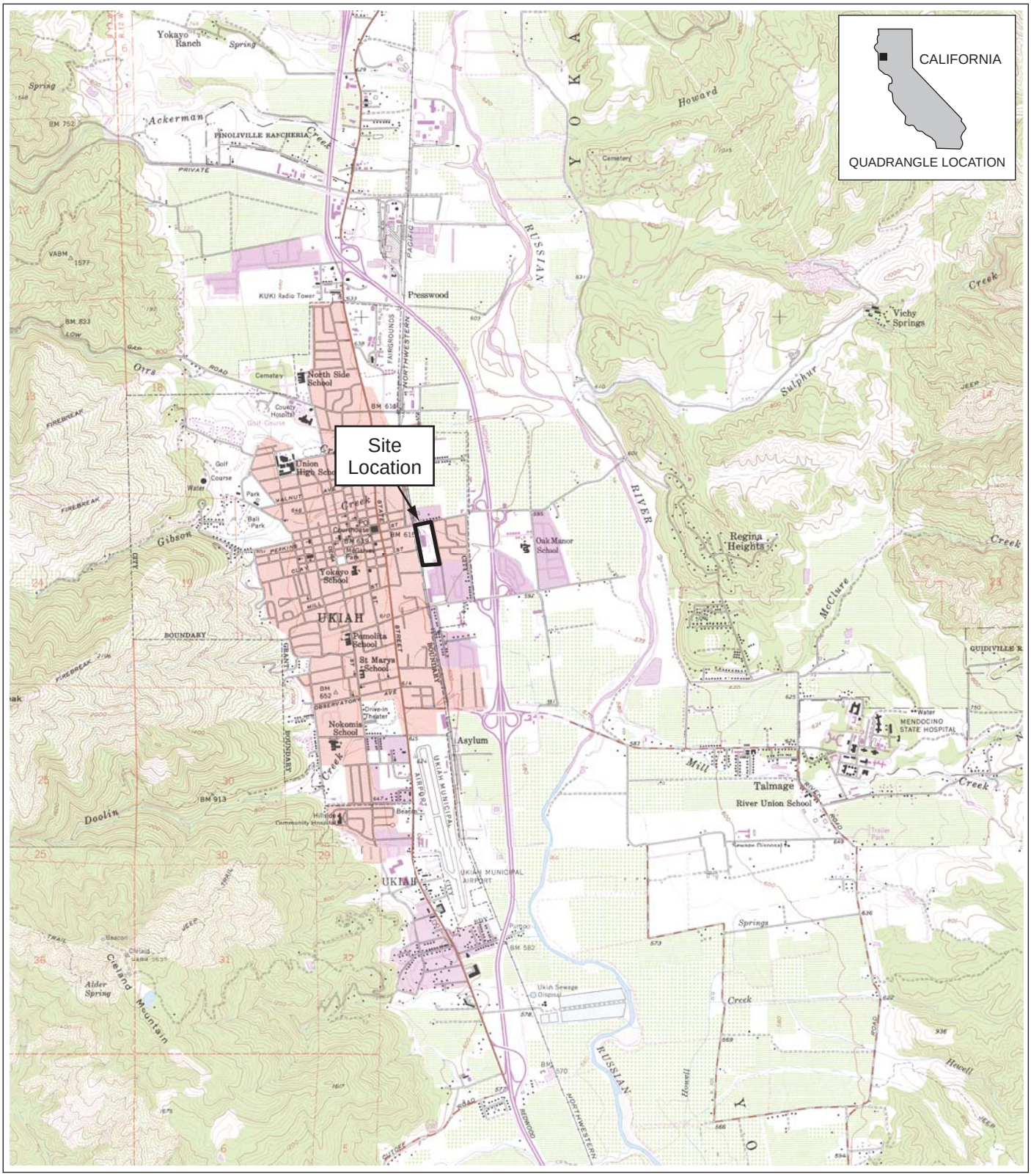
Samples collected December 2010, January 2011, and April 2011

Chemical	Sample Location	Depth (ft bgs)	Concentrations	Screening Level
Metals (µg/L)				
Lead	DP005	25	9.69	0.2
PAHs (µg/L)				
Benzo(a)pyrene	DP004	12	0.09	0.007
Total Petroleum Hydrocarbons (mg/L)				
Middle Distillates (TPH-D)	DP006	23	8.26	0.10
Residual Fuels (TPH-M)	DP006	23	4.73	0.10
VOCs (µg/L)				
PCE (Tetrachloroethene)	BG002	7.5	2.70	0.06
	BG002	22.0	0.77	0.06
	BG003	6.0	1.11	0.06
	DP001	13.0	2.23	0.06
	DP004	12.0	1.65	0.06
	DP005	12.0	2.73	0.06
	DP006	14.0	3.42	0.06
	DP006	23.0	1.06	0.06
	DP007	9.0	1.14	0.06
	DP008	12.0	1.33	0.06
	DP009	9.5	2.35	0.06
	DP010	14.0	4.01	0.06
	DP010	23.0	4.25	0.06
	DP011	11.0	2.90	0.06
	DP011	21.0	2.78	0.06
	DP012	12.0	1.70	0.06
	DP013	11.0	1.46	0.06
	DP013	21.0	1.75	0.06
	DP014	8.5	2.40	0.06
	DP014	29.5	1.75	0.06
	DP015	8.5	2.61	0.06
	DP016	8.0	2.67	0.06
	DP017	6.0	3.07	0.06
	DP017	28.0	4.92	0.06
Nitrate as Nitrogen (mg/L)	DP010	14	1.54	1.00

Notes:

The Screening Level for PCE is the California PHG. The California MCL is 5.0 µg/L

FIGURES



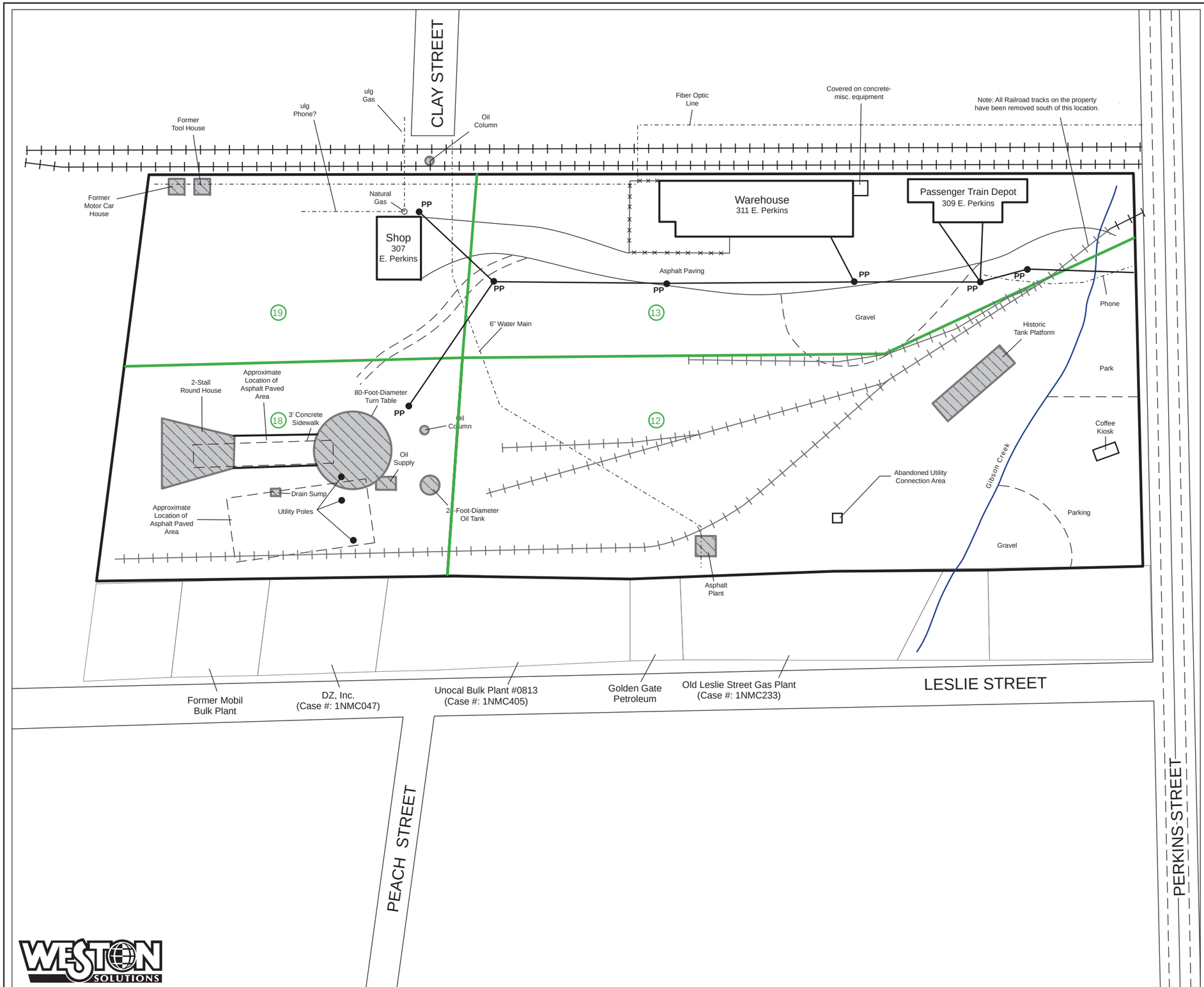
Source: USGS 7.5' series topo, Ukiah & Elledge Peak-CA, 1958, 1975.

Site Vicinity Map

Former Ukiah Rail Yard
Ukiah, CA

Figure
1

11-0017 SCR_Fig1.ai



Site Boundary (NCRWQCB Site ID # 1NMC397)

Indicates historical feature for which no surface features were observed

Historic or existing rail track

Overhaed power and pole

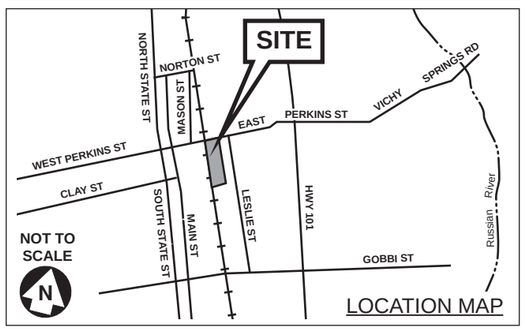
Underground utility

Parcel boundary within site

Parcel ID

0 50 100

Scale in Feet



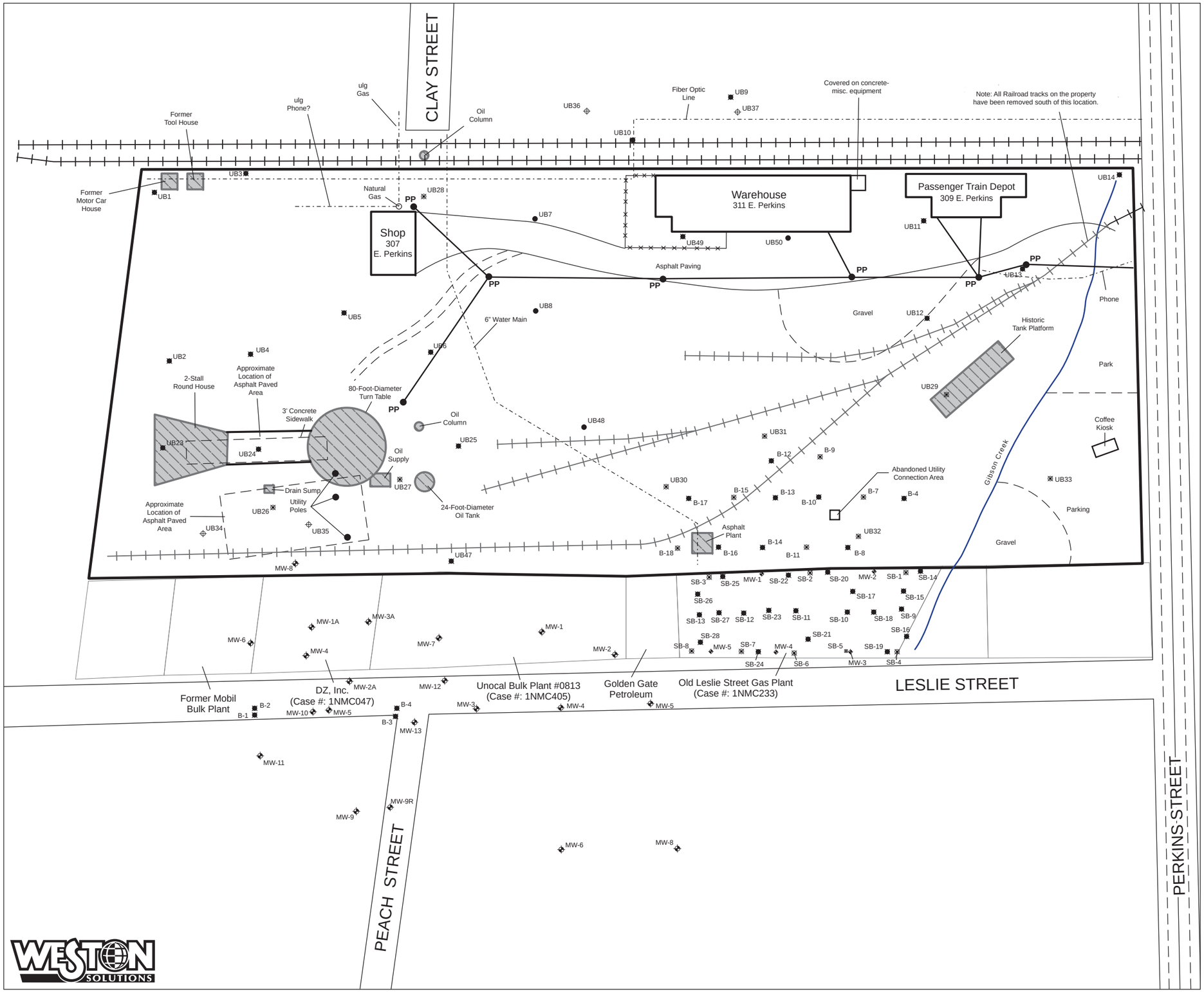
LOCATION MAP

Site Plan
Former Ukiah Rail Yard
Ukiah, CA

Figure
2

WESTON SOLUTIONS

11-0017 SCR_Fig2-17.ai



Site Boundary (NCRWQCB Site ID # 1NMC397)

Indicates historical feature for which no surface features were observed

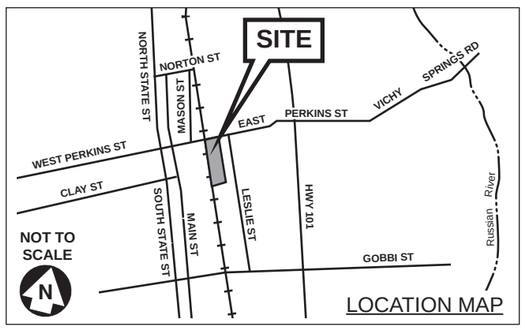
Historic or existing rail track

Overhaed power and pole

Underground utility

Historic Sample Locations

- Monitoring well
- Soil Boring location
- Grab Groundwater location
- Soil and Grab Groundwater location



LOCATION MAP

Previous Environmental Investigation Sample Locations
Former Ukiah Rail Yard
Ukiah, CA

Figure

3

WESTON SOLUTIONS

11-0017 SCR_Fig2-17.ai

CLAY STREET

Former Tool House

ulg Phone?

ulg Gas

Oil Column

Fiber Optic Line

Covered on concrete-misc. equipment

Note: All Railroad tracks on the property have been removed south of this location.

Former Motor Car House

Natural Gas

Shop
307
E. Perkins

Warehouse
311 E. Perkins

Passenger Train Depot
309 E. Perkins

Asphalt Paving

Gravel

Phone

6" Water Main

Historic Tank Platform

Park

2-Stall Round House

Approximate Location of Asphalt Paved Area

80-Foot-Diameter Turn Table

3' Concrete Sidewalk

Oil Supply

24-Foot-Diameter Oil Tank

Drain Sump

Utility Poles

Abandoned Utility Connection Area

Coffee Kiosk

Gibson Creek

Parking

Gravel

Asphalt Plant

Former Mobil Bulk Plant

DZ, Inc.
(Case #: 1NMC047)

Unocal Bulk Plant #0813
(Case #: 1NMC405)

Golden Gate Petroleum

Old Leslie Street Gas Plant
(Case #: 1NMC233)

LESLIE STREET

PEACH STREET

PERKINS STREET

Site Boundary (NCRWQCB Site ID # 1NMC397)

Indicates historical feature for which no surface features were observed

Historic or existing rail track

Overhaed power and pole

Underground utility

Dec 2010/Jan & Apr 2011 Sample Locations

Direct Push Location to First Water

Direct Push Location to approximately 30 ft. bgs

Soil Vapor Sample Location

Soil Vapor and Soil Sample Location

Test Pit Location

Geotech Boring Location

0 50 100

Scale in Feet

SITE

NORTON ST

NORTH STATE ST

MASON ST

EAST

PERKINS ST

VICHY

SPRINGS RD

WEST PERKINS ST

CLAY ST

SOUTH STATE ST

MAIN ST

LESLIE ST

HWY 101

GOBBI ST

Russian River

NOT TO SCALE

LOCATION MAP

WESTON Sample Locations

Former Ukiah Rail Yard
Ukiah, CA

Figure
4

WESTON SOLUTIONS

11-0017 SCR_Fig2-17.ai

CLAY STREET

LESLIE STREET

PEACH STREET

PERKINS STREET

Former Tool House

Former Motor Car House

SV-10
PCE: 8' = ND

DP-3

TP-6

TP-7

TP-5

SV-11
PCE: 16' = ND
Toluene: 16' = 0.13
Toluene SL = 890 ug/L

TP-8

BG-1

SV-9
PCE: 9.5' = 0.10

SV-12
PCE: 10' = 0.33

SV-13
PCE: 8.5' = 039
PCE: 8.5' = 039 (dup)

2-Stall Round House

SV-26
PCE: 10' = 0.83

SV-24
PCE: 10' = 1.5

SV-25
PCE: 10' = 1.3

BG-2

Approximate Location of Asphalt Paved Area

SV-34
PCE: 9' = 1.3

Approximate Location of Asphalt Paved Area

SV-29
PCE: 7.5' = 0.42

DP-4

3' Concrete Sidewalk

80-Foot-Diameter Turn Table

SV-27
PCE: 10' = 1

SV-31
PCE: 9.5' = 1.7

TP-12

TP-9

TP-10

DP-6

TP-11

DP-5

Drain Sump

SV-33
PCE: 10' = 0.27

Utility Poles

Oil Column

SV-30
PCE: 8' = 0.83

Oil Supply

BG-3

24-Foot-Diameter Oil Tank

SV-35
PCE: 10' = 1.6

DP-10

SV-28
PCE: 8.5' = 1.6

DP-11

SV-32
PCE: 10' = 0.51

TP-16

TP-17

DP-12

TP-15

SV-24
PCE: 8' = 0.54
PCE: 8' = 0.27 (dup)

SV-22
PCE: 8' = 0.17

Asphalt Plant

DP-13

SV-19
PCE: 8' = 0.60

SV-18
PCE: 8' = 0.31

BG-5

SV-20
PCE: 10' = 0.13

Abandoned Utility Connection Area

DP-9

TP-13

BG-4

SV-23

TP-14

SV-21

SV-17
PCE: 7.5' = 0.62

DP-8

TP-3

SV-15
PCE: 10.5' = 0.10

DP-7

TP-4

SV-1
PCE: 8' = 0.83

SV-14
PCE: 5.5' = 0.67

6" Water Main

SV-6
PCE: 8' = 0.55

Gravel

BG-6

Asphalt Paving

SV-4
PCE: 10' = 0.58

DP-1

SV-5
PCE: 10' = ND

SV-3

SV-2

Warehouse
311 E. Perkins

Shop
307 E. Perkins

SV-7

SV-8

Natural Gas

DP-2

Oil Column

ulg Gas

ulg Phone?

Fiber Optic Line

Covered on concrete-misc. equipment

Note: All Railroad tracks on the property have been removed south of this location.

Passenger Train Depot
309 E. Perkins

Phone

Historic Tank Platform

TP-1

SV-16
PCE: 10' = 0.14

TP-2

Park

DP-14

DP-15

SV-37

Coffee Kiosk

Gibson Creek

DP-16

Parking

DP-17

Gravel

SV-36

PP

Former Mobil Bulk Plant

DZ, Inc. (Case #: 1NMC047)

Unocal Bulk Plant #0813 (Case #: 1NMC405)

Golden Gate Petroleum

Old Leslie Street Gas Plant (Case #: 1NMC233)

Site Boundary (NCRWQCB Site ID # 1NMC397)

Indicates historical feature for which no surface features were observed

Historic or existing rail track

Overhaed power and pole

Underground utility

Dec 2010/Jan & Apr 2011 Sample Locations

- DP-1 — Direct Push Location
- SV-1 — Soil Vapor Sample Location
- SV-3 — Soil Vapor and Soil Sample Location
- TP-1 — Test Pit Location
- BG-1 — Geotech Boring Location

Soil Vapor Results

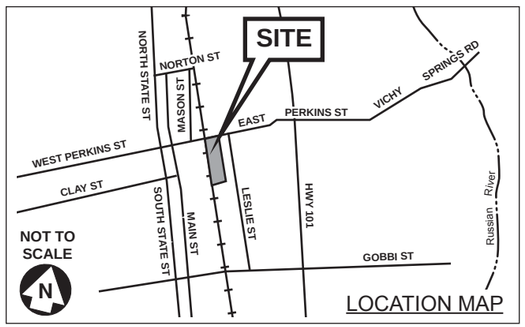
- PCE > 1.6 µg/L
- PCE ≤ 1.6 µg/L
- PCE = ND (Not Detected)

Note: Sample locations in black indicate no data.

N

0 50 100

Scale in Feet



LOCATION MAP

Soil Vapor Results
Former Ukiah Rail Yard
Ukiah, CA

Figure
5

WESTON SOLUTIONS

11-0017 SCR_Fig2-17.ai

CLAY STREET

Former Tool House
ulg Phone?
ulg Gas
Oil Column
Fiber Optic Line
Covered on concrete-misc. equipment
Note: All Railroad tracks on the property have been removed south of this location.
Former Motor Car House
Natural Gas
Shop 307 E. Perkins
Warehouse 311 E. Perkins
Passenger Train Depot 309 E. Perkins
Asphalt Paving
Gravel
Phone
6" Water Main
Historic Tank Platform
2-Stall Round House
Approximate Location of Asphalt Paved Area
80-Foot-Diameter Turn Table
3' Concrete Sidewalk
Oil Column
Oil Supply
Drain Sump
Utility Poles
24-Foot-Diameter Oil Tank
Abandoned Utility Connection Area
Park
Coffee Kiosk
Parking
Gibson Creek
Asphalt Plant

DP-1 DP-2 DP-3 DP-4 DP-5 DP-6 DP-7 DP-8 DP-9 DP-10 DP-11 DP-12 DP-13 DP-14 DP-15 DP-16 DP-17

SV-1 SV-2 SV-3 SV-4 SV-5 SV-6 SV-7 SV-8 SV-9 SV-10 SV-11 SV-12 SV-13 SV-14 SV-15 SV-16 SV-17 SV-18 SV-19 SV-20 SV-21 SV-22 SV-23 SV-24 SV-25 SV-26 SV-27 SV-28 SV-29 SV-30 SV-31 SV-32 SV-33 SV-34 SV-35 SV-36 SV-37

TP-1 TP-2 TP-3 TP-4 TP-5 TP-6 TP-7 TP-8 TP-9 TP-10 TP-11 TP-12 TP-13 TP-14 TP-15 TP-16 TP-17

BG-1 BG-2 BG-3 BG-4 BG-5 BG-6

PP

TP-8 0.5' = ND
TP-10 0.5' = ND
TP-12 5' = ND
TP-14 0.5' = 5.91
TP-17 0.5' = ND
DP-10 4' = ND 11.5' = 1.69
DP-14 2' = 8.67 2' = 9.55 (dup)
DP-15 2' = 13.9
DP-16 2' = 10.0
DP-17 2' = ND

Former Mobil Bulk Plant
DZ, Inc. (Case #: 1NMC047)
Unocal Bulk Plant #0813 (Case #: 1NMC405)
Golden Gate Petroleum
Old Leslie Street Gas Plant (Case #: 1NMC233)
LESLIE STREET
PEACH STREET
PERKINS STREET

Site Boundary (NCRWQCB Site ID # 1NMC397)

Indicates historical feature for which no surface features were observed

Historic or existing rail track

Overhaed power and pole

Underground utility

Dec 2010/Jan & Apr 2011 Sample Locations

Direct Push Location

Soil Vapor Sample Location

Soil Vapor and Soil Sample Location

Test Pit Location

Geotech Boring Location

Tetrachloroethylene (PCE) in Soil

PCE > 700 µg/kg

PCE ≤ 700 µg/kg

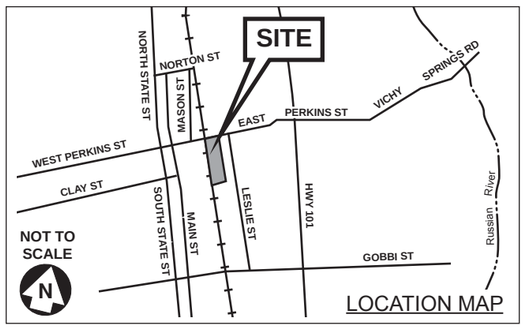
PCE = ND (Not Detected)

Note: Sample locations in black indicate no data.

N

0 50 100

Scale in Feet



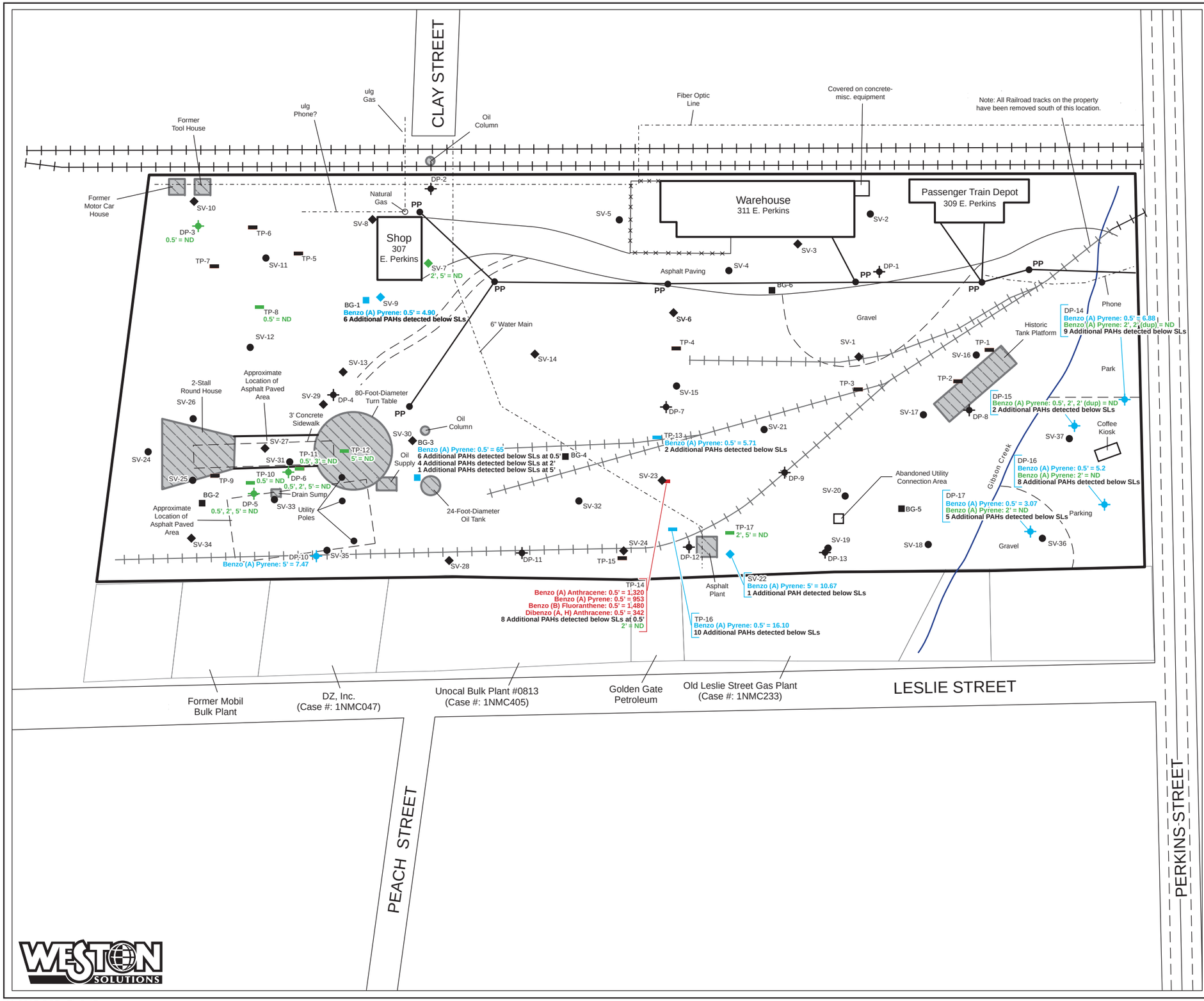
LOCATION MAP

Tetrachloroethylene (PCE) in Soil
Former Ukiah Rail Yard
Ukiah, CA

Figure
6

WESTON SOLUTIONS

11-0017 SCR_Fig2-17.ai



Site Boundary (NCRWQCB Site ID # 1NMC397)

Indicates historical feature for which no surface features were observed

Historic or existing rail track

Overhaed power and pole

Underground utility

Dec 2010/Jan & Apr 2011 Sample Locations

- Direct Push Location
- Soil Vapor Sample Location
- Soil Vapor and Soil Sample Location
- Test Pit Location
- Geotech Boring Location

PAHs in Soil

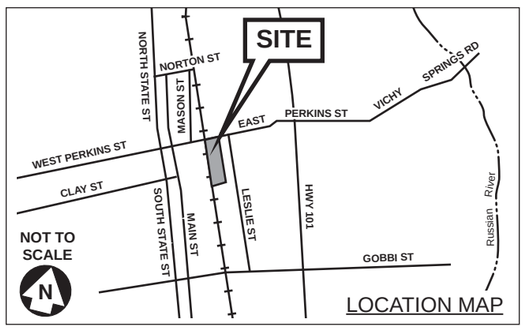
- > SL
- ≤ SL
- ND (Not Detected)

Note: Sample locations in black indicate no data.

N

0 50 100

Scale in Feet



LOCATION MAP

PAHs in Soil
Former Ukiah Rail Yard
Ukiah, CA

Figure
7

WESTON SOLUTIONS

11-0017 SCR_Fig2-17.ai

CLAY STREET

Former Tool House
Former Motor Car House
ulg Phone?
ulg Gas
Oil Column
Fiber Optic Line
Covered on concrete-misc. equipment
Note: All Railroad tracks on the property have been removed south of this location.
Natural Gas
Shop 307 E. Perkins
Warehouse 311 E. Perkins
Passenger Train Depot 309 E. Perkins
Asphalt Paving
Gravel
Phone
6" Water Main
Historic Tank Platform
Park
2-Stall Round House
Approximate Location of Asphalt Paved Area
80-Foot-Diameter Turn Table
3' Concrete Sidewalk
Oil Column
Oil Supply
24-Foot-Diameter Oil Tank
Drain Sump
Utility Poles
Abandoned Utility Connection Area
Coffee Kiosk
Parking
Gibson Creek
Asphalt Plant

SV-10 SV-8 SV-7 SV-9 SV-11 SV-5 SV-2 SV-3 SV-4 SV-6 SV-1 SV-16 SV-12 SV-13 SV-14 SV-15 SV-17 SV-21 SV-26 SV-27 SV-29 SV-30 SV-31 SV-24 SV-25 SV-34 SV-35 SV-28 SV-32 SV-23 SV-20 SV-19 SV-18 SV-36 SV-37

DP-1 DP-2 DP-3 DP-4 DP-5 DP-6 DP-7 DP-8 DP-9 DP-10 DP-11 DP-12 DP-13 DP-14 DP-15 DP-16 DP-17

TP-1 TP-2 TP-3 TP-4 TP-5 TP-6 TP-7 TP-8 TP-9 TP-10 TP-11 TP-12 TP-13 TP-14 TP-15 TP-16 TP-17

BG-1 BG-2 BG-3 BG-4 BG-5 BG-6

PP

SV-7 0.5' = 791 2' = ND
DP-6 0.5' = 302 2' = ND
TP-14 0.5' = 130
TP-16 0.5' = 272 2' = ND
TP-17 0.5' = 2,010 2' = 41.7

Former Mobil Bulk Plant
DZ, Inc. (Case #: 1NMC047)
Unocal Bulk Plant #0813 (Case #: 1NMC405)
Golden Gate Petroleum
Old Leslie Street Gas Plant (Case #: 1NMC233)

LESLIE STREET
PEACH STREET
PERKINS STREET

Site Boundary (NCRWQCB Site ID # 1NMC397)

Indicates historical feature for which no surface features were observed

Historic or existing rail track

Overhaed power and pole

Underground utility

Dec 2010/Jan & Apr 2011 Sample Locations

- DP-1 Direct Push Location
- SV-1 Soil Vapor Sample Location
- SV-3 Soil Vapor and Soil Sample Location
- TP-1 Test Pit Location
- BG-1 Geotech Boring Location

TPH in Soil < 3 ft bgs

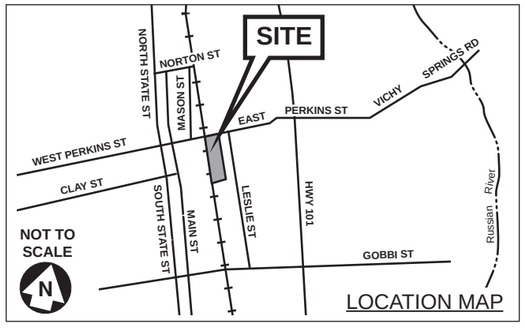
- > 83 mg/kg
- ≤ 83 mg/kg
- ND (Not Detected)

Note: Sample locations in black indicate no data.

N

0 50 100

Scale in Feet



LOCATION MAP

TPH-Middle Distillates in Soil < 3 Feet bgs
Former Ukiah Rail Yard
Ukiah, CA

Figure
8

WESTON SOLUTIONS

11-0017 SCR_Fig2-17.ai

CLAY STREET

Former Tool House
Former Motor Car House
ulg Phone?
ulg Gas
Oil Column
Fiber Optic Line
Covered on concrete-misc. equipment
Note: All Railroad tracks on the property have been removed south of this location.
Natural Gas
Shop 307 E. Perkins
Warehouse 311 E. Perkins
Passenger Train Depot 309 E. Perkins
Asphalt Paving
Gravel
Phone
6" Water Main
Historic Tank Platform
Park
Coffee Kiosk
Parking
Gibson Creek
2-Stall Round House
Approximate Location of Asphalt Paved Area
80-Foot-Diameter Turn Table
3' Concrete Sidewalk
Oil Supply
24-Foot-Diameter Oil Tank
Drain Sump
Utility Poles
Abandoned Utility Connection Area
Asphalt Plant
Former Mobil Bulk Plant
DZ, Inc. (Case #: 1NMC047)
Unocal Bulk Plant #0813 (Case #: 1NMC405)
Golden Gate Petroleum
Old Leslie Street Gas Plant (Case #: 1NMC233)
LESLIE STREET
PEACH STREET
PERKINS STREET

DP-5
5' = ND
10' = ND
15' = 5,360
20' = 587
29' = ND

DP-6
5' = ND
10' = ND
20' = 1,120
29' = ND

DP-10
5' = 188
10' = 15.7
20' = ND

DP-12
5' = 14.9
10' = ND
20' = ND

SV-22
5' = 38.3
8' = ND

BG-3
5' = 10.4

Site Boundary (NCRWQCB Site ID # 1NMC397)

Indicates historical feature for which no surface features were observed

Historic or existing rail track

Overhaed power and pole

Underground utility

Dec 2010/Jan & Apr 2011 Sample Locations

Direct Push Location

Soil Vapor Sample Location

Soil Vapor and Soil Sample Location

Test Pit Location

Geotech Boring Location

TPH in Soil > 3 ft bgs

> 83 mg/kg

≤ 83 mg/kg

ND (Not Detected)

Note: Sample locations in black indicate no data.

N

0 50 100

Scale in Feet

SITE
NORTH STATE ST
NORTON ST
MASON ST
EAST
PERKINS ST
VICHY
SPRINGS RD
WEST PERKINS ST
CLAY ST
SOUTH STATE ST
MAIN ST
LESLIE ST
HWY 101
GOBBI ST
Russian River
NOT TO SCALE

LOCATION MAP

TPH-Middle Distillates in Soil > 3 Feet bgs
Former Ukiah Rail Yard
Ukiah, CA

Figure
9

WESTON SOLUTIONS

11-0017 SCR_Fig2-17.ai

CLAY STREET

Former Tool House
Former Motor Car House
ulg Phone?
ulg Gas
Oil Column
Fiber Optic Line
Covered on concrete-misc. equipment
Note: All Railroad tracks on the property have been removed south of this location.
Natural Gas
DP-2
SV-10
DP-3 0.5' = 95
TP-6
TP-7
SV-11
TP-5
SV-8
Shop 307 E. Perkins
SV-7 0.5' = 2,870 2' = ND
SV-5
Warehouse 311 E. Perkins
SV-2
SV-3
DP-1 0.5' = 18.2 2' = ND
Passenger Train Depot 309 E. Perkins
Asphalt Paving
SV-4
BG-6
PP
Phone
TP-8 0.5' = 75.9
BG-1 0.5' = 15.5 2' = ND
SV-9
SV-6
Gravel
6" Water Main
SV-12
SV-13
SV-14
TP-4
SV-1
TP-1
SV-16
Historic Tank Platform
TP-2
TP-3 0.5' = 10.6
SV-15
DP-7
SV-17
DP-8
Park
DP-14 0.5' = 123 2', 2' (dup) = ND
DP-15 0.5' = 637 2', 2' (dup) = ND
Coffee Kiosk
SV-37
2-Stall Round House
Approximate Location of Asphalt Paved Area
SV-26
SV-29
DP-4
80-Foot-Diameter Turn Table
3' Concrete Sidewalk
SV-30
Oil Column
SV-27
TP-12 0.5' = 11.9
SV-24
SV-31
TP-11 0.5' = 99.7 1.5' = ND
Oil Supply
BG-3 0.5' = 136 2' = 19.9
SV-25
TP-9
TP-10
BG-4
TP-13
SV-21
SV-23
TP-14 0.5' = 585
DP-9
Gibson Creek
BG-2
Drain Sump
SV-33
Utility Poles
SV-32
24-Foot-Diameter Oil Tank
Abandoned Utility Connection Area
SV-20
BG-5
DP-16 0.5' = 86.8 2' = ND
Parking
Approximate Location of Asphalt Paved Area
SV-34
SV-35
TP-16 0.5' = 1,470 2' = ND
TP-17 0.5' = 2,100 2' = 84.8
SV-19
SV-18
DP-17
Gravel
SV-36
SV-28
DP-11
TP-15
SV-24
DP-12
SV-22
DP-13
Asphalt Plant
0.5' = 13.6 2' = ND
DP-5 0.5' = 75.3 2' = ND
DP-10 0.5' = 113 2' = 14.1
DP-6 0.5' = 563 2' = ND

Former Mobil Bulk Plant
DZ, Inc. (Case #: 1NMC047)
Unocal Bulk Plant #0813 (Case #: 1NMC405)
Golden Gate Petroleum
Old Leslie Street Gas Plant (Case #: 1NMC233)
LESLIE STREET
PEACH STREET
PERKINS STREET

WESTON SOLUTIONS

Site Boundary (NCRWQCB Site ID # 1NMC397)

Indicates historical feature for which no surface features were observed

Historic or existing rail track

Overhaed power and pole

Underground utility

Dec 2010/Jan & Apr 2011 Sample Locations

- DP-1 — Direct Push Location
- SV-1 — Soil Vapor Sample Location
- SV-3 — Soil Vapor and Soil Sample Location
- TP-1 — Test Pit Location
- BG-1 — Geotech Boring Location

TPH in Soil < 3 ft bgs

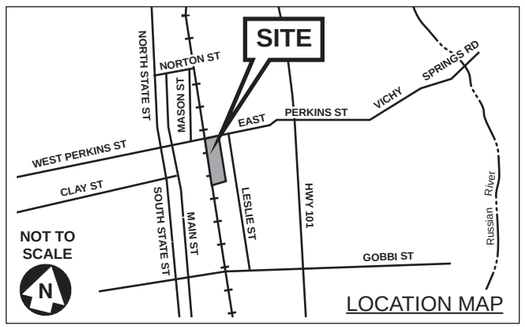
- > 2,500 mg/kg
- ≤ 2,500 mg/kg
- ND (Not Detected)

Note: Sample locations in black indicate no data.

N

0 50 100

Scale in Feet

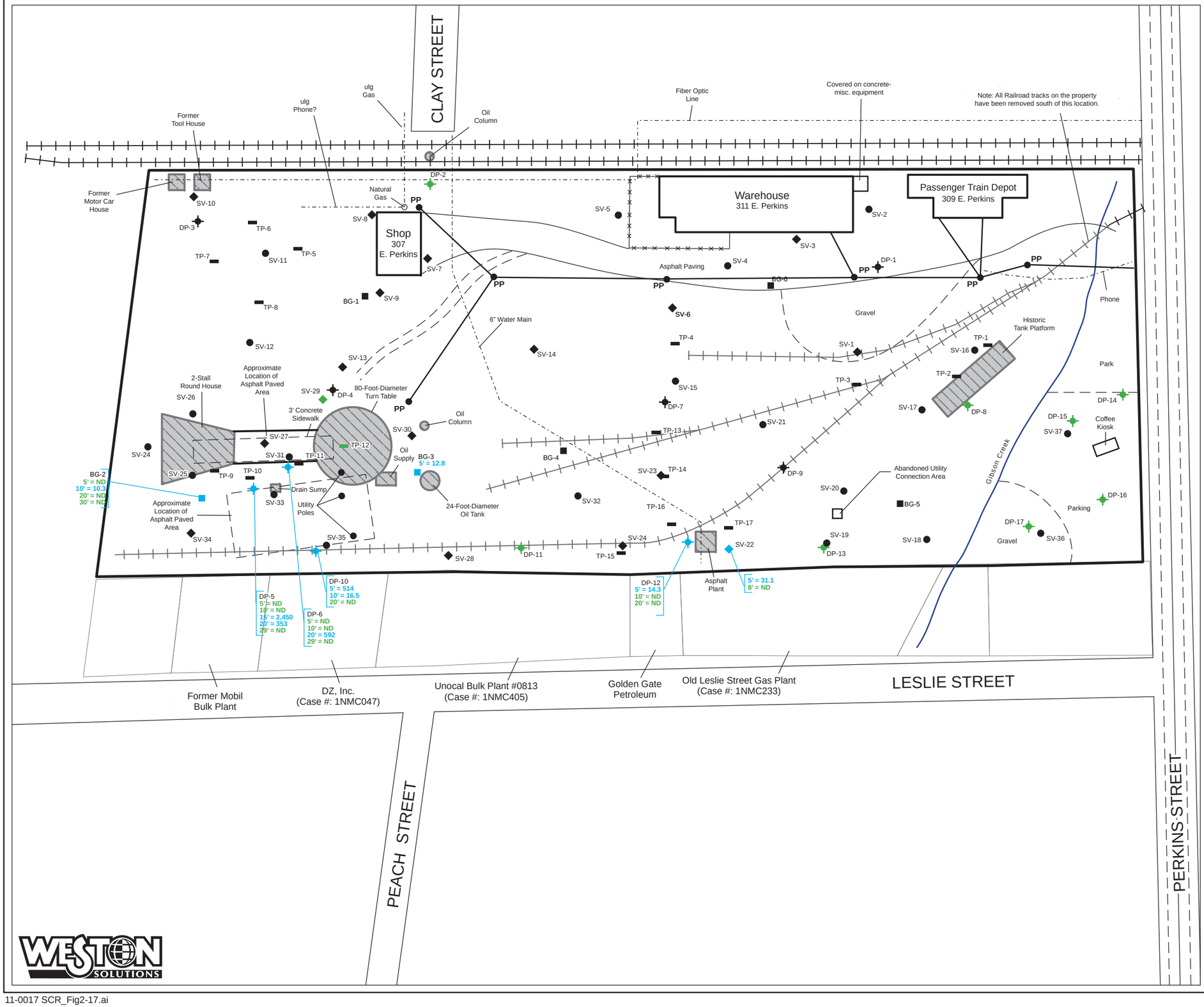


LOCATION MAP

TPH-Residual Fuels in Soil < 3 Feet bgs
Former Ukiah Rail Yard
Ukiah, CA

Figure
10

11-0017 SCR_Fig2-17.ai



Site Boundary (NCRWQCB Site ID # 1NMC397)

Indicates historical feature for which no surface features were observed

Historic or existing rail track

Overhaed power and pole

Underground utility

Dec 2010/Jan & Apr 2011 Sample Locations

- DP-1 — Direct Push Location
- SV-1 — Soil Vapor Sample Location
- SV-3 — Soil Vapor and Soil Sample Location
- TP-1 — Test Pit Location
- BG-1 — Geotech Boring Location

TPH in Soil > 3 ft bgs

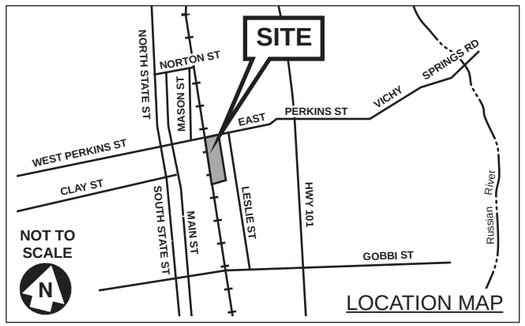
- > 2,500 mg/kg
- ≤ 2,500 mg/kg
- ND (Not Detected)

Note: Sample locations in black indicate no data.

N

0 50 100

Scale in Feet



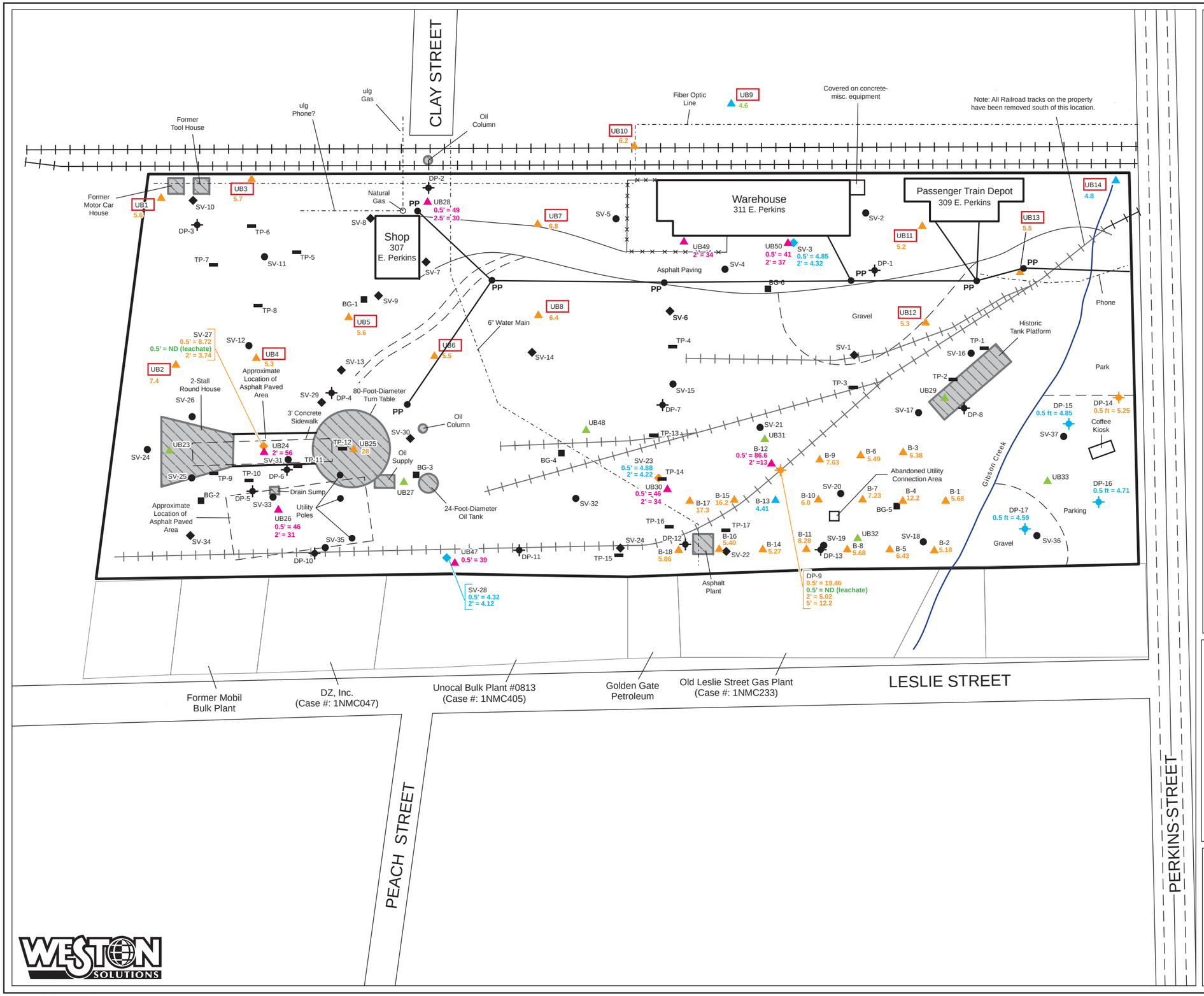
LOCATION MAP

TPH-Residual Fuels in Soil > 3 Feet bgs
Former Ukiah Rail Yard
Ukiah, CA

Figure
11

WESTON SOLUTIONS

11-0017 SCR_Fig2-17.ai



Site Boundary (NCRWQCB Site ID # 1NMC397)

Indicates historical feature for which no surface features were observed

Historic or existing rail track

Overhaed power and pole

Underground utility

Dec 2010/Jan & Apr 2011 Sample Locations

- DP-1 — Direct Push Location
- SV-1 — Soil Vapor Sample Location
- SV-3 — Soil Vapor and Soil Sample Location
- TP-1 — Test Pit Location
- BG-1 — Geotech Boring Location
- UB-14 — Historic Soil Boring Location
- *41* — Sample Concentration (mg/kg)
- *UB1* — Composite Sample Location

Concentrations of Arsenic:

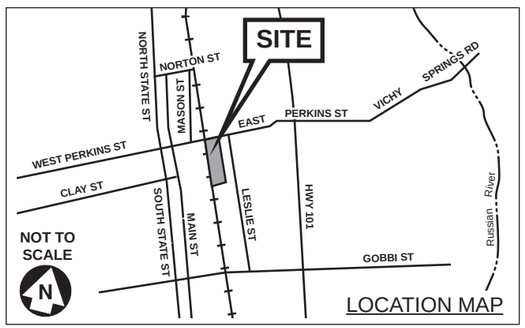
- ≥ 30 mg/kg
- 5 - 30 mg/kg
- ≤ 5 mg/kg
- ND (Not Detected)

Note: Sample locations in black indicate no data.

N

0 50 100

Scale in Feet



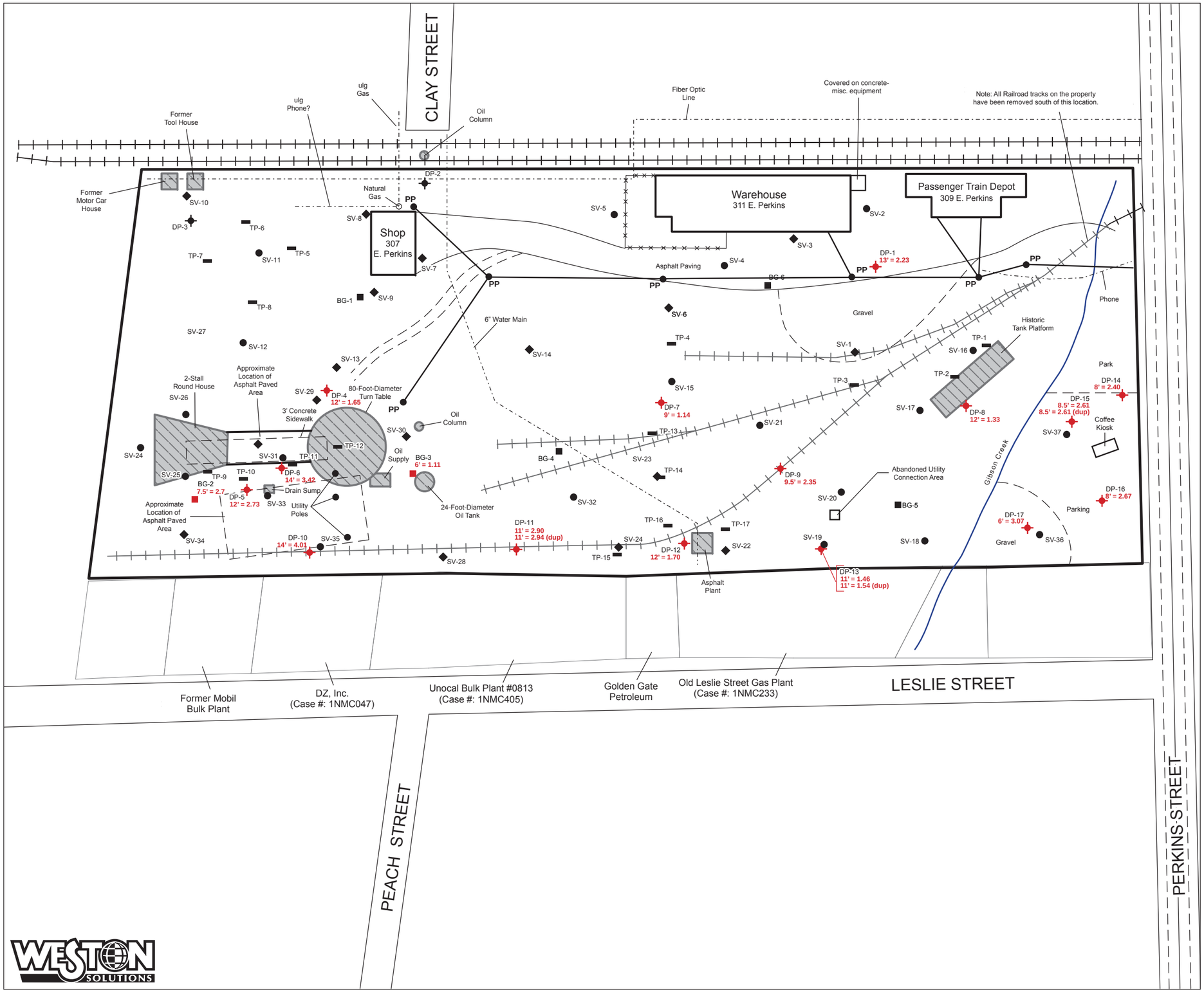
LOCATION MAP

Arsenic in Soil
Former Ukiah Rail Yard
Ukiah, CA

Figure
12

WESTON SOLUTIONS

11-0017 SCR_Fig2-17.ai



Site Boundary (NCRWQCB Site ID # 1NMC397)

Indicates historical feature for which no surface features were observed

Historic or existing rail track

Overhaed power and pole

Underground utility

Dec 2010/Jan & Apr 2011 Sample Locations

- DP-1 — Direct Push Location
- SV-1 — Soil Vapor Sample Location
- SV-3 — Soil Vapor and Soil Sample Location
- TP-1 — Test Pit Location
- BG-1 — Geotech Boring Location

Tetrachloroethylene (PCE) in Groundwater

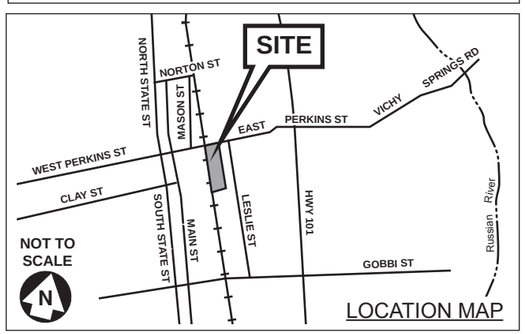
- > 0.06 µg/L
- ≤ 0.06 µg/L
- ND (Not Detected)

Note: Sample locations in black indicate no data.

N

0 50 100

Scale in Feet



LOCATION MAP

Tetrachloroethylene (PCE) in Groundwater (6-14 ft. bgs)

Former Ukiah Rail Yard

Ukiah, CA

Figure

13

WESTON SOLUTIONS

11-0017 SCR_Fig2-17.ai

CLAY STREET

Former Tool House
Former Motor Car House
SV-10
ulg Phone?
ulg Gas
Oil Column
Fiber Optic Line
Covered on concrete-misc. equipment
Note: All Railroad tracks on the property have been removed south of this location.
Natural Gas
DP-2 28' = ND
PP
SV-8
Shop 307 E. Perkins
SV-7
Warehouse 311 E. Perkins
SV-5
SV-2
SV-3
Passenger Train Depot 309 E. Perkins
DP-1
Asphalt Paving
SV-4
BG-6
Phone
DP-3 29' = ND
TP-6
TP-7
SV-11
TP-5
BG-1
SV-9
TP-8
SV-6
Gravel
6" Water Main
SV-27
SV-12
SV-14
SV-13
TP-4
SV-1
TP-1
SV-16
Historic Tank Platform
TP-2
TP-3
SV-15
DP-7
SV-17
DP-8 24' = ND
Park
DP-14 29.5' = 1.75
DP-15
SV-37
Coffee Kiosk
2-Stall Round House
SV-26
Approximate Location of Asphalt Paved Area
SV-29
DP-4
80-Foot-Diameter Turn Table
3' Concrete Sidewalk
Oil Column
SV-30
TP-12
SV-24
SV-31
TP-11
Oil Supply
SV-25
TP-9
TP-10
DP-6 23' = 1.06
BG-3
BG-2 22' = 0.77
Drain Sump
DP-5 25' = ND
SV-33
Utility Poles
24-Foot-Diameter Oil Tank
BG-4
SV-23
TP-13
SV-21
TP-14
DP-9
SV-20
Abandoned Utility Connection Area
BG-5
SV-32
Gibson Creek
Parking
DP-16
DP-17 28' = 4.92
Approximate Location of Asphalt Paved Area
SV-34
DP-10 23' = 4.25
SV-35
DP-11 21' = 2.78
TP-16
TP-17
SV-24
SV-22
DP-12 25' = ND
TP-15
SV-28
DP-13 21' = 1.75
SV-19
SV-18
Gravel
SV-36
Asphalt Plant

Former Mobil Bulk Plant
DZ, Inc. (Case #: 1NMC047)
Unocal Bulk Plant #0813 (Case #: 1NMC405)
Golden Gate Petroleum
Old Leslie Street Gas Plant (Case #: 1NMC233)
LESLIE STREET
PEACH STREET
PERKINS STREET

WESTON SOLUTIONS

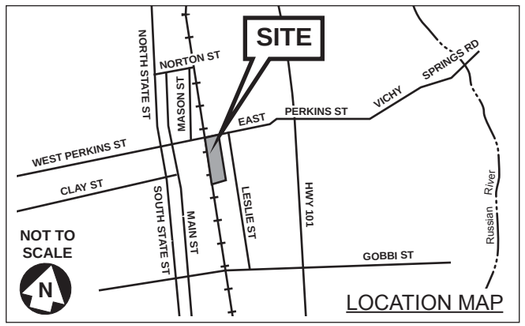
Site Boundary (NCRWQCB Site ID # 1NMC397)
Indicates historical feature for which no surface features were observed
Historic or existing rail track
Overhaed power and pole
Underground utility

Dec 2010/Jan & Apr 2011 Sample Locations
DP-1 Direct Push Location
SV-1 Soil Vapor Sample Location
SV-3 Soil Vapor and Soil Sample Location
TP-1 Test Pit Location
BG-1 Geotech Boring Location

Tetrachloroethylene (PCE) in Groundwater
> 0.06 µg/L
≤ 0.06 µg/L
ND (Not Detected)

Note: Sample locations in black indicate no data.

N
0 50 100
Scale in Feet



LOCATION MAP

Tetrachloroethylene (PCE) in Groundwater (21-29.5 ft. bgs)
Former Ukiah Rail Yard
Ukiah, CA

Figure
14

11-0017 SCR_Fig2-17.ai

CLAY STREET

Former Tool House
Former Motor Car House
SV-10
ulg Phone?
ulg Gas
Oil Column
Fiber Optic Line
Covered on concrete-misc. equipment
Note: All Railroad tracks on the property have been removed south of this location.
DP-2 28' = ND
Natural Gas
PP
Shop 307 E. Perkins
Warehouse 311 E. Perkins
Passenger Train Depot 309 E. Perkins
SV-2
SV-3
SV-4
SV-5
SV-7
SV-8
DP-1 13' = ND
Asphalt Paving
BG-6
Gravel
Phone
DP-3 29' = ND
TP-5
TP-6
TP-7
SV-11
BG-1
SV-9
TP-8
SV-6
TP-4
SV-1
TP-1
SV-16
Historic Tank Platform
TP-2
TP-3
SV-17
DP-8 12' = ND 24' = ND
Park
DP-14 8' = ND 29.5' = ND
DP-15 8.5' = ND 8.5' = ND (dup)
Coffee Kiosk
SV-37
SV-27
SV-12
DP-4 12' = 0.085 Benzo (A) Pyrene
SV-13
6" Water Main
SV-14
SV-15
DP-7 9' = ND
SV-21
TP-13
SV-23
TP-14
DP-9 9.5' = ND
Abandoned Utility Connection Area
SV-20
BG-5
DP-16 8' = ND
Parking
DP-17 6' = ND 29.5' = ND
Gravel
SV-36
Gibson Creek
2-Stall Round House
SV-26
Approximate Location of Asphalt Paved Area
3' Concrete Sidewalk
80-Foot-Diameter Turn Table
SV-29
SV-30
Oil Column
Oil Supply
BG-3 6' = ND
24-Foot-Diameter Oil Tank
SV-24
SV-25
TP-9
TP-10
TP-11
TP-12
SV-31
DP-6 14' = ND 23' = ND
Drain Sump
DP-5 12' = ND 25' = ND
SV-33
Utility Poles
SV-32
BG-4
TP-16
TP-17
DP-11 11' = ND 21' = ND
SV-24
TP-15
DP-12 12' = ND 25' = ND
SV-22
Asphalt Plant
DP-13 11' = ND 21' = ND
SV-19
SV-18
Approximate Location of Asphalt Paved Area
SV-34
DP-10 14' = ND 23' = ND
SV-35
SV-28
BG-2
Benzo (A) Pyrene: 7.5' = ND
Anthracene: 7.5' = 0.060
Phenanthrene: 7.5' = 0.156
13 Additional PAHs were not detected at 7.5'
Benzo (A) Pyrene: 22' = ND
Anthracene: 22' = 0.283
Phenanthrene: 22' = 0.402
13 Additional PAHs were not detected at 22'

Former Mobil Bulk Plant
DZ, Inc. (Case #: 1NMC047)
Unocal Bulk Plant #0813 (Case #: 1NMC405)
Golden Gate Petroleum
Old Leslie Street Gas Plant (Case #: 1NMC233)
LESLIE STREET
PEACH STREET
PERKINS STREET

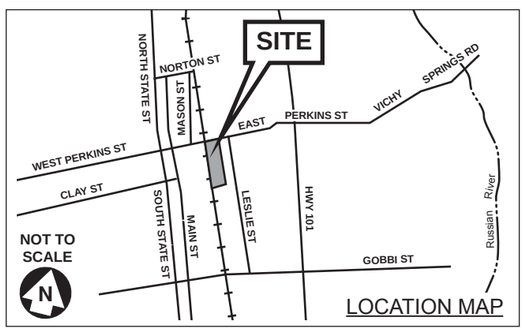
Site Boundary (NCRWQCB Site ID # 1NMC397)
Indicates historical feature for which no surface features were observed
Historic or existing rail track
Overhaed power and pole
Underground utility

Dec 2010/Jan & Apr 2011 Sample Locations
Direct Push Location
Soil Vapor Sample Location
Soil Vapor and Soil Sample Location
Test Pit Location
Geotech Boring Location

PAHs in Groundwater
> 0.007 µg/L (Benzo (A) Pyrene SL)
≤ 0.007 µg/L (Benzo (A) Pyrene SL)
ND (Not Detected) for all PAH analytes

Note: Sample locations in black indicate no data.

N
0 50 100
Scale in Feet



LOCATION MAP

PAHs in Groundwater
Former Ukiah Rail Yard
Ukiah, CA

Figure
15

WESTON SOLUTIONS

11-0017 SCR_Fig2-17.ai

CLAY STREET

Former Tool House
ulg Phone?
ulg Gas
Oil Column
Fiber Optic Line
Covered on concrete-misc. equipment
Note: All Railroad tracks on the property have been removed south of this location.
Former Motor Car House
Natural Gas
DP-2 28' = ND
SV-10
DP-3
TP-6
SV-8
PP
Shop 307 E. Perkins
SV-5
Warehouse 311 E. Perkins
SV-2
Passenger Train Depot 309 E. Perkins
TP-7
SV-11
TP-5
SV-7
SV-3
DP-1 13' = ND
Asphalt Paving
SV-4
BG-6
BG-1
SV-9
TP-8
SV-6
Gravel
Phone
6" Water Main
SV-27
SV-12
SV-14
TP-4
SV-1
Historic Tank Platform
TP-1
SV-16
SV-13
TP-2
Park
DP-14 8' = ND 29.5' = ND
2-Stall Round House
Approximate Location of Asphalt Paved Area
DP-4 12' = ND
SV-26
80-Foot-Diameter Turn Table
SV-29
3' Concrete Sidewalk
SV-15
TP-3
DP-15 8.5' = ND 8.5' = ND (dup)
Coffee Kiosk
DP-7 9' = ND
SV-17
DP-8 12' = ND 24' = ND
SV-37
Oil Column
SV-30
SV-21
TP-13
SV-24
SV-31
TP-11
TP-12
Oil Supply
BG-3 6' = ND
BG-4
SV-23
TP-14
SV-25
TP-9
TP-10
DP-9 9.5' = ND
Abandoned Utility Connection Area
BG-2 7.5' = ND 22' = ND
Drain Sump
DP-5 12' = ND 25' = ND
SV-33
SV-32
SV-20
BG-5
DP-16 8' = ND
Gibson Creek
Approximate Location of Asphalt Paved Area
Utility Poles
Parking
DP-17 6' = ND 29.5' = ND
SV-34
SV-35
DP-11 11' = ND 21' = ND
TP-16
TP-17
SV-24
DP-12 12' = ND 25' = ND
SV-22
DP-13 11' = ND 21' = ND
SV-19
SV-18
Gravel
SV-36
SV-28
TP-15
Asphalt Plant
DP-6 14' = ND 23' = 8.26
DP-10 14' = ND 23' = ND
Former Mobil Bulk Plant
DZ, Inc. (Case #: 1NMC047)
Unocal Bulk Plant #0813 (Case #: 1NMC405)
Golden Gate Petroleum
Old Leslie Street Gas Plant (Case #: 1NMC233)
LESLIE STREET
PEACH STREET
PERKINS STREET

Site Boundary (NCRWQCB Site ID # 1NMC397)

Indicates historical feature for which no surface features were observed

Historic or existing rail track

Overhaed power and pole

Underground utility

Dec 2010/Jan & Apr 2011 Sample Locations

- DP-1 Direct Push Location
- SV-1 Soil Vapor Sample Location
- SV-3 Soil Vapor and Soil Sample Location
- TP-1 Test Pit Location
- BG-1 Geotech Boring Location

TPH in Groundwater

- > 0.10 mg/L
- ≤ 0.10 mg/L
- ND (Not Detected) for TPH-Middle Distillates

Note: Sample locations in black indicate no data.

N

0 50 100

Scale in Feet

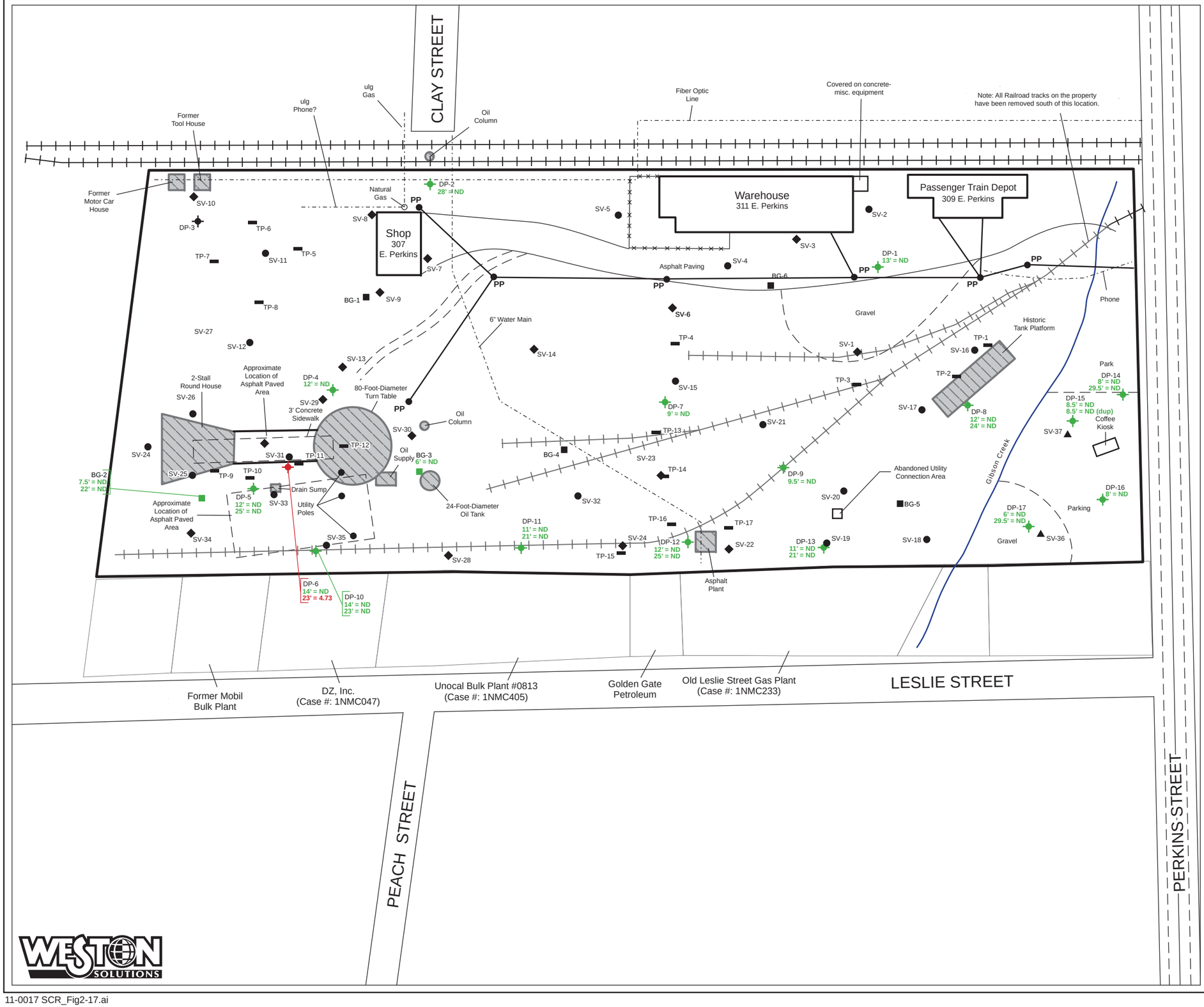
LOCATION MAP

TPH Middle Distillates in Groundwater
Former Ukiah Rail Yard
Ukiah, CA

Figure
16

WESTON SOLUTIONS

11-0017 SCR_Fig2-17.ai



Site Boundary (NCRWQCB Site ID # 1NMC397)

Indicates historical feature for which no surface features were observed

Historic or existing rail track

Overhaed power and pole

Underground utility

Dec 2010/Jan & Apr 2011 Sample Locations

- DP-1 — Direct Push Location
- SV-1 — Soil Vapor Sample Location
- SV-3 — Soil Vapor and Soil Sample Location
- TP-1 — Test Pit Location
- BG-1 — Geotech Boring Location

Residual Fuels in Groundwater

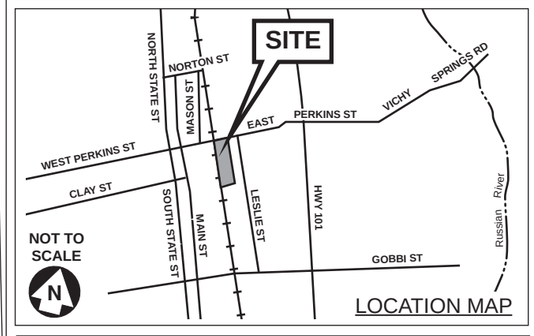
- > 0.175 mg/L
- ≤ 0.175 mg/L
- ND (Not Detected)

Note: Sample locations in black indicate no data.

N

0 50 100

Scale in Feet



LOCATION MAP

TPH Residual Fuels in Groundwater
Former Ukiah Rail Yard
Ukiah, CA

Figure
17

WESTON SOLUTIONS

11-0017 SCR_Fig2-17.ai

APPENDIX A
PHOTOLOG

photo 1

Depot Building. View to the southwest.

photo 2

East side of Warehouse Building. View to the northwest.

Photolog

WESTON SOLUTIONS

11-0013 Photolog.ai

photo 3

Exterior East Side of Shop Bldg. View to the north-northwest.

photo 4

Southern Portion of Warehouse Building from loft. View to the south-west.

Photolog

11-0013 Photolog.ai

photo 5

Air compressor and equipment storage enclosure on north side of Warehouse Building. View to the west.

photo 6

Railline east of Property with Warehouse Building in background. View to the north.

Photolog

11-0013 Photolog.ai

photo 7

North side of Shop Building (307 E. Perkins). View to the south.

photo 8

SW Interior of Shop Building. View to the southwest.

Photolog

11-0013 Photolog.ai

photo 9

Probably Drum Staining on Cement in SW Corner of Shop Bldg. View to the south.

photo 10

View of Rail Property to the southeast.

Photolog

11-0013 Photolog.ai

photo 11

Gibson Creek. View to the northwest.

photo 11

Gibson Creek. View to the south.

Photolog

WESTON SOLUTIONS

11-0013 Photolog.ai

photo 13

Debris pile in central area of Property. View to the southeast.

photo 14

Former Leslie Street Gas Plant property. Subject property in background. View to the northeast.

Photolog

11-0013 Photolog.ai

photo 15

Public park. View to the west.

photo 16

Coffee Kiosk. View to the north.

Photolog

11-0013 Photolog.ai

photo 17

Overflow parking for the bank building. Bank building in background. View to the northeast.

photo 18

Overflow parking for the bank building. Bank building in background. View to the northeast.

Photolog

11-0013 Photolog.ai

photo 19

Overflow parking for the bank building. View to the north.

photo 20

Overflow parking for the bank building. View to the south.

Photolog

11-0013 Photolog.ai

APPENDIX B
BORING LOGS

GEOLOGIC LOG OF BORING

Boring Number: SV-1
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Rod Tobias, WESTON
Start Date:	07-December-2010 Hour: 0855
Finish Date:	07-December-2010 Hour: 0920
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	12

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Probe/Water Depth
0.2			SV001-SL-0005		0		ML	Sandy SILT (ML); some pebbles and gravel; likely fill material.	
0.4			SV001-SL-0020		1		ML	Sandy SILT (ML), brown (7.5YR, 4/2); low plasticity; moist.	
					2				
					3				
					4		CL	CLAY (CL), dark brown (7.5YR, 3/2); medium plasticity; trace pebbles and gravel.	
					5				
					6				
					7				Probe @ 8 ft-bgs
					8		SM	Silty SAND (SM), dark yellowish brown (10YR, 4/4); fine to coarse grained; some pebbles and gravel; moist; wet below about 11 ft-bgs.	
					9				
					10				
					11				
					12				
					13				
					14				
					15				
					16				
					17				
					18				
					19				
					20				

GEOLOGIC LOG OF BORING

Boring Number: SV-2
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Brian P. Reilly, WESTON
Start Date:	07-December-2010 Hour: 1100
Finish Date:	07-December-2010 Hour: 1140
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	14

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Probe/Water Depth
				Hand Auger	0			asphalt at surface.	
					1				
					2				
					3				
					4				
					5				
				90	6		CL	Silty CLAY (CL), dark brown (10YR, 3/2); medium plasticity; no odor; increasing sand with depth.	
					7				
					8				
					9				
				100	10				
					11				
					12				(13 ft-bgs)
				100	13		SM	Silty SAND (SM), medium brown; no odor; very wet.	
					14			Note: No probe placed due to poor lithologic conditions.	
					15				
					16				
					17				
					18				
					19				
					20				

GEOLOGIC LOG OF BORING

Boring Number: SV-3
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Rod Tobias, WESTON
Start Date:	07-December-2010 Hour: 0930
Finish Date:	07-December-2010 Hour: 1115
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	15

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Probe/Water Depth
0.0			SV003-SL-0005		0			Asphalt to 2 in. bgs; aggregate from 2 in. to 6 in. bgs.	
					1		ML	Sandy SILT (ML); some red brick debris; likely fill material.	
0.1			SV003-SL-0020		2				
					3		ML	SILT (ML), brown (7.5YR, 4/2); low to medium plasticity; moist.	
					4				
					5				
					6				
					7				
					8				
					9		CL	CLAY (CL), dark brown (7.5YR, 3/2); medium plasticity; moist.	
					10				
					11				(12 ft-bgs) ▼
					12				
					13		SM	Silty SAND (SM), brown (7.5YR, 4/2); fine to coarse grained; trace pebbles and gravel; wet.	
					14		CL	CLAY (CL), yellowish brown (10YR, 5/4); medium plasticity; moist.	
					15			Refusal at 15 ft-bgs. No probe installed due to poor lithologic conditons.	
					16				
					17				
					18				
					19				
					20				

GEOLOGIC LOG OF BORING

Boring Number: SV-4
Sheet: 1 of 1

Project Name: **Former Ukiah Rail Yard**
Project Location: Ukiah, California
Project Number: 14816.001.001.0002
Logged By: Brian P. Reilly, WESTON

Start Date: 08-December-2010 Hour: 1020
Finish Date: 08-December-2010 Hour: 1040
Driller: HydroGeoSpectrum
Drill Type/Method: Direct Push
Sampling Method: Grab
Boring Diameter (inches): 2
Total Depth (feet): 10

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Probe/Water Depth
				Hand Auger	0–5		SM	Sandy SILT (SM), dark brown (10YR, 3/2); about 10% subrounded gravel up to 1/2 in.; no odor.	
					5–9		CL	Silty CLAY (CL), dark brown (10YR, 3/3); about 15% sand; about 5% subrounded gravel up to 3/4 in.	
					9–10		SM	Silty SAND (SM), medium brown (10YR, 4/6); about 10% subrounded gravel.	Probe @ 10 ft-bgs

GEOLOGIC LOG OF BORING

Boring Number: SV-5
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Brian P. Reilly, WESTON
Start Date:	06-December-2010 Hour: 1220
Finish Date:	06-December-2010 Hour: 1250
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	12

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Probe/Water Depth
					0			asphalt at surface.	
				80	2		SM	Silty SAND (SM), medium brown (10YR, 4/6), about 10% subangular gravel up to 1/2 in.; no odor.	
				95	6		ML	Sandy SILT (ML), dark brown (10YR, 4/4); about 5% subrounded gravel up to 1/2 in.; no odor; increasing sand with depth.	
					10				Probe @ 11 ft-bgs
					11		SM	Silty SAND (SM), medium brown (10YR, 3/4); about 5% subrounded gravel; minor lenses of Sandy SILT as above; increasing moisture with depth.	
					12				
					13				
					14				
					15				
					16				
					17				
					18				
					19				
					20				

GEOLOGIC LOG OF BORING

Boring Number: SV-6
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Rod Tobias, WESTON
Start Date:	07-December-2010 Hour: 1010
Finish Date:	07-December-2010 Hour: 1045
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	10

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Probe/Water Depth
0.0			SV006-SL-0005		0		ML	Sandy SILT (ML), pebbly, gravelly; likely fill material.	
0.0			SV006-SL-0020		1		ML	Sandy SILT (ML), brown (7.5YR, 4/2); low plasticity; moist.	
					2				
					3				
					4		CL	Sandy CLAY (CL), brown (7.5YR, 4/2); medium plasticity.	
					5				
					6				
					7		SM	Silty SAND (SM), dark brown (7.5YR, 3/2); fine to coarse grained; trace pebbles and gravel; moist.	Probe @ 8 ft-bgs
					8				
					9		CL	Sandy CLAY (CL), dark yellowish brown; medium plasticity; moist.	
					10				
					11				
					12				
					13				
					14				
					15				
					16				
					17				
					18				
					19				
					20				

GEOLOGIC LOG OF BORING

Boring Number: SV-7
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Rod Tobias, WESTON
Start Date:	07-December-2010 Hour: 1135
Finish Date:	08-December-2010 Hour: 1130
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	15.5

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Probe/Water Depth
0.0			SV007-SL-0005		0			Asphalt to 3 in. bgs; aggregate from 3 in. to 6 in. bgs.	
0.2			SV007-SL-0020		1–2		ML	Sandy SILT (ML); some pebbles and gravel; likely fill material.	
					3			No recover from 3 to 4 ft-bgs.	
0.0			SV007-SL-0050		4–9		CL	CLAY (CL), brown (7.5YR, 4/2); medium plasticity; moist.	(11 ft-bgs) ▼
					10–13				
					14–15		SM	Silty SAND (SM), dark yellowish brown (10YR, 4/4); fine to coarse grained; some pebbles and gravel.	
					16			Note: No probe placed due to poor lithologic conditions.	
					17–20				

GEOLOGIC LOG OF BORING

Boring Number: SV-8
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Rod Tobias, WESTON
Start Date:	07-December-2010 Hour: 1315
Finish Date:	07-December-2010 Hour: 1400
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	12

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Probe/Water Depth
0.0			SV008-SL-0005		0		SC	Clayey SAND (SC), gravelly; some blackened wood debris; likely fill material.	
0.2			SV008-SL-0020		1				
					2				
					3			No recover from 2.5 to 4 ft-bgs.	
					4		ML	Sandy SILT (ML), brown (7.5YR, 4/2); low plasticity; fine to medium grained; trace pebbles.	
					5				
					6				
					7		CL	CLAY (CL), brown (7.5YR, 4/3); low to medium plasticity; moist; wet below about 9.25 ft-bgs.	(9.25 ft-bgs)
					8				
					9				
					10				
					11				
					12				
					13				
					14				
					15				
					16				
					17				
					18				
					19				
					20				

GEOLOGIC LOG OF BORING

Boring Number: SV-9
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Rod Tobias, WESTON
Start Date:	07-December-2010 Hour: 1405
Finish Date:	07-December-2010 Hour: 1445
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	11

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Probe/Water Depth
			SV009-SL-0005		0		ML	Sandy SILT (ML); some pebbles and gravel; moist; likely fill material.	
			SV009-SL-0020		1		ML	Sandy SILT (ML), dark brown (7.5YR, 3/2); low plasticity; moist.	
					2				
					3				
					4		CL	CLAY (CL), dark brown (7.5YR, 3/2); medium plasticity; some sand; trace pebbles and gravel.	
					5				
					6				
					7				
					8				
					9				Probe @ 9.5 ft-bgs
					10		SM	Silty SAND (SM), dark yellowish brown (10YR, 4/4); fine to coarse grained; some pebbles and gravel.	
					11				
					12				
					13				
					14				
					15				
					16				
					17				
					18				
					19				
					20				

GEOLOGIC LOG OF BORING

Boring Number: SV-10
Sheet: 1 of 1

Project Name: **Former Ukiah Rail Yard**
Project Location: Ukiah, California
Project Number: 14816.001.001.0002
Logged By: Brian P. Reilly, WESTON

Start Date: 07-December-2010 Hour: 1315
Finish Date: 07-December-2010 Hour: 1340
Driller: HydroGeoSpectrum
Drill Type/Method: Direct Push
Sampling Method: Grab
Boring Diameter (inches): 2
Total Depth (feet): 8

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Probe/Water Depth
1.0			SV010-SL-0005		0		ML	Sandy SILT (ML), dark brown (10YR, 4/3); about 10% subrounded to subangular gravel up to 1/2 in.; no odor.	
1.1			SV010-SL-0005	60	1				
					2				
					3				
					4		SM	Silty SAND (SM), medium brown (10YR, 3/3/); about 20% subrounded gravel up to 1 in.; no odor.	
0.8			SV010-SL-0005		5				
				60	6				
					7				Probe @ 8 ft-bgs
					8				
					9				
					10				
					11				
					12				
					13				
					14				
					15				
					16				
					17				
					18				
					19				
					20				

GEOLOGIC LOG OF BORING

Boring Number: SV-11
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Brian P. Reilly, WESTON
Start Date:	07-December-2010 Hour: 1215
Finish Date:	07-December-2010 Hour: 1255
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	16

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Probe/Water Depth
					1		ML	Sandy SILT (ML), orangish brown (10YR, 5/6), about 10% subrounded gravel up to 1/2 in.; likely fill material.	
				90	2		GP	GRAVEL (GP), dark brown, subangular.	
					3				
					4				
					5				
					6				
					7				
					8				
					9		CL	Silty CLAY (CL), dark brown (10YR, 3/2), about 10% sand; medium plasticity; no odor; gradual color shift to (10YR, 5/4) with depth.	
				100	10				
					11				
					12				
				100	13				
					14				
				100	15				Probe @ 16 ft-bgs
					16		SM	Silty SAND (SM), orangish brown (10YR, 5/6); about 10% subrounded gravel; no odor; dry.	
					17				
					18				
					19				
					20				

GEOLOGIC LOG OF BORING

Boring Number: SV-12
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Brian P. Reilly, WESTON
Start Date:	06-December-2010 Hour: 1115
Finish Date:	06-December-2010 Hour: 1140
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	12

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Probe/Water Depth
				60	1–4		CL	Silty CLAY (CL), medium brown (10YR, 4/2); about 10% sand; medium plasticity; no odor; minor organic material from about 0 to 3 ft-bgs; increasing sand and gravel with depth.	
				50	5–8				
				100	9–12		SM	Silty SAND (SM); medium brown (10YR, 4/3); about 10% subrounded gravel; no odor; minor lenses of red and grey CLAY.	Probe @ 10 ft-bgs
					13–20				

GEOLOGIC LOG OF BORING

Boring Number: SV-13
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Rod Tobias, WESTON
Start Date:	08-December-2010 Hour: 1009
Finish Date:	08-December-2010 Hour: 1030
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	9

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Probe/Water Depth
			SV013-SL-0005		0		ML	Sandy SILT (ML), brown (7.5YR, 4/2); low plasticity; moist.	
			SV013-SL-0020		1				
					2				
					3				
					4		CL	CLAY (CL), dark brown (7.5YR, 3/2); medium plasticity; some sand; trace pebbles and gravel.	
					5				
					6				
					7				Probe @ 8.5 ft-bgs
					8		SM	Silty SAND (SM), dark yellowish brown (10YR, 4/4); fine to coarse sand; some pebbles and gravel.	
					9				
					10				
					11				
					12				
					13				
					14				
					15				
					16				
					17				
					18				
					19				
					20				

GEOLOGIC LOG OF BORING

Boring Number: SV-14
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Rod Tobias, WESTON
Start Date:	07-December-2010 Hour: 1510
Finish Date:	07-December-2010 Hour: 1545
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	6

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Probe/Water Depth
0.0			SV014-SL-0005		0		ML	Sandy SILT (ML), dark brown (7.5YR, 3/2); low plasticity; some organic material (roots).	
0.0			SV014-SL-0020		1				
					2				
					3		CL	Sandy CLAY (CL), dark brown (7.5YR, 3/2); medium plasticity.	
					4				Probe @ 5.5 ft-bgs
					5		SM	Silty SAND (SM), brown (7.5YR, 3/2); fine to medium grained; trace pebbles.	
					6			Refusal at 6 ft-bgs.	
					7				
					8				
					9				
					10				
					11				
					12				
					13				
					14				
					15				
					16				
					17				
					18				
					19				
					20				

GEOLOGIC LOG OF BORING

Boring Number: SV-15
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Brian P. Reilly, WESTON
Start Date:	07-December-2010 Hour: 1020
Finish Date:	07-December-2010 Hour: 1045
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	12

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Probe/Water Depth
					0		SP	Gravelly SAND (SP); soil horizon.	
				70	1–4				
				80	4–10		CL	Silty CLAY (CL), dark brown (10YR, 3/2); about 15% sand; mediumb plasticity; no odor; increasing sand and gravel with depth; color shifting to medium brown (10YR, 4/4) with depth.	Probe @ 10.5 ft-bgs
				100	10–12		SM	Silty SAND (SM), medium brown (10 YR, 4/4); about 10% subrounded gravel up to 3/4 in.; no odor; increasing moisture with depth.	
					12–20				

GEOLOGIC LOG OF BORING

Boring Number: SV-16
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Rod Tobias, WESTON
Start Date:	06-December-2010 Hour: 1320
Finish Date:	06-December-2010 Hour: 1410
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	12

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Probe/Water Depth
					0		ML	Sandy SILT (ML), gravelly, brown (7.5YR, 4/2); moist; likely fill material.	
					1				
					2		ML	Sandy SILT (ML), dark brown (7.5YR, 3/2); low plasticity; moist.	
					3				
					4		CL	CLAY (CL), dark brown (7.5YR, 3/2); medium plasticity; moist; trace pebbles and gravels.	
					5				
					6				
					7				
					8		SM	Silty SAND (SM), dark brown (7.5YR, 3/2); fine to coarse grained; some pebbles and gravel; moist.	
					9		CL	CLAY (CL), dark brown (7.5YR, 3/2); medium plasticity; moist.	Probe @ 10 ft-bgs
					10		SM	Silty SAND (SM), dark brown (7.5YR, 3/2); fine to coarse grained; some pebbles and gravel; moist.	
					11		CL	Sandy CLAY (CL), brown (7.5YR, 4/2); low to medium plasticity; moist.	
					12				
					13				
					14				
					15				
					16				
					17				
					18				
					19				
					20				

GEOLOGIC LOG OF BORING

Boring Number: SV-17
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Rod Tobias, WESTON
Start Date:	06-December-2010 Hour: 1420
Finish Date:	06-December-2010 Hour: 1445
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	8

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Probe/Water Depth
					0–1		ML	Sandy SILT (ML), gravelly, pebbly; likely fill material.	
					1–3		ML	Sandy SILT (ML), brown (7.5YR, 4/2); low plasticity; moist.	
					3–6		CL	CLAY (CL), dark brown (7.5YR, 3/2); medium plasticity; trace pebbles; moist.	
					6–8		SM	Silty SAND (SM); dark brown (7.5YR, 3/2); fine to coarse grained; some pebbles, gravel, and cobbles; moist.	Probe @ 7.5 ft-bgs
					8–20				

GEOLOGIC LOG OF BORING

Boring Number: SV-18
Sheet: 1 of 1

Project Name: **Former Ukiah Rail Yard**
Project Location: Ukiah, California
Project Number: 14816.001.001.0002
Logged By: Rod Tobias, WESTON

Start Date: 06-December-2010 Hour: 1500
Finish Date: 06-December-2010 Hour: 1520
Driller: HydroGeoSpectrum
Drill Type/Method: Direct Push
Sampling Method: Grab
Boring Diameter (inches): 2
Total Depth (feet): 8

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Probe/Water Depth
					0–3		ML	Sandy SILT (ML), brown (7.5YR, 4/2); low plasticity; slightly moist.	
					3–6.5		CL	Sandy CLAY (CL), dark brown (7.5YR, 3/2); medium plasticity; some pebbles and gravel; moist.	
					6.5–8		SM	Silty SAND (SM), brown (7.5YR, 4/2); fine to coarse grained; trace pebbles and gravel; slightly moist.	Probe @ 8 ft-bgs

GEOLOGIC LOG OF BORING

Boring Number: SV-19
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Brian P. Reilly, WESTON
Start Date:	07-December-2010 Hour: 0955
Finish Date:	07-December-2010 Hour: 1010
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	8

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description Lithology, color, constituents, density, moisture, other features, (interpretation)	Probe/Water Depth
					0		SP	Gravelly SAND (SP); soil horizon.	
					1		ML	Sandy SILT (ML), medium brown (10YR, 4/3); about 10% subrounded gravel up to 1/4 in.; no odor.	
					2				
					3				
					4		CL	Silty CLAY (CL), medium brown (10YR, 3/2); medium plasticity; trace sand and gravel; no odor.	
					5				
					6				
					7		SM	Silty SAND (SM), medium brown (10YR, 4/4); about 15% subrounded gravel; no odor.	Probe @ 8 ft-bgs
					8				
					9				
					10				
					11				
					12				
					13				
					14				
					15				
					16				
					17				
					18				
					19				
					20				

GEOLOGIC LOG OF BORING

Boring Number: SV-20
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Rod Tobias, WESTON
Start Date:	06-December-2010 Hour: 1525
Finish Date:	06-December-2010 Hour: 1615
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	12

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Probe/Water Depth
					0–3		ML	Sandy SILT (ML), brown (7.5YR, 4/2); low plasticity; moist.	
					3–6.5		CL	CLAY (CL), dark brown (7.5YR, 3/2); medium plasticity; trace pebbles and gravel; moist.	
					6.5–9		CL	Sandy CLAY (CL), brown (7.5YR, 4/2); low to medium plasticity; moist.	
					9				Probe @ 10 ft-bgs
					9–11		SM	Silty SAND (SM), brown (7.5YR, 4/2); fine to coarse grained; some pebbles and gravel; moist.	
					11–12		SM	Silty SAND (SM), brown (7.5YR, 4/2); fine to coarse grained; some pebbles and gravel; very moist to wet.	
					12–20				

GEOLOGIC LOG OF BORING

Boring Number: SV-21
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Brian P. Reilly, WESTON
Start Date:	06-December-2010 Hour: 1620
Finish Date:	06-December-2010 Hour: 1640
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	8

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Probe/Water Depth
					0		ML	Sandy SILT (ML), gravelly; some organics.	(0.1 ft-bgs)
				60	1				
					2				
					3				
					4		CL	Silty CLAY (CL), dark brown (10YR, 3/2); medium plasticity; about 10% sand; about 5% subrounded gravel; no odor; decreasing sand and gravel with depth; very wet below about 3.5 ft-bgs.	
				100	5				
					6				
					7				
					8			Note: No probe placed due to poor lithologic conditions.	
					9				
					10				
					11				
					12				
					13				
					14				
					15				
					16				
					17				
					18				
					19				
					20				

GEOLOGIC LOG OF BORING

Boring Number: SV-22
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Brian P. Reilly, WESTON
Start Date:	07-December-2010 Hour: 1515
Finish Date:	07-December-2010 Hour: 1540
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	10

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Probe/Water Depth
1.1			SV022-SL-0005		0		ML	Sandy SILT (ML), gravelly; some organics.	
1.3			SV022-SL-0020	90	2				
1.4			SV022-SL-0050	100	6		CL	Silty CLAY (CL), dark brown (10YR, 3/3); medium plasticity; about 10% sand; no odor.	Probe @ 8 ft-bgs
1.6			SV022-SL-0080	100	9		SM	Silty SAND (SM), medium brown (10YR, 5/4); about 10% subrounded gravel up to 1/2 in.; no odor.	(9.7 ft-bgs)
					10				
					20				

GEOLOGIC LOG OF BORING

Boring Number: SV-23
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Brian P. Reilly, WESTON
Start Date:	07-December-2010 Hour: 1615
Finish Date:	07-December-2010 Hour: 1640
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	10

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Probe/Water Depth
			SV023-SL-0005		0		GP	GRAVEL (GP); likely fill material.	
			SV023-SL-0020		1		CL	Silty CLAY (CL), dark brown (10YR, 3/3); medium plasticity; about 10% sand; no odor; moist.	
			SV023-SL-0050		2				
					3				
					4				
					5				
					6				(7 ft-bgs)
					7				
			SV023-SL-0080		8		ML	Sandy SILT (ML), dark brown; about 10% subrounded to subangular gravel; no odor; very wet.	
					9		SM	Silty SAND (SM), medium brown; about 10% subrounded to subangular gravel; no odor.	
					10			Note: No probe placed due to poor lithologic conditions.	
					11				
					12				
					13				
					14				
					15				
					16				
					17				
					18				
					19				
					20				

GEOLOGIC LOG OF BORING

Boring Number: SV-24
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Brian P. Reilly, WESTON
Start Date:	07-December-2010 Hour: 1555
Finish Date:	07-December-2010 Hour: 1605
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	8

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Probe/Water Depth
					0				
					1				
				90	2				
					3				
					4		CL	Silty CLAY (CL), dark brown (10YR, 3/3); medium plasticity; about 10% sand; no odor; minor organics and gravel near surface.	
1.5			SV024-SL-0050		5				
					6				
					7				Probe @ 8 ft-bgs
1.5			SV024-SL-0080		8		SM	Silty SAND (SM), medium brown (10YR, 4/6); about 10% subrounded gravel; no odor.	
					9				
					10				
					11				
					12				
					13				
					14				
					15				
					16				
					17				
					18				
					19				
					20				

GEOLOGIC LOG OF BORING

Boring Number: SV-25
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Brian P. Reilly, WESTON
Start Date:	06-December-2010 Hour: 0920
Finish Date:	06-December-2010 Hour: 0945
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	12

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Probe/Water Depth
				60	0		SM	Silty SAND (SM); some organics and gravel; soil horizon.	
					1				
					2				
					3				
					4		ML	Sandy SILT (ML), medium brown (10YR, 3/2); medium plasticity; about 5% subrounded gravel up to 1/2 in.; no odor.	
				60	5				
					6				
					7				
					8				
					9				Probe @ 10 ft-bgs
					10		SM	Silty SAND (SM), medium brown (10YR, 4/3); about 20% subrounded gravel up to 3/4 in.; no odor; minor lenses of red and grey CLAY.	
					11				
					12				
					13				
					14				
					15				
					16				
					17				
					18				
					19				
					20				

GEOLOGIC LOG OF BORING

Boring Number: SV-26
Sheet: 1 of 1

Project Name: **Former Ukiah Rail Yard**
Project Location: Ukiah, California
Project Number: 14816.001.001.0002
Logged By: Brian P. Reilly, WESTON

Start Date: 06-December-2010 Hour: 0830
Finish Date: 06-December-2010 Hour: 0900
Driller: HydroGeoSpectrum
Drill Type/Method: Direct Push
Sampling Method Grab
Boring Diameter (inches): 2
Total Depth (feet): 12

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Probe/Water Depth
				60	0–2		SM	Silty SAND (SM), medium brown (10YR, 3/2); minor organics; soil horizon.	
				60	4–8		ML	Sandy SILT (ML), medium brown (10YR, 3/2); medium plasticity; about 10% gravel; no odor.	
					9				Probe @ 10 ft-bgs
					10–12		ML	Sandy SILT (ML), medium brown (10YR, 4/4); about 20% gravel up to 3/4 in.; no odor; increasing moisture with depth; minor lenses of red and grey CLAY.	
					13–20				

GEOLOGIC LOG OF BORING

Boring Number: SV-27
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Brian P. Reilly, WESTON
Start Date:	07-December-2010 Hour: 1400
Finish Date:	07-December-2010 Hour: 1425
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	12

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Probe/Water Depth
0.9			SV027-SL-0005		0		SM	Silty SAND (SM), light grey; about 20% gravel; no odor; asphalt at surface.	
1.1			SV027-SL-0020	80	1				
					2				
					3				
					4				
1.3			SV027-SL-0050		5		CL	Silty CLAY (CL), dark brown (10YR, 3/2); medium plasticity; about 5% sand; about 5% subrounded gravel up to 1/4 in.; no odor.	
				80	6				
					7				
					8				
					9				Probe @ 10 ft-bgs
				100	10		SM	Silty SAND (SM), medium brown (10YR, 4/4); about 10% subrounded gravel up to 1 in.; no odor; increasing moisture with depth.	
					11				
					12				
					13				
					14				
					15				
					16				
					17				
					18				
					19				
					20				

GEOLOGIC LOG OF BORING

Boring Number: SV-28
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Rod Tobias, WESTON
Start Date:	08-December-2010 Hour: 0850
Finish Date:	08-December-2010 Hour: 0905
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	10.3

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Probe/Water Depth
0.0			SV028-SL-0005		0				
					1		ML	Sandy SILT (ML), brown (10YR, 3/2); low plasticity; moist.	
0.0			SV028-SL-0020		2				
					3				
					4		CL	CLAY (CL), dark brown (10YR, 4/2); medium plasticity; some sand; trace pebbles and gravel.	
0.0			SV028-SL-0050		5				
					6				
					7				
					8				
					9		SM	Silty SAND (SM), dark yellowish brown (10YR, 3/4); fine to coarse grained; some pebbles and gravel; moist.	Probe @ 10 ft-bgs
					10				
					11			Total Depth = 10.3 ft-bgs.	
					12				
					13				
					14				
					15				
					16				
					17				
					18				
					19				
					20				

GEOLOGIC LOG OF BORING

Boring Number: SV-29
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Rod Tobias, WESTON
Start Date:	08-December-2010 Hour: 0935
Finish Date:	08-December-2010 Hour: 1005
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	8

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Probe/Water Depth
0.2			SV029-SL-0005		0–2		ML	Sandy SILT (ML); some pebbles and gravel; moist; likely fill material.	
0.0			SV029-SL-0020		2–6.5		CL	CLAY (CL), brown (10YR, 4/2); medium plasticity; trace sand, pebbles, and gravel.	
			SV029-SL-0050		6.5–8		SM	Silty SAND (SM), dark yellowish brown (10YR, 4/4); fine to coarse grained; some pebbles and gravel; moist.	Probe @ 7.5 ft-bgs

GEOLOGIC LOG OF BORING

Boring Number: SV-30
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Brian P. Reilly, WESTON
Start Date:	08-December-2010 Hour: 0915
Finish Date:	08-December-2010 Hour: 0930
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	8

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Probe/Water Depth
0.0			SV030-SL-0005 SV030-SL-1005 (dup)		0		SM	Silty SAND (SM); some organics and gravel; soil horizon.	
0.0			SV030-SL-0020	70	1 2 3 4		CL	Silty CLAY (CL), dark brown (7.5YR, 4/2); medium plasticity; trace sand; no odor; shift in color to brown (10YR, 3/2) from about 2 to 3 ft-bgs.	
0.0			SV030-SL-0050	80	5 6 7		SM	Silty SAND (SM), medium brown (10YR, 4/4); some subrounded gravel up to 1/2 in.; no odor.	Probe @ 8 ft-bgs
					8 9 10 11 12 13 14 15 16 17 18 19 20				

GEOLOGIC LOG OF BORING

Boring Number: SV-31
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Rod Tobias, WESTON
Start Date:	07-December-2010 Hour: 1600
Finish Date:	07-December-2010 Hour: 1625
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	10

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Probe/Water Depth
					0–3.5		ML	Sandy SILT (ML); some pebbles and gravel; likely fill material.	
					3.5–4		ML	Sandy SILT (ML), dark brown (7.5Yr, 3/2); low plasticity; moist.	
					4–8		CL	CLAY (CL), dark brown (7.5Yr, 3/2); medium plasticity.	
					8–10		SM	Silty SAND (SM), yellowish brown (10YR, 5/4); fine to coarse grained; some pebbles and gravel; moist.	Probe @ 9.5 ft-bgs

GEOLOGIC LOG OF BORING

Boring Number: SV-32
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Brian P. Reilly, WESTON
Start Date:	07-December-2010 Hour: 0915
Finish Date:	07-December-2010 Hour: 0935
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	12

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Probe/Water Depth
					0		SM	Silty SAND (SM); some organics and gravel; soil horizon.	
					1		ML	Sandy SILT (ML), medium brown (10YR, 3/2); about 5% subrounded gravel up to 1/4 in.; no odor.	
				80	2				
					3		SM	Silty SAND (SM), medium brown (10YR, 4/4); about 15% subrounded to subangular gravel; no odor.	
					4				
					5		CL	Silty CLAY (CL), dark brown; medium plasticity; about 5% sand; about 5% gravel; no odor.	
				90	6				
					7				
					8		SM	Silty SAND (SM), medium brown (10YR, 4/3); about 15% subrounded gravel up to 3/4 in.; no odor.	
					9		CL	Silty CLAY (CL), dark brown; medium plasticity; about 5% sand; about 5% gravel; no odor.	Probe @ 10 ft-bgs
				100	10		SM	Silty SAND (SM), medium brown (10YR, 5/4); about 20% subrounded gravel up to 1 in.; no odor; increasing moisture with depth.	
					11				
					12				
					13				
					14				
					15				
					16				
					17				
					18				
					19				
					20				

GEOLOGIC LOG OF BORING

Boring Number: SV-33
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Brian P. Reilly, WESTON
Start Date:	06-December-2010 Hour: 0950
Finish Date:	06-December-2010 Hour: 1025
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	12

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Probe/Water Depth
					0				
					1		GM	Sandy GRAVEL (GM), brown (10YR, 4/2), subrounded to subangular; no odor; likely fill material; weathered asphalt at surface.	
				50	2				
					3		GM	Sandy GRAVEL (GM), brown (10YR, 4/2), subrounded to subangular; little to no fines; no odor; very wet; likely fill material.	
					4				
					5				
				30	6				
					7				
					8			No log from 4 to 12 ft-bgs due to poor recovery.	
					9				Probe @ 10 ft-bgs
				30	10				
					11				
					12				
					13				
					14				
					15				
					16				
					17				
					18				
					19				
					20				

GEOLOGIC LOG OF BORING

Boring Number: SV-34
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Rod Tobias, WESTON
Start Date:	07-December-2010 Hour: 1635
Finish Date:	07-December-2010 Hour: 1658
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	10

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Probe/Water Depth
0.0			SV034-SL-0005		0		ML	Sandy SILT (ML), dark brown (7.5YR, 3/2); low plasticity; moist.	
0.0			SV034-SL-0020		2				
					4		CL	CLAY (CL), dark brown (7.5YR, 3/2); medium plasticity; some sand; trace pebbles and gravel.	
			SV034-SL-0050		5				
					8		SM	Silty SAND (SM), brown (7.5YR, 3/2); fine to coarse grained; some pebbles and gravel; moist.	Probe @ 9 ft-bgs
					10				

GEOLOGIC LOG OF BORING

Boring Number: SV-35
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Brian P. Reilly, WESTON
Start Date:	07-December-2010 Hour: 1035
Finish Date:	07-December-2010 Hour: 1055
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	12

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Probe/Water Depth
				80	0–2		SM	Silty SAND (SM), dark brown (10YR, 2/2); about 10% subrounded gravel up to 1/2 in.; no odor.	
				100	2–9		CL	Silty CLAY (CL), medium brown (10YR, 4/2); medium plasticity; about 5% sand; about 5% gravel; no odor; increasing sand and subrounded gravel with depth.	
				90	9–12		SM	Silty SAND (SM), light to medium brown (10YR, 5/3); about 15% subrounded gravel up to 1 in.; no odor.	Probe @ 10 ft-bgs
					12–20				

GEOLOGIC LOG OF BORING

Boring Number: SV-36
Sheet: 1 of 1

Project Name: **Former Ukiah Rail Yard**
Project Location: Ukiah, California
Project Number: 14816.001.004
Logged By: Brian P. Reilly, WESTON

Start Date: 05-April-2011 Hour: 1140
Finish Date: 05-April-2011 Hour: 1210
Driller: WDC Exploration & Wells
Drill Type/Method: Direct Push
Sampling Method: Grab
Boring Diameter (inches): 1
Total Depth (feet): 7

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Probe Depth
					0–1		GM	Sandy GRAVEL (GM), silty, light grey; about 50% subangular gravel; no odor; likely base fill. [Note: Logged from adjacent DP-17]	
					1–6		CL	Silty CLAY (CL) to CLAY (CL), dark brown; medium plasticity; no odor. [Note: Logged from adjacent boring DP-17]	Probe @ 5.17 ft-bgs
					6–7		SM	Silty SAND (SM), medium brown; minor gravel up to 1/2 in.; moist; no odor; interbedded clay lenses; increasing moisture below approx. 9 ft-bgs. [Note: Logged from adjacent boring DP-17]	

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

GEOLOGIC LOG OF BORING

Boring Number: SV-37
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.004
Logged By:	Brian P. Reilly, WESTON
Start Date:	05-April-2011 Hour: 1440
Finish Date:	05-April-2011 Hour: 1510
Driller:	WDC Exploration & Wells
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	1
Total Depth (feet):	7

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description Lithology, color, constituents, density, moisture, other features, (interpretation)	Probe Depth
					0		GM	Silty GRAVEL (GM), sandy, light grey; no odor; likely base fill. [Note: Logged from adjacent DP-15]	
					1				
					2				
					3				
					4		CL	CLAY (CL), dark brown; minor subrounded gravel up to 1/4 inch; medium plasticity; no odor. [Note: Logged from adjacent boring DP-15]	
					5				
					6				Probe @ 5.83 ft-bgs
					7				
					8				
					9				
					10				
					11				
					12				
					13				
					14				
					15				
					16				
					17				
					18				
					19				
					20				

GEOLOGIC LOG OF BORING

Boring Number: DP-1
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Rod Tobias, WESTON
Start Date:	08-December-2010 Hour: 1150
Finish Date:	08-December-2010 Hour: 1430
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	13

PID Reading (ppm)	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Static Water
0.0			DP001-SL-0005		0		GM	Aggregate Base.	
0.0			DP001-SL-0020		1		ML	Sandy SILT (ML), dark brown (10YR, 3/2); low plasticity; moist.	
					2				
					3				
					4				
					5		CL	CLAY (CL), dark brown (10YR, 3/2); low to medium plasticity; trace sand; moist.	
					6				
					7				
					8		SM	Silty SAND (SM), dark brown (10YR, 3/2); fine to coarse; trace pebbles and gravel.	
					9		CL	CLAY (CL), dark brown (10YR, 4/3); low to medium plasticity; trace sand; moist.	
					10				
					11				(12 ft-bgs) ▼
					12		SM	Silty SAND (SM), brown (10YR, 4/3); fine to coarse; some pebbles and gravel.	
		DP001-GW-0130			13				
					14				
					15				
					16				
					17				
					18				
					19				
					20				

GEOLOGIC LOG OF BORING

Boring Number: DP-2
Sheet: 1 of 2

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Rod Tobias, WESTON
Start Date:	08-December-2010 Hour: 1545
Finish Date:	09-December-2010 Hour: 1030
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	31

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Static Water
0.1			DP002-SL-0005		0		ML	Sandy SILT (ML), brown (7.5YR, 4/2); vegetation; low plasticity; moist.	
0.0			DP002-SL-0020		2		SM	Silty SAND (SM), brown (7.5YR, 6/2); fine to coarse grained; some pebbles and gravel; moist.	
0.0			DP002-SL-0050		5		CL	CLAY (CL), dark brown (7.5YR, 3/2); medium plasticity; moist.	
0.1			DP002-SL-0100		10		CL	CLAY (CL), dark yellowish brown (10YR, 4/6); medium plasticity; moist.	
			DP002-SL-0200		20				

GEOLOGIC LOG OF BORING

Boring Number: DP-2
Sheet: 2 of 2

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Rod Tobias, WESTON
Start Date:	08-December-2010 Hour: 1545
Finish Date:	09-December-2010 Hour: 1030
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	31

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Static Water
					20				
					21				
					22				
					23				
					24				
					25				
					26				
					27				
		DP002-GW-0280			28				
					29				(30 ft-bgs)
			DP002-SL-0300		30				
					31		CL	CLAY (CL), dark yellowish brown (10YR, 4/6); medium plasticity; moist.	
					32				
					33				
					34				
					35				
					36				
					37				
					38				
					39				
					40				

GEOLOGIC LOG OF BORING

Boring Number: DP-3
Sheet: 1 of 2

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Brian P. Reilly, WESTON
Start Date:	09-December-2010 Hour: 1050
Finish Date:	09-December-2010 Hour: 1400
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	30

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Static Water
			DP003-SL-0005		0				
			DP003-SL-0020	90	1		CL	Silty CLAY (CL), dark brown (10YR, 3/3), sandy; medium plasticity; no odor.	
			DP003-SL-0050		2				
					3				
				90	4				
					5				
					6		SM	Silty SAND (SM), medium brown (10YR, 4/4); minor subrounded gravel up to 1/4 in.; dry; no odor.	
					7				
					8		CL	Silty CLAY (CL), dark brown (10YR, 3/3), sandy; medium plasticity; no odor.	
				100	9				
					10		ML	Sandy SILT (ML), clayey, medium brown; low plasticity; dry; no odor.	
					11				
					12				
					13				
					14				
					15				
					16			No Continuous Coring between 12 and 30 feet bgs.	
					17				
					18				
					19				
					20				

GEOLOGIC LOG OF BORING

Boring Number: DP-3
Sheet: 2 of 2

Project Name: **Former Ukiah Rail Yard**
Project Location: Ukiah, California
Project Number: 14816.001.001.0002
Logged By: Brian P. Reilly, WESTON

Start Date: 09-December-2010 Hour: 1050
Finish Date: 09-December-2010 Hour: 1400
Driller: HydroGeoSpectrum
Drill Type/Method: Direct Push
Sampling Method Grab
Boring Diameter (inches): 2
Total Depth (feet): 30

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Static Water
					20				
					21				
					22				
					23				
					24				
					25			No Continuous Coring between 12 and 30 feet bgs.	
					26				
					27				
					28				(28 ft-bgs) ▼
		DP003-GW-0290			29				
					30				
					31				
					32				
					33				
					34				
					35				
					36				
					37				
					38				
					39				
					40				

GEOLOGIC LOG OF BORING

Boring Number: DP-4
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Rod Tobias, WESTON
Start Date:	10-December-2010 Hour: 1046
Finish Date:	10-December-2010 Hour: 1130
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	12

PID Reading (ppm)	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Static Water
0.0			DP004-SL-0005		0		ML	Sandy SILT (ML), dark brown (7.5YR, 3/2); low plasticity; trace pebbles and gravel; moist.	
0.0			DP004-SL-0020		2		CL	CLAY (CL), dark brown (7.5YR, 3/2); medium plasticity; trace pebbles and gravel.	
0.0			DP004-SL-0050		5				
					7		SM	Silty SAND (SM), dark yellowish brown (10 YR, 4/4); fine to coarse sand; some pebbles and gravel; moist.	(9 ft-bgs)
		DP004-GW-0120			12				

GEOLOGIC LOG OF BORING

Boring Number: DP-5
Sheet: 1 of 2

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Rod Tobias, WESTON
Start Date:	09-December-2010 Hour: 0920
Finish Date:	09-December-2010 Hour: 1230
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	29

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Static Water
0.0			DP005-SL-0005		0		ML	Sandy SILT (ML), gravelly; some pebbles; likely fill material.	
0.1			DP005-SL-0020		2		ML	Sandy SILT (ML), dark brown (7.5YR, 3/2); low plasticity; moist	
					3		CL	CLAY (CL), dark brown (7.5YR, 3/2); medium plasticity; moist.	
0.0			DP005-SL-0050		5				
					6		CL	Sandy CLAY (CL), brown (7.5YR, 4/2); medium plasticity; fine to coarse sand; trace pebbles and gravel.	
					8				
0.0			DP005-SL-0100		10				
		DP005-GW-0120			12		SM	Silty SAND (SM), brown (7.5YR, 4/2); fine to coarse grained; some pebbles and gravel; moist; wet below 12 ft-bgs.	1st Water (12 ft-bgs)
					13				
0.0			DP005-SL-0150		15				
					16		SM	Silty SAND (SM), dark grey (5Y, 4/1); fine to coarse grained; some pebbles and gravel; moist; wet below 12 ft-bgs.	
					18				
					19		CL	CLAY (CL), olive brown (2.5Y, 4/3); medium plasticity; moist.	
0.0			DP005-SL-0200		20				

GEOLOGIC LOG OF BORING

Boring Number: DP-5
Sheet: 2 of 2

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Rod Tobias, WESTON
Start Date:	09-December-2010 Hour: 0920
Finish Date:	09-December-2010 Hour: 1230
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	29

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Static Water
					20				
					21				
					22				
					23		CL	CLAY (CL), olive brown (2.5Y, 4/3); medium plasticity; moist.	
					24				2nd Water (25 ft-bgs)
		DP005-GW-0250			25				
					26				
					27		CL	CLAY (CL), sandy; olive brown (2.5Y, 4/3); medium plasticity; fine to coarse sand; some pebbles and gravel; moist.	
					28				
			DP005-SL-0290		29			- Refusal at 29 ft-bgs	
					30				
					31				
					32				
					33				
					34				
					35				
					36				
					37				
					38				
					39				
					40				

GEOLOGIC LOG OF BORING

Boring Number: DP-6
Sheet: 1 of 2

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Rod Tobias, WESTON
Start Date:	09-December-2010 Hour: 1250
Finish Date:	09-December-2010 Hour: 1645
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	29

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Static Water
0.0			DP006-SL-0005		0		ML	Sandy SILT (ML), gravelly; some pebbles; likely fill material.	
0.0			DP006-SL-0020		2		ML	Sandy SILT (ML), brown (7.5YR, 4/2); low plasticity; moist	
0.1			DP006-SL-0050		5		CL	CLAY (CL), dark brown (7.5YR, 3/2); medium plasticity; moist; increasing sand, pebbles, and gravel below about 5 ft-bgs.	
0.0			DP006-SL-0100		10		SM	Silty SAND (SM), dark yellowish brown (10YR, 4/4); fine to coarse grained; some pebbles and gravel.	1st Water (12.5 ft-bgs)
		DP006-GW-0140			14				
					16		SC	Clayey SAND (SC), dark yellowish brown; fine to coarse grained; some pebbles and gravel.	
0.0			DP006-SL-0200		19		SC	Clayey SAND (SC), dark grey (2.5Y, 4/1); fine to coarse grained; some pebbles and gravel.	

GEOLOGIC LOG OF BORING

Boring Number: DP-6
Sheet: 2 of 2

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Rod Tobias, WESTON
Start Date:	09-December-2010 Hour: 1250
Finish Date:	09-December-2010 Hour: 1645
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	29

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Static Water
					20				
					21		SC	Clayey SAND (SC), dark grey (2.5Y, 4/1); fine to coarse grained; some pebbles and gravel.	
					22				2nd Water (23 ft-bgs) ▼
		DP006-GW-0230			23				
					24				
					25				
					26		CL	CLAY (CL), dark yellowish brown (10Y, 4/6); medium plasticity; moist.	
					27				
					28				
			DP006-SL-0290		29			- Refusal at 29 ft-bgs	
					30				
					31				
					32				
					33				
					34				
					35				
					36				
					37				
					38				
					39				
					40				

GEOLOGIC LOG OF BORING

Boring Number: DP-7
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Brian Reilly, WESTON
Start Date:	10-December-2010 Hour: 1320
Finish Date:	10-December-2010 Hour: 1410
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	12

PID Reading (ppm)	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Static Water
			DP007-SL-0005		0		GM	Sandy GRAVEL (GM), silty, dark grey (10YR, 4/1); no odor.	
			DP007-SL-0020	60	1				
					2		CL	Silty CLAY (CL), dark brown (10YR, 3/2); minor sand and subrounded gravel; medium plasticity; no odor; increasing sand with depth.	
					3				
					4				
					5				
				60	6				
					7				
					8		SM	Silty SAND (SM), medium brown (10YR, 4/4); about 10% subrounded gravel up to 1/2 in.; no odor; increasing sand with depth; increasing subangular gravel with depth.	(9 ft-bgs)
		DP007-GW-0090			9				
				90	10				
					11				
					12				
					13				
					14				
					15				
					16				
					17				
					18				
					19				
					20				

GEOLOGIC LOG OF BORING

Boring Number: DP-8
Sheet: 1 of 2

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Rod Tobias, WESTON
Start Date:	10-December-2010 Hour: 1150
Finish Date:	10-December-2010 Hour: 1400
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	29

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Static Water
0.0			DP008-SL-0005		0		ML	Sandy SILT (ML), dark brown (7.5YR, 3/2); low plasticity; moist.	
0.1			DP008-SL-0020		2		CL	CLAY (CL), dark brown (7.5YR, 3/2); medium plasticity; trace sand, pebbles, and gravel; moist.	
0.1			DP008-SL-0050		5				
		DP008-GW-0090			9				1st Water (10 ft-bgs)
0.0			DP008-SL-0100		10		SM	Silty SAND (SM), brown (7.5YR, 4/2); fine to coarse grained; some pebbles and gravel; moist; wet below about 10 ft-bgs.	
0.0			DP008-SL-0200		20		CL	CLAY (CL), dark yellowish brown (10YR, 4/4); medium plasticity; moist.	

GEOLOGIC LOG OF BORING

Boring Number: DP-8
Sheet: 2 of 2

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Rod Tobias, WESTON
Start Date:	10-December-2010 Hour: 1150
Finish Date:	10-December-2010 Hour: 1400
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	29

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Static Water
					20				
					21				
					22		CL	CLAY (CL), dark yellowish brown (10YR, 4/4); medium plasticity; moist.	
					23				2nd Water (24 ft-bgs)
		DP008-GW-0240			24				
					25				
					26		SP	Clayey SAND (SP), dark yellowish brown (10YR, 4/4); fine to coarse grained, some pebbles and gravel.	
					27				
					28				
0.0			DP008-SL-0290		29			- Refusal at 29 ft-bgs	
					30				
					31				
					32				
					33				
					34				
					35				
					36				
					37				
					38				
					39				
					40				

GEOLOGIC LOG OF BORING

Boring Number: DP-9
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**	Start Date:	09-December-2010 Hour: 1545
Project Location:	Ukiah, California	Finish Date:	09-December-2010 Hour: 1615
Project Number:	14816.001.001.0002	Driller:	HydroGeoSpectrum
Logged By:	Brian Reilly, WESTON	Drill Type/Method:	Direct Push
		Sampling Method	Grab
		Boring Diameter (inches):	2
		Total Depth (feet):	14

PID Reading (ppm)	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Static Water
			DP009-SL-0005		0				
			DP009-SL-0020	95	2		CL	Silty CLAY (CL), sandy, dark brown (10YR, 3/3); medium to low plasticity; no odor; dry.	
			DP009-SL-0050	90	5				
		DP009-GW-0095		90	8		SM	Silty SAND (SM), gravelly, medium brown (10YR, 4/4); about 15% subrounded gravel; no odor.	
					9		CL	Silty CLAY (CL), sandy, dark brown (10YR, 3/3); medium to low plasticity; no odor; wet.	(9.5 ft-bgs) ▼
				100	12		SM	Silty SAND (SM), gravelly, medium brown (10YR, 4/4); about 15% subrounded gravel; no odor; wet.	
					14				
					20				

GEOLOGIC LOG OF BORING

Boring Number: DP-10
Sheet: 1 of 2

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Rod Tobias, WESTON
Start Date:	10-December-2010 Hour: 0800
Finish Date:	10-December-2010 Hour: 1015
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	29

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Static Water
0.0			DP010-SL-0005		0		ML	Sandy SILT (ML); some pebbles and gravel; likely fill material.	
0.0			DP010-SL-0020		2		ML	Sandy SILT (ML), dark brown (7.5YR, 3/2); low plasticity; trace pebbles and gravel; moist.	
			DP010-SL-0040		4				
0.1			DP010-SL-0050		5		CL	CLAY (CL), dark brown (7.5YR, 3/2); medium plasticity; some sand, pebbles, and gravel; moist.	
0.0			DP010-SL-0100		10				
			DP010-SL-0115		11				1st Water (12 ft-bgs)
		DP010-GW-0140			13		SM	Silty SAND (SM), dark yellowish brown (10YR, 4/4); fine to coarse grained; some pebbles and gravel; moist; wet below about 12 ft-bgs.	
0.0			DP010-SL-0200		20				

GEOLOGIC LOG OF BORING

Boring Number: DP-10
Sheet: 2 of 2

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Rod Tobias, WESTON
Start Date:	10-December-2010 Hour: 0800
Finish Date:	10-December-2010 Hour: 1015
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	29

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Static Water
					20				
					21				
					22				
		DP010-GW-0230			23				2nd Water (24 ft-bgs)
					24		SM	Silty SAND (SM), dark yellowish brown (10YR, 4/4); fine to coarse grained; some pebbles and gravel; moist; wet below about 12 ft-bgs.	
					25				
					26				
					27				
					28				
0.0			DP010-SL-0290		29			- Refusal at 29 ft-bgs	
					30				
					31				
					32				
					33				
					34				
					35				
					36				
					37				
					38				
					39				
					40				

GEOLOGIC LOG OF BORING

Boring Number: DP-11
Sheet: 1 of 2

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Brian Reilly, WESTON
Start Date:	10-December-2010 Hour: 1530
Finish Date:	10-December-2010 Hour: 1730
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	30

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Static Water
			DP011-SL-0005	80	0		SM	Silty SAND (SM); soil horizon.	
					1		SM	Silty SAND (SM), gravelly, dark brown (10YR, 3/2); about 10% subangular gravel up to 3/4 in.; no odor.	
					2				
					3				
					4				
			DP011-SL-0050	70	5				
			DP011-SL-1050 (dup)		6				
					7				
					8		SM	Silty SAND (SM), gravelly, medium brown (10YR, 4/4); about 15% subrounded to subangular gravel up to 1/4 in.; no odor.	1st Water (9.5 ft-bgs)
			DP011-SL-0100	80	9				
		DP011-GW-0110			10				
		DP011-GW-1110 (dup)			11				
					12				
				100	13				
					14				
					15			End of Continuous Boring; No continuous coring between 15 and 30 ft-bgs.	
					16				
					17				
					18				
					19				
			DP011-SL-0200		20		CL	Silty CLAY (CL), medium brown (10YR, 4/5); high plasticity; no odor.	

GEOLOGIC LOG OF BORING

Boring Number: DP-11
Sheet: 2 of 2

Project Name: **Former Ukiah Rail Yard**
Project Location: Ukiah, California
Project Number: 14816.001.001.0002
Logged By: Brian Reilly, WESTON

Start Date: 10-December-2010 Hour: 1530
Finish Date: 10-December-2010 Hour: 1730
Driller: HydroGeoSpectrum
Drill Type/Method: Direct Push
Sampling Method: Grab
Boring Diameter (inches): 2
Total Depth (feet): 30

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Static Water
		DP011-GW-0210	DP011-SL-0300		20–40		SM	No continuous coring between 15 and 30 ft-bgs. Silty SAND (SM), gravelly, medium brown (10YR, 4/4); subrounded gravel up to 1 in.; no odor.	2nd Water (21 ft-bgs)

GEOLOGIC LOG OF BORING

Boring Number: DP-12
Sheet: 1 of 2

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Rod Tobias, WESTON
Start Date:	10-December-2010 Hour: 1500
Finish Date:	10-December-2010 Hour: 1725
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	27

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Static Water
0.1			DP012-SL-0005		0–2		ML	Sandy SILT (ML), dark brown (7.5YR, 3/2); low plasticity; moist.	
0.0			DP012-SL-0050		2–7		CL	CLAY (CL), dark brown (7.5YR, 3/2); medium plasticity; some sand; trace pebbles, and gravel.	
0.0		DP012-GW-0120	DP012-SL-0100		7–20		SM	Silty SAND (SM), dark yellowish brown (10YR, 4/4); fine to coarse grained; some pebbles and gravel; moist; wet below about 8 ft-bgs.	1st Water (8 ft-bgs)
0.0			DP012-SL-0200		20				

GEOLOGIC LOG OF BORING

Boring Number: DP-12
Sheet: 2 of 2

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Rod Tobias, WESTON
Start Date:	10-December-2010 Hour: 1500
Finish Date:	10-December-2010 Hour: 1725
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	27

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Static Water
					20				
					21				
					22				
					23				
					24		SM	Silty SAND (SM), dark yellowish brown (10YR, 4/4); fine to coarse grained; some pebbles and gravel; moist; wet below about 8 ft-bgs.	2nd Water (25 ft-bgs)
		DP012-GW-0250			25				
					26				
			DP012-SL-0270		27			- Refusal at 27 ft-bgs	
					28				
					29				
					30				
					31				
					32				
					33				
					34				
					35				
					36				
					37				
					38				
					39				
					40				

GEOLOGIC LOG OF BORING

Boring Number: DP-13
Sheet: 1 of 2

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Brian Reilly, WESTON
Start Date:	10-December-2010 Hour: 0810
Finish Date:	10-December-2010 Hour: 1255
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	30

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Static Water
0.0			DP013-SL-0005	80	0–5		CL	Silty CLAY (CL), dark brown (10YR, 3/3); medium plasticity; some sand; no odor.	
0.3			DP013-SL-0050 DP013-SL-1050 (dup)	60	5–8				1st Water (8 ft-bgs)
0.2		DP013-GW-0110 DP013-GW-1110 (dup)	DP013-SL-0100	60	8–12		SM	Silty SAND (SM), gravelly, medium brown (10YR, 5/4); about 20% subrounded gravel up to 1 in.; no odor; very wet below about 8 ft-bgs; increasing fines with depth; minor thin lenses of red sand.	
				80	12–16				
					16			End of Continuous Boring; No continuous coring between 16 and 30 ft-bgs.	
0.0			DP013-SL-0200		19–20		SM	Silty SAND (SM), gravelly, medium brown (10YR, 5/4); about 20% subrounded gravel up to 1 in.; no odor; very wet.	

GEOLOGIC LOG OF BORING

Boring Number: DP-13
Sheet: 2 of 2

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Brian Reilly, WESTON
Start Date:	10-December-2010 Hour: 0810
Finish Date:	10-December-2010 Hour: 1255
Driller:	HydroGeoSpectrum
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	2
Total Depth (feet):	30

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Static Water
					20			No continuous coring between 16 and 30 ft-bgs.	2nd Water (21 ft-bgs)
		DP013-GW-0210			21				
					22				
					23				
					24				
					25				
					26				
					27				
					28				
					29				
0.2			DP013-SL-0300		30		SM	Silty SAND (SM), gravelly, medium brown (10YR, 5/4); about 20% subrounded gravel up to 1 in.; no odor; very wet.	
					31				
					32				
					33				
					34				
					35				
					36				
					37				
					38				
					39				
					40				

GEOLOGIC LOG OF BORING

Boring Number: DP-14
Sheet: 1 of 2

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.004
Logged By:	Brian P. Reilly, WESTON
Start Date:	05-April-2011 Hour: 1600
Finish Date:	05-April-2011 Hour: 1730
Driller:	WDC Exploration & Wells
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	1
Total Depth (feet):	30

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Static Water
			DP014-SL-0005		0		GM	Silty GRAVEL (GM), sandy, light grey; no odor.	
			DP014-SL-0020		1				
			DP014-SL-1020 (dup)	60	2				
					3				
					4				
			DP014-SL-0050		5		CL	CLAY (CL), dark brown; medium plasticity; no odor.	1st Water (5.5 ft-bgs)
					6				
					7				2nd Water (6.4 ft-bgs)
		DP014-GW-0085		70	8				
					9				
			DP014-SL-0100		10		GM	Sandy GRAVELS (GM), silty, medium brown; about 50% subrounded to subangular gravel up to 3/4 in. size; moist, no odor.	
					11				
				80	12				
					13				
					14				
					15		CL	CLAY (CL), dark to medium brown; medium plasticity; no odor; increasing sands and gravels with depth, beginning around 17.5 ft-bgs.	
				80	16				
					17				
					18				
					19				
			DP014-SL-0200		20				

GEOLOGIC LOG OF BORING

Boring Number: DP-14
Sheet: 2 of 2

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.004
Logged By:	Brian P. Reilly, WESTON
Start Date:	05-April-2011 Hour: 1600
Finish Date:	05-April-2011 Hour: 1730
Driller:	WDC Exploration & Wells
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	1
Total Depth (feet):	30

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Static Water
					20		CL	CLAY (CL), dark to medium brown; medium plasticity; no odor; increasing sands and gravels with depth, beginning around 17.5 ft-bgs.	
					21				
					22		SP	SAND (SP), medium brown, fine grained; well-sorted; moist; no odor.	
				75	23				
					24		GM	Silty GRAVELS (GM), sandy, medium brown; about 40% subrounded to subangular gravel; moist; no odor.	
					25				
					26		CL	CLAY (CL), medium brown; low to medium plasticity; no odor.	
				70	27				
					28				
					29		ML	Sandy SILT (ML), gravelly, medium brown; about 20% subrounded gravel; very wet; no odor.	
		DP014-GW-0295	DP014-SL-0300		30				

GEOLOGIC LOG OF BORING

Boring Number: DP-15
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.004
Logged By:	Brian P. Reilly, WESTON
Start Date:	05-April-2011 Hour: 1410
Finish Date:	05-April-2011 Hour: 1545
Driller:	WDC Exploration & Wells
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	1
Total Depth (feet):	20

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Static Water
			DP015-SL-0005		0		GM	Silty GRAVEL (GM), sandy, light grey; no odor; likely base fill.	
			DP015-SL-0020		1				
			DP015-SL-1020 (dup)	60	2				
					3				
					4		CL	CLAY (CL), dark brown; minor subrounded gravel up to 1/4 inch; medium plasticity; no odor.	
			DP015-SL-0050		5				(5.8 ft-bgs)
					6				
				60	7				
		DP015-GW-0085			8				
		[DP015-GW-1085]			9				
			DP015-SL-0100		10				
					11				
				75	12				
					13		ML	Sandy SILT (ML), gravelly, medium brown; about 30% subrounded to subangular gravel up to 3/4 in.; very wet; no odor.	
					14				
					15				
					16				
				75	17				
					18				
					19		CL	CLAY (CL), dark brown; medium plasticity; no odor.	
			DP015-SL-0200		20				

GEOLOGIC LOG OF BORING

Boring Number: DP-16
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.004
Logged By:	Brian P. Reilly, WESTON
Start Date:	05-April-2011 Hour: 1215
Finish Date:	05-April-2011 Hour: 1400
Driller:	WDC Exploration & Wells
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	1
Total Depth (feet):	20

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Static Water
			DP016-SL-0005		0		GM	Silty GRAVEL (GM), sandy, light grey; unconsolidated; no odor; likely base fill.	
					1				
			DP016-SL-0020	60	2				
					3				
					4		CL	CLAY (CL), dark brown; medium to high plasticity; no odor.	
			DP016-SL-0050		5				(5.5 ft-bgs)
					6				
				60	7				
		DP016-GW-0080			8		GM	Silty GRAVELS (GM), sandy, light to medium brown; about 50% gravel up to 1 in.; minor interbedded clay lenses; no odor; grades to underlying unit.	
					9				
			DP016-SL-0100		10				
					11				
					12				
				75	13				
					14				
					15		SM	Silty SAND (SM), medium brown; minor gravel up to 1/4 in.; very wet; no odor; increasing subrounded to subangular gravel at approx. 15 ft-bgs; increasing silts with depth.	
					16				
					17				
				75	18				
					19				
			DP016-SL-0200		20				

GEOLOGIC LOG OF BORING

Boring Number: DP-17
Sheet: 1 of 2

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.004
Logged By:	Brian P. Reilly, WESTON
Start Date:	05-April-2011 Hour: 0745
Finish Date:	05-April-2011 Hour: 1100
Driller:	WDC Exploration & Wells
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	1
Total Depth (feet):	30

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Static Water
			DP017-SL-0005		0		GM	Sandy GRAVEL (GM), silty, light grey; about 50% subangular gravel; no odor; likely base fill.	
			DP017-SL-0020	60	2		CL	Silty CLAY (CL) to CLAY (CL), dark brown; medium plasticity; no odor.	
			DP017-SL-0050		5				1st Water (4.97 ft-bgs)
		DP017-GW-0060		60	6				2nd Water (6.53 ft-bgs)
			DP017-SL-0100	70	10		SM	Silty SAND (SM), medium brown; minor gravel up to 1/2 in.; moist; no odor; interbedded clay lenses; increasing moisture below approx. 9 ft-bgs.	
					15		CL	Silty CLAY (CL) to CLAY (CL), dark brown; medium plasticity; no odor.	
				70	16		SM	Silty SAND (SM), medium brown; minor gravel up to 1/2 in.; moist; no odor; interbedded clay lenses; increasing moisture below approx. 9 ft-bgs.	
					18		CL	Silty CLAY (CL) to CLAY (CL), dark brown; medium plasticity; no odor.	
			DP017-SL-0200		20				

GEOLOGIC LOG OF BORING

Boring Number: DP-17
Sheet: 2 of 2

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.004
Logged By:	Brian P. Reilly, WESTON
Start Date:	05-April-2011 Hour: 0745
Finish Date:	05-April-2011 Hour: 1100
Driller:	WDC Exploration & Wells
Drill Type/Method:	Direct Push
Sampling Method	Grab
Boring Diameter (inches):	1
Total Depth (feet):	30

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Static Water
				70	20–25		CL	Silty CLAY (CL) to CLAY (CL), dark brown; medium plasticity; no odor.	
		DP017-GW-0280		70	25–30		ML	Sandy SILT (ML), gravelly, medium brown; about 25% subrounded to subangular gravel up to 3/4 in.; moist; no odor.	
			DP017-SL-0300		30				

APPENDIX C
TEST PIT LOGS

GEOLOGIC LOG OF BORING

Boring Number: TP-1
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Brian Reilly, WESTON
Start Date:	13-December-2010 Hour: 0900
Finish Date:	13-December-2010 Hour: 0930
Driller:	WESTON
Drill Type/Method:	Backhoe
Sampling Method	Grab
Boring Diameter (inches):	NA
Total Depth (feet):	3

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Static Water
			TP001-SL-0005		0		SM	Silty SAND (SM), dark brown; some gravel and cobbles; some glass, metal, and ceramic debris; extends to about 1.4 ft-bgs.	
			TP001-SL-0015		1				
					2		CL	Silty CLAY (CL), dark brown; medium plasticity; trace subrounded gravel; no odor.	
			TP001-SL-0030		3				
					4				
					5				
					6				
					7				
					8				
					9				
					10				
					11				
					12				
					13				
					14				
					15				
					16				
					17				
					18				
					19				
					20				

GEOLOGIC LOG OF BORING

Boring Number: TP-2
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Brian Reilly, WESTON
Start Date:	13-December-2010 Hour: 0945
Finish Date:	13-December-2010 Hour: 1005
Driller:	WESTON
Drill Type/Method:	Backhoe
Sampling Method	Grab
Boring Diameter (inches):	NA
Total Depth (feet):	3

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Static Water
			TP002-SL-0005		0		SM	Silty SAND (SM); some gravel and cobbles; no odor; some red brick debris; semi-continuous weathered asphalt layer from about 0.5 to 0.75 ft-bgs.	
			TP002-SL-0015		1		CL	Silty CLAY (CL), dark brown; medium plasticity; trace sand and gravel; no odor.	
			TP002-SL-0030		2				
					3				
					4				
					5				
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GEOLOGIC LOG OF BORING

Boring Number: TP-3
Sheet: 1 of 1

Project Name: **Former Ukiah Rail Yard**
Project Location: Ukiah, California
Project Number: 14816.001.001.0002
Logged By: Brian Reilly, WESTON

Start Date: 13-December-2010 Hour: 1010
Finish Date: 13-December-2010 Hour: 1030
Driller: WESTON
Drill Type/Method: Backhoe
Sampling Method: Grab
Boring Diameter (inches): NA
Total Depth (feet): 3

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Static Water
			TP003-SL-0005		0		GP	Sandy GRAVEL (GP); about 80% gravel up to 1/2 in.; no odor; some asphalt debris. Increasing sand with depth.	
			TP003-SL-0015		1				
					2		CL	Silty CLAY (CL), dark brown; medium plasticity; some sand; no odor; minor lenses of black CLAY.	
			TP003-SL-0030		3				
					4				
					5				
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GEOLOGIC LOG OF BORING

Boring Number: TP-4
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Brian Reilly, WESTON
Start Date:	13-December-2010 Hour: 1040
Finish Date:	13-December-2010 Hour: 1105
Driller:	WESTON
Drill Type/Method:	Backhoe
Sampling Method	Grab
Boring Diameter (inches):	NA
Total Depth (feet):	3

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Static Water
			TP004-SL-0005		0		CL	Silty CLAY (CL), dark brown, sandy, gravelly; gravel up to 2 in.; no odor; lenses of orange, red, and black CLAY; increasing sand with depth.	
			TP004-SL-0015		1				
					2		SM	Silty SAND (SM), medium brown, gravelly; subrounded gravel; some organic debris; lenses of dark brown and black CLAY.	
			TP004-SL-0030		3				
					4				
					5				
					6				
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GEOLOGIC LOG OF BORING

Boring Number: TP-5
Sheet: 1 of 1

Project Name: **Former Ukiah Rail Yard**
Project Location: Ukiah, California
Project Number: 14816.001.001.0002
Logged By: Brian Reilly, WESTON

Start Date: 13-December-2010 Hour: 1115
Finish Date: 13-December-2010 Hour: 1130
Driller: WESTON
Drill Type/Method: Backhoe
Sampling Method: Grab
Boring Diameter (inches): NA
Total Depth (feet): 3

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Static Water
			TP005-SL-0005		0		SW	Gravelly SAND (SW), dark brown; trace fines, organics, and wood debris; some plastic refuse; no odor; moist.	
			TP005-SL-0015		1				
					2		GP	Gravel (GP), subangular.	
							SM	Silty SAND (SM), reddish brown; gravelly; subrounded gravel up to 1 in.; no odor.	
			TP005-SL-0030		3				
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GEOLOGIC LOG OF BORING

Boring Number: TP-6
Sheet: 1 of 1

Project Name: **Former Ukiah Rail Yard**
Project Location: Ukiah, California
Project Number: 14816.001.001.0002
Logged By: Brian Reilly, WESTON

Start Date: 13-December-2010 Hour: 1140
Finish Date: 13-December-2010 Hour: 1155
Driller: WESTON
Drill Type/Method: Backhoe
Sampling Method: Grab
Boring Diameter (inches): NA
Total Depth (feet): 3

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Static Water
			TP006-SL-0005		0		SM	Silty SAND (SM), dark yellowish brown (10YR, 4/6), gravelly; gravel up to 2 in.; no odor.	
			TP006-SL-0015		1				
					2		CL	Silty CLAY (CL), dark brown (10YR, 3/2); medium plasticity; no odor.	
			TP006-SL-0030		3				
					4				
					5				
					6				
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GEOLOGIC LOG OF BORING

Boring Number: TP-7
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Brian Reilly, WESTON
Start Date:	13-December-2010 Hour: 1140
Finish Date:	13-December-2010 Hour: 1155
Driller:	WESTON
Drill Type/Method:	Backhoe
Sampling Method	Grab
Boring Diameter (inches):	NA
Total Depth (feet):	3

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Static Water
			TP007-SL-0005		0		CL	Silty CLAY (CL), dark brown (10YR, 3/2), gravelly; low to medium plasticity; subrounded gravel; no odor; significant asphalt debris; some refuse [soda cans]; shifts to yellowish brown (10YR, 5/6), medium plasticity Silty CLAY at about 3 ft-bgs.	
			TP007-SL-0015		1				
			TP007-SL-0030		2				
					3				
					4				
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GEOLOGIC LOG OF BORING

Boring Number: TP-8
Sheet: 1 of 1

Project Name: **Former Ukiah Rail Yard**
Project Location: Ukiah, California
Project Number: 14816.001.001.0002
Logged By: Brian Reilly, WESTON

Start Date: 13-December-2010 Hour: 1215
Finish Date: 13-December-2010 Hour: 1240
Driller: WESTON
Drill Type/Method: Backhoe
Sampling Method: Grab
Boring Diameter (inches): NA
Total Depth (feet): 3

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Static Water
			TP008-SL-0005		0		SM	Silty SAND (SM), dark brown (10YR, 3/2), gravelly; subrounded gravel; some wood, asphalt, and glass debris; no odor; decreasing gravel with depth.	
			TP008-SL-0015		1				
			TP008-SL-0030		2				
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GEOLOGIC LOG OF BORING

Boring Number: TP-9
Sheet: 1 of 1

Project Name: **Former Ukiah Rail Yard**
Project Location: Ukiah, California
Project Number: 14816.001.001.0002
Logged By: Brian Reilly, WESTON

Start Date: 13-December-2010 Hour: 1255
Finish Date: 13-December-2010 Hour: 1315
Driller: WESTON
Drill Type/Method: Backhoe
Sampling Method: Grab
Boring Diameter (inches): NA
Total Depth (feet): 3

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Static Water
			TP009-SL-0005		0		SM	Silty SAND (SM), yellowish brown, gravelly; subrounded gravel; no odor; extends to about 8 in. bgs.	
			TP009-SL-0015		1		CL	Silty CLAY (CL), dark brown (10YR, 3/2); medium plasticity; no odor.	
			TP009-SL-0030		2				
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GEOLOGIC LOG OF BORING

Boring Number: TP-10
Sheet: 1 of 1

Project Name: **Former Ukiah Rail Yard**
Project Location: Ukiah, California
Project Number: 14816.001.001.0002
Logged By: Brian Reilly, WESTON

Start Date: 13-December-2010 Hour: 1325
Finish Date: 13-December-2010 Hour: 1345
Driller: WESTON
Drill Type/Method: Backhoe
Sampling Method: Grab
Boring Diameter (inches): NA
Total Depth (feet): 3

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Static Water
			TP010-SL-0005		0		SM	Silty SAND (SM), dark grey (10YR, 4/1); about 50% subrounded to subangular gravel; no odor.	
			TP010-SL-0015		1		CL	Silty CLAY (CL), medium to dark brown (10YR, 4/4); medium plasticity; some sand and gravel; no odor.	
			TP010-SL-0030		2				
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GEOLOGIC LOG OF BORING

Boring Number: TP-11
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Brian Reilly, WESTON
Start Date:	13-December-2010 Hour: 1355
Finish Date:	13-December-2010 Hour: 1420
Driller:	WESTON
Drill Type/Method:	Backhoe
Sampling Method	Grab
Boring Diameter (inches):	NA
Total Depth (feet):	5

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Static Water
			TP011-SL-0005		0		GP	Sandy GRAVEL (GP), dark grey (10YR, 4/1); some asphalt debris; no odor; extends to about 1.2 ft-bgs.	
			TP011-SL-0015		1				
					2				
			TP011-SL-0030		3		CL	Silty CLAY (CL), dark brown (10YR, 3/2); medium plasticity; little to no gravel; no odor.	
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GEOLOGIC LOG OF BORING

Boring Number: TP-12
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Brian Reilly, WESTON
Start Date:	13-December-2010 Hour: 1430
Finish Date:	13-December-2010 Hour: 1450
Driller:	WESTON
Drill Type/Method:	Backhoe
Sampling Method	Grab
Boring Diameter (inches):	NA
Total Depth (feet):	5

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Static Water
			TP012-SL-0005		0		CL	Silty CLAY (CL), yellowish brown (10YR, 5/4), gravelly; low plasticity; subrounded gravel up to 2 in.; no odor.	
			TP012-SL-0015		1				
					2		CL	Silty CLAY (CL), medium to dark brown (10YR, 4/4),; medium plasticity; some subrounded gravel up to 1/2 in.; no odor; shift to dark brown (10YR, 3/2) at about 3 ft-bgs.	
			TP012-SL-0030		3				
					4		CL	Silty CLAY (CL), bluish grey (GLEY, 2.5/SB); some sand; slight chemical odor.	
5.5			TP012-SL-0050		5				
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GEOLOGIC LOG OF BORING

Boring Number: TP-13
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Brian Reilly, WESTON
Start Date:	13-December-2010 Hour: 1520
Finish Date:	13-December-2010 Hour: 1535
Driller:	WESTON
Drill Type/Method:	Backhoe
Sampling Method	Grab
Boring Diameter (inches):	NA
Total Depth (feet):	3

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Static Water
			TP013-SL-0005		0		GC	Clayey GRAVEL (GC), dark yellowish brown (10YR, 5/4), silty; low plasticity; about 50% subrounded gravel up to 2 in.; no odor; dry.	
			TP013-SL-0015		1		CL	Silty CLAY (CL), dark brown (10YR, 4/2); medium plasticity; some subrounded gravel; no odor; decreasing gravel with depth.	
			TP013-SL-0030		2				
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GEOLOGIC LOG OF BORING

Boring Number: TP-14
Sheet: 1 of 1

Project Name: **Former Ukiah Rail Yard**
Project Location: Ukiah, California
Project Number: 14816.001.001.0002
Logged By: Brian Reilly, WESTON

Start Date: 13-December-2010 Hour: 1540
Finish Date: 13-December-2010 Hour: 1600
Driller: WESTON
Drill Type/Method: Backhoe
Sampling Method: Grab
Boring Diameter (inches): NA
Total Depth (feet): 5

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Static Water
			TP014-SL-0005		0–1		ML	Sandy SILT (ML), dark brown (10YR, 4/2), gravelly; subrounded gravel; some organics; no odor.	
			TP014-SL-0020		1–5		CL	Silty CLAY (CL), dark brown (10YR, 3/2); medium plasticity; no odor.	
			TP014-SL-0050		5				

GEOLOGIC LOG OF BORING

Boring Number: TP-15
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Brian Reilly, WESTON
Start Date:	13-December-2010 Hour: 1605
Finish Date:	13-December-2010 Hour: 1615
Driller:	WESTON
Drill Type/Method:	Backhoe
Sampling Method	Grab
Boring Diameter (inches):	NA
Total Depth (feet):	5

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Static Water
			TP015-SL-0005		0		CL	Silty CLAY (CL), dark brown (10YR, 3/2), sandy; low to medium plasticity; some subrounded gravel up to 1 in.; some organics [roots]; no odor; decreasing sands with depth; increasing plasticity with depth; no gravel and trace organics at about 2 ft-bgs.	
			TP015-SL-0020		2				
			TP015-SL-0050		5				

GEOLOGIC LOG OF BORING

Boring Number: TP-16
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Brian Reilly, WESTON
Start Date:	13-December-2010 Hour: 1620
Finish Date:	13-December-2010 Hour: 1640
Driller:	WESTON
Drill Type/Method:	Backhoe
Sampling Method	Grab
Boring Diameter (inches):	NA
Total Depth (feet):	5

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Static Water
			TP016-SL-0005		0–1		SM	Silty SAND (SM), dark brown (10YR, 3/2), gravelly; subrounded gravel up to 2 in; significant asphalt debris; discontinuous asphalt layer from about 1 to 1.25 ft-bgs.	
			TP016-SL-0020 TP016-SL-1020 (dup)		1–5		CL	Silty CLAY (CL), dark brown (10YR, 3/2), low plasticity; no odor.	
			TP016-SL-0050		5				
					6–20				

GEOLOGIC LOG OF BORING

Boring Number: TP-17
Sheet: 1 of 1

Project Name:	**Former Ukiah Rail Yard**
Project Location:	Ukiah, California
Project Number:	14816.001.001.0002
Logged By:	Brian Reilly, WESTON
Start Date:	13-December-2010 Hour: 1645
Finish Date:	13-December-2010 Hour: 1705
Driller:	WESTON
Drill Type/Method:	Backhoe
Sampling Method	Grab
Boring Diameter (inches):	NA
Total Depth (feet):	5

PID Reading	Screening Interval	Groundwater Sample Number	Soil Matrix Sample Number	Core Recovery (%)	Depth (feet)	Graphic Log	UCSC	Description (Lithology, color, constituents, density, moisture, other features, (interpretation))	Static Water
			TP017-SL-0005		0–1		ML	Sandy SILT (ML), dark grey to dark brown; low plasticity; medium to strong hydrocarbon odor.	
			TP017-SL-0020		1–5		CL	Silty CLAY (CL), dark brown (10YR, 3/2); medium plasticity; no odor.	
			TP017-SL-0050		5				

APPENDIX D

DATA VALIDATION MEMORANDUM

North of Gibson Creek

MEMORANDUM

DATE:	4 May 2011
TO:	Greg Stuesse, Weston Solutions, Seattle
FROM:	Tara Fitzgerald, Weston Solutions, Oakland
SUBJECT:	Review of Soils Data – Exception Memo *Site:* North of Gibson Creek *Project:* Site Investigation
WORK ORDER:	14816.001.004.0002
cc:	Weston Solutions project file

The quality assurance review of soil and groundwater samples collected from the North of Gibson Creek site located in Ukiah, California, has been completed.

K Prime, Inc., Santa Rosa, California performed chemical analyses for all parameters. The samples were analyzed for the following constituents, as part of a Site Investigation. Any potential bias resulting from the quality issue identified by the data flag is discussed in this QA/QC summary report.

Organic Parameters

- Total extractable petroleum hydrocarbons by United States Environmental Protection Agency (USEPA) Office of Solid Waste and Emergency Response (OSWER) SW-846 (SW) Method SW 8015B (analysis) – gas chromatography / flame ionization detection (GC/FID) with silica gel cleanup.
- Total volatile hydrocarbons and hydrocarbon fractionation by USEPA OSWER SW-846 Method SW 8015B (analysis) – GC/FID.
- Volatile aromatic compounds (VOC/VOA) following USEPA Test Methods for Evaluating Solid Waste, Chemical/Physical Methods SW-846 (SW) ; prepared by Method SW5030 (purge and trap extraction), and analyzed by SW8260B (gas chromatography/mass spectral detection [GC/MS]).
- Polycyclic Aromatic hydrocarbons (PAHs) prepared by Method SW3510 (separatory funnel liquid-liquid extraction), and analyzed by SW8270 Selected Ion Monitoring (SIM) (GC/MS).

Inorganic Parameters

- Dissolved metals by USEPA Method 200.8 (analysis) – inductively-coupled plasma / mass spectrometry (ICP/MS).
- Arsenic by USEPA Method SW3050B (preparation) – acid digestion followed by USEPA Method SW6020A (analysis) – ICP/MS

Data Qualifications

The following comments refer to the laboratory performance in meeting the quality control criteria described in the North of Gibson Creek Site Investigation Work Plan (WP; WESTON 2011). The review follows the format described in the WP, *National Functional Guidelines for Superfund Organic Methods Data Review* (USEPA 2008), *National Functional Guidelines for Inorganic Data Review* (USEPA 2004) and specific procedural details provided in the individual analytical methods.

This is an exception memo. All required quality control criteria were met, with the following exceptions.

Matrix Spike/Matrix Spike Duplicates (MS/MSDs) were not performed by K Prime Laboratories as specified in the WP for three laboratory batches: 040611S1 (VOCs), 040111W01 (SVOCs), and 110412S01 (metals). MS/MSDs were performed for the majority laboratory batches. Duplicates (LCS/LCSD) were performed as specified by EPA Methods and the WP. No data was qualified on this basis.

Other Issues Regarding Data Quality

No other issues were identified by the reviewer that impacted data quality or usability.

Data Assessment and Reconciliation with Project Data Quality Objectives

Upon consideration of the data qualifications noted above, the data are ACCEPTABLE for use except where flagged with data qualifiers that modify the usefulness of the individual values. The data meet project quality objectives for their intended purpose.

Data Qualifiers

ND	The compound was analyzed for, but was not detected.
J	The compound was positively detected; the reported concentration is estimated due to QC criteria not met.
UJ	The compound was not detected; the reporting limit is estimated due to QC criteria not met.

Certification

Data review was performed by an experienced quality assurance chemist independent of the analytical laboratory and not directly involved in the project.

This is to certify that I have examined the analytical data, and based on the information provided to me by the laboratory, in my professional judgment, the data are acceptable for use except where indicated with data qualifiers or comments that may modify the usefulness of those individual values.

Tara Fitzgerald
Project Chemist

South of Gibson Creek

MEMORANDUM

DATE: 4 May 2011

TO: Greg Stuesse, Weston Solutions, Seattle

FROM: Tara Fitzgerald, Weston Solutions, Oakland

SUBJECT: Review of Soils Data – Exception Memo
Site: Former Ukiah Rail Yard
Project: Site Investigation

WORK ORDER: 14816.001.001.0002

cc: Weston Solutions project file

The quality assurance review of soil, groundwater, and soil vapor samples collected from the Former Ukiah Rail Yard located in Ukiah, California, has been completed.

K Prime, Inc., Santa Rosa, California performed chemical analyses for all parameters with the following exceptions: BSK Laboratories of Fresno, California performed analysis for Total Organic Carbon via EPA Method 415.2 and American Analytics of Chatsworth, California, performed onsite volatile organic compound analysis via Vapor by GC/MS. Two soil vapor samples were sent to K Prime, Inc. in order to confirm American Analytics soil vapor sample results.

The samples were analyzed for the following constituents, as part of a Site Investigation. Any potential bias resulting from the quality issue identified by the data flag is discussed in this QA/QC summary report.

Organic Parameters

- Total extractable petroleum hydrocarbons by United States Environmental Protection Agency (USEPA) Office of Solid Waste and Emergency Response (OSWER) SW-846 (SW) Method SW 8015B (analysis) – gas chromatography / flame ionization detection (GC/FID) with silica gel cleanup.
- Total volatile hydrocarbons and hydrocarbon fractionation by USEPA OSWER SW-846 Method SW 8015B (analysis) – GC/FID.
- Volatile aromatic compounds (VOC/VOA) following USEPA Test Methods for Evaluating Solid Waste, Chemical/Physical Methods SW-846 (SW) ; prepared by

Method SW5030 (purge and trap extraction), and analyzed by SW8260B (gas chromatography/mass spectral detection [GC/MS]).

- Polycyclic Aromatic hydrocarbons (PAHs) prepared by Method SW3510 (separatory funnel liquid-liquid extraction), and analyzed by SW8270 Selected Ion Monitoring (SIM) (GC/MS).
- Polychlorinated biphenyl compounds as Aroclors (PCB) prepared by Method SW3550 (ultrasonic extraction), and analyzed by SW8082 (GC/electron capture detection [GC/ECD].
- Sulfate and Nitrate as Nitrogen via EPA Method 300.0 – Inorganic ions by ion chromatography.
- Total Organic Carbon via EPA Method 415.2 – ultraviolet (UV) promoted, persulfate oxidation.

Inorganic Parameters

- Dissolved metals by USEPA Method 200.8 (analysis) – inductively-coupled plasma / mass spectrometry (ICP/MS).
- Arsenic and lead by USEPA Method SW3050B (preparation) – acid digestion followed by USEPA Method SW6020A (analysis) – ICP/MS
- Arsenic by California Waste Extraction Test (Cal WET) (preparation) followed by USEPA Method SW6020A (analysis) – ICP/MS

Data Qualifications

The following comments refer to the laboratory performance in meeting the quality control criteria described in the Former Ukiah Rail Yard Site Investigation Work Plan (WP; WESTON 2010). The review follows the format described in the WP, *National Functional Guidelines for Superfund Organic Methods Data Review* (USEPA 2008), *National Functional Guidelines for Inorganic Data Review* (USEPA 2004) and specific procedural details provided in the individual analytical methods.

This is an exception memo. All required quality control criteria were met, with the following exceptions.

Matrix Spike/Matrix Spike Duplicates (MS/MSDs) were not performed by K Prime Laboratories as specified in the WP. WESTON contacted K Prime, Inc. and Carla Kagel stated that the laboratory batches samples based on order of arrival. Samples are also batched based on the analyses to be run. Therefore, one sample submitted to the laboratory for multiple analyses has multiple batch identifiers. Samples submitted for MS/MSD analysis were not batched with only WESTON samples and therefore MS/MSDs were not run for a majority of the sample batches. Laboratory Control Spike/Laboratory Spike Duplicates (LCS/LCSD) were performed as specified by EPA Methods and the WP. No data was qualified on this basis.

K Prime, Inc. did not spike samples with surrogates before total extractable hydrocarbons total petroleum hydrocarbons as diesel range organics (TPH-d) and total petroleum hydrocarbons at motor oil range organics (TPH, mo)) and total volatile hydrocarbon analysis (total petroleum hydrocarbons – gas range organics (TPH-g))as specific in EPA Method 8015. K Prime, Inc. was contacted by WESTON and Carla Kagel of K Prime, Inc. confirmed that the laboratory does not routinely spike samples with surrogates when conducting EPA 8015 analysis. PAH results were compared to total extractable hydrocarbons results in groundwater and soil samples to determine whether non-detect results in samples analyzed for total extractable hydrocarbons tracked with non-detect results for PAHs. PAHs were non-detect in all groundwater samples. Total extractable hydrocarbons were detected at relatively low concentrations in one groundwater sample and non-detect in all other groundwater samples. However, PAHs were also non-detect all soil samples with non-detect total extractable hydrocarbon results. PAHs were detected in some soil samples that had positive total extractable hydrocarbon results. Based upon the failure to spike samples with surrogates and a comparison of total extractable hydrocarbon and PAH results, all non-detect total extractable hydrocarbon results should have the UJ qualifier attached and all detect total extractable hydrocarbon results should have the J qualifier attached. Additionally, all total purgeable hydrocarbons results were non-detect and should have the UJ qualifier attached.

Field duplicates were not conducted at appropriate frequencies for soil samples. Field duplicates were analyzed at a frequency of 7.5 % instead of the required 10 % for soil samples analyzed for total extractable hydrocarbons. Field duplicates were not analyzed for soil samples for the following analyses: arsenic, lead, total volatile hydrocarbons, VOCs, PAHs, PCBs. Field duplicates were analyzed for groundwater samples at a frequency of 8.6 % instead of the required 10 %. Field duplicates were conducted at appropriate frequencies soil vapor samples.

Total extractable hydrocarbon analysis was requested for the following soil samples outside of the technical holding time: SV007-SL-0020, DP005-SL-0020, DP005-SL-0050, DP005-SL-0290, DP006-SL-0020, DP006-SL-0050, DP006-SL-0290, and TP011-SL-0015. The soil samples were extracted from 16 to 22 days after the collection date instead of the required 14 days after collection. Total extractable hydrocarbons are relatively stable compounds in soil and samples were kept cold upon receipt at the laboratory. Therefore, data were not qualified based upon exceedances of the technical holding time.

PCB analysis was requested for the following soil samples outside of the technical holding time: DP005-SL-0150, DP006-SL-0005, and SV0007-SL-0005. The soil samples were extracted from 18 to 20 days after the collection date instead of the required 14 days after collection. PCBs are stable compounds in soil. Therefore, data were not qualified based upon exceedances of the technical holding time.

Chromatographic Interpretation

The chromatograms associated with total extractable hydrocarbons were qualitatively evaluated in an attempt to identify the potential parent petroleum products present in soil samples as well as one groundwater sample. Silica gel cleanup was performed on the sample extract prior to analysis. None of the chromatograms matched the diesel fuel standard. The chromatographic band of the unknown product extends to longer elution times (higher boiling points) than the

diesel fuel standard chromatogram provided as a reference. The unresolved complex mixture (UCM) for the motor oil standard lies within the diesel range quantitation limit (C12-C23). The chromatograms of the following samples closely resemble the motor oil standard: SV007-SF-0005, DP001-SL-0005, DP003-SL-0005, DP010-SL-0050, TP016-SL-0005, and BG003-SL-0005. The chromatograms for the following samples contain an UCM that overlaps with the motor oil standard but also contains lighter hydrocarbons that contribute to diesel and motor oil quantitation: SV022-SL-0005, SV022-SL-0050, DP005-SL-0005, DP005-SL-0150, DP005-SL-0200, DP006-SL-0005, DP0006-SL-0200, DP010-SL-0005, DP010-SL-0020, DP010-SL-0100, DP012-SL-0500, TP012-SL-0005, TP017-SL-0005, TP017-SL-0020, TP003-SL-0005, TP011-SL-0005, BG001-SL-0005, BG003-SL-0050, and BG002-SL-0100. The sample TP008-SL-0005 chromatogram contained a UCM that partially matches the motor oil standard but contains heavier hydrocarbons that contribute to diesel and motor oil quantitation. The chromatogram for sample TP013-SL-0005 contains a UCM that lies primarily in the diesel range but does not match the diesel fuel standard. The UCM does not contain discernable alkane features.

Mass spectral data were not available for biomarker identification or PAH ratio determinations.

Other Issues Regarding Data Quality

No other issues were identified by the reviewer that impacted data quality or usability.

Data Assessment and Reconciliation with Project Data Quality Objectives

Upon consideration of the data qualifications noted above, the data are ACCEPTABLE for use except where flagged with data qualifiers that modify the usefulness of the individual values. The data meet project quality objectives for their intended purpose.

Data Qualifiers

ND	The compound was analyzed for, but was not detected.
J	The compound was positively detected; the reported concentration is estimated due to QC criteria not met.
UJ	The compound was not detected; the reporting limit is estimated due to QC criteria not met.

Certification

Data review was performed by an experienced quality assurance chemist independent of the analytical laboratory and not directly involved in the project.

This is to certify that I have examined the analytical data, and based on the information provided to me by the laboratory, in my professional judgment, the data are acceptable for use except where indicated with data qualifiers or comments that may modify the usefulness of those individual values.

Tara Fitzgerald
Project Chemist

APPENDIX E
ELECTRONIC LABORATORY DATA
SPREADSHEETS AND REPORTS

ATTACHMENT B

IMPLEMENTATION WORK PLAN

ATTACHMENT B

IMPLEMENTATION WORK PLAN
FORMER UKIAH RAIL YARD, UKIAH, CALIFORNIA
June 2011

1.0 INTRODUCTION

1.1 Purpose and Objectives

This Work Plan sets forth the major work elements and summarizes the technical approach to be followed in performance of the excavation and disposal of approximately 650 to 1,150 cubic yards (yd^3) of soil impacted with petroleum hydrocarbons and polycyclic aromatic hydrocarbons (PAHs) from the former Ukiah Rail Yard facility at East Perkins Street west of Leslie Street, Ukiah, California (Property or Site). This document was prepared as an appendix to the Remedial Action Plan (RAP) for remediation of impacted soils at the site and, along with the Site-Specific Safety and Health Plan (SSHP) and the Quality Assurance/Quality Control Plan, provides the framework for the remediation of impacted soils at the site.

1.2 Anticipated Site Conditions at Start of Soil Removal

Based on previous sampling results, it appears that existing structures and other features will not impede the proposed soil removal. If areas of asphalt paving or concrete slab are encountered in the remediation areas, these materials will be removed first and segregated away from soil staging piles.

1.3 Scope of Work

The scope of work (SOW) for removal of the contaminated soils includes the following major tasks:

- Complete the planning and pre-construction activities.
- Maintain erosion and sedimentation controls.
- Establish and maintain temporary haul routes and construction entrance and exit points throughout the site.
- Complete grubbing and surface debris removal in areas of contaminated soil.
- Excavate, stockpile, sample, load, transport, and dispose of the estimated 650 to 1,150 yd^3 of soils impacted with TPH and/or PAHs.
- Conduct post excavation confirmation sampling and analysis of soils to ensure that the targeted contaminants have been removed or reduced to concentrations that are less than the established cleanup goals.
- Provide clean backfill for excavations and compact to original ground surface or slope excavation sidewalls sufficiently to remove potential physical hazards.
- Operate water trucks as needed for dust suppression.

- Perform downwind air monitoring to confirm that fugitive particulate emissions or volatile organic compounds are within limits established in the SSHP.
- Prepare a final remediation action completion report that documents the remedial actions performed at the site, the results of laboratory analyses performed on samples of the soil remaining in the sidewalls and bottoms of the excavations, the quantities of impacted soil removed, and the off-site location where the impacted soils were disposed.

Soil removal action levels are included in Section 6 of the RAP. Section 8 of the RAP details how confirmation sampling will be performed, the laboratory methods to be utilized, sample collection, sample handling, and decontamination procedures.

2.0 PLANNING AND PRE-CONSTRUCTION ACTIVITIES

2.1 Coordination With Other Site Activities

Contractors responsible for the other construction and site activities will be coordinated to ensure a smooth transition of on-site activities. Transition issues will include, among others, the site condition after excavation, transfer of site security, and maintenance of run-off control systems. The final condition of the existing utilities will also be evaluated to ensure that all site utilities in the areas of the proposed remedial excavations have been relocated, removed or de-energized. Underground Service Alert will be notified to mark underground utilities prior to excavation.

2.2 Coordination With Disposal Facility and Soil Transporter

In accordance with Section 8 (Waste Management and Disposal), a key step in the planning will be to characterize the different waste streams and to submit profiles to appropriate waste disposal or recycling facilities in advance of removals. Once characterization of the soil is complete, the necessary approvals from the appropriate waste disposal facilities will be obtained.

A plan for trucking from the site to the disposal facilities will be developed prior to initiating the work to ensure that an adequate number of trucks are available, and that the trucking company can meet the proposed schedule. The goal is to maximize efficiency of the trucks so that when they arrive at the site, they are immediately loaded and returned to the disposal facility in order to maximize the number of loads per day.

2.3 Permitting and Approvals

Prior to mobilization, the necessary permits and approvals to conduct the work will be obtained. Permits that will be needed prior to commencing soil removal activities include:

- General construction storm water permit from the State Water Resources Control Board
- Grading permit from the City of Ukiah

Grading projects that disturb 1 acre or more in a calendar year are typically required to obtain an air permit from the Mendocino County Air Quality Management District (MCAQMD). Although the disturbance of less than 0.5 acre is estimated for the conducting soil excavation

activities, an air quality permit application form will be submitted to MCAQMD for review to determine if an air permit is required.

Additional plans that will be prepared prior to soil removal activities likely include:

- Stormwater Pollution Prevention Plan (SWPPP)
- Grading plan
- Erosion control plan

A traffic control plan is provided in Section 7 of this Implementation Work Plan. Because lane closures will not be needed to conduct the proposed remedial activities, an additional traffic control plan should not be required.

The completed permit applications, forms, plans, drawings, and narratives required for the permitting/approval process will be maintained on site for review by the appropriate agencies.

3.0 MOBILIZATION AND SITE SETUP

Under the mobilization and site preparation task, site personnel and subcontractors involved in the excavation phase of the project will report to the site to perform the following duties:

- Set up administrative and break trailers
- Obtain utility clearances
- Establish access points and traffic routes
- Designate a decontamination area for equipment or vehicles that come in contact with contaminated materials
- Install and inspect/modify required sediment and erosion controls
- Set up downwind air monitor for fugitive dust
- Provide the necessary site-specific training
- Prepare for site work

The major mobilization and site preparation activities will be completed as follows.

3.1 Site Survey and Layout

Pertinent site features and the currently proposed areas of excavation will be surveyed using either a land surveyor or GPS unit. Each of the excavation areas will be clearly marked on the ground to indicate the area where impacted soil is to be removed. Reference points will be protected and maintained to facilitate surveys of the completed excavations and locations of post excavation sample points.

Adjacent property owners will be contacted prior to the excavation of Areas 1, 3, 7 and 8 located in the near the eastern property boundary to discuss any concerns they may have regarding the proposed soil excavations.

3.2 Establishment of Support Area

It is assumed that a site trailer would be needed during remedial activities. A possible location for this trailer would be adjacent to the site access road in the northwestern part of the property as shown on the Site Layout and Truck Route map (Figure 1 of this Implementation Work Plan). The area will include an office/construction and break trailer, a mechanical area, and a parking area. The trailer will be supplied with electricity. Drinking water and sanitary facilities will also be provided at the support area.

3.3 Establishment of Pedestrian and Vehicle Traffic Control

Pedestrian access controls will be established prior to commencement of remedial activities to restrict access to the property including work areas, excavation areas and soil stockpiles. The type of controls will vary depending on the activities conducted but will include the use of permanent and temporary fencing, caution tape and barricades, and on-site personnel.

Specific vehicle traffic control routes will be established as illustrated in Figure 1 of this Implementation Work Plan and described below in the Section 7.

3.4 Soil Erosion and Sediment Control

The soil excavation contractor will be responsible for installing and maintaining soil erosion and sediment control structures, including silt fences and/or straw waddle across drainage flow paths. Stormwater that may potentially discharge to Gibson Creek or flow on to adjacent properties will be closely monitored in order to meet all permit requirements. Control measures for protecting Gibson Creek and adjacent properties will be specified in the Stormwater Pollution Prevention Plan (SWPPP) and the Soil Erosion and Sediment Control Plan to be prepared for the site prior to remedial activities, as required by the general construction storm water permit and the grading permit. These plans are stand-alone documents and are not included in the RAP.

3.5 Equipment Decontamination

On-site vehicle traffic will be restricted to non-contaminated areas. Rubble strips will be installed to remove loose dirt from vehicle tires prior to exiting the site. A plastic-lined decontamination area will be utilized for decontamination of equipment prior to demobilization. It is anticipated that dry decontaminated methods will be used to remove loose dirt from tracks and buckets. If soil is too wet or cannot be readily removed in the above manner, tires will be pressure washed at a decontamination station prior to leaving the Site. Rinse water will be collected, sampled for waste characterization, and periodically disposed of off-site at an appropriate facility. Vehicles will be inspected prior to leaving the Property.

3.6 Establish Soil Staging Areas

Figure 1 of this Implementation Work Plan shows the locations proposed for establishing soil stockpiles. Contaminated soils will be excavated and placed in the appropriate staging pile for subsequent load-out, transport and disposal. The stockpile locations were selected to minimize the distance that material would need to be moved on-site.

4.0 SOIL EXCAVATION AND BACKFILL

4.1 Excavation Approach

Excavation of contaminated soils will be conducted as outlined in the RAP. Most excavations will extend to only a few feet, extending to a maximum of 10 feet bgs if necessary based on results of confirmation sampling. Soils will be temporarily staged on-site pending waste characterization sampling, load-out, transport, and disposal at an off-site location. This approach will allow the remediation work to progress at a rapid pace, and the excavation will not be constrained by the number of trucks available to transport the impacted soil to the appropriate disposal facility. Additionally, staging soils nearby, but not within, areas of remedial excavation will eliminate the need for trucks to enter the remediation zones.

When the limits of any proposed excavation have been reached, samples will be collected from the bottom and sidewalls of the excavation in accordance with Section 8 of the RAP. If concentrations of contaminants in the remaining soil exceed the established action levels, additional excavation will be performed. This process will continue until it has been determined that the concentrations of target contaminants remaining in the bottom and sidewalls of the excavation are below action levels. When the remedial excavation has been completed, the limits of the excavation and final confirmation sample locations will be surveyed or located using GPS in order to accurately establish their locations.

4.2 Engineering Controls

Engineering controls will be implemented to minimize the generation of dust and vapor, and to prevent the spread of potentially impacted material within or from the site. Dust suppression will be performed during all site activities by application of water from a water truck. In addition, all truck trailers will be covered with a tarp prior to exiting the site to minimize dust emissions, and to protect the load from wind and rain.

Street cleaning will be conducted on the roads surrounding the site as necessary using a street sweeper and wet sweeping methods to remove dust and soil deposits.

Some of the materials excavated from the site will contain diesel or motor oil range organic compounds and may emit nuisance odors. Given that the excavations will occur in an urban setting, it is of prime importance that effective vapor/odor control procedures be implemented. Vapor/odor control will be addressed by a combination of methods including:

- Minimizing duration to excavate soil containing high contaminant concentrations

- Dust suppression using water spray
- Covering inactive stockpiles with plastic sheeting

Portable air monitoring instruments will be placed downwind of the remedial areas in order to monitor particulate emissions. The air-monitoring will include continuous-reading instruments designed to detect particulate matter with aerodynamic diameter less than 10 microns (PM_{10}) using a mini-RAM with data logger.

During the air quality permit application process discussed in Section 2.3, the Mendocino County Air Quality Management District will be contacted regarding applicable guidelines for PM_{10} monitoring and criteria for dust.

4.3 Backfill of Excavations

All excavations will be backfilled to the original ground surface using clean earth fill materials previously removed from job site excavations or clean, imported fill from an off-site source. Import sources for backfill will be sampled to ensure that backfill material is free of contaminants. The import source, sampling frequency, analytes and results will be provided to the Regional Water Board staff for review and concurrence before the backfill material is used.

All fill materials are also subject to approval by the designated Soils Engineer. The fill materials will be substantially free of foreign materials, vegetable growths, sod, rocks, expansive soils, or debris. . All fill will be placed in 12-inch loose lifts, moisture conditioned if necessary, and compacted with a minimum of three-passes with a 20-ton sheepsfoot compactor.

Following the backfilling of the soil excavations, erosion control measures will be implemented that will include hydroseeding of the backfilled excavation areas. Additional information regarding erosion control measures will be provided in the SWPPP and the grading plan to be prepared prior to the start of excavation activities.

5.0 ON-SITE SOIL MANAGEMENT

As described in Section 4 of this Work Plan, the remedial approach is to excavate and stockpile contaminated soils, then load out and transport the soils to the off-site disposal location.

Concrete foundation structures (column piers and footings, etc.) and subsurface slabs may be encountered in the remedial excavations. All concrete or asphalt that is removed from remedial excavations will be staged separately pending characterization and determination of disposal options.

All contaminated soils delivered to the stockpile area will be placed on plastic sheeting and covered with plastic sheeting. The stockpile area will be constructed to minimize the potential of run-off during precipitation events. Run-off control is detailed in the site specific Storm Water Pollution Prevention Plan to prepared prior to conducting remedial activities. All contaminated soil stockpiles will be covered with plastic sheeting at the end of each day or when excavation activities have ceased. Cover sheeting will be secured with sand bags or other means.

6.0 PERSONNEL AND EQUIPMENT DECONTAMINATION

6.1 Personnel Decontamination

All on-site personnel working within the excavation areas will follow the personnel decontamination procedures outlined in the SSHP.

6.2 On-site Equipment Decontamination

All equipment surfaces coming into contact with the contaminated soils will be decontaminated in specific decontamination areas prior to moving to a new excavation area and before handling any clean soils. If possible, the equipment will be decontaminated using dry methods such as brushing to minimize generation of liquid wastes. If dry processes are unsuccessful in removing visible soil from the equipment, decontamination will be accomplished using a pressure washer or detergent cleaning and water rinse. The wash area will be lined to collect liquid runoff and graded to provide positive drainage to a low point where a sump will be installed. Decontamination water will be containerized so that it can be appropriately characterized and disposed. Water that is contaminated will be disposed at an appropriately permitted off-site treatment and disposal facility. Water that is not contaminated will be either discharged in a manner that complies with all environmental regulations or will be containerized for off site management.

All trucks hauling excavated materials from the site will pass over a steel rumble strip, concrete cattle-guard or equivalent device to aid in removing soil/dust from the truck tires and body. Street cleaning will be conducted on the roads surrounding the site as necessary using a street sweeper and wet sweeping methods to remove dust and soil deposits.

7.0 TRAFFIC CONTROL PLAN

The intent of this plan is to clearly direct and control the flow of traffic from the site to the city streets with as little interruption to the normal flow of traffic as possible. The streets adjacent to the site service both commercial and residential neighborhoods. The primary site access is via East Perkins Street, which has four lanes. Entry onto the site will be through an existing entrance from Perkins Street located in the northwest corner of the property.

The primary entrance and exit point for the site will be off East Perkins Street as shown on Figure 1 of this Implementation Work Plan. East Perkins Street is a main thoroughfare with freeway access and passes adjacent to the north side of the subject property. Commercial establishments are present along East Perkins Street. Sidewalks are present along East Perkins Street but foot traffic is relatively limited. Flagmen will be used as necessary for trucks exiting the site onto East Perkins Street.

The activities that are planned for the site that will impact traffic on surrounding surface streets include the transport of materials that are generated during the excavation and export of contaminated soil, and import of clean fill material. It is anticipated that at the peak of the project, a maximum of twenty to thirty 18-wheel trucks will enter and leave the site on any given

day. The duration of the activities that will impact traffic is expected to be 15 working days (Monday through Friday), but may vary depending on the actual volume of contaminated soil. The work will be performed within the times allowed by the city noise and/or work ordinance.

There is no work planned that will be performed in, or that will physically impact any of the streets or sidewalks that border the site. All construction and remediation work activities will be performed inside of the site boundaries and will not affect utilities or traffic control devices adjacent to the site boundaries, and therefore, will not require signage.

Trucks leaving the site will access the 101 Freeway by exiting the site and proceeding east bound on East Perkins Street. Trucks will continue east on East Perkins Street for approximately one-half mile to the 101 Freeway. A map illustrating the traffic routes for trucks is presented in Figure 2 of this Implementation Work Plan.

The vehicular traffic on the streets surrounding the subject site is unlikely to be disrupted by the limited amount of truck traffic that is estimated for the site. Based on the low flow of traffic around the site, it is unlikely that lighted signboards, cones, or other methods of traffic control will be needed. Designated site personnel should be used to control traffic when needed. Appropriately trained persons will be designated to perform traffic control prior to initiating trucking activities.

8.0 WASTE MANAGEMENT AND DISPOSAL

8.1 Expected Waste Types

The table contained on Figure 6 in the RAP provides the estimated quantities of the soil contamination targeted for removal. Soils are impacted by TPH and/or PAHs, and in some cases comingled. All excavated soils are compatible both chemically and with regard to waste stream and will be staged in single common stockpiles adjacent to the various remediation areas (Figure 1 of this Implementation Work Plan). Concrete removed from the remedial excavations may be contaminated. Because of waste characterization and profile differences, all concrete rubble will be stockpiled, sampled if necessary to characterize, and disposed separately from the soil.

Decontamination fluids will also require proper handling and disposal. Wash water from the decontamination of trucks will be contained and subsequently sampled to determine if contamination exists. Contaminated water will be profiled and disposed of at an appropriately permitted treatment and disposal facility.

Other municipal type wastes, including general trash, paper, plastic sheeting, and used personnel protective equipment, will be managed as general solid waste and disposed at a local landfill.

8.2 Soil Waste Characterization

Characterization of the contaminated soil will be performed in order to dispose of the soil properly. Depending on the results of the characterization sampling and analyses, a disposal

facility will be selected for each of the different contaminated soil types. Waste profiles will then be developed and approvals will be obtained from the disposal facility prior to shipping the waste.

Based on available sampling results, it is anticipated that all soil (and wash water) can be handled and disposed of as non-hazardous waste.

8.3 Manifesting

All manifests will be signed by an authorized representative of the property owner prior to the shipment of any waste from the site. Copies of the manifests will be maintained on site during the remediation process and the originals will be provided to the owner for processing.

8.4 Soil Load-out and Truck Weight Control

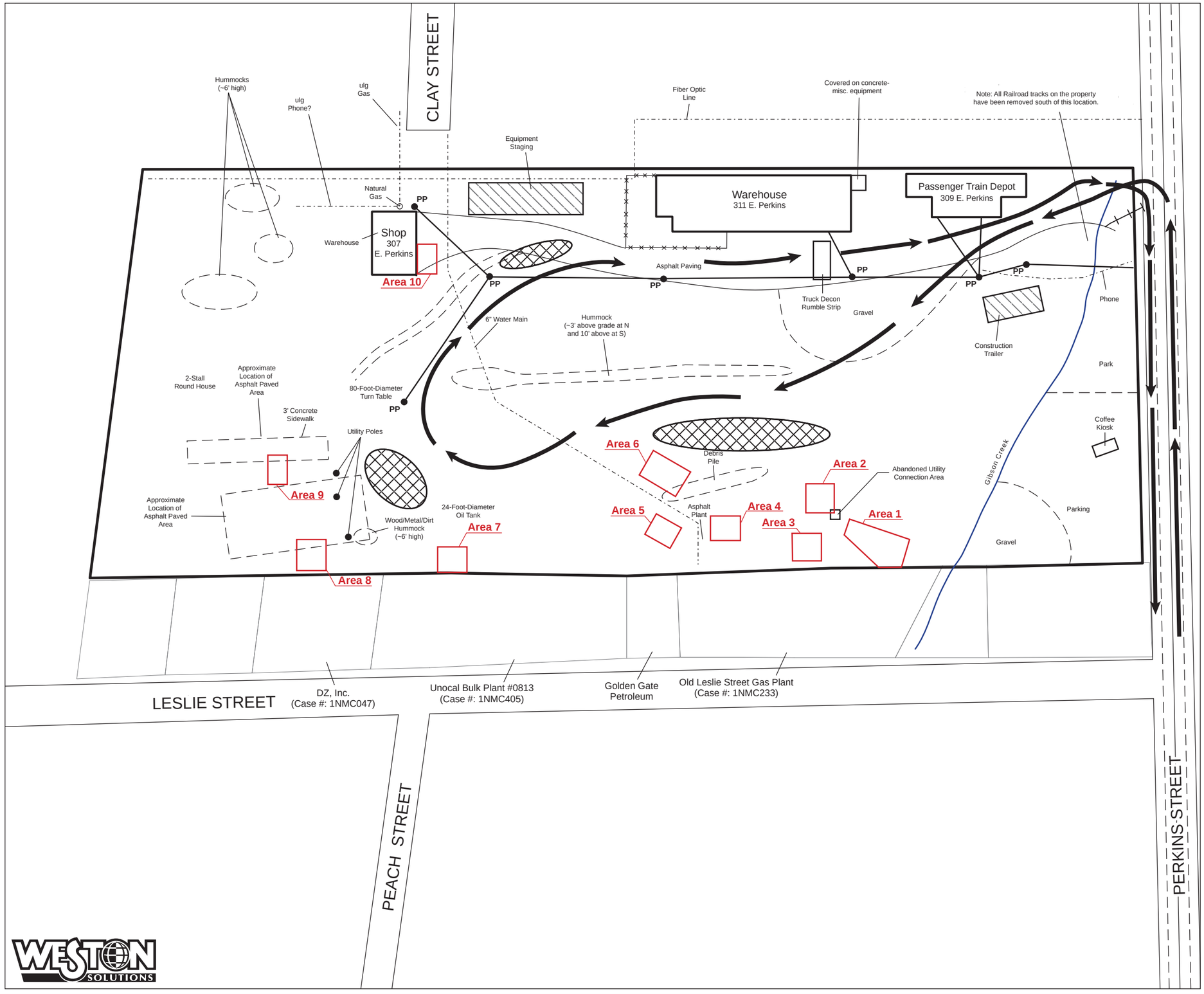
Soil will be loaded onto the trucks up to the legal weight limit. Trucks equipped with axle scales, or local scales will be utilized to ensure the maximum load of soil is reached for each truck without exceeding the legal load limit. A Certified Weighmaster will weigh each load of soil sent to the disposal facility and will issue a Weighmaster's Certificate documenting the weight of the soil carried in each load. All Weighmaster Certificates will be collected and maintained on site to document the total weight of soil disposed.

8.5 Proposed Disposal Facility

The disposal facility for the contaminated soil will be determined following the completion of the waste characterization. Based on concentrations of contaminants that have been detected in soil samples collected during earlier investigations, WESTON anticipates that the soil possessing concentrations of contaminants will be characterized as non-hazardous based on State and Federal Guidelines.

9.0 CHANGES IN SITE CONDITIONS

This Work Plan is subject to amendment based on field conditions and experience gained through implementation of project tasks. For instance, the excavation approach and sequence may be altered depending on the site conditions and materials encountered during the performance of the work. If necessary, site plans will be amended and forwarded to lead over-site agencies if approval is required. All changes will be documented and maintained in the project files in accordance with the project quality assurance plan.

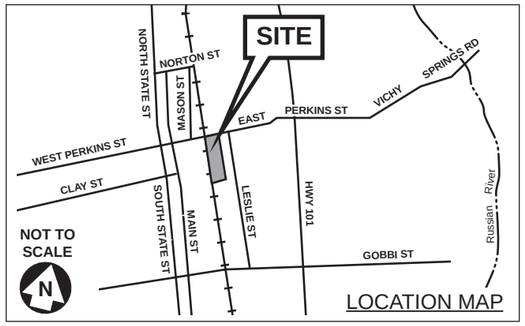


- Site Boundary (NCRWQCB Site ID # 1NMC397)
- Historic or existing rail track
- Underground utility
- Overhaed power and pole (PP)
- Excavated soil stockpile and load-out area
- Truck Route
- Soil excavation area
- Soil remediation support areas

N

0 50 100

Scale in Feet



LOCATION MAP

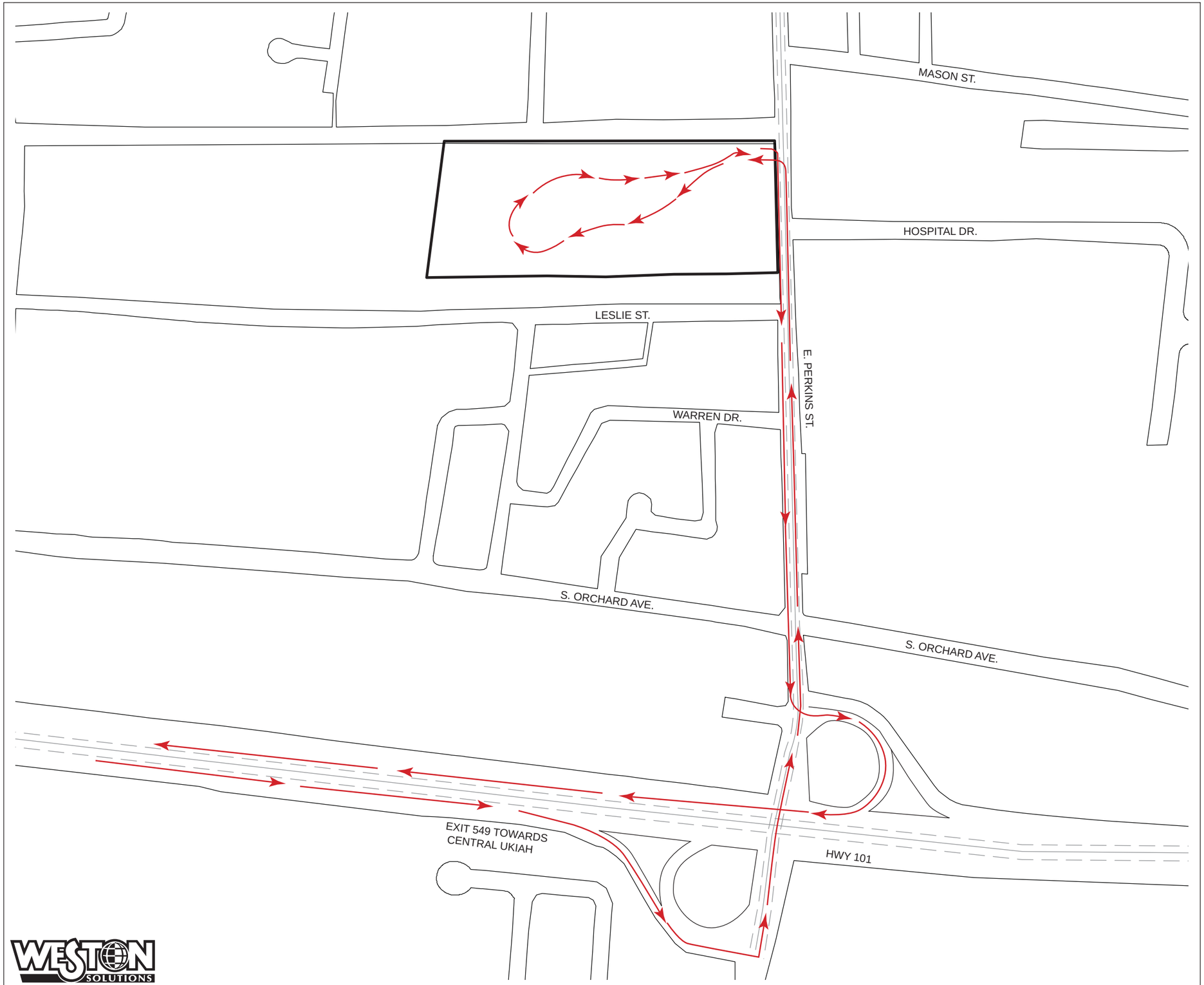
Site Layout and Truck Route

Former Ukiah Rail Yard
Ukiah, CA

Figure
1

WESTON SOLUTIONS

11-0014 RAP_AttachB_Fig1.ai



Site Boundary (NCRWQCB Site ID # 1NMC397)

Truck Route

N

0 150 300

Scale in Feet

LOCATION MAP

Truck Route to Freeway

Former Ukiah Rail Yard

Ukiah, CA

Figure

2

WESTON SOLUTIONS

11-0014 RAP_AttachB_Fig2.ai

ATTACHMENT C

QUALITY ASSURANCE/QUALITY CONTROL PLAN

ATTACHMENT C

QUALITY ASSURANCE/QUALITY CONTROL PLAN
FORMER UKIAH RAIL YARD, UKIAH, CALIFORNIA
JUNE 2011

1.0 INTRODUCTION

This Attachment has been developed to provide guidance and direction to ensure that the remediation program at the former Ukiah Rail Yard facility in Ukiah, California meets or exceeds the performance requirements set forth in the Remedial Action Plan (RAP) along with pertinent regulatory permits and approvals. The objective of this project quality assurance/quality control (QA/QC) plan is to define the management system and procedures that will document the following:

- Performance of equipment and materials used to meet project specifications such as erosion control, traffic control, soil management, and dust control
- Confirmation sampling and analysis to determine completion of remediation
- Framework for communicating the QA/QC procedures and requirements to project personnel

2.0 FIELD IMPLEMENTATION

2.1 Pre-Construction Conference

Prior to the initiation of excavation activities, a pre-construction conference will be held. Attendees at this meeting will include representatives of the City of Ukiah (City) and selected contractors responsible for completion of this project. The topics discussed at the conference will include the roles and responsibilities of key personnel, scope and sequencing of work tasks, conformance with the project specifications and regulatory requirements, project schedule, health and safety issues, and the communication procedures. Attendance records will be maintained.

2.2 Daily Site Meeting

Beginning with site mobilization, a daily site meeting led by the designated site manager will occur prior to starting any field activity. The topics to be discussed will include the schedule for the day, health and safety requirements, required coordination, and any other topic relevant to the daily activity. It is expected that this meeting would last no longer than 30 minutes.

2.3 Mobilization Review

At the completion of mobilization and prior to beginning excavation, the site manager or his designee will conduct a site inspection to assure that all mobilization activities have

been performed in accordance with the specification. This inspection will include a review of soil and erosion mitigation systems, decontamination equipment, soil staging areas, on-site traffic patterns, and other requirements specific to the traffic control plan. This inspection will be documented and be maintained in the project file.

2.4 Disposal Facility Audit

Waste disposal facilities that may be selected to accept excavated materials will be evaluated. This evaluation will include a review of the disposal facilities license, procedures, regulatory record of compliance, and waste handling programs. If necessary a visit to the facility for a compliance review will be conducted. Only approved facilities will receive contaminated material from this project.

2.5 Daily Site Controls Inspection

The site manager will conduct a daily inspection of the site to document that the required site controls are in-place and functioning. Items to be inspected include site traffic controls, erosion controls, perimeter fencing and related site security controls. These inspections will be documented and maintained in the project file. Following any significant precipitation, erosion control systems will be inspected to determine their effectiveness. Any required changes or repairs should be completed within 24 hours and documented on the daily inspection form.

2.6 Waste Transportation

Prior to leaving the site, all trucks will be inspected to confirm that the truck is free of debris, the load is properly covered and the driver has the appropriate manifest documents. An on-site temporary scale or axle scale will be used to document proper truck loads. Weigh receipts from certified scales at waste disposal facilities will be used as the basis of payment.

2.7 Soil Sampling

Soil verification sampling will be conducted in accordance with Section 8 of the RAP (Confirmation Sampling and Analysis). This section contains protocols, analytical procedures, sampling QA/QC plan, and a verification plan to determine if clean-up levels have been achieved and the process for continued remediation if clean-up standards have not been achieved. All analytical data along with supporting laboratory QA/QC packages will be reviewed and maintained as part of the project file.

2.8 Backfill Quality Verification

Prior to accepting any material to be used as backfill, the supplier will be required to submit in writing a certification that the material to be supplied is free of any contaminants. The supplier will provide analytical data to confirm that no constituents of concern are present above acceptable (i.e.; background) levels. Upon receipt at the site,

backfill material will be visually inspected to ensure the supplier has complied with the specifications. Additional testing may be required for testing for constituents of concern if the material is not consistent with the specifications for backfill.

3.0 LABORATORY ANALYSES AND QA/QC PROTOCOLS

All samples collected for analysis will be analyzed using a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory. The analytical laboratory will have a written quality assurance plan and standard operating procedures (SOPs) in place to ensure analyses are performed following accepted protocols and results are of the appropriate and documented quality. The laboratory will perform quality control (QC) checks with each batch of samples, with a batch defined as 20 or fewer field samples of similar matrix composition. Acceptance criteria will be those specified in the analytical methods or, if not specified in the method, determined from laboratory control charting. At minimum, the following QC checks will be performed with each batch of analytical samples, as specified in the analytical methods:

- Laboratory Method Blank—A method blank shall be prepared for each sample matrix with each batch of sample analyzed. No target analytes may be present in method blanks at concentrations above the reporting limit. If contamination is present in the blank, the source must be corrected and all associated samples re-extracted and re-analyzed if adequate sample volume is available; otherwise data usability will be described in the data review memo.
- Matrix Spike Analysis—The laboratory will perform a matrix spike analysis with each batch of samples to assess laboratory accuracy.
- Surrogate Compound Recovery—Surrogate compound analysis will be performed with each sample for organic analyses, when specified by the analytical method, to assess laboratory accuracy.
- Internal Standards Recovery—Internal standards compound analysis will be performed with each sample for organic analyses, when specified by the analytical method, to assess method performance and for compound quantitation.
- Laboratory Duplicate or Matrix Spike Duplicate Analysis—Duplicate analysis will be performed by the laboratory with each batch of samples to determine laboratory precision.

Equipment blank samples will be collected as appropriate to assess potential cross-contamination and to ensure that the decontamination procedure was effective. Trip blank samples will not be collected for the project.

Laboratory instruments will be calibrated and maintained in accordance with the analytical methods specified. Instrument calibration procedures, frequency of calibration, and calibration verification will be performed according to the analytical method-specific procedures. Chemical standards will be traceable to the National Institute of Standards (NIST) or other documented reliable, commercial sources. Laboratory data deliverables will include the following:

- Case narrative identifying the laboratory batch number; matrix and number of samples analyzed; analyses performed and analytical methods used; and, description of any problems or exceedance of QC criteria and corrective action(s) taken.
- Copy of chain-of-custody forms for all samples included in the analytical batch.
- Tabulated sample analytical results for each sample with analyte name, CAS number, units, data qualifiers, percent solids, sample weight or volume, dilution factor, laboratory batch and sample number, field sample number, and dates received, extracted, and analyzed all clearly specified. Surrogate recoveries will be included with each sample for organic analyses.
- Blank summary results indicating field samples associated with each blank sample analysis.
- Matrix spike/matrix spike duplicate or sample duplicate result summaries with calculated percentage recovery and relative percent difference and acceptance ranges.
- Laboratory control sample results, when performed, with calculated percentage recovery and acceptance ranges.
- Chromatograms and quantitation reports for all organics parameters. Chromatograms for samples with detectable TPH concentrations will be included in the report.

3.1 Chain of Custody Procedures

The purpose of custody procedures is to provide a documented, legally defensible record that can be used to follow the possession and handling of a sample from collection through analysis. A sample is in custody if it is:

- In someone's physical possession or view and/or
- Secured to prevent tampering, and/or
- Secured in an area restricted to authorized personnel

Each sample will be assigned a unique identifying number as described in Section 8 of the RAP. Labels will be reformatted or filled in with waterproof ink prior to sample collection to minimize container handling. Sample label and chain-of-custody forms will include the following information:

- Name of sampler
- Date and time of sample collection
- Sample number
- Sample matrix and how collected (i.e., grab, composite)
- Sample depth
- Preservation method
- Analysis requested

A chain-of-custody record will be completed for each sample container as described in the CLP User's Guide (Contract Laboratory Program Guidance for Field Samplers, June 2007). The completed chain-of-custody forms are delivered to the laboratory with the respective samples.

3.2 Data Verification, Review, and Validation

Following sample analysis, data will be verified and reviewed to ensure results are of known, documented quality and are legally defensible. Data will then be validated to ensure that their quality is sufficient to achieve project objectives. All data review steps will be performed by a WESTON quality assurance chemist independent from the laboratory and not directly involved in the project.

Quality control summary results will be reviewed and data qualified the format described by EPA-CLP National Function Guidelines for Organic Data Review (EPA, July 1999), National Functional Guidelines for Inorganic Data Review (EPA, February 2004), and criteria specified in the individual analytical methods.

4.0 SITE CHANGED CONDITIONS

If in the course of implementing the RAP, unanticipated site conditions are identified, the site manager may amend the protocols in the RAP to address the unforeseen events. The site manager will be responsible for communicating these changes within 24 hours to designated site representatives to be identified during the pre-construction conference. Examples of potential changes include, modification of traffic routing around the facility, identification of additional soil contamination, or modifications to the soil erosion control plan. All changes will be documented as appropriate and be maintained as part of the project file.

ATTACHMENT D

SITE-SPECIFIC SAFETY AND HEALTH PLAN

DRAFT
SITE-SPECIFIC SAFETY AND HEALTH PLAN
REMEDIAL ACTION
UKIAH RAIL YARD REDEVELOPMENT PROJECT
Ukiah, California

Prepared for

The City of Ukiah
Ukiah, California

May 2011

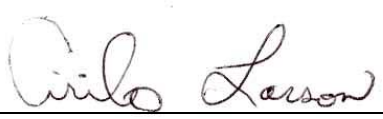
Prepared by

Weston Solutions, Inc.
1340 Treat Blvd, Suite 210
Walnut Creek, California 94597-7580

SITE-SPECIFIC SAFETY AND HEALTH PLAN APPROVALS

By their specific signature, the undersigned certify that this Site-Specific Safety and Health Plan is approved for use during the removal action to support the Ukiah Rail Yard Redevelopment Project, Ukiah, California:

Plan Preparation:



05/06/2011

Cirilo Lacson
Site Safety and Health Officer (SSHO)
Weston Solutions, Inc.
(707) 529-3963

Date Prepared

Plan Approval:

05/06/2011

Dwight Gemar, PE
Project Manager
Weston Solutions, Inc.
(925) 948-2612

Date Approved

Plan Concurrence:

05/06/2011

George M. Crawford, CIH
Program Safety and Health Manager
Weston Solutions, Inc.
(610) 701-3771

Date Concurred

Site-Specific Safety and Health Plan
Removal Action
Ukiah Rail Yard Redevelopment Project, Ukiah, California

I understand, agree to, and will conform to the information set forth in this Site-Specific Safety and Health Plan as discussed in the Personnel Safety and Health briefing(s).

Name	Signature	Date

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ACRONYMS AND ABBREVIATIONS

AHA	Activity Hazard Analysis
BBP	blood-borne pathogen
CFR	Code of Federal Regulations
CPR	cardiopulmonary resuscitation
CRZ	contamination reduction zone
dBA	decibels, A-weighted
EAP	Emergency Action Plan
EZ	exclusion zone
HAZWOPER	Hazardous Waste Operations and Emergency Response Standard
mg/kg	milligram per kilogram
mg/m^3	milligrams per cubic meter
OHP	Occupational Health Program
OSHA	Occupational Safety and Health Administration
PAHs	polyaromatic hydrocarbons
PDR	Personal Data Ram
PID	photoionization detector
PM_{10}	particulate matter less than 10 micrometers in diameter
PPE	personal protective equipment
SHM	Safety and Health Manager
SSHO	Site Safety and Health Officer
SSHP	Site-Specific Safety and Health Plan
TPH	total petroleum hydrocarbon
VOCs	volatile organic compounds
WESTON	Weston Solutions, Inc.

1 SITE DESCRIPTION AND BACKGROUND

1.1 INTRODUCTION

This Site-Specific Safety and Health Plan (SSHP) has been prepared by Weston Solutions, Inc. (WESTON) to address the remedial action to be performed as part of the Ukiah Rail Yard Redevelopment Project, in Ukiah, California (Figure 1). The Ukiah Rail Yard is located in Ukiah, south of East Perkins Street, between the rail track and Leslie Street (Figure 2). The site is relatively flat and includes buildings, overhead utility lines, and rail spurs. This SSHP is compliance with applicable Occupational Safety and Health Administration (OSHA) regulations as set forth in 29 Code of Federal Regulations (CFR) Parts 1910 and 1926, California OSHA regulations as set forth in California Code of Regulations Title 8, Chapter 4, and WESTON Corporate Health and Safety Policies.

1.2 SITE BACKGROUND

1.2.1 Historical Uses

The site has historically been used for rail car unloading, fueling and as a maintenance station associated with rail operations. The facility included a roundhouse and turntable as well as several petroleum storage containers. The site has been developed since at least the late-1800s. In addition, the site has been used for various storage, shipping, and/or distribution centers for several different manufactured goods. The site includes a 2,500 square foot shop and a 12,000 square foot warehouse. As a result of past land use, groundwater and soil at certain locations within the site have been impacted by various contaminants.

1.2.2 Environmental Site Investigation, 2010–2011

An environmental site investigation was completed by WESTON in December 2010 and January 2011. Table 1 presents the results of soil samples that exceeded established screening levels for metals, polyaromatic hydrocarbons (PAHs) and total petroleum hydrocarbon (TPH). Table 2 presents results of groundwater samples that exceeded screening levels for metals, PAHs, TPH, and volatile organic compounds (VOCs). Table 3 presents the results of soil vapor

samples with detected levels of VOCs. Sample locations and additional information about the site investigation is in included in the Remedial Action Work Plan (WESTON, 2011).

1.3 SCOPE AND OBJECTIVES

A removal action is planned to address source areas consisting of soil exceeding screening levels for TPH and PAHs. The objective of the removal action is to excavate and properly dispose of debris and contaminated soil at a permitted off-site disposal facility.

The removal action scope includes the following tasks (the corresponding Activity Hazard Analyses [AHAs] are identified and discussed in Section 9):

- Site setup and erosion/stormwater pollution prevention implementation (AHA1)
- Excavate areas identified for soil removal, collect samples, and backfill (AHA2)
- Stockpile excavated soil and collect samples (AHA3)
- Transport excavated soil and other investigation derived waste for offsite disposal or recycling (AHA4)
- Site restoration (AHA5)

The AHA details are included in Appendix A.

2 PERSONNEL

All personnel entering the site are subject to the requirements of this SSHP. Key project personnel are identified in Table 4. Health and safety roles and responsibilities for site personnel are described in this section.

2.1 COMPETENT PERSON

At a minimum, site personnel will include a Competent Person who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees and who have the authorization to take prompt corrective measures to eliminate them. A list of applicable competent person requirements, regulatory requirements, and designated competent persons is presented in Table 4.

2.2 QUALIFIED PERSON

Site personnel will also include Qualified Persons. WESTON will permit only those employees qualified by training or experience to operate equipment and machinery. “Qualified” means one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his ability to solve or resolve problems relating to the subject matter, the work, or the project. Qualified person requirements applicable to the Ukiah Rail Yard removal action include Hazardous Waste Operations and Emergency Response Standard (HAZWOPER) trained personnel, trainers, and general equipment operators.

2.3 WESTON PROGRAM SAFETY AND HEALTH MANAGER

The WESTON Program Safety and Health Manager (SHM), George M. Crawford, a Certified Industrial Hygienist, is certified in a comprehensive practice of industrial hygiene by the American Board of Industrial Hygiene. He has over 20 years of industrial hygiene and safety experience and is responsible for the overall development and implementation of the WESTON Safety and Health program, including review and approval of the provisions of this SSHP and any amendments that may become necessary.

The Program SHM will also be responsible for the following tasks:

- Ensure that the SSHP complies with all federal, state, and local safety and health requirements and, if necessary, modify specific aspects of this SSHP to adjust for on-site changes that affect safety
- Conduct project safety audits as needed
- Review air monitoring results and accident reports, as necessary
- Report problems or concerns regarding project safety
- Evaluate and authorizing any changes to the SSHP
- Interpret the air monitoring/sampling data required to upgrade or downgrade personal protective measures
- Implement and oversee the approved Corporate Environmental Health and Safety Program
- Provide health and safety consultation as needed

2.4 WESTON DIVISION SAFETY OFFICER

The Division Safety Officer, Michael Stuart, is responsible for the integration of WESTON's corporate health and safety policies with project-specific safety and health requirements. He also provides quality assurance oversight and periodic audits of project activities, and reviews all Notice of Incidents across the Division for trends and communication of lessons learned. The Division Safety Officer reports to the Corporate Vice President of Health and Safety.

2.5 WESTON PROJECT MANAGER

The Project Manager, Dwight Gemar, a Professional Engineer, has overall responsibility for the project and will coordinate with the Site Manager and the Site Safety and Health Officer (SSHO) to ensure that the project goals are completed in a manner consistent with the SSHP.

2.6 WESTON SITE MANAGER

The Site Manager, Mark Major, is responsible for supervising field implementation of the project. The Site Manager provides direct supervision of field staff and, together with the SSHO, is responsible for ensuring that all personnel adhere to the requirements of the WESTON Corporate Environmental Health and Safety Program and this SSHP.

The Site Manager has completed the 40-hour HAZWOPER and 8-hour refresher training courses. He is also a competent person and has successfully completed 8-hour site-safety supervisor training per OSHA 29 CFR 1910.120(e)(4). In addition, Mark Major has completed the OSHA 30-hour construction safety course and is certified in first aid and cardiopulmonary resuscitation (CPR).

2.7 WESTON SITE SAFETY AND HEALTH OFFICER

Cirilo Lacson will be the WESTON SSHO for this project. He has successfully completed 8-hour site-safety supervisor training under OSHA 29 CFR 1910.120(e)(4). He has completed the 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) standard and 8-hour refresher training courses. He has also completed the OSHA 30-hour construction safety course; is certified in first aid and CPR, and is approved by the Program SHM.

The SSHO, Cirilo Lacson, has over 13 years experience implementing safety and occupational health procedures at hazardous waste cleanup operations sites. He reports to the Division Safety Officer and has the following responsibilities:

- Stop Work Authority for safety and health reasons
- Assist in the development and implementation of the SSHP
- Be present during hazardous cleanup operations to implement the SSHP
- Inspect site activities to identify safety and occupational health deficiencies and correct them

- Coordinate changes and modifications to the SSHP with the Program SHM and Site Manager
- Conduct project site-specific training and daily safety briefings
- Develop additional field safety and health procedures, as necessary
- Investigate accidents/ incidents and "near misses"
- Conduct visitor orientation
- Conduct weekly safety audits and complete the required documentation

2.8 PERSONNEL ASSIGNED TO THE PROJECT

All WESTON, subcontractor, and other personnel who will be involved in on-site activities are responsible for the following:

- Stop work authority for safety and health reasons
- Take all reasonable precautions to prevent injury to themselves and to their fellow employees, and being alert to potentially harmful situations
- Perform only those tasks that they believe they can do safely and have been trained/qualified to do
- Notify the SSHO of any special medical conditions (i.e., allergies, contact lenses, diabetes)
- Notify the SSHO of any prescription and/or nonprescription medication, which the worker may be taking, that might cause drowsiness, anxiety, or other unfavorable side effects
- Prevent spillage and splashing of materials to the greatest extent possible
- Practice good housekeeping by keeping the work area neat, clean, and orderly

- Immediately report all injuries to the SSHO
- Comply with the SSHP and all safety and health recommendations and precautions, properly using personal protective equipment (PPE) as determined by the SSHP and/or the SSHO

All personnel who will be working within the exclusion zone, where chemical contaminants are known to be present, have completed the 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) standard and 8-hour refresher training courses. First Aid/CPR/BBP responders are trained and qualified for perform those tasks.

3 CONTAMINANTS OF CONCERN

The potential contaminants of concern for the removal action, based on the environmental site investigation performed by WESTON in 2010 and 2011, are arsenic, PAHs, and TPH (as listed in Table 1). Based on the groundwater and soil vapor sample results (Table 2 and Table 3, respectively) volatile organic compounds are not expected to pose safety issues during the removal action; the maximum soil vapor concentration of tetrachloroethylene identified during the site investigation was 1.7 milligrams per cubic meter (mg/m^3), which is significantly less than the OSHA time-weighted-average permissible exposure limit of 678 mg/m^3.

Chemical data sheets describing the hazards associated with the contaminants of concern are included in Appendix B.

Material Safety Data Sheets for products that may be brought on site during the performance of the removal action (gasoline, diesel fuel, gear oil, hydraulic oil, grease, survey paint, wasp and hornet insecticide, chain lubricant, and engine oils) are included in Appendix C.

4 FIELD ACTIVITIES

This section describes the major tasks required to complete the project. Mobilization to the site will include installation of temporary fencing, notification of Underground Service Alert, and implementation of stormwater best management practices as specified by the approved storm water pollution prevention plan, likely including straw wattle and/or silt fencing.

Source areas have been previously identified and will be excavated to the pre-determined depth and lateral extents for each area. The working face of the excavation will be sloped as dictated by site conditions to allow for the safe operation of equipment. A water spray will be used to prevent visible dust during excavation activities and when the excavated soil is excessively dry. Particulate dust will be evaluated using a real-time airborne particulate monitor, which records particulate concentrations at specified intervals for later download and recording. As needed, temporary fencing or barricades will be placed around excavation areas prior to backfill and stormwater best management practices will be implemented.

Contaminated soil will be stockpiled in an area adjacent to the excavations pending waste profiling. The stockpiles will be lined and covered with 6-millimeter polyethylene sheeting anchored by sand bags at the end of each work day for dust control mitigation measures. Once waste profiling is complete, the stockpiles will be transported to a permitted offsite disposal facility. Laboratory data from the environmental investigation previously conducted by WESTON indicate that the contaminated soil will be classified as non-hazardous. Asphalt paving in areas of contaminated soil and other debris will be segregated and transported off-site for recycling.

Confirmation soil samplings will be collected from each area of excavated soil. Confirmation sample frequencies will vary depending on the excavation's size but typically include: base soil samples collected every 100 square feet and side wall samples collected every 25 linear feet.

The Remedial Action Work Plan (WESTON, 2011) provides a more detailed description of each field activity.

4.1 INSPECTION AND MONITORING OF SITE ACTIVITIES

Inspection and monitoring of site activities will be conducted by qualified and/or competent personnel from WESTON, or others, as appropriate and necessary to assure compliance with work scope, regulatory criteria, and established guidelines. This task will be ongoing throughout site setup activities, the remedial action, loading of waste for transportation and disposal, and site restoration activities.

At the start of each work day, a site-specific safety topic will be selected and discussed. All site personnel will be required to attend the daily training. Daily heavy equipment safety inspections will be completed in accordance with the Heavy Equipment Inspection Checklist (Appendix D) by qualified operators. Discrepancies which affect the safe operation of the equipment will be corrected before the equipment is used.

4.2 SITE SECURITY

The following sections describe the site control measures required to ensure site security, prevent public health impacts and exposures, and prevent the uncontrolled spread of contamination.

4.2.1 Site Control Zones

An exclusion zone (EZ), contamination reduction zone (CRZ), and support zone will be established for the site. Actual placement of the zones is dependent on specific-site conditions and will be determined by the SSHO and the boundaries of these zones may change as the work progresses.

Exclusion Zone—A defined exclusion zone will be established around sites where chemical contaminants are known to be present. The perimeter of the EZ will be defined by barricades and signage to restrict access. Visitors who are not HAZWOPER trained will be permitted to enter the EZ only with the authorization of the SSHO, with an escort, and after any field work involving heavy equipment or soil disturbance operations have been suspended.

Contamination Reduction Zone—The CRZ is a transition zone between the EZ and the support zone. A decontamination station will be established within the CRZ for removal of personal protective equipment. A separate area for decontamination of larger equipment will be

established at the edge of the CRZ. Equipment decontamination procedures are described in Section 7.

Support Zone—The support zone will be situated in a clear area outside the CRZ where the chance of encountering hazardous material or conditions is minimal. Visitors will be permitted to enter the support zone provided they wear the appropriate PPE as determined by the SSHO.

4.2.2 Security

Existing fencing/gates around the sites will be maintained throughout the operation and entry points will be secured and clearly posted to indicate site hazards. Access into the work site will be limited to authorized personnel.

4.3 SITE-SPECIFIC HAZARDS

4.3.1 Biological Hazards

Biological hazards at the work site include: stinging and biting insects (mosquitoes, ticks, spiders, etc.); exposure to blood-borne pathogens; and injury from wildlife including snakes and rodents.

4.3.2 Chemical Hazards

Chemicals of potential concern during the removal action at the Ukiah Rail Yard include arsenic, PAHs, and TPH. Particulate matter (dust) is also a potential hazard associated with soil-moving activities.

A Site-Specific Hazard Communication Program checklist for this removal action is presented in Appendix E.

4.3.3 Physical Hazards

Individual tasks associated with the removal action have specific physical hazards associated with these activities as described in the AHAs. In addition to typical physical hazards associated with construction work such as heat stress, slips and falls, and being caught between or being

struck by equipment, some activities performed during the removal action may also include work near open excavations.

4.4 COMMUNICATIONS

Both internal and external communications systems will be established during site work. Internal communications used between field team members and the site administrative area will consist of verbal communications, supplemented by radio devices, and hand signals. All internal communications listed will be understood by all team members. Prior to operating equipment such as the excavator, operators will be trained and will be familiar with applicable communication controls. Field personnel will stay out of the swing radius of moving equipment and establish eye contact with operators when in close proximity to moving heavy equipment.

Cell phones will serve as the external communication system and will be used to call for off-site emergency assistance and to conduct essential administrative business. Emergency contact numbers will be made available to site personnel prior to and during removal action activities at the Ukiah Rail Yard.

5 ACTION LEVELS AND INSTRUMENTATION

During excavation and soil moving activities, water will be used as needed to control dust. Air will be monitored for dust (particulate matter less than 10 micrometers in diameter [PM_{10}]) and perimeter air monitoring will be conducted for dust (PM_{10}). A photoionization detector (PID) will be used to monitor for VOCs when personnel are working near open excavations. Equipment will be monitored for noise levels.

5.1 AIR MONITORING

Occupational exposure monitoring during site activities will be conducted by monitoring particulate matter in air. The exposure limits for arsenic and PAH contaminants in air are as follows:

Arsenic—The OSHA time-weighted average permissible exposure limit for arsenic (inorganic arsenic compounds as arsenic [29CFR1910.1018]) is listed as 0.010 mg/m^3. With the highest arsenic concentration detected during the site investigation (Table 1) of 19.46 milligrams per kilogram (mg/kg), 1 mg/m^3 of total dust would be equivalent to 0.0002 mg/m^3 of arsenic and 1.5 mg/m^3 of total dust would be equivalent to 0.00003 mg/m^3 of arsenic (note: these are very conservative calculations, actual levels are expected to be much lower). Both values are significantly less than the OSHA time-weighted average permissible exposure limit of 0.010 mg/m^3.

PAHs—The OSHA time-weighted average permissible exposure limit for PAHs (classified as coal tar pitch volatiles [29CFR 1910.1002]) is listed as 0.2 mg/m^3. The summation of the highest PAH concentrations detected above screening levels during the site investigation (Table 1) is 4.1 mg/kg; given this concentration of PAHs in the soil, 1 mg/m^3 of total dust would be equivalent to 0.0000041 mg/m^3 of PAHs and 1.5 mg/m^3 of total dust would be equivalent to 0.0000062 mg/m^3 of PAHs (note: these are a very conservative calculations, actual levels are expected to be much lower). Both values are significantly less than the OSHA time-weighted average permissible exposure limit of 0.2 mg/m^3.

WESTON's practice is to use no greater than one half of an exposure limit as an action level. Given the maximum concentrations of arsenic and PAHs that are expected at the site and the calculations above, maintaining total dust levels below 1.5 mg/m^{3}will not result in airborne levels of arsenic or PAHs exceeding any personal exposure limit. Accordingly, the project action levels for PM_{10} will be as follows:

- If PM_{10} exceeds 1.0 mg/m^3, then dust control measures will be increased.
- If PM_{10} exceeds sustained readings (within a 10 minute interval) of 1.5 mg/m^3, then work will be stopped until additional dust control measures are implemented.

TPH (diesel and motor oil fractions) concentration is soil were also identified above screening levels during the site investigation; VOC concentrations in soil and soil vapor were very low. As a precaution, a PID will be used to monitor air when personnel are working near open excavations. The project action levels for VOCs are as follows:

- If VOC concentrations, as measured using a PID, exceed 10 ppm, then work then stopped work and the SSHO will be consulted.

5.2 PERSONAL MONITORING

Airborne dust will be suppressed by application of a water-based mist, as necessary, to keep concentrations below the action level. If particulate levels are at or above the action levels, additional wet methods will be used to reduce the dust levels. A "no visible emissions" goal will be in effect throughout the project.

Dust will be monitored inside heavy equipment cabs with a Personal DataRAM^{TM} (PDR), or equivalent monitor to ensure that levels remain below the general site action level. At all times heavy equipment will be operated with windows closed, and air conditioners will be on (positive flow) with high efficiency particulate air cabin filters in working order. At no time will equipment operators be allowed out of vehicles in the EZ without proper PPE. A PDR will be rotated daily among different equipment to monitor personnel exposure. The PDR will be calibrated before and after each use according to the manufacturer's directions and standard industrial hygiene practice.

5.3 PERIMETER AIR MONITORING PROGRAM

A downwind station will be used for monitoring PM_{10} in the air during excavation and soil moving activities. Particulate matter will be monitored in real-time using a method equivalent to the National Institute for Occupational Safety and Health Method 0600 for respirable dust (National Institute for Occupational Safety and Health, 1998). Direct reading instruments capable of data logging results every ten minutes will be used. Direct reading instruments will be calibrated according to the manufacturer's directions before each use.

5.4 NOISE LEVEL MONITORING

Heavy equipment used on this project will be initially monitored for noise (inside equipment cabs and in the immediate vicinity) using a noise level meter. If noise levels exceed 85 decibels, A-weighted (dBA), hearing protection will be worn. The SSHO will maintain records of noise level readings and will notify personnel regarding the need for hearing protection.

6 PPE SELECTION

All personnel performing on-site operations will be required to use the appropriate level of protection. The provisions for use of Level D and Modified Level D are based upon the hazards associated with a given task, the expected contaminant levels, and the action levels presented in Section 5. The minimum levels of protection for specific tasks are listed below:

- Site setup and erosion/stormwater pollution prevention implementation (AHA1) – Level D
- Excavate area identified for soil removal, collect samples, and backfill (AHA2) – Level D if no contaminant contact or Modified Level D
- Stockpile excavated soil and collect samples (AHA3) – Level D if no contaminant contact or Modified Level D
- Transport excavated soil and other investigation derived waste for offsite disposal or recycling (AHA4) – Level D if no contaminant contact or Modified Level D
- Site restoration (AHA5) – Level D

As discussed in Section 5.4, if noise levels exceed 85dbA, hearing protection will be worn.

6.1 LEVEL D PERSONAL PROTECTIVE EQUIPMENT

Level D PPE is worn during mobilization and non-contaminated site activities and consists of:

- Work clothes, e.g., coveralls (cotton)
- Work gloves – leather or cotton as necessary for physical hazards
- Boots approved by the American National Standards Institute
- Safety glasses
- Hard hat

6.2 MODIFIED LEVEL D PERSONAL PROTECTIVE EQUIPMENT

Modified level D PPE is worn when conducting activities with known contact with contaminated materials.

In addition to the Level D PPE, modified Level D consists of:

- Chemical resistant coveralls (Tyvek if dry matrix, Saranex or equivalent if wet matrix)
- Gloves—nitrile outer (Silver Shield or equivalent inner gloves if direct contact with nonaqueous-phase liquid)
- Splash protection—face shield (as necessary)

The need for special equipment will be determined by the SSHO based on the planned activities for the day. The Project SHM and Program SHM will be consulted if conditions change such that the need for special equipment arises.

7 DECONTAMINATION

Dry decontamination techniques with appropriate worker hand and face washing will be the minimal measures implemented for personnel. The SSHO, in conjunction with the Project SHM, will determine appropriate steps based upon activities conducted and contamination risk. Reducing the spread of contamination is the responsibility of each individual worker. Engineering controls to reduce airborne particulates will also be used where possible to minimize the contamination of personnel and equipment working on the site and adherence to the designated EZ, CRZ, and support zones. The following procedures for personnel and equipment decontamination will be used where deemed appropriate based on existing site conditions.

7.1 EMERGENCY DECONTAMINATION

If a site worker in the EZ is injured or appears to exhibit signs of chemical exposure, emergency decontamination will be performed. Supplies for the emergency decontamination will be placed in the CRZ prior to site activities and will include the following items:

- Emergency transport eyewash bottle (32 fluid ounce eyewash solution)
- First Aid/blood-borne pathogen (BBP) kit
- Plastic sheeting or disposable rescue blanket

These materials will be required in addition to the general decontamination equipment for standard decontamination activities.

7.2 PERSONNEL DECONTAMINATION PROCEDURES

Site personnel will perform doffing of PPE within the CRZ. Decontamination is accomplished to ensure the materials that personnel and equipment may have contacted in the EZ are removed in the CRZ before workers pass into the support zone. Personnel will wear the appropriate level of protection based on the hazard identification and evaluation (Level D or Modified Level D).

The following sequence of events will be the procedure for Level D and Modified Level D personnel decontamination:

- Deposit any site equipment in a segregated area prior to entering the CRZ
- At the perimeter of the EZ, damp wipe or wet spray rain gear or splash protection (if worn) to remove any adhered particulates or corrosive liquids (note: not expected for this project)
- If warranted and as directed by the SSHO, dry brush off boots or scrub overboots or over-the-sock boots with a detergent-water solution and rinsed, remove the boots, and place them on a rack to dry
- Remove and scrub hard hats with detergent and rinse if grossly contaminated
- Remove outer gloves and, depending on condition, discard (if contaminated)
- Remove, clean, and hang to dry splash gear, if worn (note: not expected for this project)
- Remove and discard Tyvek or Saranex suits
- Remove and dispose inner gloves.

At the discretion of the SSHO, and based on site conditions, exposure potential, and tasks performed, PPE will be disposed after each use. At a minimum, wipes and/or facilities for washing the face and hands of personnel will be established after removal of PPE.

7.3 EQUIPMENT DECONTAMINATION PROCEDURES

Decontamination will be required for all tools, field monitoring equipment, and other equipment used during site activities. Dry decontamination will be performed to the extent practicable; however, when appropriate, a detergent cleaning solution and water rinses will be used to decontaminate equipment. Wastewater from equipment decontamination activities will be properly stored until proper disposal methods can be determined based on sample analysis.

7.3.1 Hand Tools

Hand tools will be decontaminated after use by dry brushing with a broom or hand brush for smaller equipment.

7.3.2 Heavy Equipment/Vehicles

To the extent practical, vehicles will be kept outside the EZ and therefore decontamination will not be required. Rubble strips will be provided near the site exit to minimize tracking of dirt onto City streets. Dirt will be removed from heavy equipment buckets using dry decontamination methods. Decontamination will be performed after completion of site activities or whenever removal of the equipment from the EZ is necessary for maintenance, repairs, etc.

7.4 DISPOSAL PROCEDURES

Disposable clothing and equipment will be double bagged and drummed. These items will be stored and disposed of as nonhazardous waste. If produced, wastewater and rinse water will be collected and disposal of in accordance with the Work Plan (WESTON, 2011).

8 MEDICAL SURVEILLANCE AND TRAINING

WESTON utilizes a comprehensive Occupational Health Program (OHP) that complies with all OSHA and California OSHA requirements. All site personnel and subcontractors who enter the site while operations are being conducted must comply with a comparable OHP.

8.1 MEDICAL SUPPORT PROGRAM

To comply with OSHA requirements, WESTON has designated WorkCare to oversee the site-specific medical surveillance and OHP. The WorkCare medical surveillance program is performed under the direct supervision of a licensed physician, board-certified in occupational medicine. The purpose of the OHP is to ensure suitable job placement of employees, to monitor the health effects of hazards encountered in the work place, and to maintain and promote good health through preventative measures. Medical examination criteria are established by WorkCare in compliance with 29 CFR 1910.120.

WESTON provides the following occupational health services for WESTON employees assigned to work onsite:

Initial and Periodic Medical Testing and Certification—Upon assignment to field work and periodically, generally annually, as appropriate and determined by WESTON Medical Director, WESTON employees are examined by qualified medical facilities and certified as able to work on hazardous sites and to wear respiratory protection. Copies of certifications are maintained by the SSHO. Subcontractors are required to provide certifications proving employees have medical clearance to work at a hazardous waste site.

Termination Examination—Upon termination of employment, WESTON personnel who have worked continuously at a hazardous waste project site for more than six months are given the opportunity to undergo a termination examination equivalent to the baseline health assessment. All personnel who terminate employment within a 6-month period undergo an examination based upon their exposure at the site. The physician will determine specific examination tests.

Supplemental Examination—Any worker receiving a potentially harmful level of exposure to hazardous chemical/biological material or exhibiting signs or symptoms of possible exposure

undergoes a supplemental examination. The physician will certify in writing that the employee is fit to return to work. If necessary, activity restrictions are specified in writing. Additional tests are conducted if contaminants/potential exposures so dictate and as determined by the examining physician.

Medical records are established and maintained by WorkCare in support of the WESTON Medical Monitoring Program. These records are treated as private and confidential information and include enough data for use in health maintenance, treatment, and epidemiologic studies, and in helping WESTON with program evaluation and improvement. The medical record contains sufficient information to identify the patient, support the diagnosis, justify the treatment, and document additional follow-up treatment or referrals. The physician's written opinion for all medical examinations is provided as specified in 29 CFR 1910.120, Subpart (f)(7).

8.2 BASIC OSHA TRAINING

All personnel working onsite within the EZ will have completed 40-hour HAZWOPER training, an additional 3 days of field experience under the direct supervision of a trained experienced supervisor, and annual 8-hour refresher training, as required. On-site WESTON management personnel also have an additional 8 hours of specialized site supervisory training, the OSHA 30-hour Construction Safety and Health Course, and function-specific Competent Person, First Aid, CPR, and BBP training. All workers will have initial training completed or refresher training within the required regulatory time frame. All training is documented.

8.3 FIRST AID AND CPR TRAINING

At least two employees assigned to the site will be currently certified in first aid and CPR. The training will be equivalent to that provided by the American Red Cross.

Personnel trained in first aid and expected to administer first aid will receive training in controlling exposures to BBP. This training will address the following topics:

- The blood-borne pathogen standards
- Requirements of the Exposure Control Plan
- Description of the risks of exposure and how BBP are transmitted

- Management and employee responsibilities
- Protection methods against exposure and decontamination procedures
- Post-exposure procedures
- Labeling and color-coding of infectious waste

8.4 PROJECT SITE-SPECIFIC SAFETY AND HEALTH TRAINING

Project site-specific training will be provided to all workers prior to on-site operations. This training may include (as applicable for the specific tasks to be performed):

- Training specific to OSHA standards in 29 CFR 1910 and 29 CFR 1926 that are applicable to site operations (construction)
- Training covering relevant elements in the SSHP, including:
  - Contaminants of Concern
  - Site-Specific Biological, Chemical, and Physical Hazards
  - Site-Specific Hazard Communications
  - Site-Specific Action Levels
  - Site Control Zones
  - Hearing Conservation Training
  - Personal Protective Equipment/ Respiratory Protection Training
  - Decontamination
  - Visitor Orientation Requirements
- Training for emergency situations as specified in the Emergency Action Plan (EAP) (Section 10 of the SSHP)

In addition, at the start of each major task, the AHA specific to that task (Appendix A) will be reviewed by all site personnel involved in that task. Once field work has commenced, all site personnel will particulate in daily tail-gate safety meetings, reviewing safety concerns pertinent to the work assigned for that day.

9 ACTIVITY HAZARD ANALYSIS

9.1 TASK OVERVIEW

The AHA is an ongoing process from the initiation of the SSHP preparation through the implementation and completion of the project. WESTON site-specific AHAs for this removal action are presented in Appendix A. Any activities not initially identified will be amended to this plan at later dates, if necessary.

Emergency response information is contained in the EAP (Section 10). Inspection requirements are identified in the forms located in Appendix D of this SSHP. Training requirements are described in Section 8 of this SSHP. Health and safety equipment to be used, such as monitoring instruments and PPE, is specified in Sections 5 and 6 of this SSHP.

The removal action scope includes the following definable features of work; the corresponding AHAs are identified below and are presented in Appendix A.

- Site setup and erosion/stormwater pollution prevention implementation (AHA1)
- Excavate area identified for soil removal and collect samples (AHA2)
- Stockpile excavated soil and collect samples (AHA3)
- Transport excavated soil and other investigation derived waste for offsite disposal or recycling (AHA4)
- Site restoration (AHA5)

Specific tasks/hazards that have the potential to affect worker and public safety are also addressed below.

9.2 SPECIFIC HAZARDS

9.2.1 Equipment Operation

All equipment will be inspected when first received on site to confirm that it is in safe operating condition prior to any use. In addition, before any machinery or mechanized equipment is placed in use each day, it will be inspected and verified to be in safe operating condition. Any

machinery or equipment found to be unsafe will be removed from service, its use prohibited until unsafe conditions have been corrected, and re-use inspected before being placed in service again. Only designated qualified personnel will operate machinery and mechanized equipment. Equipment deficiencies observed at any item that affect their safe operation will be corrected before continuing operation.

9.2.2 Noise

Heavy equipment used on this project will be initially monitored for noise (inside equipment cabs and in the immediate vicinity) using a noise level meter. If noise levels exceed 85dbA, hearing protection will be worn. The SSHO will maintain records of noise level readings and will notify personnel regarding the need for hearing protection.

9.2.3 Overhead Utility Lines

There are overhead lines within the Ukiah Rail Yard, although they are not in the immediate vicinity of the excavations. Nevertheless, any overhead wire will be considered energized unless the person owning such line or operating officials of the electrical utility supplying the line certifies that it is not energized and it has been visibly grounded and tested. Operations adjacent to overhead lines are prohibited unless at least one of the following conditions is satisfied:

- Power has been shut off and positive means taken to prevent the lines from being energized.

- Equipment, or any part, does not have the capability of coming within the minimum clearance from energized overhead lines as specified in Table 5, or the equipment has been positioned and blocked to assure no part, including cables, can come within the minimum clearances as specified in Table 5; a notice of the minimum required clearance will be posted at the operator's position (electric line derrick trucks and aerial lifts are not required to comply with this requirement).

- In transit with the boom lowered and no load, the equipment clearance will comply with Table 5.

9.2.4 Excavations

Compliance with OSHA, 29 CFR 1926 Subpart P, Cal OSHA and California Code of Regulations Title 8 will be maintained. The Competent Person for excavation will be Mark Major or Cirilo Lacson. The Competent Person will inspect and document excavations that personnel must enter or work near at a minimum of once each day and more frequently if weather conditions, vibration, water accumulation, or other hazards change and will determine the appropriate protective measures to be used for workers in or near the excavation. Personnel will not enter excavations greater than four feet in depth unless safety precautions are implemented in accordance with regulatory requirements.

Prior to excavation, Underground Service Alert will be contacted and utilities marked.

9.2.5 Heat Stress

When strenuous field activities are part of site work conducted in temperatures above 70 ºF heat stress monitoring and work cycle management will be followed. Heat stress can be affected by many interacting factors that may include: age, obesity, physical condition, substance abuse, level of personal protective equipment worn, and environmental conditions (temperature, shade, and humidity). Site workers should learn to recognize and treat the various forms of heat stress described below.

- **Heat Rash—**Heat rash is caused by continuous exposure to heat and humidity, and is aggravated by chafing clothes. The condition decreases an individual's ability to tolerate heat and can be extremely uncomfortable. Symptoms may include mild red rash, especially in areas of the body that come into contact with protective gear. Workers exhibiting symptoms should decrease the amount of time spent working in protective gear and use body powder to help absorb moisture and decrease chafing.

- **Heat Cramps—**Heat cramps are caused by inadequate electrolyte intake. The individual may be receiving adequate water; however, if not combined with an adequate supply of electrolytes, the blood can thin to the point where it seeps into the active muscle tissue, causing cramping. Symptoms include acute painful spasms of voluntary muscles, most notably the abdomen and extremities. Victims showing symptoms of heat cramps should

be moved to a cool area and their clothing loosened. Have the victim drink 1 to 2 cups of cool potable water or diluted commercial electrolyte solution (one to one dilution with water or, if mixing from powder, double the water added) immediately, and then every 20 minutes thereafter until symptoms subside.

- **Heat Exhaustion—**Heat exhaustion is a state of very definite weakness or exhaustion caused by the loss of fluids from the body. Heat exhaustion is not as dangerous as heat stroke, but if not properly managed in the field it may lead to heat stroke. Symptoms of heat exhaustion include pale, clammy, and moist skin, profuse perspiration, and extreme weakness. Body temperature is normal, pulse is weak and rapid, and breathing is shallow. The person may have a headache, may vomit, and may feel dizzy. Remove all PPE and loosen the victim's clothing. Move the victim to a cool, air-conditioned, or temperature-controlled area, and place in a position with the head lower than the feet. Ensure that the victim is not nauseated or vomiting. If not nauseated or vomiting, give the victim small sips of cool water or diluted electrolyte replenishment solution (one to one dilution with water, or if mixing from powder, double the water added). If this is tolerated, have the victim drink 1 to 2 cups of fluid; repeat every 20 minutes thereafter until symptoms subside.

- **Heat Stroke**—Heat stroke is an acute and dangerous reaction to heat stress caused by a failure of the body's heat regulating mechanisms, i.e., the individual's temperature control system (sweating) stops working correctly. Body temperature rises so high that brain damage and death may result if the person is not cooled quickly. Symptoms include red, hot, dry skin (although the person may have been sweating earlier); nausea, dizziness, confusion, extremely high body temperature (i.e., 104 ^{o}F or greater, as measured with an oral thermometer), rapid respiratory and pulse rate, unconsciousness, or coma. The victim should be removed from the source of heat and cooled quickly. Remove all PPE and as much personal clothing as decency permits, and call for ambulance support as soon as possible. Fan the person while sponging or spraying with cool or tepid water. Apply ice packs (if available) to the back of the neck, armpits, groin area, or behind the knees. Place the victim flat on their back or with head and shoulders slightly elevated. If conscious, and not nauseated or vomiting, the victim may be provided sips of cool water. Monitor the

victim's vital signs and obtain immediate medical help. Do not give the victim coffee, tea, or alcoholic beverages. Emergency medical personnel will take over treatment when they arrive.

10 EMERGENCY ACTION PLAN

This EAP provides the minimum requirements and actions that WESTON management and employees will take in the event of fires, natural disasters, and other emergencies. Site-specific emergency procedures are included in Appendix F.

10.1 EMERGENCY CONTACTS

In the event of an emergency requiring outside emergency services, WESTON personnel will immediately dial the Ukiah Fire Department at 707-463-6274 (by cell phone) or 911 (land line) to contact the appropriate organization. The SSHO will contact potential emergency responders before starting site work.

10.2 HOSPITAL ROUTE

For medical emergencies, personnel will be taken to Ukiah Valley Medical Center. Figure 3 provides the hospital route map and turn-by-turn directions from the site to Ukiah Valley Medical Center. The Emergency Assembly Area, at the intersection of Eat Perkins Street and Hospital Drive, is also shown on Figure 3. All onsite personnel and subcontractors will be made aware of the hospital location and the location of the Emergency Assembly Area during the initial health and safety briefing. Additionally, Figure 3 will be kept on site. The hospital address is as follows:

Ukiah Valley Medical Center
275 Hospital Drive
Ukiah, CA
Telephone number 707-462-3111

10.3 EMERGENCY EQUIPMENT

The location of emergency equipment will be discussed during the initial health and safety orientation before remedial action activities are initiated. Employees working onsite are responsible for becoming familiar with WESTON "Fight or Flee" Policy and the location of the emergency equipment.

- **First Aid Station**—A first aid kit will be located in a central location at the work site. The kit will contain supplies for minor injuries and an infection control kit to protect the caregiver against blood-borne pathogens (i.e. hepatitis and AIDS).
- **Emergency transport eyewash bottle**—An emergency transport eyewash bottle (32 fluid ounce eyewash solution) will be located in a central location at the work site.
- **Fire Extinguisher**—Fire extinguishers are in vehicles and are clearly visible in conspicuous locations. The extinguishers are visibly checked daily and inspected monthly at a minimum. The use of figure extinguishers is strictly voluntary.
- **Exits**—Exits will be marked clearly in the field office.
- **Fire/Emergency Alarm System**—The fire/emergency alarm system will be either by voice, radio announcement, or 3 long blasts on an air horn if possible. Fires will be immediately reported to the Ukiah Fire Department at 707-463-6274 or by dialing 911.

10.4 FIRE REPORTING AND EVACUATION PROCEDURES

"Procedures for Handling Fires" are provided in Appendix F. Figure 3 presents the emergency evacuation route and the location of the Emergency Assembly Area at the intersection of East Perkins Street and Hospital Drive. In the event of an emergency requiring evacuation, WESTON employees and any subcontractors will proceed immediately to a designated Emergency Assembly Area to be accounted for by the SSHO or Site Manager. The evacuation procedure will be exercised during of the initial safety briefing. The exercise will be documented in the daily production report.

10.5 NATURAL DISASTERS AND OTHER EMERGENCIES

If an emergency alarm is activated in the work areas, the sound will be verbal, radio announcement, or three long blasts from an air horn (fire alarm) that should be treated the same as a fire emergency evacuation. Emergency evacuation procedures are discussed in Section 10.4.

10.5.1 Tornadoes or Funnel Clouds

If a tornado or funnel cloud is sighted approaching the site trailers/work areas, the person(s) sighting the "anomaly" will immediately warn personnel to move away from windows and take cover, if time allows, employees should evacuate to a more secure built structure.

10.5.2 Explosions

If an explosion occurs, the explosion will be reported to the Site Manager or SSHO who will notify the Project Manager. "Procedures for Handling Explosions" (Appendix F) presents the steps to be followed in the event of an explosive incident.

10.5.3 Earthquakes

If an earthquake occurs, "Procedures for Handling Earthquakes" (Appendix F) presents the steps to be followed.

10.6 SPILL REPSONSE PLAN

WESTON anticipates only a small volume of fuel to be brought onsite; this includes diesel fuel for heavy equipment, gasoline for pickup trucks and other vehicles, and small amounts of gear/hydraulic oil and grease for maintenance of the heavy equipment. In the event of a small spill, appropriate actions will be taken to prevent the spill from reaching groundwater, surface water or drains. Actions include:

- Verification of spilled material, volume and hazards.
- Determine appropriate response procedures including PPE (see Material Safety Data Sheets in Appendix C).
- Assess quantity and size of the spill to determine the level of response to contain and clean it up.
- Confine or contain spill with pads or a berm.
- Neutralize spill with appropriate agents (if safe/possible).
- Notify the SSHO/Site Manager.

- WESTON will collect spilled material including absorbent material and place in appropriate containers. All hazardous material will be disposed of in accordance with all applicable hazardous waste regulations and client requirements.

WESTON will keep all records related to the spill of hazardous waste for a period of at least three years after the spill has been cleaned up or such longer period of time as required in any unresolved enforcement action.

10.7 FIRE PREVENTION

It is not expected that flammable or combustible materials will be stored on-site during the removal action. Diesel fuel will be delivered daily or as needed to fuel heavy equipment. The control of combustible materials using good housekeeping practices is discussed in Section 10.8. Smoking will not be permitted on the site or within on-site vehicles or equipment. Fire extinguishers will be provided for all vehicles and heavy equipment.

10.8 DAILY HOUSEKEEPING AND SANITATION

Employees are responsible for housekeeping within their assigned work area. In many cases, poorly kept areas are the culprits of fires and contribute fuel to fires. All work areas will be maintained in a clean condition; combustible waste materials will be disposed of in metal waste containers.

The Project Manager, Site Manager, and SSHO have the responsibility of ensuring sanitation and housekeeping are compliant with applicable standards. At a minimum, the site will be inspected each day of operation to ensure the site is compliant and safe for site workers and visitors.

10.9 EMERGENCY ACTION PLAN TRAINING

All employees assigned to the Ukiah Rail Yard removal action will receive initial training that will include project safety training as well as site-specific EAP training. The EAP training will cover the locations of the emergency equipment and emergency information in their work areas, including telephone numbers, evacuation routes, fire extinguisher, fire alarms, first aid equipment, and directions to the medical center emergency room. The SSHO will maintain the personnel records of training.

The SSHO will conduct an exercise of the EAP, including an evacuation drill, prior to initiating field work and will critique the exercise for lessons learned. Additional training will be provided if any of the following conditions prevail:

- When employees are re-assigned or relocated appropriate emergency training will be provided.
- When the EAP is revised.

11 REFERENCES

California Code of Regulations, Title 8, Chapter 4. *Division of Industrial Safety*.

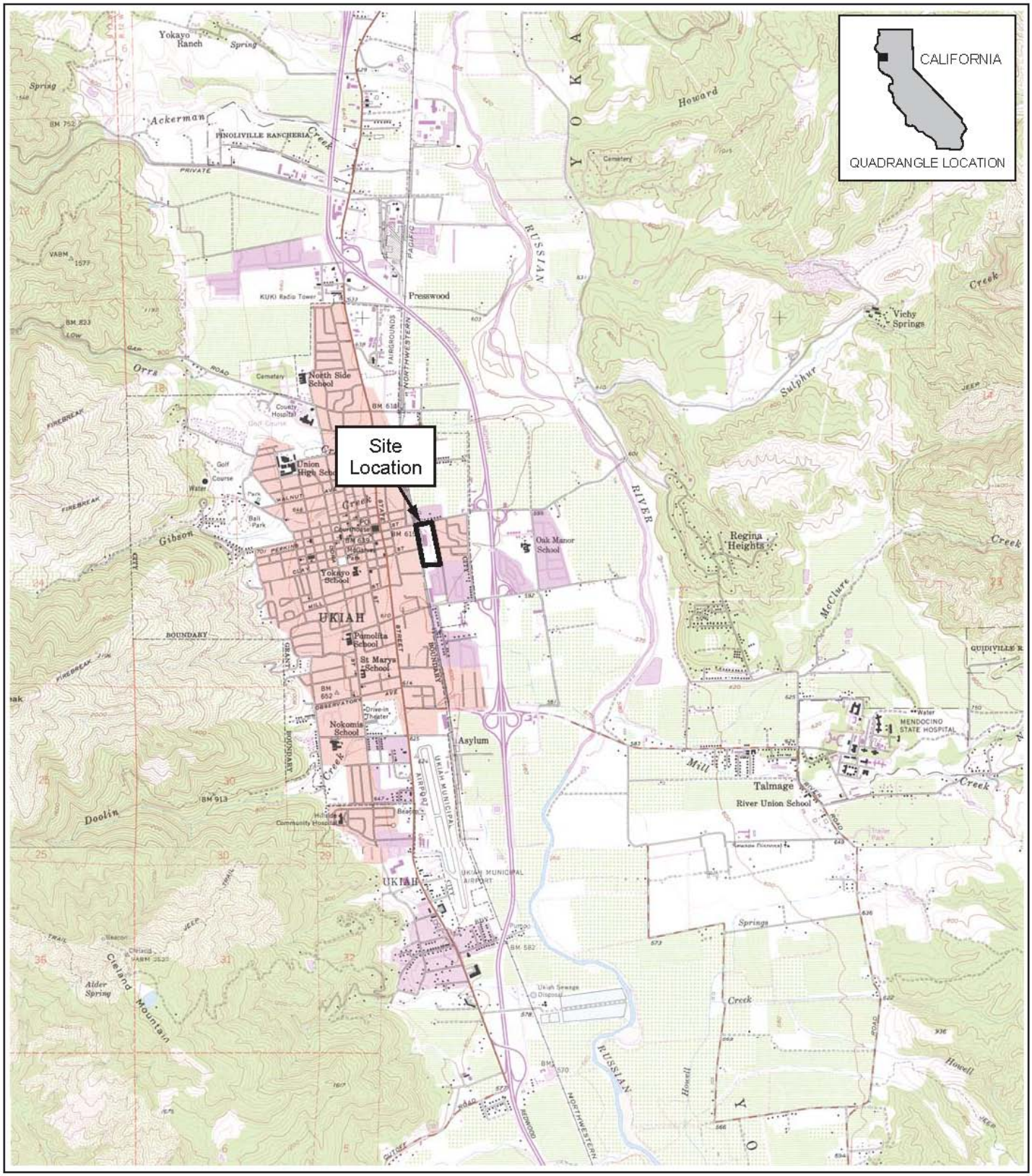
Code of Federal Regulations (CFR), 29 CFR 1910. *Occupational Safety and Health Standards*.

CFR, 29 CFR 1926. *Safety and Health Regulations for Construction*.

National Institute for Occupational Safety and Health, 1998. "Particulates Not Otherwise Regulated, Respirable 0600." *NIOSH Manual of Analytical Methods, Fourth Edition*.

WESTON. 2011. *Work Plan for Remedial Action, Former Ukiah Rail Yard, Ukiah, California.* May 2011.

FIGURES



Source: USGS 7.5' series topo, Ukiah & Elledge Peak-CA, 1958, 1975.

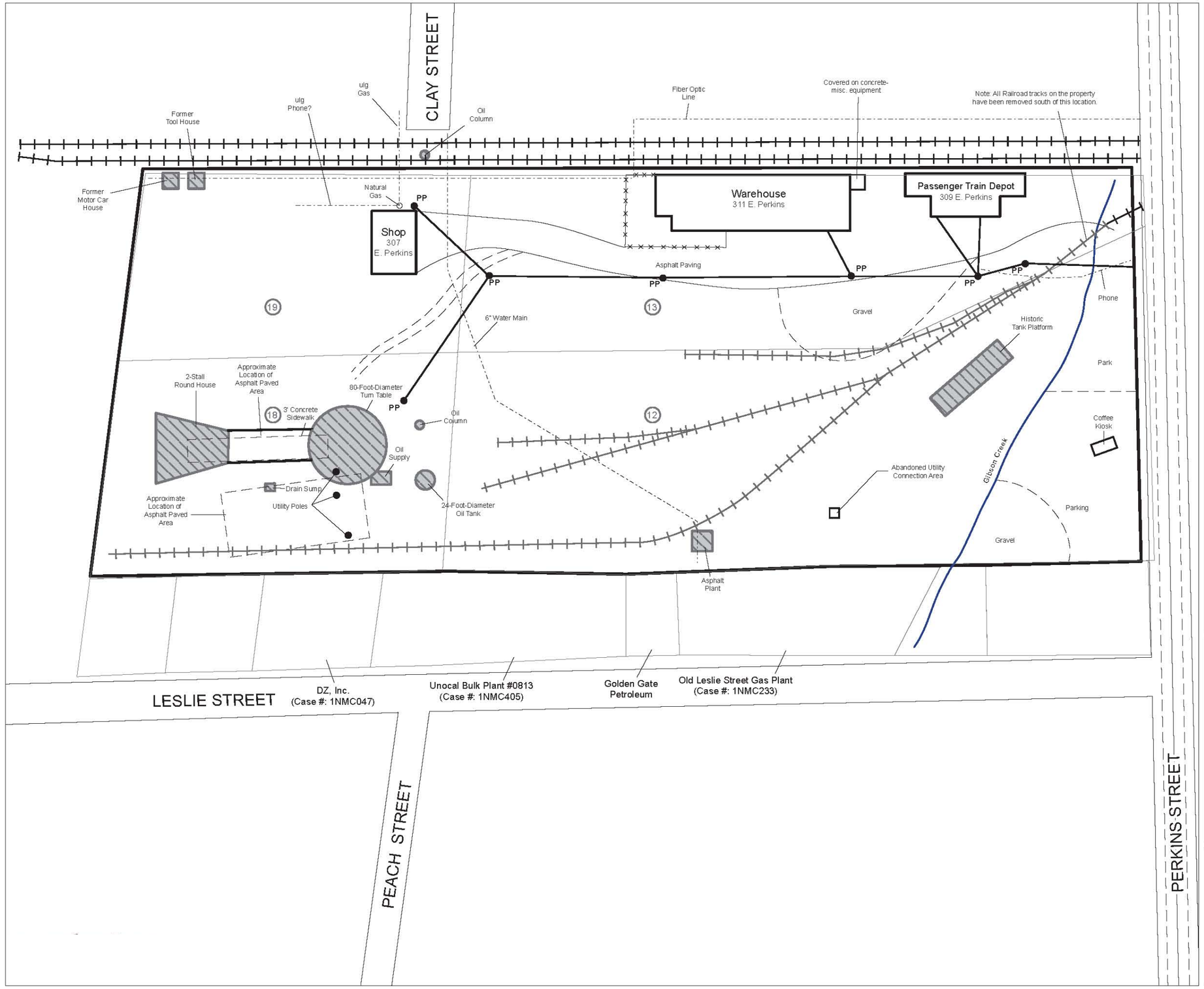
0 1000 2000

Scale in Feet

FIGURE 1
FORMER UKIAH RAIL YARD
LOCATION MAP

Ukiah Rail Yard SSHP
Former Ukiah Rail Yard, Ukiah, California

WESTON SOLUTIONS



Site Boundary (NCRWQCB Site ID # 1NMC397)

Indicates historical feature for which no surface features were observed

Historic or existing rail track

Overhaed power and pole

Underground utility

Parcel boundary

12 Parcel ID

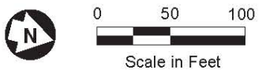


FIGURE 2
FORMER UKIAH RAIL YARD
SITE PLAN

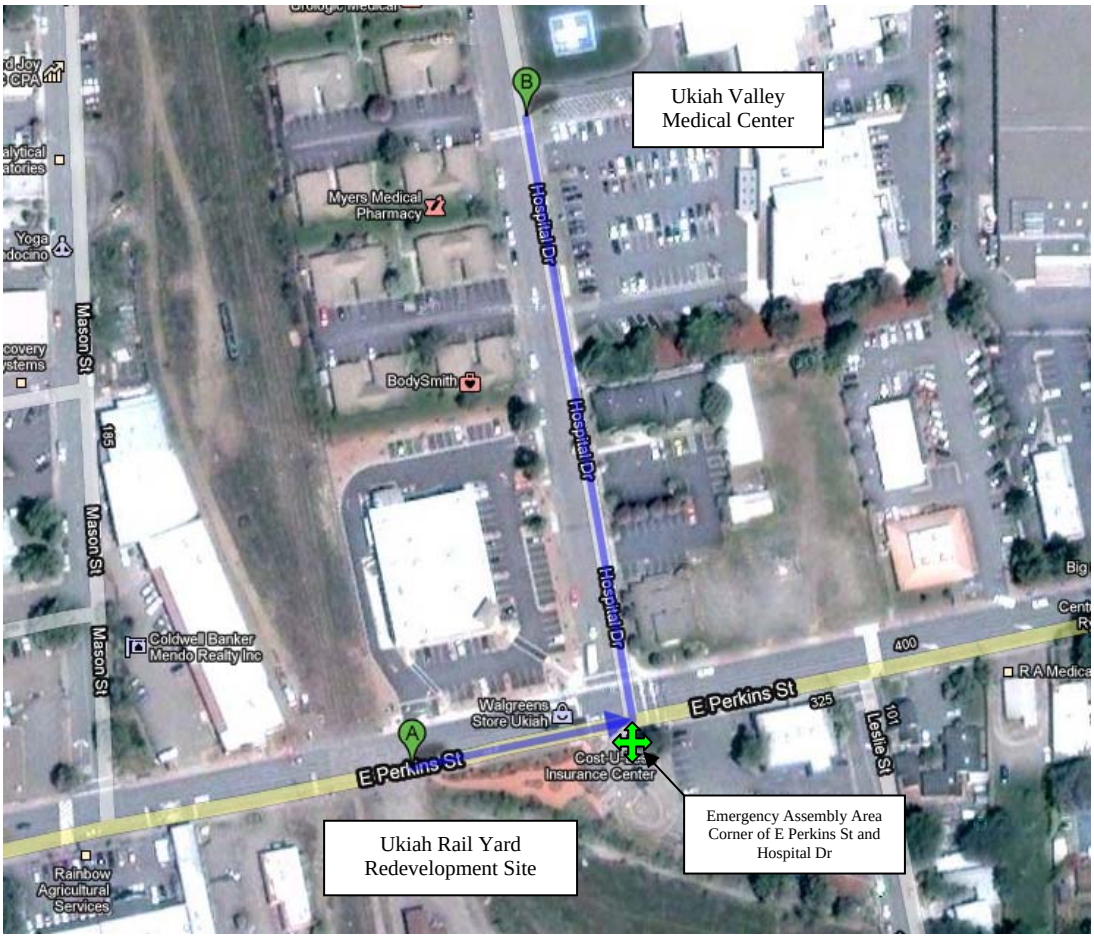
Ukiah Rail Yard SSHP
Former Ukiah Rail Yard, Ukiah, California

WESTON SOLUTIONS

FIGURE 3
HOSPITAL ROUTE MAP AND EMERGENCY ASSEMBLY AREA

Ukiah Valley Medical Center
275 Hospital Drive, Ukiah, CA
Tel. 707-462-3111

	Directions to Ukiah Valley Medical Center	Distance
1.	From the Ukiah Rail Yard turn right onto E Perkins Street	0.1 miles
2.	Turn left on Hospital Drive	0.2 mile
	Total Distance	0.3 Miles
	Total Estimated Time	Less than 5 Minutes
To evacuate to the Emergency Assembly Area, take E Perkins Road, traveling east, to the intersection with Hospital Drive as shown on the map, below.		



TABLES

Table 1
Soil Concentrations Greater than Screening Levels
Ukiah Rail Yard Property Ukiah, California

Chemical	Sample Location	Depth (ft bgs)	Concentrations	Screening Level
Metals (mg/kg)				
Arsenic	DP009	0.5	19.46	0.24
	DP009	2.0	5.02	0.24
	DP009	5.0	12.20	0.24
	SV003	0.5	4.85	0.24
	SV003	2.0	4.32	0.24
	SV023	0.5	4.88	0.24
	SV023	2.0	4.22	0.24
	SV027	2.0	3.74	0.24
	SV027	0.5	8.72	0.24
	SV028	0.5	4.32	0.24
	SV028	2.0	4.12	0.24
PAHs (µg/kg)				
Benzo(a)pyrene	TP014	0.5	953	130
Benzo(a)anthracene	TP014	0.5	1,320	1,300
Benzo(b)fluoranthene	TP014	0.5	1,480	1,300
Dibenzo(a,h)anthracene	TP014	0.5	342	210
Total Petroleum Hydrocarbons (mg/kg)				
Middle Distillates (TPH-D)	DP005	15.0	5,360	83
	DP005	20.0	587	83
	DP006	20.0	1,120	83
	DP006	0.5	302	83
	DP010	5.0	188	83
	TP014	0.5	130	83
	TP016	0.5	272	83
	TP017	0.5	2,010	83
	SV007	0.5	791	83
Residual Fuels (TPH-M)	SV007	0.5	2,870	2,500

Notes:

µg/kg micrograms per kilogram

mg/kg miligrams per kilogram

TPH-D total petroleum hydrocarbons, diesel

TPH-M total petroleum hydrocarbons, motor oil

Depth is given in feet below ground surface (ft bgs).

Samples collected December 2010 and January 2011.

Table 2
Groundwater Concentrations Greater than Screening Levels
Ukiah Rail Yard Property Ukiah, California

Chemical	Sample Location	Depth (ft bgs)	Concentrations	Screening Level
Metals (µg/L)				
Lead	DP005	25	9.69	0.2
PAHs (µg/L)				
Benzo(a)pyrene	DP004	12	0.09	0.007
Total Petroleum Hydrocarbons (mg/L)				
Middle Distillates (TPH diesel)	DP006	23	8.26	0.10
Residual Fuels (TPH motor oil)	DP006	23	4.73	0.10
VOCs (µg/L)				
Tetrachloroethene (PCE)	BG002	8	2.70	0.06
	BG002	22	0.77	0.06
	BG003	6	1.11	0.06
	DP001	13	2.23	0.06
	DP004	12	1.65	0.06
	DP005	12	2.73	0.06
	DP006	14	3.42	0.06
	DP006	23	1.06	0.06
	DP007	9	1.14	0.06
	DP008	12	1.33	0.06
	DP009	10	2.35	0.06
	DP010	14	4.01	0.06
	DP010	23	4.25	0.06
	DP011	11	2.90	0.06
	DP011	21	2.78	0.06
	DP012	12	1.70	0.06
	DP013	11	1.46	0.06
	DP013	21	1.75	0.06

Notes:

µg/L micrograms per liter

ft bgs feet below ground surface

mg/L miligrams per liter

TPH total petroleum hydrocarbons

Samples collected December 2010 and January 2011.

The Screening Level for PCE is the California Public Health Goal; the California MCL is 5.0 µg/L.

Table 3
Detected Soil Vapor Concentrations
Ukiah Rail Yard Property Ukiah, California

Chemical	Sample Location	Depth (ft bgs)	Concentrations (ug/L)	Screening Level (ug/L)
Tetrachloroethylene (PCE)	SV-1	8	0.83	1.6
	SV-4	10	0.58	1.6
	SV-6	8	0.55	1.6
	SV-9	9.5	0.10	1.6
	SV-12	10	0.33	1.6
	SV-13	8.5	0.39	1.6
	SV-13	8.5 (duplicate)	0.39	1.6
	SV-14	5.5	0.67	1.6
	SV-15	10.5	0.10	1.6
	SV-16	10 (3 pore volumes)	0.11	1.6
	SV-16	10 (7 pore volumes)	0.14	1.6
	SV-17	7.5	0.62	1.6
	SV-18	8	0.31	1.6
	SV-19	8	0.60	1.6
	SV-20	10	0.13	1.6
	SV-22	8	0.17	1.6
	SV-24	8	0.54	1.6
	SV-24	8 (duplicate)	0.27	1.6
	SV-25	10	1.3	1.6
	SV-26	10	0.83	1.6
	SV-27	10	1.0	1.6
	SV-29	7.5	0.42	1.6
	SV-30	8	0.83	1.6
	SV-31	9.5	**1.7**	1.6
	SV-32	10	0.51	1.6
	SV-33	10	0.27	1.6
	SV-34	9	1.3	1.6
	SV-35	10	1.6	1.6
Toluene	SV-11	16	0.13	890

Notes:

µg/L micrograms per liter

ft bgs feet below ground surface

Depth is given in feet below ground surface (ft bgs).

Bold indicates concentrations exceed screening level.

Samples collected December 2010 .

Table 4
Key Project Personnel and Competent Person Designations
Ukiah Rail Yard Property Ukiah, California

Key Project Personnel		
Position	**Contact**	**Phone Number**
WESTON Project Certified Industrial Hygienist/Program Health and Safety Manager	George Crawford, CIH	610-701-3771
WESTON Pacific Division Safety Officer	Mike Stuart	505-837-6566
WESTON Project Manager	Dwight Gemar, P.E.	925-948-2612 office
		925-899-4674 cell
WESTON Site Manager	Mark Major	707-674-3048 office
		916-320-4836 cell
WESTON Site Safety and Health Officer	Cirilo Lacson	707-674-3045 office
		707-529-3963 cell

Competent Person Designations		
Competent Person Requirement	**Regulatory Reference**	**Personnel**
Environmental Health and Safety Director	EM385-1-1 01.A.17.a and 28.C	George Crawford, CIH
Site Safety and Health Officer Identification	EM385-1-1 01.A.17	Cirilo Lacson
General Inspection of Construction Sites	29CFR1926.20; EM385-1-1 01.A.12	Cirilo Lacson/Mark Major
Sanitary Conditions	29CFR1926.27; EM385-1-1 02.A	Cirilo Lacson
Hazardous Waste Operations and Emergency Response	29CFR1926.65; EM385-1-1 28.C	Cirilo Lacson
Hearing Protection	29CFR1926.101; EM385-1-1 05.C	Cirilo Lacson
Respiratory Protection	29CFR1926.103; EM385-1-1 05.G	Cirilo Lacson
Mechanized Equipment	29CFR1926.600; EM385-1-1 01.18.A	Cirilo Lacson
Excavation	29CFR1926.650,651,652; EM385-1-1 25.A	Cirilo Lacson/Mark Major
Ladders	29CFR1926.1053; EM385-1-1 01.24.D	Cirilo Lacson

Notes:

CFR	Code of Federal Regulations
CIH	Certified Industrial Hygienist
EM 385-1-1	U.S. Army Corps of Engineers Safety and Health Requirements Manual (2008)
P.E.	Professional Engineer

Table 5
Minimum Clearance From Energized Overhead Electric Lines

Voltage (nominal, kilovolts, alternating current)	Minimum Rated Clearance (feet)
Up to 50	10
51 - 200	15
201 - 350	20
351 - 500	25
501 - 650	30
651 - 800	35
801 - 950	40
951 - 1100	45

All dimensions are distances from live part to employee

Source: EM 385-1-1 Table 11-1 (U.S. Army Corps of Engineers Safety and Health Requirements Manual, 2008)

Table 6
Emergency Contacts

Situation/Organization	Contact	Phone Number
Fire or explosion	Ukiah Fire Department	911 (land line only) or 707-463-6274 (cell)
Medical Emergency: Personal injury or exposure	Ukiah Valley Medical Center (Figure 3) 275 Hospital Drive, Ukiah, CA	707-462-3111
	Ukiah Ambulance	911 (land line only) or 707-462-3001
WorkCare- WESTON 24-hr Medical Emergency & Toxicology	Dr. Peter Greaney	800-455-6155 ex. 114
Poison	Poison Control Center	800-222-1222 For poison emergency, if collapsed or not breathing dial 911 for emergency services
Call-down: after 911, call ASAP		
WESTON Program Health & Safety Manager/Project Certified Industrial Hygienist	George Crawford, CIH	610-701-3771 office 484-437-5976 cell
WESTON Pacific Division Health and Safety Manager	Michael Stuart	505-837-6566 office 505-259-7613 cell
WESTON Project Manager	Dwight Gemar, P.E.	925-948-2612 office 925-899-4674 cell
WESTON Site Manager	Mark Major	707-674-3048office 916-320-4836 cell
WESTON Site Safety and Health Officer (SSHO)	Cirilo Lacson	707-674-3045 office 707-529-3963 cell

Notes:

CIH Certified Industrial Hygienist
P.E. Professional Engineer

APPENDIX A
ACTIVITY HAZARD ANALYSES

Activity Hazard Analyses (AHAs)

Activity/Job Step: **(1) Site Setup and Erosion/Stormwater Pollution Prevention Implementation**	Overall Risk Assessment Code (RAC) (Use highest code)	**L**
Project Location: Ukiah Rail Yard, CA	**Risk Assessment Code (RAC) Matrix**	
Contract Number:	**Severity** / **Probability**	
Date Prepared: 05/02/11		
Prepared by (Name/Title): Cirilo Lacson, Health and Safety Officer		
Reviewed by (Name/Title): Mike Stuart, Division Safety Officer		
Notes: (Field Notes, Review Comments, etc.)		

Severity	Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	E	E	H	H	M
Critical	E	H	H	M	L
Marginal	H	M	M	L	L
Negligible	M	L	L	L	L

Step 1: Review each **"Hazard"** with identified safety **"Controls"** and determine RAC (See above)

"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.

"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible

Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.

RAC Chart

- E = Extremely High Risk
- H = High Risk
- M = Moderate Risk
- L = Low Risk

Job Step	Hazards	Controls	RAC
Site setup and erosion/stormwater pollution prevention implementation	***Biological Hazards:*** ▪ Stinging and biting insects (mosquitoes, ticks, spiders, etc.)	***Controls for preventing stings and bites from insects:*** ▪ Personnel will be aware of potential exposures resulting in Lyme disease, psittacosis Hanta virus. ▪ Precautions will be made to use long handled tools, long pants, and leather gloves to prevent contact with snakes and rodents. ▪ Insect repellant will be on hand for use to prevent infection with West Nile virus, as recommended in OSHA directives.	L
	▪ Personal injury with blood exposure	***Controls for BBP prevention:*** ▪ A kit with First Aid and BBP-based PPE with Universal Precautions will be on site. ▪ First Aid- and BBP-trained personnel will be on site during all work hours.	L
	Physical Hazards: ▪ Injury due to contact with energized overhead lines	***Controls avoid contact with energized electrical lines*** ▪ Maintain minimum clearances (Table 5) in accordance	L

		with SSHP Section 9.2.3 (i.e., overhead electrical lines must either be de-energized or minimum clearances maintained).	
	▪ Slips, trips, and falls	***Controls to avoid slips, trips, and falls:*** ▪ Maintain clean work areas by following good housekeeping procedures. ▪ Be alert for uneven terrain. ▪ Walk the designated work areas to identify any ground hazards not conductive to safe operations. ▪ Wear slip resistant footwear when walking/working on slippery surfaces. ▪ Level D (Hard hat, safety glasses w/side shields or goggles, steel toes safety boots, reflective vests, ear protection and leather/rubber/cotton gloves) as necessary.	L
	▪ Temperature extremes	***Controls for heat/cold stress:*** ▪ Employees will be trained to recognize the signs of heat stress. ▪ Personnel will be conscious of their own limitations and monitor their physical condition. ▪ Heat Stress Program and monitoring will go into effect at 70 Deg. F, as conditions dictate. ▪ Crews will take heat stress breaks as necessary. ▪ Water or hydrating fluids will be available at the break area for employees. ▪ Traffic patterns will be identified and obeyed by vehicle and equipment operators. ▪ Manufacturer's safety and operations manual will be reviewed and followed with a copy attached to the piece of equipment.	L
	▪ Injury due to manual lifting	***Controls to avoid injury due to manual lifting*** ▪ Proper lifting technique utilized. ▪ Split heavy loads into smaller loads and/or seek assistance. ▪ Use mechanical aid, whenever possible. ▪ Make sure the path of travel is clear prior to the lift	L
	▪ Injury due to manual shoveling	***Controls to avoid injury during manual shoveling*** ▪ Select the proper shovel for the task. A long handled, flat bladed shovel is recommended for shoveling loosened material. ▪ Inspect the handle for splinters and/or cracks; determine	L

		that the blade is securely attached to the handle. ▪ Use your legs and shoulders and not your back. Bend at the knees. ▪ Never be more than 15 inches from the material you are shoveling. ▪ If possible, throw the spoil behind you, rotating your body. ▪ Be alert for signs of stress such as pain, numbness, burning, and tingling.	
	▪ Injury from hand tools	***Controls to prevent injury from hand tools*** ▪ All hand tools will be inspected for integrity before use. ▪ Personnel will be instructed to use hand tools in the intended manner. ▪ Any tools that are not in proper working order will be tagged for repair or removed from site. ▪ Allow sufficient swing room for the string trimmer/ hand sickle. ▪ Pickle weed by hand cut – employees will wear gloves and be aware of pinch points. ▪ Follow manufacturer's/Supervisors instructions for use of string trimmers. ▪ Steel-toe boots, hardhats, and safety glasses with side shields meeting ANSI Standards will be worn in all construction areas.	L
	▪ Injury due to moving equipment	***Controls to avoid injury due to moving equipment*** ▪ Only trained, experienced operators ▪ Use of horns, two-way radios, flags, and hand signals. ▪ Back up alarms functional ▪ One set of signals given for movement of equipment	L
	▪ Noise exposure	***Controls for noise exposure:*** ▪ Hearing control program which consists of noise monitoring, training, and hearing protection; hearing protection will be worn if warranted based on noise level meter readings for equipment in use at the time.	L

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
▪ Pickup trucks ▪ Flatbed truck ▪ Loader ▪ Back Hoe ▪ Hand and power tools	***Site-Specific:*** ▪ Initial site-specific ▪ Daily tailgate safety meetings ▪ General Inspections of Construction Sites. ***Supervisory Personnel:*** ▪ OSHA supervisor's training ***Heavy Equipment:*** ▪ Trained, qualified and authorized operators. ***Motor Vehicle:*** ▪ Operators will hold a valid license for the type and class of vehicle they are operating. ***Instrumentation and Equipment General:*** ▪ Employees will be qualified, trained, and competent to operate or service mechanical equipment.	***Site Inspection:*** ▪ Daily inspection by Safety and Health Officer and Quality Control Manager. ***Heavy Equipment and Motor Vehicles:*** ▪ Before initial use and during daily/shift inspections, vehicles will be inspected. ▪ Inspections and tests will be done in accordance with manufacturer's instructions. ▪ All equipment will be inspected daily when in use by the operator. ***Equipment:*** ▪ Before equipment is placed in use it will be inspected and tested by a qualified person. ▪ All equipment will be inspected daily when in use by the operator.

Activity/Job Step: (2) Excavate areas identified for soil removal, collect samples, and backfill	Overall Risk Assessment Code (RAC) (Use highest code)	**M**
Project Location: Ukiah Rail Yard, Ukiah, CA	**Risk Assessment Code (RAC) Matrix**	
Contract Number:		
Date Prepared: 05/02/11		
Prepared by (Name/Title): Cirilo Lacson, Health and Safety Officer		
Reviewed by (Name/Title): Mike Stuart, Division Safety Officer		
Notes: (Field Notes, Review Comments, etc.)		

Severity	Probability				
	Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	E	E	H	H	M
Critical	E	H	H	M	L
Marginal	H	M	M	L	L
Negligible	M	L	L	L	L

Step 1: Review each **"Hazard"** with identified safety **"Controls"** and determine RAC (See above)

"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.

"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible

Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.

RAC Chart

- **E = Extremely High Risk**
- **H = High Risk**
- **M = Moderate Risk**
- **L = Low Risk**

Job Step	Hazards	Controls	RAC
Excavate areas identified for soil removal, collect samples, and backfill	***Chemical/Toxicological Hazards:*** ▪ Minimal exposure to contaminated material.	***Controls for preventing exposure of contaminated material:*** ▪ Level D PPE for non-intrusive and non-contaminated activities. ▪ Modified Level D for intrusive and contaminated materials area activities. ▪ Hazard communication program	L
	Biological Hazards: ▪ Stinging and biting insects (mosquitoes, ticks, spiders, etc.). ▪ Personal injury with blood exposure.	***Controls for preventing stings and bites from insects:*** ▪ Personnel will be aware of potential exposures resulting in Lyme disease, psittacosis Hanta virus. ▪ Insect repellant will be on hand for use to prevent infection with West Nile virus, as recommended in OSHA directives. ***Controls for BBP prevention:*** ▪ A kit with First Aid and BBP-based PPE with Universal Precautions will be on site. ▪ First Aid- and BBP-trained personnel will be on site during all work hours.	L L

	Physical Hazards:		
	▪ Injury due to contact with energized overhead lines	***Controls avoid contact with energized electrical lines*** ▪ Maintain minimum clearances (Table 5) in accordance with SSHP Section 9.2.3 (i.e., overhead electrical lines must either be de-energized or minimum clearances maintained).	M
	▪ Injury due to contact with underground utilities	***Controls avoid contact with energized electrical lines*** ▪ Contact USA prior to excavation.	L
	▪ Caught between/struck by or against hazards	***Controls for caught between/struck by or against hazards:*** ▪ Stay out of swing radius of equipment ▪ Ground personnel near operating heavy equipment will wear hard hats and traffic vests ▪ Do not walk, work, or stand near equipment being loaded or unloaded ▪ Backup alarms to be in operable condition. No unnecessary backing. ▪ Steel toe footwear required	M
	▪ Slips and trips	***Controls to avoid slips and trips:*** ▪ Keep walking and working surfaces dry ▪ Housekeeping - remove trip hazards ▪ Alert employees to hazards of uneven terrain	L
	▪ Temperature extremes	***Controls for heat/cold stress:*** ▪ Employees will be trained to recognize the signs of heat stress. ▪ Personnel will be conscious of their own limitations and monitor their physical condition. ▪ Heat Stress Program and monitoring will go into effect at 70 Deg. F, as conditions dictate. ▪ Crews will take heat stress breaks as necessary. ▪ Water or hydrating fluids will be available at the break area for employees.	L
	▪ Falls from elevations	***Controls to avoid falls:*** ▪ Maintain three-points of contact when climbing on or off equipment.	L
	▪ Injury due to moving equipment	***Controls to avoid injury due to moving equipment*** Only trained, experienced operators ▪ Equipment inspected daily ▪ Personnel restricted in area of operation ▪ Back up alarms functional ▪ One set of signals given for movement of equipment	M

	▪ Noise exposure	***Controls for noise exposure:*** ▪ Hearing control program which consists of noise monitoring, training, and hearing protection; hearing protection will be worn if warranted based on noise level meter readings for equipment in use at the time.	L
	▪ Hazards associated with excavations	***Controls for hazards associated with excavations*** ▪ Maintain strict compliance with regulatory requirements regarding excavation safety.	L
	▪ Struck by dropped tools or supplies	***Controls for preventing injury from falling tools/supplies:*** ▪ All sampling equipment used for this project are lightweight; follow sampling procedures set forth in the SAP. Heavy duty, reinforced-toe boots are required while sampling is being performed	L

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
▪ Pickup trucks ▪ Excavator with bucket ▪ Compactor ▪ Dump Truck ▪ Water Truck, as required ▪ Loader ▪ Hand tools ▪ Air monitoring equipment ▪ Sampling equipment	***Site-Specific:*** ▪ Initial site-specific ▪ Daily tailgate safety meetings ▪ General Inspections of Construction Sites. **Supervisory Personnel:** ▪ OSHA supervisor's training ***Heavy Equipment:*** ▪ Trained, qualified and authorized operators. ***Motor Vehicle:*** ▪ Operators will hold a valid license for the type and class of vehicle they are operating. ***Instrumentation and Equipment General:*** Employees will be qualified, trained, and competent to operate or service mechanical equipment.	***Site Inspection:*** ▪ Daily inspection by Safety and Health Officer and Quality Control Manager. ***Heavy Equipment and Motor Vehicles:*** ▪ Before initial use and during daily/shift inspections, vehicles will be inspected. ▪ Inspections and tests will be done in accordance with manufacturer's instructions. ▪ All equipment will be inspected daily when in use by the operator. ***Equipment:*** ▪ Before equipment is placed in use it will be inspected and tested by a qualified person. ▪ All equipment will be inspected daily when in use by the operator.

Activity/Job Step: **(3) Stockpile excavated soil and collect samples**	Overall Risk Assessment Code (RAC) (Use highest code)	**M**
Project Location: Ukiah Rail Yard, Ukiah, CA	**Risk Assessment Code (RAC) Matrix**	
Contract Number:	**Severity** / **Probability**	
Date Prepared: 05/02/11		
Prepared by (Name/Title): Cirilo Lacson, Health and Safety Officer		
Reviewed by (Name/Title): Mike Stuart, Division Safety Officer		
Notes: (Field Notes, Review Comments, etc.)		

Severity	Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	E	E	H	H	M
Critical	E	H	H	M	L
Marginal	H	M	M	L	L
Negligible	M	L	L	L	L

Step 1: Review each **"Hazard"** with identified safety **"Controls"** and determine RAC (See above)

"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.

"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible

Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.

RAC Chart

- **E = Extremely High Risk**
- **H = High Risk**
- **M = Moderate Risk**
- **L = Low Risk**

Job Step	Hazards	Controls	RAC
Stockpile excavated soil and collect samples.	***Chemical/Toxicological Hazards:*** ▪ Minimal exposure to contaminated material.	***Controls for preventing exposure of contaminated material:*** ▪ Level D PPE for non-contaminated activities (Hard hat, safety glasses w/side shields or goggles, steel toes safety boots, reflective vests, ear protection and leather/rubber/cotton gloves) as necessary. ▪ Modified Level D for contaminated materials area activities. ▪ Hazard communication program	L
	Biological Hazards: ▪ Stinging and biting insects (mosquitoes, ticks, spiders, etc.).	***Controls for preventing stings and bites from insects:*** ▪ Personnel will be aware of potential exposures resulting in Lyme disease, psittacosis Hanta virus. ▪ Insect repellant will be on hand for use to prevent infection with West Nile virus, as recommended in OSHA directives.	L
	▪ Personal injury with blood exposure.	***Controls for BBP prevention:*** ▪ A kit with First Aid and BBP-based PPE with Universal Precautions will be on site. ▪ First Aid- and BBP-trained personnel will be on site during all work hours.	L

	Physical Hazards:		
	▪ Injury due to contact with energized overhead lines	***Controls avoid contact with energized electrical lines*** ▪ Maintain minimum clearances (Table 5) in accordance with SSHP Section 9.2.3 (i.e., overhead electrical lines must either be de-energized or minimum clearances maintained).	M
	▪ Caught between/struck by or against hazards	***Controls for caught between/struck by or against hazards:*** ▪ Stay out of swing radius of equipment ▪ Ground personnel near operating heavy equipment will wear hard hats and traffic vests ▪ Do not walk, work, or stand near equipment being loaded or unloaded ▪ Backup alarms to be in operable condition. No unnecessary backing. ▪ Steel toe footwear required	M
	▪ Slips and trips	***Controls to avoid slips and trips:*** ▪ Keep walking and working surfaces dry ▪ Housekeeping - remove trip hazards ▪ Alert employees to hazards of uneven terrain	L
	▪ Fueling operations	***Controls to avoid fueling operation hazards:*** ▪ All equipment will be shut down prior to fueling. ▪ All spilled fuel will be wiped up immediately. ▪ No smoking in the area of fueling operations. ▪ Fueling will be accomplished in well ventilated areas away from ignition sources. ▪ Equipment and fuel tank do not need to be bonded or grounded if the metal nozzle is in contact with the metal of equipment's fuel tank.	L
	▪ Temperature extremes	***Controls for heat/cold stress:*** ▪ Employees will be trained to recognize the signs of heat stress. ▪ Personnel will be conscious of their own limitations and monitor their physical condition. ▪ Heat Stress Program and monitoring will go into effect at 70 Deg. F, as conditions dictate. ▪ Crews will take heat stress breaks as necessary. ▪ Water or hydrating fluids will be available at the break area for employees.	L
	▪ Injury due to moving equipment	***Controls to avoid injury due to moving equipment*** ▪ Only trained, experienced operators	M

	▪ Noise exposure ▪ Struck by dropped tools or supplies	▪ Use of horns, two-way radios, flags, and hand signals. ▪ Back up alarms functional ▪ One set of signals given for movement of equipment ***Controls for noise exposure:*** ▪ Hearing control program which consists of noise monitoring, training, and hearing protection; hearing protection will be worn if warranted based on noise level meter readings for equipment in use at the time. ***Controls for preventing injury from falling tools/supplies:*** ▪ All sampling equipment used for this project are lightweight; follow sampling procedures set forth in the SAP. Heavy duty, reinforced-toe boots are required while sampling is being performed	L L

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
▪ Pickup trucks ▪ Excavator with bucket ▪ Dump Truck ▪ Water Truck, as required ▪ Loader ▪ Air monitoring equipment ▪ Hand tools ▪ Sampling equipment	***Site-Specific:*** ▪ Initial site-specific ▪ Daily tailgate safety meetings ▪ General Inspections of Construction Sites. **Supervisory Personnel:** ▪ OSHA supervisor's training ***Heavy Equipment:*** ▪ Trained, qualified and authorized operators. ***Motor Vehicle:*** ▪ Operators will hold a valid license for the type and class of vehicle they are operating ***Instrumentation and Equipment General:*** ▪ Employees will be qualified, trained, and competent to operate or service mechanical equipment.	***Site Inspection:*** ▪ Daily inspection by Safety and Health Officer and Quality Control Manager. ***Heavy Equipment and Motor Vehicles:*** ▪ Before initial use and during daily/shift inspections, vehicles will be inspected. ▪ Inspections and tests will be done in accordance with manufacturer's instructions. ▪ All equipment will be inspected daily when in use by the operator. ***Equipment:*** ▪ Before equipment is placed in use it will be inspected and tested by a qualified person. ▪ All equipment will be inspected daily when in use by the operator.

Activity/Job Step: (4) Transport excavated soil and other investigation derived waste for offsite disposal or recycling	Overall Risk Assessment Code (RAC) (Use highest code)	**L**
Project Location: Ukiah Rail Yard, Ukiah, CA	**Risk Assessment Code (RAC) Matrix**	
Contract Number:	**Severity** / **Probability**	
Date Prepared: 05/02/11		
Prepared by (Name/Title): Cirilo Lacson, Health and Safety Officer		
Reviewed by (Name/Title): Mike Stuart, Division Safety Officer		
Notes: (Field Notes, Review Comments, etc.)		

Severity	Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	E	E	H	H	M
Critical	E	H	H	M	L
Marginal	H	M	M	L	L
Negligible	M	L	L	L	L

Step 1: Review each **"Hazard"** with identified safety **"Controls"** and determine RAC (See above)

"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.

"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible

Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.

RAC Chart

- **E = Extremely High Risk**
- **H = High Risk**
- **M = Moderate Risk**
- **L = Low Risk**

Job Step	Hazards	Controls	RAC
Transport excavated soil and other investigation derived waste for offsite disposal or recycling.	***Chemical/Toxicological Hazards:*** ▪ Minimal exposure to contaminated material.	***Controls for preventing exposure of contaminated material:*** ▪ Level D PPE for non-contaminated activities (Hard hat, safety glasses w/side shields or goggles, steel toes safety boots, reflective vests, ear protection and leather/rubber/cotton gloves) as necessary. ▪ Modified Level D for contaminated materials area activities. ▪ Hazard communication program	L
	Biological Hazards: ▪ Stinging and biting insects (mosquitoes, ticks, spiders, etc.).	***Controls for preventing stings and bites from insects:*** ▪ Personnel will be aware of potential exposures resulting in Lyme disease, psittacosis Hanta virus. ▪ Insect repellant will be on hand for use to prevent infection with West Nile virus, as recommended in OSHA directives.	L
	▪ Personal injury with blood exposure.	***Controls for BBP prevention:*** ▪ A kit with First Aid and BBP-based PPE with Universal Precautions will be on site. ▪ First Aid- and BBP-trained personnel will be on site during all work hours.	L

	Physical Hazards: ▪ Injury due to contact with energized overhead lines	***Controls avoid contact with energized electrical lines*** ▪ Maintain minimum clearances (Table 5) in accordance with SSHP Section 9.2.3 (i.e., overhead electrical lines must either be de-energized or minimum clearances maintained).	L
	▪ Falls from elevations	***Controls to avoid falls:*** ▪ Maintain three-points of contact when climbing on or off equipment.	L
	▪ Caught between/struck by or against hazards	***Controls for caught between/struck by or against hazards:*** ▪ Stay out of swing radius of equipment ▪ Ground personnel near operating heavy equipment will wear hard hats and traffic vests ▪ Do not walk, work, or stand near equipment being loaded or unloaded ▪ Backup alarms to be in operable condition. No unnecessary backing. ▪ Steel toe footwear required	L
	▪ Slips and trips	***Controls to avoid slips and trips:*** ▪ Keep walking and working surfaces dry ▪ Housekeeping - remove trip hazards ▪ Alert employees to hazards of uneven terrain	L
	▪ Temperature extremes	***Controls for heat/cold stress:*** ▪ Employees will be trained to recognize the signs of heat stress. ▪ Personnel will be conscious of their own limitations and monitor their physical condition. ▪ Heat Stress Program and monitoring will go into effect at 70 Deg. F, as conditions dictate. ▪ Crews will take heat stress breaks as necessary. ▪ Water or hydrating fluids will be available at the break area for employees.	L
	▪ Back injury from lifting heavy objects	***Controls for preventing back injury:*** ▪ Site personnel will be instructed on proper lifting techniques. ▪ Mechanical devices should be used to reduce manual handling of materials. ▪ Employees will not lift objects that weigh more than 50 pounds or unusually awkward materials by themselves. ▪ Team lifting should be utilized if mechanical devices are	L

		not available.	
	▪ Moving equipment	***Controls for preventing injury from moving equipment:*** ▪ Only trained, experienced operators ▪ Equipment inspected daily ▪ Personnel restricted in area of operation ▪ Back up alarms functional ▪ One set of signals given for movement of equipment	L
	▪ Hazards associated with fueling equipment	***Controls for fueling equipment:*** ▪ All equipment will be shut down prior to fueling. ▪ All spilled fuel will be wiped up immediately. ▪ Wear protective gloves when handling diesel, oil, and lubricants. Wash hands thoroughly before eating or drinking. ▪ No smoking in the area of fueling operations. ▪ Fueling will be accomplished in well ventilated areas away from ignition sources. • Equipment and fuel tank do not need to be bonded or grounded if the metal nozzle is in contact with the metal of the equipment's fuel tank.	L

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
▪ Pickup truck ▪ Loader ▪ Excavator ▪ Water Truck, as required ▪ Street Sweeper, as required ▪ Hand tools	***Site-Specific:*** ▪ Initial site-specific ▪ Daily tailgate safety meetings ▪ General Inspections of Construction Sites. **Supervisory personnel:** OSHA supervisor's training ***Heavy Equipment:*** ▪ Trained, qualified and authorized operators. ***Motor Vehicle:*** ▪ Operators will hold a valid license for the type and class of vehicle they are operating.	***Site Inspection:*** ▪ Daily inspection by Safety and Health Officer and Quality Control Manager. ***Heavy Equipment and Motor Vehicles:*** ▪ Before initial use and during daily/shift inspections, vehicles will be inspected. ▪ Inspections and tests will be done in accordance with manufacturer's instructions. ▪ All equipment will be inspected daily when in use by the operator.

Activity/Job Step: (5) Site Restoration		Overall Risk Assessment Code (RAC) (Use highest code)					**L**
Project Location: Ukiah Rail Yard, Ukiah, CA		**Risk Assessment Code (RAC) Matrix**					
Contract Number:		**Severity**	**Probability**				
Date Prepared: 05/02/11			Frequent	Likely	Occasional	Seldom	Unlikely
Prepared by (Name/Title): Cirilo Lacson, Health and Safety Officer		Catastrophic	**E**	**E**	**H**	**H**	**M**
		Critical	**E**	**H**	**H**	**M**	**L**
Reviewed by (Name/Title): Mike Stuart, Division Safety Officer		Marginal	**H**	**M**	**M**	**L**	**L**
		Negligible	**M**	**L**	**L**	**L**	**L**
Notes: (Field Notes, Review Comments, etc.)		Step 1: Review each **"Hazard"** with identified safety **"Controls"** and determine RAC (See above)					
		"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.				**RAC Chart**	
		"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible				**E = Extremely High Risk**	
		Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.				**H = High Risk**	
						M = Moderate Risk	
						L = Low Risk	

Job Step	Hazards	Controls	RAC
Site restoration	***Biological Hazards:*** ▪ Stinging and biting insects (mosquitoes, ticks, spiders, etc.).	***Controls for preventing stings and bites from insects:*** ▪ Personnel will be aware of potential exposures resulting in Lyme disease, psittacosis Hanta virus. ▪ Insect repellant will be on hand for use to prevent infection with West Nile virus, as recommended in OSHA directives.	L
	▪ Personal injury with blood exposure.	***Controls for BBP prevention:*** ▪ A kit with First Aid and BBP-based PPE with Universal Precautions will be on site. ▪ First Aid- and BBP-trained personnel will be on site during all work hours.	L
	Physical Hazards: ▪ Slips, trips, and falls	***Controls to avoid slips, trips, and falls:*** ▪ Level D (Hard hat, safety glasses w/side shields or goggles, steel toes safety boots, reflective vests, ear protection and leather/rubber/cotton gloves) as necessary. ▪ Keep walking and working surfaces dry ▪ Housekeeping - remove trip hazards ▪ Alert employees to hazards of uneven terrain	L

	▪ Temperature extremes	***Controls for heat/cold stress:*** ▪ Employees will be trained to recognize the signs of heat stress. ▪ Personnel will be conscious of their own limitations and monitor their physical condition. ▪ Heat Stress Program and monitoring will go into effect at 70 Deg. F, as conditions dictate. ▪ Crews will take heat stress breaks as necessary. ▪ Water or hydrating fluids will be available at the break area for employees.	L
	▪ Injury due to moving equipment	***Controls to avoid injury due to moving equipment*** ▪ Only trained, experienced operators ▪ Use of horns, two-way radios, flags, and hand signals. ▪ Back up alarms functional ▪ One set of signals given for movement of equipment	L
	▪ Hazards associated with fueling equipment	***Controls for fueling equipment:*** ▪ All equipment will be shut down prior to fueling. ▪ All spilled fuel will be wiped up immediately. ▪ Wear protective gloves when handling diesel, oil, and lubricants. Wash hands thoroughly before eating or drinking. ▪ No smoking in the area of fueling operations. ▪ Fueling will be accomplished in well ventilated areas away from ignition sources. ▪ Equipment and fuel tank do not need to be bonded or grounded if the metal nozzle is in contact with the metal of the equipment's fuel tank.	L

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
▪ Pickup trucks ▪ Flatbed truck ▪ Water Truck, as required ▪ Street Sweeper, as required ▪ Hand and power tools	***Site-Specific:*** ▪ Initial site-specific ▪ Daily tailgate safety meetings ▪ General Inspections of Construction Sites. **Supervisory Personnel:** ▪ OSHA supervisor's training ***Motor Vehicle:*** ▪ Operators will hold a valid license for the type and class of vehicle they are operating.	***Site Inspection:*** ▪ Daily inspection by Safety and Health Officer and Quality Control Manager. ***Motor Vehicles:*** ▪ Before initial use and during daily/shift inspections, vehicles will be inspected. ▪ All equipment will be inspected daily when in use by the operator.

APPENDIX B
CHEMICAL DATA SHEETS

OSHA/EPA Occupational Chemical Database

Chemical Identification

Chemical Name: ARSENIC METAL AND INORGANIC COMPOUNDS, as As

CAS #: 7440-38-2 **UN No:** 1558 **Formula:** As

Synonyms: Arsenic metal: Arsenia Other synonyms vary depending upon the specific As compound.

Physical Properties

Physical Description: Metal: Silver-gray or tin-white, brittle, odorless solid.

BP: Sublimes	**MW:** 74.9	**LEL:** NA	**NFPA Fire Rating:** 2
FRZ/MLT: NA	**VP:** NA	**UEL:** NA	**NFPA Health Rating:** 3
FP: NA	**VD:** NA		**NFPA Reactivity Rating:** 0
Sp. GR: NA	**IP:** NA		**NFPA Sp. Inst.:** NA

Exposure Limits

OSHA	NIOSH	Related Information
PEL-TWA ppm: NA	**REL-TWA ppm:** NA	**AIHA Emergency Response Planning Guidelines - ERPG-1/ERPG-2/ERPG-3:** NA
PEL-TWA mg/m3: NA	**REL-TWA mg/m3:** NA	
PEL-STEL ppm: NA	**REL-STEL ppm:** NA	
PEL-STEL mg/m3: NA	**REL-STEL mg/m3:** NA	
PEL-C ppm: NA	**REL-C ppm:** NA	
PEL-C mg/m3: NA	**REL-C mg/m3:** NA	**Carcinogen Classifications:** NA
Skin Notation: NA	**Skin Notation:** NA	
Notes: NA	**Notes:** NA	
	IDLH ppm: NA	
	IDLH mg/m3: NA	
	IDLH Notes: NA	

NIOSH Pocket Guide to Chemical Hazards (Current through June 2006)

Arsenic (inorganic compounds, as As)			CAS: 7440-38-2
Formula: As (metal)			RTECS: CG0525000 (metal)
Synonyms & Trade Names: Arsenic metal: Arsenia Other synonyms vary depending upon the specific As compound.			DOT ID & Guide: 1558 152 (metal) 1562 152 (dust)
Exposure Limits			
NIOSH REL: Ca C 0.002 mg/m3 [15-minute] See Appendix A		OSHA PEL: [1910.1018] TWA 0.010 mg/m3	
IDLH: Ca [5 mg/m3 (as As)]		Conversion: NA	
Physical Description			
Metal: Silver-gray or tin-white, brittle, odorless solid.			
MW: 74.9	BP: Sublimes	MLT: 1135F (Sublimes)	Sol: Insoluble
VP: 0 mmHg (approx)	IP: NA	RGasD: NA	Sp.Gr: 5.73 (metal)
Fl.P: NA	UEL: NA	LEL: NA	MEC: NA
Metal: Noncombustible Solid in bulk form, but a slight explosion hazard in the form of dust when exposed to flame. (See flammable and combustible liquid classes)			
Incompatibilities & Reactivities			
Strong oxidizers, bromine azide [Note: Hydrogen gas can react with inorganic arsenic to form the highly toxic gas arsine.]			
Measurement Methods			
NIOSH 7300, 7301, 7303, 7900, 9102; OSHA ID105			
Personal Protection & Sanitation		**First Aid**	
		(See procedures)	
NIOSH Respirator Recommendations			
NIOSH : SCBAF:PD,PP/SAF:PD,PP:ASCBA Escape: GMFAGHiE/SCBAE (See symbols and codes)			
Exposure Routes			

Inh Abs Con Ing
Symptoms
Ulceration of nasal septum, derm, GI disturbances, peri neur, resp irrit, hyperpig of skin, [carc] (See abbreviations)
Target Organs
Liver, kidneys, skin, lungs, lymphatic sys (See abbreviations)

DOT Emergency Response Guidebook (ERG 2004)

Guide Number: 152

152 SUBSTANCES - TOXIC (Combustible)

POTENTIAL HAZARDS

HEALTH

* Highly toxic, may be fatal if inhaled, swallowed or absorbed through skin.
* Contact with molten substance may cause severe burns to skin and eyes.
* Avoid any skin contact.
* Effects of contact or inhalation may be delayed.
* Fire may produce irritating, corrosive and/or toxic gases.
* Runoff from fire control or dilution water may be corrosive and/or toxic and cause pollution.

FIRE OR EXPLOSION

* Combustible material: may burn but does not ignite readily.
* Containers may explode when heated.
* Runoff may pollute waterways.
* Substance may be transported in a molten form.

PUBLIC SAFETY

* CALL Emergency Response Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.
* As an immediate precautionary measure, isolate spill or leak area in all directions for at least 50 meters (150 feet) for liquids and at least 25 meters (75 feet) for solids.
* Keep unauthorized personnel away.
* Stay upwind.
* Keep out of low areas.

PROTECTIVE CLOTHING

* Wear positive pressure self-contained breathing apparatus (SCBA).
* Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection.
* Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.

EVACUATION

Spill

* See Table 1 - Initial Isolation and Protective Action Distances for highlighted materials. For non-highlighted materials, increase, in the downwind direction, as necessary, the isolation distance shown under "PUBLIC SAFETY".

Fire

* If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.

EMERGENCY RESPONSE

FIRE

Small Fire

* Dry chemical, CO2 or water spray.

Large Fire

* Water spray, fog or regular foam.
* Move containers from fire area if you can do it without risk.
* Dike fire-control water for later disposal; do not scatter the material.
* Use water spray or fog; do not use straight streams.

Fire involving Tanks or Car/Trailer Loads

* Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
* Do not get water inside containers.
* Cool containers with flooding quantities of water until well after fire is out.
* Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
* ALWAYS stay away from tanks engulfed in fire.
* For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

SPILL OR LEAK

* ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
* Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
* Stop leak if you can do it without risk.
* Prevent entry into waterways, sewers, basements or confined areas.
* Cover with plastic sheet to prevent spreading.
* Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
* DO NOT GET WATER INSIDE CONTAINERS.

FIRST AID

* Move victim to fresh air.
* Call 911 or emergency medical service.
* Give artificial respiration if victim is not breathing.

```
*       Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give
artificial respiration with the aid of a pocket mask equipped with a one-way valve or other
proper respiratory medical device.
*       Administer oxygen if breathing is difficult.
*       Remove and isolate contaminated clothing and shoes.
*       In case of contact with substance, immediately flush skin or eyes with running water
for at least 20 minutes.
*       For minor skin contact, avoid spreading material on unaffected skin.
*       Keep victim warm and quiet.
*       Effects of exposure (inhalation, ingestion or skin contact) to substance may be
delayed.
*       Ensure that medical personnel are aware of the material(s) involved and take
precautions to protect themselves.
```

ERG 2004 Toxic-by-Inhalation (TIH) Gas(es) Produced When Spilled in Water

TIH:

Additional Emergency Response Information (CAMEO Data)

Non-fire Spill Response:

Firefighting:

Reactivity: CHEMICAL PROFILE: Even at 10C, bromine trifluoride reacts with antimony incandescently. Bromine trifluoride reacts similarly with arsenic, boron, bromine, iodine, phosphorus, and sulfur (Mellor 2:113 1946-47). Bromoazide explodes on contact with antimony, arsenic, phosphorus, silver foil or sodium. When antimony or arsenic and solid potassium permanganate are ground together, the metals ignite (Mellor 12:322 1946-47). Sodium peroxide oxidizes antimony, arsenic, copper, potassium, tin, and zinc with incandescence (Mellor 2:490-93 1946-47). A combination of finely divided arsenic with finely divided bromates (also chlorates and iodates) of barium, calcium, magnesium, potassium, sodium, or zinc can explode by heat, percussion, and friction (Mellor 2:310 1946-47). Bromine pentafluoride reacts readily in the cold with arsenic ignition usually occurs. A few drops of the liquid falling in water produces an explosion. Fluorine vigorously reacts with arsenic and arsenic trioxide at ordinary temperatures (Mellor 9:34 1946-47). (REACTIVITY, 1999)

First Aid:

OSHA/EPA Occupational Chemical Database

Chemical Identification

Chemical Name: BENZO[B]FLUORANTHENE
CAS #: 205-99-2 **UN No:** **Formula:** C20H12
Synonyms:

Physical Properties

Physical Description:			
BP: NA	**MW:** 252.32	**LEL:** NA	**NFPA Fire Rating:** NA
FRZ/MLT: NA	**VP:** NA	**UEL:** NA	**NFPA Health Rating:** NA
FP: NA	**VD:** NA		**NFPA Reactivity Rating:** NA
Sp. GR: NA	**IP:** NA		**NFPA Sp. Inst.:** NA

Exposure Limits

OSHA	NIOSH	Related Information
PEL-TWA ppm: NA	**REL-TWA ppm:** NA	**AIHA Emergency Response Planning Guidelines - ERPG-1/ERPG-2/ERPG-3:** NA
PEL-TWA mg/m3: NA	**REL-TWA mg/m3:** NA	
PEL-STEL ppm: NA	**REL-STEL ppm:** NA	
PEL-STEL mg/m3: NA	**REL-STEL mg/m3:** NA	
PEL-C ppm: NA	**REL-C ppm:** NA	
PEL-C mg/m3: NA	**REL-C mg/m3:** NA	**Carcinogen Classifications:** NA
Skin Notation: NA	**Skin Notation:** NA	
Notes: NA	**Notes:** NA	
	IDLH ppm: NA	
	IDLH mg/m3: NA	
	IDLH Notes: NA	

NIOSH Pocket Guide to Chemical Hazards (Current through June 2006)

NA			CAS: NA
Formula: NA			RTECS: NA
Synonyms & Trade Names: NA			DOT ID & Guide: NA
Exposure Limits			
NIOSH REL: NA		OSHA PEL: NA	
IDLH: NIOSH IDLH: NA		Conversion: NA	
Physical Description			
Description: NA			
MW: NA	BP: NA	FRZ: NA	Sol: NA
VP: NA	IP: NA	RGasD: NA	SG: NA
FP: NA	UEL: NA	LEL: NA	MEC: NA
NA (See flammable and combustible liquid classes)			
Incompatibilities & Reactivities			
NA			
Measurement Methods			
NA			
Personal Protection & Sanitation		**First Aid**	
NA		NA (See procedures)	
NIOSH Respirator Recommendations			
NA (See symbols and codes)			
Exposure Routes			
NA			
Symptoms			
NA			

(See abbreviations)

Target Organs

NA
(See abbreviations)

DOT Emergency Response Guidebook (ERG 2004)

Guide: NA

ERG 2004 Toxic-by-Inhalation (TIH) Gas(es) Produced When Spilled in Water

TIH:

Additional Emergency Response Information (CAMEO Data)

Non-fire Spill Response:

Firefighting:

Reactivity: STABILITY: This compound is stable under normal laboratory conditions. Solutions of this chemical in water, DMSO, 95% ethanol or acetone should be stable for 24 hours under normal lab conditions.REACTIVITY: This compound can react with strong oxidizers. Ozone and chlorinating agents oxidize this type of compound. It may also react with various electrophiles, peroxides, nitrogen oxides and sulfur oxides. (NTP, 1992)

First Aid:

OSHA/EPA Occupational Chemical Database

Chemical Identification

Chemical Name: BENZ[A]ANTHRACENE
CAS #: 56-55-3 **UN No:** **Formula:** C18H12
Synonyms:

Physical Properties

Physical Description:			
BP: NA	**MW:** 228.29	**LEL:** NA	**NFPA Fire Rating:** NA
FRZ/MLT: NA	**VP:** NA	**UEL:** NA	**NFPA Health Rating:** NA
FP: NA	**VD:** NA		**NFPA Reactivity Rating:** NA
Sp. GR: NA	**IP:** NA		**NFPA Sp. Inst.:** NA

Exposure Limits

OSHA	**NIOSH**	**Related Information**
PEL-TWA ppm: NA	**REL-TWA ppm:** NA	**AIHA Emergency Response Planning Guidelines - ERPG-1/ERPG-2/ERPG-3:** NA
PEL-TWA mg/m3: NA	**REL-TWA mg/m3:** NA	
PEL-STEL ppm: NA	**REL-STEL ppm:** NA	
PEL-STEL mg/m3: NA	**REL-STEL mg/m3:** NA	
PEL-C ppm: NA	**REL-C ppm:** NA	
PEL-C mg/m3: NA	**REL-C mg/m3:** NA	**Carcinogen Classifications:** NA
Skin Notation: NA	**Skin Notation:** NA	
Notes: NA	**Notes:** NA	
	IDLH ppm: NA	
	IDLH mg/m3: NA	
	IDLH Notes: NA	

NIOSH Pocket Guide to Chemical Hazards (Current through June 2006)

NA			CAS: NA
Formula: NA			RTECS: NA
Synonyms & Trade Names: NA			DOT ID & Guide: NA
Exposure Limits			
NIOSH REL: NA		OSHA PEL: NA	
IDLH: NIOSH IDLH: NA		Conversion: NA	
Physical Description			
Description: NA			
MW: NA	BP: NA	FRZ: NA	Sol: NA
VP: NA	IP: NA	RGasD: NA	SG: NA
FP: NA	UEL: NA	LEL: NA	MEC: NA
NA (See flammable and combustible liquid classes)			
Incompatibilities & Reactivities			
NA			
Measurement Methods			
NA			
Personal Protection & Sanitation		**First Aid**	
NA		NA (See procedures)	
NIOSH Respirator Recommendations			
NA (See symbols and codes)			
Exposure Routes			
NA			
Symptoms			
NA			

(See abbreviations)

Target Organs

NA
(See abbreviations)

DOT Emergency Response Guidebook (ERG 2004)

Guide: NA

ERG 2004 Toxic-by-Inhalation (TIH) Gas(es) Produced When Spilled in Water

TIH:

Additional Emergency Response Information (CAMEO Data)

Non-fire Spill Response:

Firefighting:

Reactivity: STABILITY: This compound is stable under normal laboratory conditions. Solutions of this chemical should be stable for 24 hours under normal lab conditions. (NTP, 1992)

First Aid:

OSHA/EPA Occupational Chemical Database

Chemical Identification

Chemical Name: BENZO[B]FLUORANTHENE
CAS #: 205-99-2 **UN No:** **Formula:** C20H12
Synonyms:

Physical Properties

Physical Description:			
BP: NA	**MW:** 252.32	**LEL:** NA	**NFPA Fire Rating:** NA
FRZ/MLT: NA	**VP:** NA	**UEL:** NA	**NFPA Health Rating:** NA
FP: NA	**VD:** NA		**NFPA Reactivity Rating:** NA
Sp. GR: NA	**IP:** NA		**NFPA Sp. Inst.:** NA

Exposure Limits

OSHA	NIOSH	Related Information
PEL-TWA ppm: NA	**REL-TWA ppm:** NA	**AIHA Emergency Response Planning Guidelines - ERPG-1/ERPG-2/ERPG-3:** NA
PEL-TWA mg/m3: NA	**REL-TWA mg/m3:** NA	
PEL-STEL ppm: NA	**REL-STEL ppm:** NA	
PEL-STEL mg/m3: NA	**REL-STEL mg/m3:** NA	
PEL-C ppm: NA	**REL-C ppm:** NA	
PEL-C mg/m3: NA	**REL-C mg/m3:** NA	**Carcinogen Classifications:** NA
Skin Notation: NA	**Skin Notation:** NA	
Notes: NA	**Notes:** NA	
	IDLH ppm: NA	
	IDLH mg/m3: NA	
	IDLH Notes: NA	

NIOSH Pocket Guide to Chemical Hazards (Current through June 2006)

NA			CAS: NA
Formula: NA			RTECS: NA
Synonyms & Trade Names: NA			DOT ID & Guide: NA
Exposure Limits			
NIOSH REL: NA		OSHA PEL: NA	
IDLH: NIOSH IDLH: NA		Conversion: NA	
Physical Description			
Description: NA			
MW: NA	BP: NA	FRZ: NA	Sol: NA
VP: NA	IP: NA	RGasD: NA	SG: NA
FP: NA	UEL: NA	LEL: NA	MEC: NA
NA (See flammable and combustible liquid classes)			
Incompatibilities & Reactivities			
NA			
Measurement Methods			
NA			
Personal Protection & Sanitation		**First Aid**	
NA		NA (See procedures)	
NIOSH Respirator Recommendations			
NA (See symbols and codes)			
Exposure Routes			
NA			
Symptoms			
NA			

(See abbreviations)

Target Organs

NA
(See abbreviations)

DOT Emergency Response Guidebook (ERG 2004)

Guide: NA

ERG 2004 Toxic-by-Inhalation (TIH) Gas(es) Produced When Spilled in Water

TIH:

Additional Emergency Response Information (CAMEO Data)

Non-fire Spill Response:

Firefighting:

Reactivity: STABILITY: This compound is stable under normal laboratory conditions. Solutions of this chemical in water, DMSO, 95% ethanol or acetone should be stable for 24 hours under normal lab conditions.REACTIVITY: This compound can react with strong oxidizers. Ozone and chlorinating agents oxidize this type of compound. It may also react with various electrophiles, peroxides, nitrogen oxides and sulfur oxides. (NTP, 1992)

First Aid:

International Chemical Safety Cards

DIBENZO(a,h)ANTHRACENE

ICSC: 0431

1,25,6-Dibenzanthracene
$C_{22}H_{14}$
Molecular mass: 278.4

ICSC # 0431
CAS # 53-70-3
RTECS # HN2625000
EC # 601-041-00-2
October 23, 1995 Validated

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Combustible.	NO open flames.	Water spray, powder.
EXPLOSION			
EXPOSURE		AVOID ALL CONTACT!	
•INHALATION		Local exhaust or breathing protection.	Fresh air, rest.
•SKIN	Redness. Swelling. Itching.	Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
•EYES	Redness.	Face shield or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION		Do not eat, drink, or smoke during work. Wash hands before eating.	Rinse mouth.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Sweep spilled substance into sealable containers; if appropriate, moisten first to prevent dusting. Carefully collect remainder, then remove to safe place.	Well closed.	T symbol N symbol R: 45-50/53 S: 53-45-60-61

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0431

Prepared in the context of cooperation between the International Programme on Chemical Safety & the Commission of the European Communities (C) IPCS CEC 1994. No modifications to the International version have been made except to add the OSHA PELs, NIOSH RELs and NIOSH IDLH values.

IMPORTANT

PHYSICAL STATE; APPEARANCE:
COLOURLESS CRYSTALLINE POWDER.

PHYSICAL DANGERS:

CHEMICAL DANGERS:

OCCUPATIONAL EXPOSURE LIMITS:
TLV not established.
MAK: skin absorption (H);
Carcinogen category: 2; Germ cell mutagen group: 3A
(DFG 2009).

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation, through the skin and by ingestion.

INHALATION RISK:
Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly.

EFFECTS OF SHORT-TERM EXPOSURE:

EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
The substance may have effects on the skin , resulting in photosensitization. This substance is

D A T A	probably carcinogenic to humans.

PHYSICAL PROPERTIES	Boiling point: 524°C Melting point: 267°C Relative density (water = 1): 1.28	Solubility in water: none Octanol/water partition coefficient as log Pow: 6.5
ENVIRONMENTAL DATA	Bioaccumulation of this chemical may occur in seafood.	

N O T E S

This is one of many polycyclic aromatic hydrocarbons - standards are usually established for them as mixtures, e.g., coal tar pitch volatiles. However, it may be encountered as a laboratory chemical in its pure form. Insufficient data are available on the effect of this substance on human health, therefore utmost care must be taken. Do NOT take working clothes home. DBA is a commonly used name. This substance is one of many polycyclic aromatic hydrocarbons (PAH).

Card has been partially updated in October 2005: see EU Classification.
Card has been partially updated in April 2010: see Occupational Exposure Limits, Spillage Disposal.

ADDITIONAL INFORMATION

ICSC: 0431 **DIBENZO(a,h)ANTHRACENE**

IMPORTANT LEGAL NOTICE:	Neither NIOSH, the CEC or the IPCS nor any person acting on behalf of NIOSH, the CEC or the IPCS is responsible for the use which might be made of this information. This card contains the collective views of the IPCS Peer Review Committee and may not reflect in all cases all the detailed requirements included in national legislation on the subject. The user should verify compliance of the cards with the relevant legislation in the country of use. The only modifications made to produce the U.S. version is inclusion of the OSHA PELs, NIOSH RELs and NIOSH IDLH values.

OSHA/EPA Occupational Chemical Database

Chemical Identification

Chemical Name: COAL TAR PITCH VOLATILES

CAS #: 65996-93-2 **UN No:** 2713 **Formula:** Mixture

Synonyms: Synonyms vary depending upon the specific compound (e.g., pyrene; phenanthrene; acridine; chrysene; anthracene & benzo(a)pyrene).

Physical Properties

Physical Description: Odorless, silver-gray to black solid.

BP: 5612ºF	**MW:** 58.9	**LEL:** NA	**NFPA Fire Rating:** NA
FRZ/MLT: NA	**VP:** NA	**UEL:** NA	**NFPA Health Rating:** NA
FP: NA	**VD:** NA		**NFPA Reactivity Rating:** NA
Sp. GR: NA	**IP:** NA		**NFPA Sp. Inst.:** NA

Exposure Limits

OSHA	NIOSH	Related Information
PEL-TWA ppm: NA	**REL-TWA ppm:** NA	**AIHA Emergency Response Planning Guidelines - ERPG-1/ERPG-2/ERPG-3:** NA
PEL-TWA mg/m3: NA	**REL-TWA mg/m3:** NA	
PEL-STEL ppm: NA	**REL-STEL ppm:** NA	
PEL-STEL mg/m3: NA	**REL-STEL mg/m3:** NA	
PEL-C ppm: NA	**REL-C ppm:** NA	
PEL-C mg/m3: NA	**REL-C mg/m3:** NA	**Carcinogen Classifications:** NA
Skin Notation: NA	**Skin Notation:** NA	
Notes: NA	**Notes:** NA	
	IDLH ppm: NA	
	IDLH mg/m3: NA	
	IDLH Notes: NA	

NIOSH Pocket Guide to Chemical Hazards (Current through June 2006)

Coal tar pitch volatiles			CAS: 65996-93-2
Formula: NA			RTECS: GF8655000
Synonyms & Trade Names: Synonyms vary depending upon the specific compound (e.g., pyrene, phenanthrene, acridine, chrysene, anthracene & benzo(a)pyrene).			DOT ID & Guide: 2713 153
Exposure Limits			
NIOSH REL: Ca TWA 0.1 mg/m3 (cyclohexane-extractable fraction) See Appendix A See Appendix C		OSHA PEL: TWA 0.2 mg/m3 (benzene-soluble fraction) [1910.1002] See Appendix C	
IDLH: Ca [80 mg/m3]		Conversion: NA	
Physical Description			
Black or dark-brown amorphous residue.			
Properties vary depending upon the specific compound.	BP: NA	FRZ: NA	Sol: NA
VP: NA	IP: NA	RGasD: NA	SG: NA
FP: NA	UEL: NA	LEL: NA	MEC: NA
Combustible Solids (See flammable and combustible liquid classes)			
Incompatibilities & Reactivities			
Strong oxidizers			
Measurement Methods			
OSHA 58			
Personal Protection & Sanitation		**First Aid**	
		(See procedures)	
NIOSH Respirator Recommendations			
NIOSH : SCBAF:PD,PP/SAF:PD,PP:ASCBA Escape: GMFOVHiE/SCBAE (See symbols and codes)			

Exposure Routes
Inh Con
Symptoms
Derm, bron, [carc] (See abbreviations)
Target Organs
Resp sys, skin, bladder, kidneys (See abbreviations)

DOT Emergency Response Guidebook (ERG 2004)

Guide Number: 153

153 SUBSTANCES - TOXIC and/or CORROSIVE (Combustible)

POTENTIAL HAZARDS

HEALTH

* TOXIC; inhalation, ingestion or skin contact with material may cause severe injury or death.
* Contact with molten substance may cause severe burns to skin and eyes.
* Avoid any skin contact.
* Effects of contact or inhalation may be delayed.
* Fire may produce irritating, corrosive and/or toxic gases.
* Runoff from fire control or dilution water may be corrosive and/or toxic and cause pollution.

FIRE OR EXPLOSION

* Combustible material: may burn but does not ignite readily.
* When heated, vapors may form explosive mixtures with air: indoors, outdoors and sewers explosion hazards.
* Those substances designated with a "P" may polymerize explosively when heated or involved in a fire.
* Contact with metals may evolve flammable hydrogen gas.
* Containers may explode when heated.
* Runoff may pollute waterways.
* Substance may be transported in a molten form.

PUBLIC SAFETY

* CALL Emergency Response Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.
* As an immediate precautionary measure, isolate spill or leak area in all directions for at least 50 meters (150 feet) for liquids and at least 25 meters (75 feet) for solids.
* Keep unauthorized personnel away.
* Stay upwind.
* Keep out of low areas.
* Ventilate enclosed areas.

PROTECTIVE CLOTHING

* Wear positive pressure self-contained breathing apparatus (SCBA).
* Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection.
* Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.

EVACUATION

Spill

* See Table 1 - Initial Isolation and Protective Action Distances for highlighted materials. For non-highlighted materials, increase, in the downwind direction, as necessary, the isolation distance shown under "PUBLIC SAFETY".

Fire

* If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.

EMERGENCY RESPONSE

FIRE

Small Fire

* Dry chemical, CO2 or water spray.

Large Fire

* Dry chemical, CO2, alcohol-resistant foam or water spray.
* Move containers from fire area if you can do it without risk.
* Dike fire-control water for later disposal; do not scatter the material.

Fire involving Tanks or Car/Trailer Loads

* Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
* Do not get water inside containers.
* Cool containers with flooding quantities of water until well after fire is out.
* Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
* ALWAYS stay away from tanks engulfed in fire.

SPILL OR LEAK

* ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
* Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
* Stop leak if you can do it without risk.
* Prevent entry into waterways, sewers, basements or confined areas.
* Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
* DO NOT GET WATER INSIDE CONTAINERS.

FIRST AID

* Move victim to fresh air.
* Call 911 or emergency medical service.
* Give artificial respiration if victim is not breathing.
* Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
* Administer oxygen if breathing is difficult.
* Remove and isolate contaminated clothing and shoes.
* In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
* For minor skin contact, avoid spreading material on unaffected skin.
* Keep victim warm and quiet.
* Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.
* Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

ERG 2004 Toxic-by-Inhalation (TIH) Gas(es) Produced When Spilled in Water

TIH:

Additional Emergency Response Information (CAMEO Data)

Non-fire Spill Response:

Firefighting:

Reactivity: NA

First Aid:

APPENDIX C
MATERIAL SAFETY DATA SHEETS

APG

Analytical Products Group, Inc.

2730 Washington Blvd., Belpre, OH 45714
740-423-4200 800-272-4442 Fax 740-423-5588

Material Safety Data Sheet

Date prepared on: 10/11/05

Last revised on: 10/11/05

Page 1

Section I: Product Identification

CATALOG NUMBER: 14330, 14332, 2214330, 14335	PRODUCT NAME: TPH in Soil

Section II - Hazardous Ingredients/Identity Information

Chemical Name	CAS Reg. No.	OSHA PEL (TWA)	% Composition*
Benzene	71-43-2	10 mg/m3	<0.075%
Isooctane	540-84-1	Not available	<0.2%
Hexadecane	544-76-3	Not available	<0.2%

Non-Hazardous Ingredients/Identity Information

Chemical Name	CAS Reg. No.	OSHA PEL (TWA)	% Composition*
Processed soil			>99%
Total			100%

* Components are calculated on a weight/weight basis.

Section III - Physical/Chemical Characteristics

BOILING POINT: NA		SPECIFIC GRAVITY:
VAPOR PRESSURE: NA	SOLUBILITY IN WATER: Partial	APPEARANCE/ODOR: Granular solid, brown in color.

Section IV - Fire and Explosion Hazard Data

FLASH POINT (Method used): None available	AUTO IGNITION TEMPERATURE: N/A	FLAMMABLE LIMITS	LEL N/A	UEL N/A
EXTINGUISHING MEDIA: Water, dry chemical or soda ash.				
SPECIAL FIRE FIGHTING PROCEDURES: Move containers from fire area if you can do it without risk; apply cooling water to sides of containers that are exposed to flames until well after fire is out. Use flooding amounts of water as fog, cool containers with flooding amounts of water, apply from as far a distance as possible. Avoid breathing corrosive vapors, keep upwind.				
UNUSUAL FIRE AND EXPLOSION HAZARDS:				

Section V - Reactivity Data

STABILITY:	Unstable ☐	Stable ☒	Conditions to Avoid:
INCOMPATIBILITY (Materials to avoid): None known			
HAZARDOUS DECOMPOSITION PRODUCTS:			
HAZARDOUS POLYMERIZATION:	May Occur ☐	Will Not Occur ☒	Conditions to Avoid: None known

Section VI - Health Hazard Data

ROUTES OF ENTRY	Inhalation? X	Skin? X	Ingestion? X

HEALTH HAZARDS (Acute and Chronic): ACUTE: Some components may be absorbed through contact with skin. The sample may cause irritation if inhaled, ingested or absorbed through the skin. A burning sensation may occur. CHRONIC: Repeated and prolonged contact with dust can result in bronchial problems. Prolonged skin contact results in dermatitis

COMPONENTS LISTED AS CARCINOGENS OR POTENTIAL CARCINOGENS: N/A

SIGNS AND SYMPTOMS OF EXPOSURE: Irritation of eyes with coughing and burning sensation on skin.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: Individuals with bronchial symptoms and sensitive dermatitis.

EMERGENCY AND FIRST AID PROCEDURES: Seek medical assistance for treatment, observation and support if necessary. EYE CONTACT: May cause pain, flush with water. Get immediate medical attention. SKIN CONTACT: Flush with water, get medical attention. INHALATION: Remove to fresh air, if breathing has stopped, start artificial respiration, obtain medical assistance. INGESTION: Give large amounts of water. If vomiting persists, administer fluids repeatedly. Obtain medical attention.

Section VII - Precautions for Safe Handling and Use

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Sweep up, place in a bag and hold for waste disposal. Avoid raising a dust. Wash spill site after material pickup is complete.

WASTE DISPOSAL METHOD: See above

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Wash thoroughly after handling. Use only in a well ventilated area. Minimize dust generation and accumulation. Avoid contact with eyes, skin, and clothing. Avoid ingestion and inhalation. Store in a tightly closed container. Store in a cool dry, well-ventilated area.

OTHER PRECAUTIONS* Analytical standard samples should never be concentrated by evaporating or heating.

Section VIII - Control Measures

RESPIRATORY PROTECTION (Please specify): Dust mask or Fume hood.

VENTILATION: Local exhaust

PROTECTIVE GLOVES: Vinyl ot latex.	EYE PROTECTION: Safety glasses

OTHER PROTECTIVE EQUIPMENT: Impervious Clothing

EMERGENCY WASH FACILITIES: Maintain eye wash and quick drench showers in work area.

The information stated in this Material Safety Data Sheet (MSDS) is believed to be correct on the date of publication and must not be considered all conclusive. The information has been obtained only by a search of available literature and is only a guide for handling the chemicals. Persons not specifically and properly trained should not handle this chemical or its container. This MSDS is provided without any warranty expressed or implied, including merchantability or fitness for any particular purpose.

This product is furnished for laboratory use ONLY! Our standards may not be used as drugs, cosmetics, agricultural or pesticidal products, food additives or as house hold chemicals.

- Various Government agencies (i.e., Department of Transportation, Occupational Safety and Health Administration, Environmental Protection Agency, and others) may have specific regulations concerning the transportation, handling, storage or use of this product which may not be contained herein. The customer or user of this product should be familiar with these regulations.

AMERADA HESS CORPORATION

MATERIAL SAFETY DATA SHEET

Gasoline, All Grades **MSDS No. 9950**

EMERGENCY OVERVIEW
DANGER!
EXTREMELY FLAMMABLE - EYE AND MUCOUS MEMBRANE IRRITANT - EFFECTS CENTRAL NERVOUS SYSTEM - HARMFUL OR FATAL IF SWALLOWED - ASPIRATION HAZARD

NFPA 704 (Section 16)

High fire hazard. Keep away from heat, spark, open flame, and other ignition sources.

If ingested, do NOT induce vomiting, as this may cause chemical pneumonia (fluid in the lungs). Contact may cause eye, skin and mucous membrane irritation. Harmful if absorbed through the skin. Avoid prolonged breathing of vapors or mists. Inhalation may cause irritation, anesthetic effects (dizziness, nausea, headache, intoxication), and respiratory system effects.

Long-term exposure may cause effects to specific organs, such as to the liver, kidneys, blood, nervous system, and skin. Contains benzene, which can cause blood disease, including anemia and leukemia.

1. CHEMICAL PRODUCT and COMPANY INFORMATION (rev. Jan-04)

Amerada Hess Corporation
1 Hess Plaza
Woodbridge, NJ 07095-0961

EMERGENCY TELEPHONE NUMBER (24 hrs): **CHEMTREC (800)424-9300**
COMPANY CONTACT (business hours): Corporate Safety (732)750-6000
MSDS Internet Website www.hess.com/about/environ.html

SYNONYMS: Hess Conventional (Oxygenated and Non-oxygenated) Gasoline; Reformulated Gasoline (RFG); Reformulated Gasoline Blendstock for Oxygenate Blending (RBOB); Unleaded Motor or Automotive Gasoline

See Section 16 for abbreviations and acronyms.

2. COMPOSITION and INFORMATION ON INGREDIENTS * (rev. Jan-04)

INGREDIENT NAME (CAS No.)	CONCENTRATION PERCENT BY WEIGHT
Gasoline (86290-81-5)	100
Benzene (71-43-2)	0.1 - 4.9 (0.1 - 1.3 reformulated gasoline)
n-Butane (106-97-8)	< 10
Ethyl Alcohol (Ethanol) (64-17-5)	0 - 10
Ethyl benzene (100-41-4)	< 3
n-Hexane (110-54-3)	0.5 to 4
Methyl-tertiary butyl ether (MTBE) (1634-04-4)	0 to 15.0
Tertiary-amyl methyl ether (TAME) (994-05-8)	0 to 17.2
Toluene (108-88-3)	1 - 25
1,2,4- Trimethylbenzene (95-63-6)	< 6
Xylene, mixed isomers (1330-20-7)	1 - 15

A complex blend of petroleum-derived normal and branched-chain alkane, cycloalkane, alkene, and aromatic hydrocarbons. May contain antioxidant and multifunctional additives. Non-oxygenated Conventional Gasoline and RBOB do not have oxygenates (Ethanol or MTBE and/or TAME). Oxygenated Conventional and Reformulated Gasoline will have oxygenates for octane enhancement or as legally required.

3. HAZARDS IDENTIFICATION (rev. Dec-97)

EYES
Moderate irritant. Contact with liquid or vapor may cause irritation.

SKIN
Practically non-toxic if absorbed following acute (single) exposure. May cause skin irritation with prolonged or repeated contact. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are exposed repeatedly.

INGESTION
The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.

INHALATION
Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

WARNING: the burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

CHRONIC EFFECTS and CARCINOGENICITY
Contains benzene, a regulated human carcinogen. Benzene has the potential to cause anemia and other blood diseases, including leukemia, after repeated and prolonged exposure. Exposure to light hydrocarbons in the same boiling range as this product has been associated in animal studies with systemic toxicity. See also Section 11 - Toxicological Information.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE
Irritation from skin exposure may aggravate existing open wounds, skin disorders, and dermatitis (rash). Chronic respiratory disease, liver or kidney dysfunction, or pre-existing central nervous system disorders may be aggravated by exposure.

4. FIRST AID MEASURES (rev. Dec-97)

EYES
In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

SKIN
Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or waterless hand cleanser. Obtain medical attention if irritation or redness develops.

INGESTION
DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

INHALATION
Remove person to fresh air. If person is not breathing, ensure an open airway and provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

5. FIRE FIGHTING MEASURES (rev. Dec-97)

FLAMMABLE PROPERTIES:

FLASH POINT:	-45 °F (-43°C)
AUTOIGNITION TEMPERATURE:	highly variable; > 530 °F (>280 °C)
OSHA/NFPA FLAMMABILITY CLASS:	1A (flammable liquid)
LOWER EXPLOSIVE LIMIT (%):	1.4%
UPPER EXPLOSIVE LIMIT (%):	7.6%

FIRE AND EXPLOSION HAZARDS

Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. Flowing product may be ignited by self-generated static electricity. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

EXTINGUISHING MEDIA

SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO2, water spray, fire fighting foam, or Halon.

LARGE FIRES: Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

During certain times of the year and/or in certain geographical locations, gasoline may contain MTBE and/or TAME. Firefighting foam suitable for polar solvents is recommended for fuel with greater than 10% oxygenate concentration - refer to NFPA 11 “Low Expansion Foam - 1994 Edition.”

FIRE FIGHTING INSTRUCTIONS

Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment.

Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing.

Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam.

See Section 16 for the NFPA 704 Hazard Rating.

6. ACCIDENTAL RELEASE MEASURES (rev. Dec-97)

ACTIVATE FACILITY SPILL CONTINGENCY or EMERGENCY PLAN.

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

Carefully contain and stop the source of the spill, if safe to do so. Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product

vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection.

Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal - caution, flammable vapors may accumulate in closed containers. Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

7. HANDLING and STORAGE (rev. Dec-97)

HANDLING PRECAUTIONS

******USE ONLY AS A MOTOR FUEL******
******DO NOT SIPHON BY MOUTH******

Handle as a flammable liquid. Keep away from heat, sparks, and open flame! Electrical equipment should be approved for classified area. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

Special slow load procedures for "switch loading" must be followed to avoid the static ignition hazard that can exist when higher flash point material (such as fuel oil) is loaded into tanks previously containing low flash point products (such as this product) - see API Publication 2003, "Protection Against Ignitions Arising Out Of Static, Lightning and Stray Currents.

STORAGE PRECAUTIONS

Keep away from flame, sparks, excessive temperatures and open flame. Use approved vented containers. Keep containers closed and clearly labeled. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Store in a well-ventilated area. This storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". Avoid storage near incompatible materials. The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks".

WORK/HYGIENIC PRACTICES

Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure. Use good personal hygiene practices. Avoid repeated and/or prolonged skin exposure. Wash hands before eating, drinking, smoking, or using toilet facilities. Do not use as a cleaning solvent on the skin. Do not use solvents or harsh abrasive skin cleaners for washing this product from exposed skin areas. Waterless hand cleaners are effective. Promptly remove contaminated clothing and launder before reuse. Use care when laundering to prevent the formation of flammable vapors which could ignite via washer or dryer. Consider the need to discard contaminated leather shoes and gloves.

8. EXPOSURE CONTROLS and PERSONAL PROTECTION (rev. Jan-04)

EXPOSURE LIMITS

Component (CAS No.)	Exposure Limits			
	Source	TWA (ppm)	STEL (ppm)	Note
Gasoline (86290-81-5)	ACGIH	300	500	A3
Benzene (71-43-2)	OSHA	1	5	Carcinogen
	ACGIH	0.5	2.5	A1, skin
	USCG	1	5	
n-Butane (106-97-8)	ACGIH	800	--	2003 NOIC: 1000 ppm (TWA) Aliphatic Hydrocarbon Gases Alkane (C1-C4)
Ethyl Alcohol (ethanol) (64-17-5)	OSHA	1000	--	
	ACGIH	1000	--	A4
Ethyl benzene (100-41-4)	OSHA	100	--	
	ACGIH	100	125	A3

Component (CAS No.)	Exposure Limits			
	Source	TWA (ppm)	STEL (ppm)	Note
n-Hexane (110-54-3)	OSHA	500	--	
	ACGIH	50	--	skin
Methyl-tertiary butyl ether [MTBE] (1634-04-4)	ACGIH	50		A3
Tertiary-amyl methyl ether [TAME] (994-05-8)				None established
Toluene (108-88-3)	OSHA	200		Ceiling: 300 ppm; Peak: 500 ppm (10 min.)
	ACGIH	50	--	A4 (skin)
1,2,4- Trimethylbenzene (95-63-6)	ACGIH	25	--	
Xylene, mixed isomers (1330-20-7)	OSHA	100	--	
	ACGIH	100	150	A4

ENGINEERING CONTROLS

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

EYE/FACE PROTECTION

Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

SKIN PROTECTION

Gloves constructed of nitrile or neoprene are recommended. Chemical protective clothing such as that made of of E.I. DuPont Tychem ®, products or equivalent is recommended based on degree of exposure.

Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.

RESPIRATORY PROTECTION

A NIOSH-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited. Refer to OSHA 29 CFR 1910.134, NIOSH Respirator Decision Logic, and the manufacturer for additional guidance on respiratory protection selection and limitations.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

9. PHYSICAL and CHEMICAL PROPERTIES (rev. Jan-04)

APPEARANCE

A translucent, straw-colored or light yellow liquid

ODOR

A strong, characteristic aromatic hydrocarbon odor. Oxygenated gasoline with MTBE and/or TAME may have a sweet, ether-like odor and is detectable at a lower concentration than non-oxygenated gasoline.

ODOR THRESHOLD

	Odor Detection	Odor Recognition
Non-oxygenated gasoline:	0.5 - 0.6 ppm	0.8 - 1.1 ppm
Gasoline with 15% MTBE:	0.2 - 0.3 ppm	0.4 - 0.7 ppm
Gasoline with 15% TAME:	0.1 ppm	0.2 ppm

BASIC PHYSICAL PROPERTIES

BOILING RANGE:	85 to 437 °F (39 to 200 °C)
VAPOR PRESSURE:	6.4 - 15 RVP @ 100 °F (38 °C) (275-475 mm Hg @ 68 °F (20 °C)
VAPOR DENSITY (air = 1):	AP 3 to 4
SPECIFIC GRAVITY (H_2O = 1):	0.70 – 0.78
EVAPORATION RATE:	10-11 (n-butyl acetate = 1)
PERCENT VOLATILES:	100 %

SOLUBILITY (H_2O): Non-oxygenated gasoline - negligible (< 0.1% @ 77 ^oF). Gasoline with 15% MTBE - slight (0.1 - 3% @ 77 ^oF); ethanol is readily soluble in water

10. STABILITY and REACTIVITY (rev. Dec-94)

STABILITY: Stable. Hazardous polymerization will not occur.

CONDITIONS TO AVOID

Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources

INCOMPATIBLE MATERIALS

Keep away from strong oxidizers.

HAZARDOUS DECOMPOSITION PRODUCTS

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke). Contact with nitric and sulfuric acids will form nitrocresols that can decompose violently.

11. TOXICOLOGICAL PROPERTIES (rev. Dec-97)

ACUTE TOXICITY

Acute Dermal LD50 (rabbits): > 5 ml/kg
Acute Oral LD50 (rat): 18.75 ml/kg
Primary dermal irritation (rabbits): slightly irritating
Draize eye irritation (rabbits): non-irritating
Guinea pig sensitization: negative

CHRONIC EFFECTS AND CARCINOGENICITY

Carcinogenicity: OSHA: NO IARC: YES - 2B NTP: NO ACGIH: YES (A3)

IARC has determined that gasoline and gasoline exhaust are possibly carcinogenic in humans. Inhalation exposure to completely vaporized unleaded gasoline caused kidney cancers in male rats and liver tumors in female mice. The U.S. EPA has determined that the male kidney tumors are species-specific and are irrelevant for human health risk assessment. The significance of the tumors seen in female mice is not known. Exposure to light hydrocarbons in the same boiling range as this product has been associated in animal studies with effects to the central and peripheral nervous systems, liver, and kidneys. The significance of these animal models to predict similar human response to gasoline is uncertain.

This product contains benzene. Human health studies indicate that prolonged and/or repeated overexposure to benzene may cause damage to the blood-forming system (particularly bone marrow), and serious blood disorders such as aplastic anemia and leukemia. Benzene is listed as a human carcinogen by the NTP, IARC, OSHA and ACGIH.

This product may contain methyl tertiary butyl ether (MTBE): animal and human health effects studies indicate that MTBE may cause eye, skin, and respiratory tract irritation, central nervous system depression and neurotoxicity. MTBE is classified as an animal carcinogen (A3) by the ACGIH.

12. ECOLOGICAL INFORMATION (rev. Jan-04)

Keep out of sewers, drainage areas and waterways. Report spills and releases, as applicable, under Federal and State regulations. If released, oxygenates such as ethers and alcohols will be expected to exhibit fairly high mobility in soil, and therefore may leach into groundwater. The API (www.api.org) provides a number of useful references addressing petroleum and oxygenate contamination of groundwater.

13. DISPOSAL CONSIDERATIONS (rev. Dec-97)

Consult federal, state and local waste regulations to determine appropriate disposal options.

14. TRANSPORTATION INFORMATION (rev. Jan-04)

DOT PROPER SHIPPING NAME:	Gasoline
DOT HAZARD CLASS and PACKING GROUP:	3, PG II
DOT IDENTIFICATION NUMBER:	UN 1203
DOT SHIPPING LABEL:	FLAMMABLE LIQUID

PLACARD:

15. REGULATORY INFORMATION (rev. Jan-04)

U.S. FEDERAL, STATE, and LOCAL REGULATORY INFORMATION

This product and its constituents listed herein are on the EPA TSCA Inventory. Any spill or uncontrolled release of this product, including any substantial threat of release, may be subject to federal, state and/or local reporting requirements. This product and/or its constituents may also be subject to other federal, state, or local regulations; consult those regulations applicable to your facility/operation.

CLEAN WATER ACT (OIL SPILLS)

Any spill or release of this product to "navigable waters" (essentially any surface water, including certain wetlands) or adjoining shorelines sufficient to cause a visible sheen or deposit of a sludge or emulsion must be reported immediately to the National Response Center (1-800-424-8802) or, if not practical, the U.S. Coast Guard with follow-up to the National Response Center, as required by U.S. Federal Law. Also contact appropriate state and local regulatory agencies as required.

CERCLA SECTION 103 and SARA SECTION 304 (RELEASE TO THE ENVIRONMENT)

The CERCLA definition of hazardous substances contains a “petroleum exclusion” clause which exempts crude oil, refined, and unrefined petroleum products and any indigenous components of such. However, other federal reporting requirements (e.g., SARA Section 304 as well as the Clean Water Act if the spill occurs on navigable waters) may still apply.

SARA SECTION 311/312 - HAZARD CLASSES

ACUTE HEALTH	CHRONIC HEALTH	FIRE	SUDDEN RELEASE OF PRESSURE	REACTIVE
X	X	X	--	--

SARA SECTION 313 - SUPPLIER NOTIFICATION

This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372:

INGREDIENT NAME (CAS NUMBER)	CONCENTRATION WT. PERCENT
Benzene (71-43-2)	0.1 to 4.9 (0.1 to 1.3 for reformulated gasoline)
Ethyl benzene (100-41-4)	< 3
n-Hexane (110-54-3)	0.5 to 4
Methyl-tertiary butyl ether (MTBE) (1634-04-4)	0 to 15.0
Toluene (108-88-3)	1 to 15
1,2,4- Trimethylbenzene (95-63-6)	< 6
Xylene, mixed isomers (1330-20-7)	1 to 15

US EPA guidance documents (www.epa.gov/tri) for reporting Persistent Bioaccumulating Toxics (PBTs) indicate this product may contain the following deminimis levels of toxic chemicals subject to Section 313 reporting:

INGREDIENT NAME (CAS NUMBER)	CONCENTRATION - Parts per million (ppm) by weight
Polycyclic aromatic compounds (PACs)	17
Benzo (g,h,i) perylene (191-24-2)	2.55
Lead (7439-92-1)	0.079

CANADIAN REGULATORY INFORMATION (WHMIS)

Class B, Division 2 (Flammable Liquid)
Class D, Division 2A (Very toxic by other means) and Class D, Division 2B (Toxic by other means)

16. OTHER INFORMATION (rev. Jan-04)

NFPA® HAZARD RATING	HEALTH:	1	Slight
	FIRE:	3	Serious
	REACTIVITY:	0	Minimal
HMIS® HAZARD RATING	HEALTH:	1 *	Slight
	FIRE:	3	Serious
	REACTIVITY:	0	Minimal
	* CHRONIC		

SUPERSEDES MSDS DATED: 12/30/97

ABBREVIATIONS:

AP = Approximately < = Less than > = Greater than
N/A = Not Applicable N/D = Not Determined ppm = parts per million

ACRONYMS:

ACGIH	American Conference of Governmental Industrial Hygienists
AIHA	American Industrial Hygiene Association
ANSI	American National Standards Institute (212)642-4900
API	American Petroleum Institute (202)682-8000
CERCLA	Comprehensive Emergency Response, Compensation, and Liability Act
DOT	U.S. Department of Transportation [General Info: (800)467-4922]
EPA	U.S. Environmental Protection Agency
HMIS	Hazardous Materials Information System
IARC	International Agency For Research On Cancer
MSHA	Mine Safety and Health Administration
NFPA	National Fire Protection Association (617)770-3000
NIOSH	National Institute of Occupational Safety and Health
NOIC	Notice of Intended Change (proposed change to ACGIH TLV)
NTP	National Toxicology Program
OPA	Oil Pollution Act of 1990
OSHA	U.S. Occupational Safety & Health Administration
PEL	Permissible Exposure Limit (OSHA)
RCRA	Resource Conservation and Recovery Act
REL	Recommended Exposure Limit (NIOSH)
SARA	Superfund Amendments and Reauthorization Act of 1986 Title III
SCBA	Self-Contained Breathing Apparatus
SPCC	Spill Prevention, Control, and Countermeasures
STEL	Short-Term Exposure Limit (generally 15 minutes)
TLV	Threshold Limit Value (ACGIH)
TSCA	Toxic Substances Control Act
TWA	Time Weighted Average (8 hr.)
WEEL	Workplace Environmental Exposure Level (AIHA)
WHMIS	Workplace Hazardous Materials Information System (Canada)

MATERIAL SAFETY DATA SHEET
Review Date: 01/03/2006

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT: Ultra Low Sulfur Diesel Fuel 2 (S-15 ppm) Dyed

MSDS NUMBER: 401398EU - 3
PRODUCT CODE(S): 27100

MANUFACTURER ADDRESS: Shell Oil Products US, P.O. Box 4453, Houston, TX. 77210-4453

TELEPHONE NUMBERS
Spill Information: (877) 242-7400
Health Information: (877) 504-9351
MSDS Assistance Number: (877) 276-7285

SECTION 2 PRODUCT/INGREDIENTS

CAS#	CONCENTRATION	INGREDIENTS
64742-46-7	100 %weight	Ultra Low Sulfur Diesel
64742-46-7	99.99 %weight	Hydrotreated Middle Distillate

SECTION 3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW
Appearance & Odor: Bright and clear liquid (Tax Exempt Diesels - pale red liquid). Hydrocarbon odor.
Health Hazards: Causes severe skin irritation. Toxic and harmful if inhaled. May be harmful or fatal if swallowed. Do not induce vomiting. May cause aspiration pneumonitis.
NFPA Rating (Health, Fire, Reactivity): 2, 2, 0
Hazard Rating: Least - 0 Slight - 1 Moderate - 2 High - 3 Extreme - 4

Inhalation:

In applications where vapors (caused by high temperature) or mists (caused by mixing or spraying) are created, breathing may cause a mild burning sensation in the nose, throat and lungs. Toxic and harmful if inhaled.

Eye Irritation:
If irritation occurs, a temporary burning sensation, minor redness, swelling, and/or blurred vision may result.

Skin Contact:
Severely irritating to the skin causing pain, redness and swelling. Other adverse effects not expected from brief skin contact.

Ingestion:
This material may be harmful or fatal if swallowed. Ingestion may result in vomiting; aspiration (breathing) of vomitus into lungs must be avoided as even
small quantities may result in aspiration pneumonitis. Generally considered to have a low order of acute oral toxicity.

Other Health Effects:
Carcinogenic in animal tests. It is probable that the material causes cancer in laboratory animals.

Signs and Symptoms:
Irritation as noted above. Aspiration pneumonitis may be evidenced by coughing, labored breathing and cyanosis (bluish skin); in severe cases death may occur.

For additional health information, refer to section 11.

SECTION 4 FIRST AID MEASURES

Inhalation:
Move victim to fresh air and provide oxygen if breathing is difficult. Get medical attention. If the victim has difficulty breathing or tightness of the
chest, is dizzy, vomiting or unresponsive, give 100% oxygen with rescue breathing or CPR as required and transport to the nearest medical facility.

Skin:
Remove contaminated clothing. Flush with large amounts of water for at least 15 minutes and follow by washing with soap if available. If redness, swelling, pain and/or blisters occur, transport to the nearest medical facility for additional treatment.

Eye:
Flush eyes with plenty of water while holding eyelids open. Rest eyes for 30 minutes. If redness, burning, blurred vision or swelling occur, transport to nearest medical facility for additional treatment.

Ingestion:

DO NOT induce vomiting. DO NOT take internally. In general no treatment is
necessary unless large quantities are swallowed, however, get medical advice. Have victim rinse mouth out with water, then drink sips of water to remove taste from mouth. If vomiting occurs spontaneously, keep head below hips to prevent aspiration.

Note to Physician:
If more than 2.0ml/kg body weight has been ingested and vomiting has not occurred, emesis should be induced with supervision. Keep victim's head below
hips to prevent aspiration. If symptoms such as loss of gag reflex, convulsions, or unconsciousness occur before emesis, gastric lavage using a cuffed endotracheal tube should be considered.

SECTION 5 FIRE FIGHTING MEASURES

Flash Point [Method]: >125 ºF/>51.67 ºC [Closed Cup]
Autoignition Temperature: 500 °F/260 °C
Flammability in Air: 0.5 - 4.4 %volume

Extinguishing Media:
Material will float and can be re-ignited on surface of water. Use water fog,
'alcohol foam', dry chemical or carbon dioxide (CO2) to extinguish flames. Do
not use a direct stream of water.

Fire Fighting Instructions:
CAUTION! COMBUSTIBLE. Clear fire area of all non-emergency personnel. Do not enter confined fire space without full bunker gear (helmet with face shield, bunker coats, gloves and rubber boots), including a positive pressure,
NIOSH approved, self-contained breathing apparatus. Cool surrounding equipment, fire-exposed containers and structures with water. Container areas
exposed to direct flame contact should be cooled with large quantities of water (500 gallons water per minute flame impingement exposure) to prevent weakening of container structure.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures:
CAUTION! COMBUSTIBLE. Eliminate potential sources of ignition. Handling

equipment must be bonded and grounded to prevent sparking.

Wear appropriate personal protective equipment when cleaning up spills. Refer
to Section 8.

Spill Management:
Shut off source of leak if safe to do so. Dike and contain spill.

FOR LARGE SPILLS: Remove with vacuum truck or pump to storage/salvage vessels.

FOR SMALL SPILLS: Soak up residue with an absorbent such as clay, sand or other suitable material. Place in non-leaking container and seal tightly for proper disposal.

Reporting:
CERCLA: Product is covered by EPA's Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) petroleum exclusion. Releases to air,
land, or water are not reportable under CERCLA (Superfund).

CWA: This product is an oil as defined under Section 311 of EPA's Clean Water Act (CWA). Spills into or leading to surface waters that cause a sheen must be
reported to the National Response Center, 1-800-424-8802.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures:
CAUTION! COMBUSTIBLE. Avoid heat, open flames, including pilot lights, and strong oxidizing agents. Use explosion-proof ventilation to prevent vapor accumulation. Ground all handling equipment to prevent sparking. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling.

Handling:
Surfaces that are sufficiently hot may ignite liquid material.

Storage:
Keep liquid and vapor away from heat, sparks and flame. Extinguish pilot lights, cigarettes and turn off other sources of ignition prior to use and until all vapors have dissipated. Use explosion-proof ventilation indoors and in laboratory settings.

Container Warnings:
Keep containers closed when not in use. Containers, even those that have been
emptied, can contain explosive vapors. Do not cut, drill, grind, weld or perform similar operations on or near containers.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Diesel fuel, as total hydrocarbons ACGIH TLV TWA: 100 mg/m3

EXPOSURE CONTROLS
Adequate explosion-proof ventilation to control airborne concentrations.

PERSONAL PROTECTION
Personal protective equipment (PPE) selections vary based on potential exposure conditions such as handling practices, concentration and ventilation.
Information on the selection of eye, skin and respiratory protection for use with this material is provided below.

Eye Protection:
Chemical Goggles - If liquid contact is likely., or Safety glasses with side shields

Skin Protection:
Use protective clothing which is chemically resistant to this material. Selection of protective clothing depends on potential exposure conditions and may include gloves, boots, suits and other items. The selection(s) should take into account such factors as job task, type of exposure and durability requirements.

Published literature, test data and/or glove and clothing manufacturers indicate the best protection is provided by:
Neoprene, or Nitrile Rubber

Respiratory Protection:
If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, an approved respirator must be worn. Respirator selection, use and maintenance should be in accordance with the requirements of the OSHA Respiratory Protection Standard, 29 CFR 1910.134.

Types of respirator(s) to be considered in the selection process include:
Supplied-Air Respirator. Air-Purifying Respirator for Organic Vapors. Self-contained breathing apparatus for use in environments with unknown concentrations or emergency situations.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance & Odor: Bright and clear liquid (Tax Exempt Diesels - pale red liquid). Hydrocarbon odor.
Substance Chemical Family: Petroleum Hydrocarbon, Fuel Oil
Appearance: Bright and clear liquid (Tax Exempt Diesels - pale red liquid).

Auto Ignition Temperature: 500 ºF

Flammability in Air: 0.5 - 4.4 %volume

Flash Point: > 125 ºF [Closed Cup]

Specific Gravity: 0.85 Typical

Stability: Stable

Vapor Pressure: 0.02 mmHg Typical [Calculated]

Viscosity: 1.9 - 4.1 cSt @ 40 ºC

SECTION 10 REACTIVITY AND STABILITY

Stability:
Material is stable under normal conditions.

Conditions to Avoid:
Avoid heat and open flames.

Materials to Avoid:
Avoid contact with strong oxidizing agents.

Hazardous Decomposition Products:

Thermal decomposition products are highly dependent on combustion conditions. A complex mixture of airborne solids, liquids and gases will evolve when this material undergoes pyrolysis or combustion. Hydrogen Sulfide, Unidentified organic compounds, Sulfur Oxidesand other unidentified organic compounds may be formed upon combustion.

SECTION 11 TOXICOLOGICAL INFORMATION

Acute Toxicity
  Dermal LD50 > 5 ml/kg(Rabbit) OSHA: Non-Toxic Based on similar material(s)
  Eye Irritation Non-Irritating [Rabbit] OSHA: Non-Irritating Based on similar material(s)

Oral LD50 9 ml/kg(Rat) OSHA: Non-Toxic Based on similar material(s)
Skin Irritation Extremely irritating [Rabbit] OSHA: Irritating Based on similar material(s)

Carcinogenicity Classification
Ultra Low Sulfur Diesel
NTP: No IARC: No ACGIH: No OSHA: No

Carcinogenicity
Related materials have caused the development of skin tumors in lifetime mouse skin painting studies. However these tumors have a long latency period and may be associated with the repeated severe irritation caused by the test materials.

SECTION 12 ECOLOGICAL INFORMATION

Environmental Impact Summary:
There is no ecological data available for this product.

SECTION 13 DISPOSAL CONSIDERATIONS

RCRA Information:
Under RCRA, it is the responsibility of the user of the material to determine, at the time of the disposal, whether the material meets RCRA criteria for hazardous waste. This is because material uses, transformations, mixtures, processes, etc. may affect the classification. Refer to the latest EPA, state and local regulations regarding proper disposal.

SECTION 14 TRANSPORT INFORMATION

US Department of Transportation Classification

Proper Shipping Name:	Diesel Fuel
Identification Number:	NA1993
Hazard Class/Division:	Combustible Liquid

Packing Group: III

Oil: This product is an oil under 49CFR (DOT) Part 130. If shipped by rail or
highway in a tank with a capacity of 3500 gallons or more, it is subject to these requirements. Mixtures or solutions containing 10% or more of this product may also be subject to this rule.

Emergency Response Guide #128

International Air Transport Association
Hazard Class/Division: 3 (Flammable Liquid)
Identification Number: UN1202
Packing Group: III
Proper Shipping Name: Diesel Fuel

International Maritime Organization Classification
Hazard Class/Division: 3 (Flammable Liquid)
Identification Number: UN1202
Packing Group: III
Proper Shipping Name: Diesel Fuel

SECTION 15 REGULATORY INFORMATION

FEDERAL REGULATORY STATUS

OSHA Classification:
Product is hazardous according to the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Ozone Depleting Substances (40 CFR 82 Clean Air Act):
This material does not contain nor was it directly manufactured with any Class
I or Class II ozone depleting substances.

Superfund Amendment & Reauthorization Act (SARA) Title III:
There are no components in this product on the SARA 302 list.

SARA Hazard Categories (311/312):
Immediate Health:YES Delayed Health:YES Fire:YES Pressure:NO Reactivity:NO

SARA Toxic Release Inventory (TRI) (313):
There are no components in this product on the SARA 313 list.

Toxic Substances Control Act (TSCA) Status:
This material is listed on the EPA/TSCA Inventory of Chemical Substances.

Other Chemical Inventories:
Australian AICS, Canadian DSL, European EINECS, Japan ENCS, Korean Inventory, Philippines PICCS,

State Regulation
The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the MSDS may also
be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

California Safe Drinking Water and Toxic Enforcement Act (Proposition 65).
WARNING: This product contains a chemical(s) known to the State of California to cause cancer.

WARNING: This product contains a chemical(s) known to the State of California to cause birth defects or other reproductive harm.

SECTION 16 OTHER INFORMATION

Revision#: 3
Review Date: 01/03/2006
Revision Date: 05/05/2003
Revisions since last change (discussion): This Material Safety Data Sheet (MSDS) has been reviewed to fully comply with the guidance contained in the ANSI MSDS standard (ANSI Z400.1-1998). We encourage you to take the opportunity to read the MSDS and review the information contained therein.

SECTION 17 LABEL INFORMATION

READ AND UNDERSTAND MATERIAL SAFETY DATA SHEET BEFORE HANDLING OR DISPOSING OF
PRODUCT. THIS LABEL COMPLIES WITH THE REQUIREMENTS OF THE OSHA HAZARD COMMUNICATION STANDARD (29 CFR 1910.1200) FOR USE IN THE WORKPLACE. THIS LABEL
IS NOT INTENDED TO BE USED WITH PACKAGING INTENDED FOR SALE TO CONSUMERS AND MAY NOT CONFORM WITH THE REQUIREMENTS OF THE CONSUMER PRODUCT SAFETY ACT OR OTHER RELATED REGULATORY REQUIREMENTS.

PRODUCT CODE(S): 27100

Ultra Low Sulfur Diesel Fuel 2 (S-15 ppm) Dyed

WARNING!

COMBUSTIBLE LIQUID! MAY BE FATAL IF INHALED. CAUSES SEVERE SKIN IRRITATION. ASPIRATION HAZARD IF SWALLOWED - CAN ENTER LUNGS AND CAUSE DAMAGE.

Precautionary Measures:
Avoid heat and open flames. Avoid breathing of vapors, fumes, or mist. Do not take internally. Use only with adequate ventilation. Avoid contact with eyes, skin and clothing. Keep container closed when not in use. Wash thoroughly after handling.

FIRST AID
Inhalation: DO NOT attempt to rescue victim unless proper respiratory protection is worn. If the victim has difficulty breathing or tightness of the chest, is dizzy, vomiting or unresponsive, give 100% oxygen with rescue breathing or CPR as required and transport to the nearest medical facility.
Skin Contact: Remove contaminated clothing. Flush with large amounts of water for at least 15 minutes and follow by washing with soap if available. If redness, swelling, pain and/or blisters occur, transport to the nearest medical facility for additional treatment.
Eye Contact: Flush eyes with plenty of water while holding eyelids open. Rest eyes for 30 minutes. If redness, burning, blurred vision or swelling occur, transport to nearest medical facility for additional treatment.
Ingestion: DO NOT induce vomiting. DO NOT take internally. If vomiting occurs spontaneously, keep head below hips to prevent aspiration. Have victim
rinse mouth out with water, then drink sips of water to remove taste from mouth. In general no treatment is necessary unless large quantities are swallowed, however, get medical advice.

FIRE

In case of fire, Use water fog, 'alcohol foam', dry chemical or carbon dioxide (CO2) to extinguish flames. Do not use a direct stream of water. Material will float and can be re-ignited on surface of water.

SPILL OR LEAK
Dike and contain spill.

FOR LARGE SPILLS: Remove with vacuum truck or pump to storage/salvage vessels.

FOR SMALL SPILLS: Soak up residue with an absorbent such as clay, sand or other suitable material. Place in non-leaking container and seal tightly for proper disposal.

CONTAINS: Hydrotreated Middle Distillate, 64742-46-7

NFPA Rating (Health, Fire, Reactivity): 2, 2, 0

TRANSPORTATION

US Department of Transportation Classification

Proper Shipping Name:	Diesel Fuel
Identification Number:	NA1993
Hazard Class/Division:	Combustible Liquid
Packing Group:	III

Oil: This product is an oil under 49CFR (DOT) Part 130. If shipped by rail or

highway in a tank with a capacity of 3500 gallons or more, it is subject to these requirements. Mixtures or solutions containing 10% or more of this product may also be subject to this rule.

Emergency Response Guide #128

California Safe Drinking Water and Toxic Enforcement Act (Proposition 65).
WARNING: This product contains a chemical(s) known to the State of California to cause cancer.

WARNING: This product contains a chemical(s) known to the State of California to cause birth defects or other reproductive harm.

Name and Address
Shell Oil Products US
P.O. Box 4453
Houston, TX 77210-4453

ADMINISTRATIVE INFORMATION
MANUFACTURER ADDRESS: Shell Oil Products US, P.O. Box 4453, Houston, TX. 77210-4453

THE INFORMATION CONTAINED IN THIS DATA SHEET IS BASED ON THE DATA AVAILABLE TO
US AT THIS TIME, AND IS BELIEVED TO BE ACCURATE BASED UPON THAT : IT IS PROVIDED INDEPENDENTLY OF ANY SALE OF THE PRODUCT, FOR PURPOSE OF HAZARD COMMUNICATION. IT IS NOT INTENDED TO CONSTITUTE PRODUCT PERFORMANCE INFORMATION, AND NO EXPRESS OR IMPLIED WARRANTY OF ANY KIND IS MADE WITH RESPECT TO THE PRODUCT, UNDERLYING DATA OR THE INFORMATION CONTAINED HEREIN. YOU ARE URGED TO OBTAIN DATA SHEETS FOR ALL PRODUCTS YOU BUY, PROCESS, USE OR DISTRIBUTE, AND ARE ENCOURAGED TO ADVISE THOSE WHO MAY COME IN CONTACT WITH SUCH PRODUCTS OF THE INFORMATION CONTAINED HEREIN.

TO DETERMINE THE APPLICABILITY OR EFFECT OF ANY LAW OR REGULATION WITH RESPECT
TO THE PRODUCT, YOU SHOULD CONSULT WITH YOUR LEGAL ADVISOR OR THE APPROPRIATE GOVERNMENT AGENCY. WE WILL NOT PROVIDE ADVICE ON SUCH MATTERS, OR BE RESPONSIBLE FOR ANY INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN. THE UNDERLYING DATA, AND THE INFORMATION PROVIDED HEREIN AS A RESULT OF THAT DATA,
IS THE PROPERTY OF SHELL OIL PRODUCTS US AND IS NOT TO BE THE SUBJECT OF SALE OR EXCHANGE WITHOUT THE EXPRESS WRITTEN CONSENT OF SHELL OIL PRODUCTS US.

43080-11631-100R-01/03/2006

MATERIAL SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: CAT GEAR OIL (GO) SAE 80W-90

Product Description: Base Oil and Additives

Product Code: 550061-00, 971221

Intended Use: Gear oil

COMPANY IDENTIFICATION

Supplier: EXXON MOBIL CORPORATION
3225 GALLOWS RD.
FAIRFAX, VA. 22037 USA
24 Hour Health Emergency 609-737-4411
Transportation Emergency Phone 800-424-9300
ExxonMobil Transportation No. 281-834-3296
MSDS Requests 713-613-3661
Product Technical Information 800-662-4525, 800-947-9147
MSDS Internet Address http://www.exxon.com, http://www.mobil.com

SECTION 2 COMPOSITION / INFORMATION ON INGREDIENTS

Reportable Hazardous Substance(s) or Complex Substance(s)

Name CAS# Concentration*

ALKYL PHOSPHORIC ACID ESTER AMINE SALTS 1 - 5%
SULFURIZED ISOBUTYLENE 68511-50-2 1 - 5%

* All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

SECTION 3 HAZARDS IDENTIFICATION

This material is not considered to be hazardous according to regulatory guidelines (see (M)SDS Section 15).

POTENTIAL HEALTH EFFECTS

Low order of toxicity. Excessive exposure may result in eye, skin, or respiratory irritation. High-pressure injection under skin may cause serious damage.

NFPA Hazard ID: Health: 0 Flammability: 1 Reactivity: 0

HMIS Hazard ID: Health: 0 Flammability: 1 Reactivity: 0

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 4 FIRST AID MEASURES

INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

SKIN CONTACT

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

Inappropriate Extinguishing Media: Straight Streams of Water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Firefighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Hazardous Combustion Products: Aldehydes, Oxides of carbon, Smoke, Fume, Sulfur oxides, Incomplete combustion products

FLAMMABILITY PROPERTIES

Flash Point [Method]: 164°C (327°F) [ASTM D-92]

Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0

Autoignition Temperature: N/D

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. U.S. regulations require reporting releases of this material to the environment which exceed the reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

SPILL MANAGEMENT

Land Spill: Stop leak if you can do it without risk. Recover by pumping or with suitable absorbent.

Water Spill: Confine the spill immediately with booms. Stop leak if you can do it without risk. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Prevent entry into waterways, sewers, basements or confined areas. Large Spills: Dike far ahead of liquid spill for later recovery and disposal.

SECTION 7 HANDLING AND STORAGE

HANDLING

Prevent small spills and leakage to avoid slip hazard.

Static Accumulator: This material is a static accumulator.

STORAGE

Do not store in open or unlabelled containers.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits/standards for materials that can be formed when handling this product: When mists / aerosols can occur, the following are recommended: 5 mg/m³ - ACGIH TLV, 10 mg/m³ - ACGIH STEL, 5 mg/m³ - OSHA PEL.

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions.

Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No special requirements under ordinary conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode.
Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.
Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Work conditions can greatly effect glove durability; inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:
No protection is ordinarily required under normal conditions of use.
Eye Protection: If contact is likely, safety glasses with side shields are recommended.
Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:
No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.
Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned.
Practice good housekeeping.
ENVIRONMENTAL CONTROLS
See Sections 6, 7, 12, 13.
SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES
Typical physical and chemical properties are given below. Consult the Supplier in Section 1 for additional data.
GENERAL INFORMATION
Physical State: Liquid
Color: Brown
Odor: Characteristic
Odor Threshold: N/D
IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION
Relative Density (at 15 °C): 0.895
Flash Point [Method]: 164°C (327°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D
Boiling Point / Range: > 316°C (600°F)
Vapor Density (Air = 1): > 2 at 101 kPa
Product Name: CAT GEAR OIL (GO) SAE 80W-90
Vapor Pressure: < 0.013 kPa (0.1 mm Hg) at 20°C
Evaporation Rate (n-butyl acetate = 1): N/D
pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): > 3.5
Solubility in Water: Negligible
Viscosity: 138.9 cSt (138.9 mm²/sec) at 40 °C | 14.5 cSt (14.5 mm²/sec) at 100°C
Oxidizing Properties: See Sections 3, 15, 16.
OTHER INFORMATION
Freezing Point: N/D
Melting Point: N/A
Pour Point: -27°C (-17°F)
DMSO Extract (mineral oil only), IP-346: < 3 %wt
SECTION 10 STABILITY AND REACTIVITY
STABILITY: Material is stable under normal conditions.
CONDITIONS TO AVOID: Excessive heat. High energy sources of ignition.
MATERIALS TO AVOID: Strong oxidizers
HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.
HAZARDOUS POLYMERIZATION: Will not occur.
SECTION 11 TOXICOLOGICAL INFORMATION
ACUTE TOXICITY

Route of Exposure Conclusion / Remarks

Inhalation

Toxicity (Rat): LC50 > 5000 mg/m³ Minimally Toxic. Based on test data for structurally similar materials.
Irritation: Data available. Elevated temperatures or mechanical action may form vapors, mist, or fumes which may be irritating to the eyes, nose, throat, or lungs. Based on assessment of the components.

Ingestion

Toxicity (Rat): LD50 > 2000 mg/kg Minimally Toxic. Based on test data for structurally similar materials.

Skin

Toxicity (Rabbit): LD50 > 2000 mg/kg Minimally Toxic. Based on test data for structurally similar materials.
Irritation (Rabbit): Data available. Negligible irritation to skin at ambient temperatures. Based on test data for structurally similar materials.

Eye

Irritation (Rabbit): Data available. May cause mild, short-lasting discomfort to eyes. Based on test data for structurally similar materials.

CHRONIC/OTHER EFFECTS

For the product itself:

Repeated and/or prolonged exposure may cause irritation to the skin, eyes, or respiratory tract.

Contains:

Base oil severely refined: Not carcinogenic in animal studies. Representative material passes IP-346, Modified Ames test, and/or other screening tests. Dermal and inhalation studies showed minimal effects; lung nonspecific infiltration of immune cells, oil deposition and minimal granuloma formation. Not sensitizing in test animals.
Sulfurized isobutylene (SIB): Repeated dermal exposures included localized skin irritation, decreased weight
gain, and enlarged liver in laboratory animals.
Additional information is available by request.

The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--
1 = NTP CARC 3 = IARC 1 5 = IARC 2B
2 = NTP SUS 4 = IARC 2A 6 = OSHA CARC

SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

ECOTOXICITY

Material -- Not expected to be harmful to aquatic organisms.

MOBILITY

Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

PERSISTENCE AND DEGRADABILITY

Biodegradation:

Base oil component -- Expected to be inherently biodegradable

BIOACCUMULATION POTENTIAL

Base oil component -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products.

REGULATORY DISPOSAL INFORMATION

RCRA Information: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed as hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrositivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

Empty Container Warning PRECAUTIONARY LABEL TEXT: Empty containers may retain residue and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Do not attempt to refill or clean container since residue is difficult to remove. Empty drums should be completely drained, properly bunged and promptly returned to a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

SECTION 14 TRANSPORT INFORMATION

LAND (DOT) : Not Regulated for Land Transport

LAND (TDG) : Not Regulated for Land Transport

SEA (IMDG) : Not Regulated for Sea Transport according to IMDG-Code

AIR (IATA) : Not Regulated for Air Transport

SECTION 15 REGULATORY INFORMATION

OSHA HAZARD COMMUNICATION STANDARD: When used for its intended purposes, this material is not classified
as hazardous in accordance with OSHA 29 CFR 1910.1200.

NATIONAL CHEMICAL INVENTORY LISTING: AICS, DSL, EINECS, ENCS, TSCA

EPCRA: This material contains no extremely hazardous substances.

SARA (311/312) REPORTABLE HAZARD CATEGORIES: None.

SARA (313) TOXIC RELEASE INVENTORY: This material contains no chemicals subject to the supplier notification requirements of the SARA 313 Toxic Release Program.

The Following Ingredients are Cited on the Lists Below:*

Chemical Name CAS Number List Citations

SOLVENT DEWAXED HEAVY
PARAFFINIC DISTILLATE
64742-65-0 13, 18

--REGULATORY LISTS SEARCHED--

1 = ACGIH ALL 6 = TSCA 5a2 11 = CA P65 REPRO 16 = MN RTK
2 = ACGIH A1 7 = TSCA 5e 12 = CA RTK 17 = NJ RTK
3 = ACGIH A2 8 = TSCA 6 13 = IL RTK 18 = PA RTK
4 = OSHA Z 9 = TSCA 12b 14 = LA RTK 19 = RI RTK
5 = TSCA 4 10 = CA P65 CARC 15 = MI 293

Code key: CARC=Carcinogen; REPRO=Reproductive

* EPA recently added new chemical substances to its TSCA Section 4 test rules. Please contact the supplier to confirm
whether the ingredients in this product currently appear on a TSCA 4 or TSCA 12b list.

SECTION 16 OTHER INFORMATION

N/D = Not determined, N/A = Not applicable

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:

No revision information is available.

Internal Use Only
MHC: 0, 0, 0, 0, 0, 1 PPEC: A

DGN: 2006221XUS (518387)

Product Name: CAT HYDRAULIC OIL (HYDO) SAE 10W
Revision Date: 13Sep2005

MATERIAL SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: CAT HYDRAULIC OIL (HYDO) SAE 10W
Product Description: Base Oil and Additives
Product Code: 478909-00, 971670
Intended Use: Hydraulic/transmission fluid

COMPANY IDENTIFICATION

Supplier: EXXON MOBIL CORPORATION
3225 GALLOWS RD.
FAIRFAX, VA. 22037 USA
24 Hour Health Emergency 609-737-4411
Transportation Emergency Phone 800-424-9300
ExxonMobil Transportation No. 281-834-3296
MSDS Requests 713-613-3661
Product Technical Information 800-662-4525, 800-947-9147
MSDS Internet Address http://www.exxon.com, http://www.mobil.com

SECTION 2 COMPOSITION / INFORMATION ON INGREDIENTS

No Reportable Hazardous Substance(s) or Complex Substance(s).

SECTION 3 HAZARDS IDENTIFICATION

This material is not considered to be hazardous according to regulatory guidelines (see (M)SDS Section 15).

POTENTIAL HEALTH EFFECTS

Low order of toxicity. Excessive exposure may result in eye, skin, or respiratory irritation. High-pressure injection under skin may cause serious damage.
NFPA Hazard ID: Health: 0 Flammability: 1 Reactivity: 0
HMIS Hazard ID: Health: 0 Flammability: 1 Reactivity: 0
NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 4 FIRST AID MEASURES

INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

SKIN CONTACT

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.
Inappropriate Extinguishing Media: Straight Streams of Water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Firefighters should use standard protective equipment and in

enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.
Unusual Fire Hazards: Pressurized mists may form a flammable mixture.
Hazardous Combustion Products: Aldehydes, Oxides of carbon, Smoke, Fume, Sulfur oxides, Incomplete combustion products

FLAMMABILITY PROPERTIES

Flash Point [Method]: >200°C (392°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. U.S. regulations require reporting releases of this material to the environment which exceed the reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

SPILL MANAGEMENT

Land Spill: Stop leak if you can do it without risk. Recover by pumping or with suitable absorbent.
Water Spill: Confine the spill immediately with booms. Stop leak if you can do it without risk. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.
Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Prevent entry into waterways, sewers, basements or confined areas. Large Spills: Dike far ahead of liquid spill for later recovery and disposal.

SECTION 7 HANDLING AND STORAGE

HANDLING

Prevent small spills and leakage to avoid slip hazard.
Static Accumulator: This material is a static accumulator.

STORAGE

Do not store in open or unlabelled containers.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits/standards for materials that can be formed when handling this product: When mists / aerosols can occur, the following are recommended: 5 mg/m³ - ACGIH TLV, 10 mg/m³ - ACGIH STEL, 5 mg/m³ - OSHA PEL.
NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions.
Control measures to consider:
No special requirements under ordinary conditions of use and with adequate ventilation.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.
Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:
No special requirements under ordinary conditions of use and with adequate ventilation.
For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode.
Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Work conditions can greatly effect glove durability; inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:
No protection is ordinarily required under normal conditions of use.
Eye Protection: If contact is likely, safety glasses with side shields are recommended.
Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:
No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.
Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned.
Practice good housekeeping.
ENVIRONMENTAL CONTROLS
See Sections 6, 7, 12, 13.
SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES
Typical physical and chemical properties are given below. Consult the Supplier in Section 1 for additional data.
GENERAL INFORMATION
Physical State: Liquid
Color: Amber
Odor: Characteristic
Odor Threshold: N/D
IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION
Relative Density (at 15 °C): 0.878
Flash Point [Method]: >200°C (392°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D
Boiling Point / Range: > 316°C (600°F)
Vapor Density (Air = 1): > 2 at 101 kPa
Vapor Pressure: < 0.013 kPa (0.1 mm Hg) at 20°C
Evaporation Rate (n-butyl acetate = 1): N/D
pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): > 3.5
Solubility in Water: Negligible
Viscosity: 37.7 cSt (37.7 mm²/sec) at 40 °C | 6.1 cSt (6.1 mm²/sec) at 100°C
Oxidizing Properties: See Sections 3, 15, 16.
OTHER INFORMATION
Freezing Point: N/D
Melting Point: N/A
Pour Point: -18°C (0°F)
DMSO Extract (mineral oil only), IP-346: < 3 %wt
SECTION 10 STABILITY AND REACTIVITY
STABILITY: Material is stable under normal conditions.
CONDITIONS TO AVOID: Excessive heat. High energy sources of ignition.
MATERIALS TO AVOID: Strong oxidizers
HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.
HAZARDOUS POLYMERIZATION: Will not occur.
SECTION 11 TOXICOLOGICAL INFORMATION
ACUTE TOXICITY
Route of Exposure Conclusion / Remarks
Inhalation
Toxicity (Rat): LC50 > 5000 mg/m³ Minimally Toxic. Based on assessment of the components.
Irritation: No end point data. Negligible hazard at ambient/normal handling temperatures.
Based on assessment of the components.

Ingestion
Toxicity (Rat): LD50 > 2000 mg/kg Minimally Toxic. Based on test data for structurally similar materials.
Skin
Toxicity (Rabbit): LD50 > 2000 mg/kg Minimally Toxic. Based on test data for structurally similar materials.
Irritation (Rabbit): Data available. Negligible irritation to skin at ambient temperatures. Based on assessment of the components.
Eye
Irritation (Rabbit): Data available. May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.

CHRONIC/OTHER EFFECTS

Contains:
Base oil severely refined: Not carcinogenic in animal studies. Representative material passes IP-346, Modified Ames test, and/or other screening tests. Dermal and inhalation studies showed minimal effects; lung nonspecific infiltration of immune cells, oil deposition and minimal granuloma formation. Not sensitizing in test animals.
Additional information is available by request.
The following ingredients are cited on the lists below: None.
--REGULATORY LISTS SEARCHED--
1 = NTP CARC 3 = IARC 1 5 = IARC 2B
2 = NTP SUS 4 = IARC 2A 6 = OSHA CARC

SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

ECOTOXICITY
Material -- Not expected to be harmful to aquatic organisms.

MOBILITY
Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

PERSISTENCE AND DEGRADABILITY

Biodegradation:
Base oil component -- Expected to be inherently biodegradable

BIOACCUMULATION POTENTIAL
Base oil component -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS
Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products.

REGULATORY DISPOSAL INFORMATION
RCRA Information: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed as hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrositivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.
Empty Container Warning PRECAUTIONARY LABEL TEXT: Empty containers may retain residue and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Do not attempt to refill or clean container since residue is difficult to remove. Empty drums should be completely drained, properly bunged and promptly returned to a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

SECTION 14 TRANSPORT INFORMATION

LAND (DOT) : Not Regulated for Land Transport
LAND (TDG) : Not Regulated for Land Transport
SEA (IMDG) : Not Regulated for Sea Transport according to IMDG-Code

AIR (IATA) : Not Regulated for Air Transport

SECTION 15 REGULATORY INFORMATION

OSHA HAZARD COMMUNICATION STANDARD: When used for its intended purposes, this material is not classified as hazardous in accordance with OSHA 29 CFR 1910.1200.

NATIONAL CHEMICAL INVENTORY LISTING: TSCA

EPCRA: This material contains no extremely hazardous substances.

SARA (311/312) REPORTABLE HAZARD CATEGORIES: None.

SARA (313) TOXIC RELEASE INVENTORY: This material contains no chemicals subject to the supplier notification requirements of the SARA 313 Toxic Release Program.

The Following Ingredients are Cited on the Lists Below:*

Chemical Name CAS Number List Citations

ZINC DITHIOPHOSPHATE 68649-42-3 15

--REGULATORY LISTS SEARCHED--

1 = ACGIH ALL 6 = TSCA 5a2 11 = CA P65 REPRO 16 = MN RTK
2 = ACGIH A1 7 = TSCA 5e 12 = CA RTK 17 = NJ RTK
3 = ACGIH A2 8 = TSCA 6 13 = IL RTK 18 = PA RTK
4 = OSHA Z 9 = TSCA 12b 14 = LA RTK 19 = RI RTK
5 = TSCA 4 10 = CA P65 CARC 15 = MI 293

Code key: CARC=Carcinogen; REPRO=Reproductive

* EPA recently added new chemical substances to its TSCA Section 4 test rules. Please contact the supplier to confirm whether the ingredients in this product currently appear on a TSCA 4 or TSCA 12b list.

SECTION 16 OTHER INFORMATION

N/D = Not determined, N/A = Not applicable

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:

No revision information is available.

The information and recommendations contained herein are, to the best of ExxonMobil's knowledge and belief, accurate and reliable as of the date issued. You can contact ExxonMobil to insure that this document is the most current available from ExxonMobil. The information and recommendations are offered for the user's consideration and examination. It is the user's responsibility to satisfy itself that the product is suitable for the intended use. If buyer repackages this product, it is the user's responsibility to insure proper health, safety and other necessary information is included with and/or on the container. Appropriate warnings and safe-handling procedures should be provided to handlers and users. Alteration of this document is strictly prohibited. Except to the extent required by law, republication or retransmission of this document, in whole or in part, is not permitted. The term, "ExxonMobil" is used for convenience, and may include any one or more of ExxonMobil Chemical Company, Exxon Mobil Corporation, or any affiliates in which they directly or indirectly hold any interest.

Internal Use Only
MHC: 0, 0, 0, 0, 0, 0 PPEC: A
DGN: 2004671XUS (546411)

Material Safety Data Sheet

Chevron Ultra-Duty Grease EP

MSDS: 6790
Revision #: 3 **Revision Date:** 11/09/00
Click here to search the product data sheet database

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1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

CHEVRON Ultra-Duty Grease EP
PRODUCT NUMBER(S): CPS238011 CPS238012 CPS238013
SYNONYM: CHEVRON Ultra-Duty Grease EP NLGI 0
CHEVRON Ultra-Duty Grease EP NLGI 1
CHEVRON Ultra-Duty Grease EP NLGI 2
COMPANY IDENTIFICATION EMERGENCY TELEPHONE NUMBERS
Chevron Products Company HEALTH (24 hr): (800)231-0623 or
Lubricants and Specialty Products (510)231-0623 (International)
6001 Bollinger Canyon Rd., T3325/B10 TRANSPORTATION (24 hr): CHEMTREC
San Ramon, CA 94583 (800)424-9300 or (703)527-3887
www.chevron-lubricants.com Emergency Information Centers are located in U.S.A.
Int'l collect calls accepted
PRODUCT INFORMATION: MSDS Request:(800)414-6737 email:lubemsds@chevron.com
Environmental, Safety, & Health Info: (925) 842-5535
Product Information: (800) 582-3835
SPECIAL NOTES: This MSDS is for the entire line of CHEVRON Ultra-Duty Grease EP products.

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2. COMPOSITION/INFORMATION ON INGREDIENTS

100.0 % CHEVRON Ultra-Duty Grease EP
CONTAINING
COMPONENTS AMOUNT LIMIT/QTY AGENCY/TYPE
HYDROTREATED DIST., HVY NAPHTH
Chemical Name: DISTILLATES, HYDROTREATED HEAVY NAPHTHENIC
CAS64742525 > 70.00% 5 mg/m3 (mist) ACGIH TWA
10 mg/m3 (mist) ACGIH STEL
5 mg/m3 (mist) OSHA PEL
BUTENE, HOMOPOLYMER

Chemical Name: POLYBUTENE
CAS9003296 < 5.00% NONE NA
LITHIUM BASE THICKENERS
< 10.00%
ADDITIVES INCLUDING THE FOLLOWING
< 15.00%
ZINC COMPOUNDS
< 5.00%
ANTIMONY COMPOUND
ANTIMONY DIALKYLDITHIOCARBAMATE
< 0.50% 0.5 mg/m3 ACGIH TWA
COMPOSITION COMMENT:
All the components of this material are on the Toxic Substances Control Act Chemical Substances Inventory.
This product fits the ACGIH definition for mineral oil mist. The ACGIH
TLV is 5 mg/m3, the OSHA PEL is 5 mg/m3.

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3. HAZARDS IDENTIFICATION

IMMEDIATE HEALTH EFFECTS

EYE:

Not expected to cause prolonged or significant eye irritation.

SKIN:

Contact with the skin is not expected to cause prolonged or significant irritation. Not expected to be harmful to internal organs if absorbed through the skin. High-Pressure Equipment Information: Accidental high-velocity injection under the skin of materials of this type may result in serious injury. Seek medical attention at once should an accident like this occur. The initial wound at the injection site may not appear to be serious at first; but, if left untreated, could result in disfigurement or amputation of the affected part.

INGESTION:

Not expected to be harmful if swallowed.

INHALATION:

Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit.

4. FIRST AID MEASURES

EYE:

No specific first aid measures are required because this material is not expected to cause eye irritation. As a precaution remove contact lenses, if worn, and flush eyes with water.

SKIN:

No specific first aid measures are required because this material is not expected to be harmful if it contacts the skin. As a precaution, remove clothing and shoes if contaminated. Use a waterless hand cleaner, mineral oil, or petroleum jelly to remove the material. Then wash skin with soap and water. Wash or clean contaminated clothing and shoes before reuse.

INGESTION:

No specific first aid measures are required because this material is not expected to be harmful if swallowed. Do not induce vomiting. As a precaution, give the person a glass of water or milk to drink and get medical advice. Never give anything by mouth to an unconscious person.

INHALATION:

If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

NOTE TO PHYSICIANS:

In an accident involving high-pressure equipment, this product may be injected under the skin. Such an accident may result in a small, sometimes bloodless, puncture wound. However, because of its driving force, material injected into a fingertip can be deposited into the palm of the hand. Within 24 hours, there is usually a great deal of swelling, discoloration, and intense throbbing pain. Immediate treatment at a surgical emergency center is recommended.

5. FIRE FIGHTING MEASURES

FIRE CLASSIFICATION:

Classification (29 CFR 1910.1200): Not classified by OSHA as flammable or combustible.

FLAMMABLE PROPERTIES:

FLASH POINT: 525F (274C)

AUTOIGNITION: NDA

FLAMMABILITY LIMITS (% by volume in air): Lower: NA Upper: NA

EXTINGUISHING MEDIA:

CO2, Dry Chemical, Foam, Water Fog

NFPA RATINGS: Health 1; Flammability 1; Reactivity 0.

FIRE FIGHTING INSTRUCTIONS:

This material will burn although it is not easily ignited. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.

COMBUSTION PRODUCTS:
Normal combustion forms carbon dioxide and water vapor and may produce oxides of sulfur, nitrogen, phosphorus, and antimony. Normal combustion forms oxides of zinc. Incomplete combustion can produce carbon monoxide.

6. ACCIDENTAL RELEASE MEASURES

CHEMTREC EMERGENCY NUMBER (24 hr): (800)424-9300 or (703)527-3887
International Collect Calls Accepted
ACCIDENTAL RELEASE MEASURES:
Clean up spills immediately, observing precautions in Exposure Controls/
Personal Protection section.

7. HANDLING AND STORAGE

Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner, or properly disposed of. Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies ofwater.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL CONSIDERATIONS:
Consider the potential hazards of this material (see Section 3), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.
ENGINEERING CONTROLS
Use in a well-ventilated area. If user operations generate an oil mist, use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below the recommended mineral oil mist exposure limits.
PERSONAL PROTECTIVE EQUIPMENT
EYE/FACE PROTECTION:
No special eye protection is normally required.
SKIN PROTECTION:
No special protective clothing is normally necessary.
RESPIRATORY PROTECTION:
No respiratory protection is normally required. If user operations generate an oil mist, determine if airborne concentrations are below the recommended mineral oil mist exposure limits. If not wear a NIOSH approved respirator that provides adequate protection from measured concentrations of this material. Use the following elements for air-purifying respirators: particulate.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL DESCRIPTION:
Red grease.
pH: NA
VAPOR PRESSURE: <0.01 mm Hg at 100F
VAPOR DENSITY
(AIR=1): Heavier than air.
BOILING POINT: >500F (>260C)
FREEZING POINT: NA
MELTING POINT: NA

SOLUBILITY: Soluble in hydrocarbon solvents; insoluble in water.
SPECIFIC GRAVITY: NDA
DENSITY: NDA
VISCOSITY: 18 - 22 cSt @ 100C (Min.)

10. STABILITY AND REACTIVITY

HAZARDOUS DECOMPOSITION PRODUCTS:
No data available.
CHEMICAL STABILITY:
Stable.
CONDITIONS TO AVOID:
No data available.
INCOMPATIBILITY WITH OTHER MATERIALS:
May react with strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
HAZARDOUS POLYMERIZATION:
Polymerization will not occur.

11. TOXICOLOGICAL INFORMATION

EYE EFFECTS:
The mean 24-hour Draize eye irritation score in rabbits is 2.3/110.
SKIN EFFECTS:
For a 4-hour exposure, the Primary Irritation Index (PII) in rabbits is: 0.6/8.0. The acute dermal LD50 in rabbits is > 2.0 g/kg.
ACUTE ORAL EFFECTS:
No product toxicology data available. The hazard evaluation was based on data from similar materials.
ACUTE INHALATION EFFECTS:
No product toxicology data available. The hazard evaluation was based on data from similar materials.
ADDITIONAL TOXICOLOGY INFORMATION:
This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as; carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B). This material contains antimony. Dizziness and respiratory problems such as pneumonitis and pneumoconiosis have been associated with exposure to antimony.

12. ECOLOGICAL INFORMATION

ECOTOXICITY:
The toxicity of this material to aquatic organisms has not been evaluated.
Consequently, this material should be kept out of sewage and drainage
systems and all bodies of water.
ENVIRONMENTAL FATE:
This material is not expected to be readily biodegradable.

13. DISPOSAL CONSIDERATIONS

Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods.

14. TRANSPORT INFORMATION

The description shown may not apply to all shipping situations.

Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.
DOT SHIPPING NAME: NONE
DOT HAZARD CLASS: NONE
DOT IDENTIFICATION NUMBER: NONE
DOT PACKING GROUP: N/A
ADDITIONAL INFO: Petroleum Lubricating Grease - Not hazardous by US DOT.
ADR/RID Hazard Class - Not applicable

15. REGULATORY INFORMATION

SARA 311 CATEGORIES: 1. Immediate (Acute) Health Effects: NO
2. Delayed (Chronic) Health Effects: NO
3. Fire Hazard: NO
4. Sudden Release of Pressure Hazard: NO
5. Reactivity Hazard: NO
REGULATORY LISTS SEARCHED:
01=SARA 313 11=NJ RTK 22=TSCA Sect 5(a)(2)
02=MASS RTK 12=CERCLA 302.4 23=TSCA Sect 6
03=NTP Carcinogen 13=MN RTK 24=TSCA Sect 12(b)
04=CA Prop 65-Carcin 14=ACGIH TWA 25=TSCA Sect 8(a)
05=CA Prop 65-Repro Tox 15=ACGIH STEL 26=TSCA Sect 8(d)
06=IARC Group 1 16=ACGIH Calc TLV 27=TSCA Sect 4(a)
07=IARC Group 2A 17=OSHA PEL 28=Canadian WHMIS
08=IARC Group 2B 18=DOT Marine Pollutant 29=OSHA CEILING
09=SARA 302/304 19=Chevron TWA 30=Chevron STEL
10=PA RTK 20=EPA Carcinogen
The following components of this material are found on the regulatory lists indicated.
DISTILLATES, HYDROTREATED HEAVY NAPHTHENIC is found on lists: 14,15,17,
ANTIMONY DIALKYLDITHIOCARBAMATE is found on lists: 01,11,14,28,
ZINC COMPOUNDS is found on lists: 01,10,11,
NEW JERSEY RTK CLASSIFICATION:
Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A. 34:5A-1 et. seq., the product is to be identified as follows:
Petroleum Oil (Grease)
WHMIS CLASSIFICATION:
This product is not considered a controlled product according to the criteria of the Canadian Controlled Products Regulations.

16. OTHER INFORMATION

NFPA RATINGS: Health 1; Flammability 1; Reactivity 0;
HMIS RATINGS: Health 1; Flammability 1; Reactivity 0;
(0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE:- Personal Protection Equipment Index recommendation, *-Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).
REVISION STATEMENT:
This revision updates Section 9 (Physical and Chemical Properties) and Section 15 (Regulatory Information).
ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:
TLV - Threshold Limit Value TWA - Time Weighted Average
STEL - Short-term Exposure Limit TPQ - Threshold Planning Quantity
RQ - Reportable Quantity PEL - Permissible Exposure Limit
C - Ceiling Limit CAS - Chemical Abstract Service Number
A1-5 - Appendix A Categories () - Change Has Been Proposed
NDA - No Data Available NA - Not Applicable

Prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200) and the ANSI MSDS Standard (Z400.1) by the Toxicology and Health Risk Assessment Unit, CRTC, P.O. Box 1627, Richmond, CA 94804

****

SECTION I - MANUFACTURER IDENTIFICATION
MANUFACTURER'S NAME: Aervoe Industries, Inc. **ADDRESS:** 1198 Mark Circle, Gardnerville, NV 89410
INFORMATION PHONE: 775-782-0100 **EMERGENCY PHONE:** 1-800-424-9300
DATE REVISED: November 8, 2006 **REASON REVISED:** Updated
The information presented in these forms is believed to be correct and sufficient to meet the requirements of OSHA Hazard Communication standard (29 CFR 1910.1200) concerning worker's right to know. The following material safety data sheet covers the hazardous ingredients associated with more than one color aerosol product. As per 29 CFR 1900. 1200 paragraph (g); whenever the hazards associated with similar mixtures are the same, then one MSDS may be prepared to cover several products. This MSDS covers the following Aervoe aerosol products.
PRODUCT NAME: Survey Marking Paint

Material Safety Data Sheet

SECTION II - HAZARDOUS INGREDIENTS / SARA III INFORMATION
OCCUPATIONAL EXPOSURE LIMITS
HAZARDOUS COMPONENTS
WEIGHT
PERCENT
LD50 SPECIES
& ROUTE
LC50 SPECIES
OSHA PEL ACGIH TLV & ROUTE
Hydrocarbon Propellant 1000 ppm 1000 ppm N / AV N / AV
(CAS 68476-86-8) 10 - 30
Aliphatic Petroleum Distillates N / AV 300 ppm N / AV N / AV
(CAS 64742-89-8) 10 - 30
*Hexane 500 ppm 50 ppm (skin) 2870 mg / kg (Rat-Oral) N / AV
(CAS 110-54-3) 7 - 13
Aliphatic Petroleum Distillates N / AV 300 ppm N / AV N / AV
(CAS 64742-89-8) 10 - 30
Aliphatic Petroleum Distillates 100 ppm 100 ppm N / AV N / AV
(CAS 64742-88-7) 1 - 5
Non-Fluorescent Colors Also Contain:
Acetone 1000 ppm 500 ppm 5800 mg / kg (Rat-Oral) 21000 ppm / 8 hr (Rat-Inha)
(CAS 67-64-1) 5 - 10
Metallic Colors Also Contain:
Acetone 1000 ppm 500 ppm 5800 mg / kg (Rat-Oral) 21000 ppm / 8 hr (Rat-Inha)
(CAS 67-64-1) 30 - 60
n-Butyl Acetate 150 ppm 150 ppm 200 ppm N / AV N / AV
(CAS 123-86-4) 1 - 5
Aliphatic Hydrocarbon N / AV N / AV 1200 mg / m_3 N / AV N / AV
(CAS 64742-47-8) 1 - 5
*Indicates toxic chemical(s) subject to the reporting requirements of section 313 of Title III and of 40 CFR 372.
NOTE: N / AP = Not Applicable N / AV = Not Available
17A
Survey Marking Paint November 8, 2006
SECTION III - PHYSICAL / CHEMICAL CHARACTERISTICS
BOILING POINT: N / AP **SPECIFIC GRAVITY (H20=1):** 0.9
VAPOR DENSITY: Heavier than air **SOLUBILITY IN WATER:** Partial
EVAPORATION RATE: Faster than n-Butyl Acetate **APPEARANCE AND ODOR:** Opaque liquid with hydrocarbon odor.
SECTION IV - FIRE AND EXPLOSION HAZARD DATA
FLASH POINT: < 0° F (-18° C) **METHOD USED:** Estimated **FLAMMABLE LIMITS - LEL:** 0.9% **UEL:** 13.0%
EXTINGUISHING MEDIA: Carbon dioxide, dry chemical, water spray.
SPECIAL FIRE FIGHTING PROCEDURES: Use water spray to cool containers exposed to heat or fire to prevent pressure build up. Self-contained breathing apparatus should be used if product is involved in fire.
UNUSUAL FIRE AND EXPLOSION HAZARDS: Treat as cylinders of compressed gas. Closed containers may rupture due to pressure build up from extreme temperature.
FLAMMABILITY: Yes - Flammable aerosol under conditions of sparks, flame, or hot surfaces.
SENSITIVITY TO IMPACT: Do not puncture **SENSITIVITY TO STATIC DISCHARGE:** Primarily vapors
SECTION V - REACTIVITY DATA
STABILITY: Stable **CONDITIONS TO AVOID:** Open flames, sparks, electrical arcs.
INCOMPATIBILITY (MATERIALS TO AVOID): Strong oxidizing agents.
HAZARDOUS DECOMPOSITION OR BY-PRODUCTS: Carbon Monoxide, Carbon Dioxide.
HAZARDOUS POLYMERIZATION: Will not occur
SECTION VI - HEALTH HAZARD DATA
INHALATION: Respiratory tract irritant. May cause dizziness, light-headedness and / or headaches. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal.

SKIN CONTACT: Prolonged or repeated contact may cause irritation and dermatitis.
EYE CONTACT: Painful with slight to moderate irritation.
INGESTION: May be harmful or fatal if swallowed
EFFECTS OF CHRONIC OVEREXPOSURE: Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage. Repeated overexposure can also damage kidneys, lungs, liver, heart and blood.
CARCINOGENICITY: The ingredients are not listed as a human carcinogen by IARC, ACGIH, NTP, or OSHA.
TERATOGENICITY: Not established **MUTAGENICITY:** Not established
MEDICAL CONDITION GENERALLY AGGRAVATED BY EXPOSURE: Not established
EMERGENCY AND FIRST AID PROCEDURES: INHALATION - Remove from exposure, seek medical attention if signs/symptoms persist.
SKIN - Wash affected area with soap and water, remove contaminated clothing, seek medical attention if irritation persists.
EYES - Flush immediately with water for 15 minutes, seek medical attention if irritation persists.
INGESTION - Do not induce vomiting. Contact physician or poison control center immediately.
SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Remove all sources of ignition. Ventilate area. Prevent from entering a watercourse. Use an inert absorbent material and non-sparking type tools.
WASTE DISPOSAL METHOD: Dispose of in accordance with local, state and federal regulations. Do not incinerate closed containers.
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Do not store above 120° F (49° C). Do not store or use near heat, sparks or flame.
OTHER PRECAUTIONS: Avoid contact with eyes and skin. Do not breathe vapors, take internally or smoke while using this product.
SECTION VIII - CONTROL MEASURES
RESPIRATORY PROTECTION: In areas with poor ventilation, use a NIOSH approved Organic Vapor Cartridge Respirator. For concentrations above the TLV (as defined in Section II), use a positive air supplied respirator.
VENTILATION: General ventilation to maintain exposure limits below TLV's as defined in Section II.
PROTECTIVE GLOVES: Chemical resistant gloves such as Neoprene or Nitrile rubber.
EYE PROTECTION: Safety glasses or goggles.
OTHER PROTECTIVE CLOTHING OR EQUIPMENT: Not established.
WORK / HYGIENIC PRACTICES: Avoid prolonged or repeated contact. Do not breathe vapors. Wash contaminated clothing prior to reuse.
SECTION IX - DISCLAIMER
THE INFORMATION CONTAINED HEREIN IS BELIEVED TO BE ACCURATE BUT IS NOT WARRANTED TO BE SO. NOTHING CONTAINED
HEREIN CONSTITUTES A SPECIFICATION NOR IS IT INTENDED TO WARRANT SUITABILITY FOR THE INTENDED USE.
201 Red
202 Yellow
203 Blue
204 Green
205 Orange
206 Black
207 White
208 Hi Visibility Yellow
209 Light Blue
212 Purple
270S Fluorescent Red
272S Fluorescent Orange
274S Fluorescent Green
275S Fluorescent Red/Orange
279S Fluorescent Pink
261S Red
262S Yellow
263S Blue
265S Orange
267S White
281 Red
282 Yellow
288 Fluorescent Orange
Non-Fluorescent Colors Fluorescent Colors 16 oz. I.A.C. High Delivery
220 Red
222 Orange
224 Green
226 Yellow
227 Blue
229 Pink
230 Red/Orange
Metallic
210 Silver

Spectrum Group
Division of United Industries Corp.
P. O. Box 142642
St. Louis, MO 63114-0642

Material Safety Data Sheet

Complies with OSHA's Hazard Communication Standard, 29 CFR 1910.1200

HAZARDOUS MATERIAL IDENTIFICATION SYSTEM – (HMIS)	
HEALTH – 1	REACTIVITY – 0
FLAMMABILITY – 2	PERSONAL –

I TRADE NAME: **SPECTRACIDE WASP & HORNET KILLER$_3$**

PRODUCT TYPE: **AEROSOL INSECTICIDE**

PRODUCT ITEM NUMBER: **57625**	FORMULA CODE NUMBER: **21-0666/21-0815**

EPA REGISTRATION NUMBER	MANUFACTURER	EMERGENCY TELEPHONE NUMBERS
9688-190-8845	**CHEMSICO DIVISION OF UNITED INDUSTRIES CORPORATION 8494 CHAPIN INDUSTRIAL DRIVE ST. LOUIS, MO 63114**	**For Chemical Emergency:** 1-800-633-2873 **For Information:** 1-800-917-5438 **Prepared by:** Charlie Duckworth **Date Prepared:** October 14, 2004

II HAZARDS INGREDIENT/IDENTITY INFORMATION

Chemical	**%**	**OSHA PEL**	**ACGIH TLV**
Mineral spirits CAS# 8012-95-1	4.00	100 ppm	100 ppm
Propylene glycol monobutyl ether CAS# 5131-66-8	6.00	None	None
Lambda-cyhalothrin CAS# 91465-08-6	0.01	NA	2000 mg/kg (skin)
Prallethrin CAS# 23021-36-9	0.025	NE	NE
Hydrocarbon Propellant blend CAS #75-28-5/106-97-8/ 74-98-6	3.50	NE	NE

III PHYSICAL AND CHEMICAL CHARACTERISTICS

Appearance & Odor:	Wet narrow fan spray with clear wet film and glycol ether odor.
Boiling Point:	NA
Melting Point:	NA
Vapor Pressure:	110 psig at 54° C/130° F
Specific Gravity:	0.993 (H_2O = 1)
Vapor Density:	Greater than 1 (Air = 1)
Solubility in Water:	Greater than 87%
Evaporation Rate:	Less than 1 (Butyl Acetate = 1)

IV FIRE AND EXPLOSIVE HAZARDS DATA

Flash Point: 119° F (TCC) (liquid portion)
Flame Extension: 0-inches (Level 1 Aerosol)
Flammable Limits: NA
Autoignition Temperature: NA
Fire Extinguishing Media: Water fog, Carbon dioxide, Dry chemical
Decomposition Temperature: NA
Special Fire-Fighting Procedures: Keep cans cool. Use equipment or shielding to protect personnel against bursting, rupturing or venting cans.
Unusual Fire & Explosion Hazards: At elevated temperatures (over 54° C/130° F), cans may vent, rupture or burst. Also see Section V.

V REACTIVITY DATA

Stability: Stable
Polymerization: Will not occur
Conditions to Avoid: Temperatures over 130° F
Incompatible Materials: NA
Hazardous Decomposition or Byproducts: Carbon dioxide, carbon monoxide

VI HEALTH HAZARD DATA

Skin Contact: Avoid contact with skin and clothing. ***First Aid:*** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a Poison Control Center or doctor for treatment advice.

Ingestion: First Aid: Immediately call a Poison Control Center or doctor. Do not induce vomiting unless told to do so by a Poison Control Center or doctor. Do not give any liquid to the person. Do not give anything by mouth to an unconscious person.

Special Notes: Have the product container with you when calling a Poison Control Center or doctor, or going for treatment.

Health conditions Aggravated by Exposure: None known
Ingredients listed by NTP, OSHA, or IARC as Carcinogens or Potential Carcinogens: None

VII PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be Taken in Case Material is Released or Spilled:
Avoid breathing vapors. Avoid contact with liquid. Remove ignition sources. Soak up spills with absorbent material.

Waste Disposal:
Do not puncture or incinerate containers. If empty: Place in trash or offer for recycling if available. If partly filled: Call local solid waste agency or 1-800-CLEANUP for disposal instructions.

Handling & Storage Precautions:
Do not store where temperatures can exceed 54° C/130° F.

VIII CONTROL MEASURES

Read and follow label directions. They are your best guide to using this product effectively, and give necessary safety precautions to protect your health.

IX TRANSPORTATION DATA

DOT: Consumer Commodity, Hazard Class ORM-D

(Limited Quantity Exception)

IMDG: Aerosols (Maximum 1 Liter), Hazard Class 2, UN-1950,

	Packing Group III **IATA:** Aerosols, Flammable, Containing Substances in Division 6.1, Packing Group III (Each Not Exceeding 1 Liter Capacity), Hazard Class 2.1, UN-1950, Packing Group III

MATERIAL SAFETY DATA SHEET

O M N I S P E C I A L T Y P A C K A G I N G

10399 HWY 1 · SHREVEPORT, LA 71115 · (318) 524-1100
Contact Name: Curtis Young Emergency Phone Number: (318) 347-5023
Packaged for Stihl Incorporated, 536 Viking Drive, Virginia Beach, VA 23452
MATERIAL SAFETY DATA SHEET
May be used to comply OSHA's Hazard Communication Standard 29 CFR 1910.1200.
Standard must be consulted for specific requirements.
U.S. DEPARTMENT OF LABOR Occupational Safety and Health Administration. (Non-Mandatory Form)
Form Approved OMB No.1218-0072.

SECTION I GENERAL INFORMATION

PRODUCT NAME Stihl Bar & Chain Lubricant
Product will be packaged in the containers with no less than 25% of post consumer resin.

SECTION II HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

COMPONENT WT.% C.A.S. No TLV(ACGIH;
OSHA)
Severely Hydrotreated Heavy Naphthenic Petroleum Oil 99.0 64742-52-5 5 mg/m3
Petroleum Product Additive 1.00 Mixture 5 mg/m3
This product does not contain any substances known to the state of California to cause cancer, birth defects or other reproductive harm.

SECTION III PHYSICAL/CHEMICAL CHARACTERISTICS

Specific Gravity (H_2O=1) 0.92 Appearance and Odor Straw viscous liquid
Solubility in Water Negligible pH N/A
Flash Point (PM), °F (°C) 435 (224) Solubility in Solvent N/A
Pour Point, °F (°C) 0 – (-18) %Volatiles By Wt. Negligible
Vapor Pressure (mmHg) N/A Boiling Point, F° N/A
Evaporation Rate (Butyl
Acetate=1)
N/A Kinematic Viscosity,
cSt
150.00 @ 40°C;
11.50 @ 100°C

SECTION IV FIRE AND EXPLOSION HAZARD DATA

EXTINGUSHING MEDIA:
Water
Fog
xx Foam xx CO_2 xx Dry
Chemicals
xx
SPECIAL FIRE FIGHTING PROCEDURES Forced stream may cause fire to spread.
Use water to cool containers exposed to flames.
UNUSUAL FIRE AND EXPLOSION HAZARDS Non Known.

SECTION V REACTIVITY DATA

Stable xx Unstable Corrosive No Hazardous
Polymerization?
Yes No xx
Incompatibilities: Strong oxidizing agents.
Hazardous Decomposition or Byproducts: Carbon dioxide and carbon monoxide.

SECTION VI HEALTH HAZARD INFORMATION

OSHA Exposure Limit 5 mg/m3 (Mist); 10 mg/m3 (Mist, Short Term).
EYE

CONTACT
Eye contact may result in irritation and redness.
SKIN
CONTACT
Prolonged or repeated contact can defat the skin, which may result in dryness, dermatitis, and cracking of the skin.
INHALATION Inhalation of vapors or mist may be irritating to respiratory passages.
Prolonged exposure to oil mists may result in dizziness and nausea.
INGESTION May result in nausea or stomach discomfort.

SECTION VII EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT Flush with water for 15 minutes thoroughly. Get medical attention if irritation develops or persists.
SKIN CONTACT Remove contaminated clothing. Wash with soap and water. Get medical attention if skin disorder develops. Launder contaminated clothing before reuse.
INHALATION Remove to fresh air. If not breathing, give mouth-to-mouth resuscitation. Get medical attention if symptoms persist.
INGESTION If swallowed, observe for signs of stomach discomfort or nausea.
If symptoms persist, seek medical help.

SECTION VIII SPECIAL PROTECTION INFORMATION

CONSUMER BULK HANDLING (Prolonged Exposure)
RESPIRATORY
PROTECTION
N/A Not normally needed. Respirator should be used
in areas where vapor concentrations are excessive due to high temperatures or where oil misting occurs.
VENTILATION Use with adequate ventilation.
General.
EYE
PROTECTION
N/A Goggles or full-face shield.
PROTECTIVE CLOTHING
Use impervious gloves for prolonged contact. Oil-impervious gloves and apron.

SECTION IX PRECAUTIONS FOR SAFE HANDLING AND USE

SPILL OR LEAK
PROCEDURE
Remove all sources of ignition. Contain spill. Recover all possible material
for reclamation. Use non-flammable absorbent material to pick up
remainder of spill.
WASTE DISPOSAL
METHOD
Dispose in accordance with all applicable local, state and federal
regulations.
STORAGE AND
HANDLING
PRECAUTIONS
Store away from heat, sparks, and hot surfaces “Empty” containers retain product residue (liquid and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose used containers to heat, flame, sparks, static electricity, or other sources of ignition; they may explode. Wash thoroughly after handling.
OTHER PRECAUTIONS
Keep away from children and animals.

SECTION X OTHER INFORMATION

NFPA Hazard Rating - Health 1 Slight
- Fire 1 Slight
- Reactivity 0 Least

Supersedes_____ OSHA Revised_____
Title_____
While Omni Specialty Packaging believes this data is accurate as of revision date, we make no warranty with respect to the data and we expressly disclaim all liability for reliance thereon. The data is offered solely for your information, investigation, and verification.

Revision Date: 02/01/2003

MATERIAL SAFETY DATA SHEET

O M N I S P E C I A L T Y P A C K A G I N G

10399 HWY 1 · SHREVEPORT, LA 71115 · (318) 524-1100
Contact Name: Curtis Young Emergency Phone Number: (318) 347-5023

Packaged for Stihl Incorporated, 536 Viking Drive, Virginia Beach, VA 23452

MATERIAL SAFETY DATA SHEET

May be used to comply OSHA's Hazard Communication Standard 29 CFR 1910.1200.
Standard must be consulted for specific requirements.

U.S. DEPARTMENT OF LABOR

Occupational Safety and Health Administration. (Non-Mandatory Form)
Form Approved OMB No.1218-0072.

SECTION I GENERAL INFORMATION

PRODUCT NAME STIHL 2-CYCLE UNIVERSAL ENGINE OIL
Product will be packaged in the containers with no less than 25% of post consumer resin.

SECTION II HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

COMPONENT WT.% C.A.S. No TLV(ACGIH;
OSHA)
Petroleum Distillates, Hydrotreated Heavy Paraffinic Blend 64742-54-7 5 mg/m3
Petroleum Distillates, Solvent Dewaxed Heavy Paraffinic Blend 64742-65-0 5 mg/m3
Residual Oils (petroleum), Solvent Dewaxed Blend 64742-62-7 5 mg/m3
Residual Oils (petroleum), Hydrotreated Blend 64742-57-0 5 mg/m3
Stoddard Solvent 8 8052-41-3 525 mg/m3
Additive Package >7 Mixture N/A
Dye 0.07 Mixture N/A
The maximum percentage of the petroleum distillate and/or residual oil blend contained in this product is: 86%. All mineral oils used in this product have been severely hydrotreated and/or solvent refined. This product does not contain any substances known to the state of California to cause cancer, birth defects or other reproductive harm.

SECTION III PHYSICAL/CHEMICAL CHARACTERISTICS

Specific Gravity (H_2O=1) 0.88 Appearance and Odor Blue liquid with mild petroleum odor
Solubility in Water Negligible pH N/A
Flash Point (PM), °F (°C) 160 (71) Solubility in Solvent N/A
Pour Point, °F (°C) 0 – (-18) %Volatiles By Wt. Negligible
Vapor Pressure (mmHg) N/A Boiling Point, F° N/A
Evaporation Rate (Butyl
Acetate=1)
N/A Kinematic Viscosity,
cSt
77.5 @ 40°C;
10.05 @ 100°C

SECTION IV FIRE AND EXPLOSION HAZARD DATA

EXTINGUSHING MEDIA:
Water
Fog
xx Foam xx CO_2 xx Dry Chemicals xx
SPECIAL FIRE FIGHTING PROCEDURES Wear full-face, self-containing breathing apparatus and impervious protective clothing. Avoid inhaling any combustion products. Direct water spray or foam may cause frothing and spattering. If a leak or spill has not ignited, use water spray to diverse vapors and to flush away from exposure.
UNUSUAL FIRE AND EXPLOSION HAZARDS Non Known.

SECTION V REACTIVITY DATA

Stable xx Unstable Corrosive No Hazardous
Polymerization?

Yes No xx
Incompatibilities: Strong oxidizing agents.
Hazardous Decomposition or Byproducts: Decomposition may release oxides of sulfur, nitrogen, aldehydes, carbon monoxide, carbon dioxide and other low weight hydrocarbons.

SECTION VI HEALTH HAZARD INFORMATION

OSHA Exposure Limit 5 mg/m3 (Mist); 10 mg/m3 (Mist, Short Term).
EYE CONTACT
Eye irritant.
SKIN CONTACT
Prolonged or repeated contact may cause mild irritation and possibly dermatitis. Prolonged or repeated contact with skin may result in allergic skin sensitization reactions.
INHALATION High vapor/aerosol concentrations (at elevated temperatures) cause irritation, headache, dizziness, anesthesia, drowsiness, unconsciousness and death.
Repeated and prolonged overexposure to oil mists may result in droplet deposition, oil granuloma formation, inflammation and increased incidence of infection.
INGESTION No significant adverse effects are expected upon ingestion of the product. If swallowed, can cause nausea, vomiting and diarrhea.
Small amounts of this product, if aspirated into the lungs, may cause mild to severe pulmonary injury, possibly death.

SECTION VII EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT Flush with water for 15 minutes thoroughly. Get medical attention if irritation develops or persists.
SKIN CONTACT Remove contaminated clothing. Wash with soap and water. Get medical attention if skin disorder develops. Launder contaminated clothing before reuse.
INHALATION Remove to fresh air. If not breathing, give mouth-to-mouth resuscitation. Get medical attention if symptoms persist.
INGESTION DO NOT INDUCE VOMITING. Consult local poison control center or get medical attention.

SECTION VIII SPECIAL PROTECTION INFORMATION

CONSUMER BULK HANDLING (Prolonged Exposure)
RESPIRATORY PROTECTION
N/A If mist is generated (heating, spraying) and engineering control are not sufficient, wear approved organic vapor respirator suitable for oil mist.
VENTILATION Use with adequate ventilation.
General.
EYE PROTECTION
N/A Goggles or full-face shield.
PROTECTIVE CLOTHING
Use impervious gloves for prolonged contact. Oil-impervious gloves and apron.

SECTION IX PRECAUTIONS FOR SAFE HANDLING AND USE

SPILL OR LEAK
PROCEDURE
Remove all sources of ignition. Wear appropriate protective equipment and clothing during clean up. Do not allow the spilled product to enter public drainage systems or open water sources. Clean up area with absorbent material and place in closed container for disposal.
WASTE DISPOSAL METHOD
Dispose in accordance with all applicable local, state and federal regulations.
STORAGE AND HANDLING PRECAUTIONS
Store away from heat, sparks, open flame or strong oxidizing agents. Do not store this material in open or unlabeled containers. “Empty” containers retain product residue (liquid and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose used containers to heat, flame, sparks, static electricity, or other sources of ignition; they may explode. Avoid breathing mists and vapors, prolonged or repeated contact with this material. Avoid the generation of oil mists. Wash thoroughly after handling. Use this product with adequate ventilation.
OTHER PRECAUTIONS
Keep away from children and animals. Discharges or spills into or leading to surface waters that cause sheen must be reported to the National Response Center (1-800-424-8802).

SECTION X OTHER INFORMATION

NFPA Hazard Rating

- Health 1 Slight
- Fire 2 Moderate
- Reactivity 0 Least

Supersedes_____ OSHA Revised_____

Title_____

While Omni Specialty Packaging believes this data is accurate as of revision date, we make no warranty with respect to the data and we expressly disclaim all liability for reliance thereon. The data is offered solely for your information, investigation, and verification.

Revision Date: 05/08/2006

MATERIAL SAFETY DATA SHEET

O M N I S P E C I A L T Y P A C K A G I N G

10399 HWY 1 SHREVEPORT, LA 71115 (318) 524-1100
Contact Name: Curtis Young Emergency Phone Number: (318) 347-5023
Packaged for Stihl Incorporated, 536 Viking Drive, Virginia Beach, VA 23452

MATERIAL SAFETY DATA SHEET
May be used to comply OSHA's Hazard Communication Standard 29 CFR 1910.1200.
Standard must be consulted for specific requirements.

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health
Administration. (Non-Mandatory Form)
Form Approved OMB No.1218-0072.

SECTION I GENERAL INFORMATION
PRODUCT NAME STIHL 2-CYCLE ULTRA HIGH PERFORMANCE ENGINE OIL
Product will be packaged in the containers with no less than 25% of post consumer resin.

SECTION II HAZARDOUS INGREDIENTS/IDENTITY INFORMATION
COMPONENT WT.% C.A.S. No
Petroleum Distillates, Severely Hydrotreated Heavy Paraffinic 5 – 10 64742-54-7
All mineral oils used in this product have been severely hydrotreated and/or solvent refined. This product does not contain any substances known to the state of California to cause cancer, birth defects or other reproductive harm.

SECTION III PHYSICAL/CHEMICAL CHARACTERISTICS
Specific Gravity (H_2O=1) 0.935 Appearance and Odor Green liquid with mild petroleum odor
Solubility in Water Negligible pH N/A
Flash Point (PM), °C 220 Solubility in Solvent N/A
Pour Point, °F (°C) N/A %Volatiles By Wt. N/A
Vapor Pressure (mmHg) N/A Boiling Point, F° N/A
Evaporation Rate (Butyl Acetate=1)
N/A Kinematic Viscosity, cSt
49 @ 40°C;
8.45 @ 100°C

SECTION IV FIRE AND EXPLOSION HAZARD DATA
EXTINGUSHING MEDIA:
Water
Fog
xx Foam xx CO_2 Xx Dry Chemicals xx
SPECIAL FIRE FIGHTING PROCEDURES Wear full-face, self-containing breathing apparatus and impervious protective clothing. Avoid inhaling any combustion products. Direct water spray or foam may cause frothing and spattering. If a leak or spill has not ignited, use water spray to diverse vapors and to flush away from exposure.
UNUSUAL FIRE AND EXPLOSION HAZARDS Non Known.

SECTION V REACTIVITY DATA
Stable xx Unstable Corrosive No Hazardous Polymerization?
Yes No xx
Incompatibilities: Strong oxidizing agents.
Hazardous Decomposition or Byproducts: Decomposition may release oxides of sulfur, nitrogen, aldehydes, carbon monoxide, carbon dioxide and other low weight hydrocarbons.

SECTION VI HEALTH HAZARD INFORMATION
OSHA Exposure Limit 5 mg/m3 (Mist); 10 mg/m3 (Mist, Short Term).
EYE CONTACT

Eye irritant.
SKIN CONTACT
Prolonged or repeated contact may cause mild irritation and possibly dermatitis. Prolonged or repeated contact with skin may result in allergic skin sensitization reactions.
INHALATION High vapor/aerosol concentrations (at elevated temperatures) cause irritation, headache, dizziness, anesthesia, drowsiness, unconsciousness and death. Repeated and prolonged overexposure to oil mists may result in droplet deposition, oil granuloma formation, inflammation and increased incidence of infection.
INGESTION No significant adverse effects are expected upon ingestion of the product. If swallowed, can cause nausea, vomiting and diarrhea. Small amounts of this product, if aspirated into the lungs, may cause mild to severe pulmonary injury, possibly death.

SECTION VII EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT Flush with water for 15 minutes thoroughly. Get medical attention if irritation develops or persists.
SKIN CONTACT Remove contaminated clothing. Wash with soap and water. Get medical attention if skin disorder develops. Launder contaminated clothing before reuse.
INHALATION Remove to fresh air. If not breathing, give mouth-to-mouth resuscitation. Get medical attention if symptoms persist.
INGESTION DO NOT INDUCE VOMITING. Consult local poison control center or get medical attention.

SECTION VIII SPECIAL PROTECTION INFORMATION

CONSUMER BULK HANDLING (Prolonged Exposure)
RESPIRATORY PROTECTION
N/A If mist is generated (heating, spraying) and engineering control are not sufficient, wear approved organic vapor respirator suitable for oil mist.
VENTILATION Use with adequate ventilation.
General.
EYE PROTECTION
N/A Goggles or full-face shield.
PROTECTIVE CLOTHING
Use impervious gloves for prolonged contact. Oil-impervious gloves and apron.

SECTION IX PRECAUTIONS FOR SAFE HANDLING AND USE

SPILL OR LEAK PROCEDURE
Remove all sources of ignition. Wear appropriate protective equipment and clothing during clean up. Do not allow the spilled product to enter public drainage systems or
open water sources. Clean up area with absorbent material and place in closed
container for disposal.
WASTE DISPOSAL METHOD
Dispose in accordance with all applicable local, state and federal regulations.
STORAGE AND HANDLING PRECAUTIONS
Store away from heat, sparks, open flame or strong oxidizing agents. Do not store this material in open or unlabeled containers. “Empty” containers retain product residue (liquid and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose used containers to heat, flame, sparks, static electricity, or other sources of ignition; they may explode. Avoid breathing mists and vapors, prolonged or repeated contact with this material. Avoid the generation of oil mists.
Wash thoroughly after handling. Use this product with adequate ventilation.
OTHER PRECAUTIONS
Keep away from children and animals. Discharges or spills into or leading to surface
waters that cause sheen must be reported to the National Response Center (1-800-424-8802).

SECTION X OTHER INFORMATION

NFPA Hazard Rating

- Health 1 Slight
- Fire 2 Moderate
- Reactivity 0 Least

Supersedes_____ OSHA Revised_____
Title_____

While Omni Specialty Packaging believes this data is accurate as of revision date, we make no warranty with respect to the data and we expressly disclaim all liability for reliance thereon. The data is offered solely for your information, investigation, and verification.

APPENDIX D
FORMS AND CHECKLISTS

Forms/Checklists Summary

The forms and checklists applicable to the Ukiah Rail Yard Redevelopment Project, Ukiah, California are provided in this attachment:

- Site-Specific Health and Safety Plan and Acknowledgement Sheet
- EHS Analysis Checklist – WESTON Field Operations
- Site Safety Inspection Form
- Heavy Equipment Inspection Checklist

Additional forms and checklists that may be used during the Redevelopment Project, but are not provided in this Attachment, include the following:

- Personal Protective Equipment Used
- Site Personnel and Certification Status (WESTON and Subcontractor's)
- Underground Utility Location and Marking Checklist
- Underground Utilities Management Checklist
- WESTON Corporate Environmental Compliance, Health, and Safety Manual
- Housekeeping Inspection Checklists
- Excavation/Trenching Safety Plan Checklist A – WESTON Excavation Inspection – Permit Checklist (FLD28)
- Excavation/Trenching Safety Plan Checklist B – WESTON Excavation/Trenching Audit Checklist (FLD28)
- Construction Safety Guidance Checklist
- Construction Safety Guidance Checklist - Construction Health and Safety Guidance Document Checklist

Site-Specific Health and Safety Plan Acknowledgement Sheet

INSTRUCTIONS: This form is to be completed by each person prior to beginning work. The supervisor is responsible for providing training on all appropriate sections of referenced documents, which will be maintained at the work site.

Work Order No.: _____

Project: _____

Location: _____

By my signature below, I acknowledge that I have read and understand the contents of the Site-Specific Health & Safety Plan, the Health and Safety Plan, the Emergency Response and Contingency Plan, in addition to all relevant sections of all referenced documents; and I agree to perform my duties accordingly.

Name	Signature	Date

cc: WESTON Project Engineer, WESTON Vallejo Site Office

EHS ANALYSIS CHECKLIST-WESTON FIELD OPERATIONS

This form is to be completed prior to task implementation (and modified during implementation if significant changes occur) to verify that hazards have been identified and that appropriate protection is determined and utilized. This form is additionally to be used as a daily and as necessary training tool. This form (or a copy of same) is to be posted for workers to observe and then filed upon completion of task.

Site Manager/EHS Officer:_____ Date:_____ Location:__ W.O.	Task Description:	Task Team (name or reference via daily sign-in sheet) _____ _____ _____

HAZARDS IDENTIFIED (check those applicable) (✓)

	Chemical		Biological		Physical		Aerial lifts		Remote Areas
	Flammable/combustible		Insects		Noise		Man. Material Handling		Materials handling
	Corrosive		Animals		Heat		Demolition		High Pressure Washers
	Oxidizer		Plants		Cold		Excavation		Hand and Power Tools
	Reactive		Mold/Fungus		Inclement Weather		Pile Driving		Low Illumination
	Toxic		Viral/Bacterial		Hot Work		Welding/Cutting/Burn		Drilling & Boring
	Inhalation				Confined Spaces		Hot Surfaces		Striking against/Struck-by
	Eyes/Skin		Radiological		Stored hazardous Energy		Hot Materials		Caught-in/Caught between
	Pesticides		Ultra-Violet		Elevation		Rough Terrain		Pushing/pulling
	Carcinogen		Sunlight		Utilities		Compressed Gases		Falls at same level
	Asbestos		Infrared		Machinery		Hazardous Mat. Storage		Falls from elevation
	Lead		Lasers		Mobile equipment		Diving		Repetitive motion
	UXO/OE/ CWM		XRF		Cranes		Operation and Use of Boats		High (>110v) Electricity
	Process Safety		Density Gauges		Manual Material Handling		Working Over Water		Slippery surface Ice/Snow
	Applying Paint/Coatings		Isotopes		Ladders		Traffic		
					Scaffolding		Site Security		

REQUIRED PROTECTION (check those applicable) (✓)

					Air Purifying Respirator		Level A		Diving/SCUBA
	Engineering Controls		Trained/Certified		Hard Hat		CWM		Diving/Surface Supplied
	Guard Rails		Hot Work Permit		Ear Plugs		Safety Shoes/Boots		
	Machine Guards		CSE Permit		Ear Muffs		Rubber Boots		Contingency
	Sound Barriers		Lockout/Tag Out		Safety Glasses		Gloves		Emergency Signal Known
	Enclosure		Work Permit		Goggles		Gloves		Eye wash/shower Location
	Elevation		Dig Safe Permit		Chemical Goggles		Gloves		First Aid Kit Location
	Isolation		Contingency Plan		Face Shield		Cooling Suits		Fire Extinguisher Location
	GFCI		Critical Lift Plans		Thermal Shield		Ice Vests		Spill Kit Location
	Assured Ground Program		Equip. Inspection Sheets		Welding Mask		Radiant heat Suits		Severe weather shelter
	Apply Anti-slip/skid Mat				Cutting Glasses		Fall Arrest		Evacuation Routes
			PPE		Cotton Coverall		PFD		
	Administrative Control		Air Supplying Respirator		Tyvek Coveralls		Electrical insulation		
	Qualified for task		SCBA		Coated Coveralls		Welding Leathers		

Any Modification to Tasks (list)	Other tasks or activities that may affect my activity	Reasons for any changes indicated above

EHS ANALYSIS CHECKLIST-WESTON FIELD OPERATIONS

This form is to be completed prior to task implementation (and modified during implementation if significant changes occur) to verify that hazards have been identified and that appropriate protection is determined and utilized. This form is additionally to be used as a daily and as necessary training tool. This form (or a copy of same) is to be posted for workers to observe and then filed upon completion of task.

Environmental Compliance Considerations:(✓)

	Generation of Hazardous Waste*		* = Environmental Compliance/Waste Management Plan Required
	Generation of Investigation Derived Waste*		
	Treatment, Storage, or Disposal of Hazardous Waste*		→ Containers: dated, labeled, closed, full, stored less than 90 days
	Contingency to prevent or contain hazardous materials or oil spills or discharges to drains, body of water, soil*		→ Risk of explosion or catastrophic release due to chemical storage or processing involving reactivity, flammables, solvents or explosives
	Disturbing of Asbestos Containing Materials (ACM)*		→Training & Licensing for Asbestos Remediation Activities
	Application of Pesticides or Herbicides*		
	Work on Above or Under-ground Storage Tanks*		
	Transportation, Storage or Disposal of Radioactive Material*		→Training & Licensing for Use of Radioactive Materials/Sources
	Activities producing or generating Air Emissions (or fugitive "fence-line" emissions) requiring either monitoring and/or permit*		
	Excavations, Drilling, Probing or other activities that could impact underground utilities, pipelines, sewer or treatment systems.		
	Shipment of Hazardous Waste off-site* Shipment of Samples in accordance with DOT/IATA		→Waste Identification & Manifesting - Marking, Placarding, Labeling

SITE SAFETY INSPECTION FORM

CLIENT: _____

SITE: _____

LOCATION: _____

WORK ORDER: _____

INSPECTOR: _____

DATE: _____ / _____ / _____

A. TRAINING AND CERTIFICATION:

All personnel, including visitors, entering a Hazardous Waste Operations Site must have the following certifications prior to entering the Exclusion Zone or Contamination Reduction Zone (CRZ):

1. _____ Hazardous Waste Operations (HAZWOPER) Training in accordance with 29 CFR 1910.120(e).

2. _____ Medical clearance to work with Hazardous Materials in accordance with 29 CFR 1910.120.

Additionally, the following issues must be addressed:

3. _____ Are Daily safety meetings held and documented?

4. _____ Is question and answer time available to all site personnel?

5. _____ New site personnel receive:[6]

5a. _____ Site orientation?

5b. _____ Action level and Level of Protection instructions?

5c. _____ Decontamination instructions?

5d. _____ Site work area/zone instructions?

5e. _____ Site-specific hazard information?

B. SITE-SPECIFIC HEALTH & SAFETY:

1. _____ Health and Safety Plan (HASP), posted on-site and signed by ALL site personnel?[11]

2. _____ Initial HASP meeting held and documented prior to site activities?

3. _____ Site Health and Safety Coordinator (SHSC) designated?

4. _____ SHSC approved for corresponding Level of Protection (LOP)?

5. _____ Personnel aware of who SHSC is and understands the SHSC's responsibilities?

6. _____ Personnel trained in exposure risks?

7. _____ Emergency telephone numbers posted?

8. _____ Emergency/evacuation routes posted?

9. _____ Evacuation plan and signals reviewed with all personnel?

C. MISCELLANEOUS:

1. _____ OSHA 200 log maintained and posted?

2. _____ Accident prevention plan in-place (providing frequent and regular inspections)?

3. _____ Copies of contract(s) with client and sub-contractors on-site?

4. _____ Site Health and Safety responsibilities communicated in contract(s)?

5. _____ Site Health and Safety responsibilities communicated to site personnel?

6. _____ Approved copy of subcontractors' task-specific HASP(s) on site? (if appropriate)

7. _____ Site Manager(s) understand subcontractor's responsibilities with OSHA and other H&S requirements?

8. _____ Site personnel know what to do in the event of an OSHA inspection?

D. OCCUPATIONAL HEALTH AND ENVIRONMENTAL CONCERNS:

1. _____ First Aid Kit(s) accessible and identified? [74]

2. _____ Emergency eye wash available? (if required, i.e. corrosives present)

3. _____ Emergency shower available? (if required)

4. _____ Daily First Aid logs maintained?

5. _____ First Aid Kit(s) inspected weekly?

6. _____ First Aid trained personnel on-site during working hours?

7. _____ List of First Aid providers posted?[67]

8. _____ If 20 workers or less, 1 toilet seat provided?

9. _____ If more than 20 workers, 1 toilet seat and 1 urinal per 40 workers?

10. _____ Drinking water provided?

_____ Written hazard communication (HAZCOM) program developed, implemented and maintained?[1]

11. _____ Personnel training?[2]

12. _____ Material safety data sheets (MSDSs) for on-site hazardous materials?[3]

13. _____ Inventory of on-site hazardous materials?[24]

14. _____ Labels and warning forms available and posted?[44]

15. _____ Site personnel aware of MSDS location(s)?[84]

16. _____ Copies of MSDS accessible?[5]

E. PERSONAL PROTECTIVE EQUIPMENT:

1. _____ Site free of accumulated scrap, debris, and garbage?[18]
2. _____ Level of Protection (LOP) established and meets ANSI/OSHA/EPA criteria?
3. _____ Site control zones (Exclusion, CRZ, Support) clearly designated?
4. _____ Correct PPE used for specific operations?[15]
5. _____ Adequate supply of PPE available?
6. _____ Safety instrumentation maintained and calibrated?
7. _____ Maintenance and calibration logs up to date?
8. _____ Defective equipment tagged out?
9. _____ Overhead hazards designated?
10. _____ Hard hats worn in designated areas?[8]
11. _____ Hard hats per ANSI specifications?
12. _____ Safety glasses worn in designated areas?[30]
13. _____ Safety glasses per ANSI specifications?
14. _____ Steel-toed boots worn in designated areas?
15. _____ Steel-toed boots per ANSI specifications?
16. _____ Hearing protection areas designated?
17. _____ Hearing protection adequate?
18. _____ Fall protection provided for personnel working at heights over 6 feet?

E. PERSONAL PROTECTIVE EQUIPMENT (continued):

19. _____ Personnel trained to use and inspect safety belts, harnesses, lanyards, etc.?

20. _____ If Level C: Respirator program established?

21. _____ If Level C: Personnel fit-tested for respirators?

22. _____ If Level C: Respirators on-site?

23. _____ If Level C: Fit tests current?

24. _____ If Level B: Breathing air grade "D" certified?

25. _____ Decontamination system established on-site?

26. _____ Decontamination system properly used?

27. _____ Decontamination system according to HASP?

28. _____ Decontamination area clearly delineated?

29. _____ Appropriate waste receptacles available for all waste?

30. _____ Receptacles properly closed at end of day?

31. _____ Decontamination liquids properly contained and disposed?

32. _____ Wastes disposed of according to approved plan?

33. _____ Personnel received training in proper decontamination procedures?

34. _____ Reusable PPE decontaminated and disinfected (at least) daily?

F. FIRE PROTECTION AND PREVENTION:

1. _____ Hot work permits required?
2. _____ Smoking/Non Smoking areas designated with appropriate signage?
3. _____ Smoking restricted to designated area?
4. _____ Fire lanes established, clearly designated & maintained?
5. _____ Flammable/combustible liquid dispensing transfer systems grounded & bonded?
6. _____ Proper flammable materials storage?
7. _____ Fire alarm established?
8. _____ Location and use of fire extinguisher known by all personnel?
9. _____ Fire extinguishers checked before each shift?
10. _____ Inspected (and documented) monthly?
11. _____ Appropriate fire extinguisher(s) for fire hazard potential?
12. _____ Travel distance to the nearest fire extinguisher less than 100 feet?[80]
13. _____ Combustible materials segregated from ignition sources?

G. SIGNS, SIGNALS, AND BARRICADES:

1. _____ Proper Federal Labor Law Posters displayed?[4]

1a. _____ OSHA Job Safety & Health Protection

1b. _____ Equal Employment Opportunity

1c. _____ The Americans with Disabilities Act of 1990

1d. _____ Minimum Wage

1e. _____ Overtime Pay

1f. _____ Child Labor

1g. _____ Family and Medical Leave Act of 1993

1h. _____ Employee Polygraph Protection Act

2. _____ Proper State Labor Law Posters displayed?

3. _____ Site personnel know where posters are displayed?

H. MATERIALS HANDLING, STORAGE, USE, AND DISPOSAL:

1. _____ Personnel instructed in hazardous materials handling practices?
2. _____ Hazardous chemicals properly labelled?[83]
3. _____ Approved containers used for storage and handling of flammable and combustible liquids?[17]
4. _____ Approved metal safety cans used for flammable liquids (i.e. gasoline)?
5. _____ No more than 25 gallons of flammable liquids stored outside an approved storage cabinet?

I. HAND AND POWER TOOLS:

1. _____ Guards and safety devices in place and used?[43]
2. _____ Inspected before each use?
3. _____ Tagged out if defective?
4. _____ Non-sparking tools available, if needed?

J. WELDING, CUTTING, CYLINDERS:

1. _____ Fire extinguishers present at all welding and cutting operations?
2. _____ Confined spaces, tanks, pipelines tested before welding or cutting?
3. _____ Proper helmets and shields (including proper tint for UV protection) used?
4. _____ Properly grounded?
5. _____ Fuel gas and O_2 gas cylinders stored at least 20' apart?

6. _____ Cylinders stored upright and secured?[28]

7. _____ Only trained welders permitted?[27]

8. _____ Breathing air cylinders charged only to prescribed pressure?

9. _____ No other gas system can be mistaken for breathing air?

10. _____ Fittings prohibit cross connection?

11. _____ Cylinders segregated appropriately in controlled, protected but well ventilated areas?

12. _____ Smoking prohibited in storage areas?

13. _____ Cylinder caps in place when stored (not in use) or when cylinders moved?

14. _____ Fuel gas and O_2 minimum 20' apart when stored?

15. _____ Pressurized air or waterlines are securely connected?

16. _____ All site personnel know never to step across a pressurized line?

17. _____ Gas or other hazardous lines are labeled appropriately?

K. ELECTRICAL:

1. _____ Approved Ground-fault circuit interrupters (GFCIs) installed and implemented?[9 & 22]

2. _____ Grounding path from circuits, equipment, and enclosures continuous?[10]

3. _____ Warning signs indicate the presence and location of high voltage equipment, 250 V or greater?

4. _____ Electrical equipment and wiring properly guarded?

5. _____ Electrical lines, extension cords and cables guarded and properly maintained?[36]

6. _____ Extension cords 3-wire type and designated for hard or extra hard usage?[37]

7. _____ Extension cords protected from damage?[63]

8. _____ Damaged equipment tagged out?

9. _____ Underground electrical lines located and indicated?

10. _____ Overhead electrical lines de-energized?

11. _____ Temporary lights protected from accidental contact or breakage?[45]

12. _____ Pull boxes, junction boxes, and fittings provided with covers?[55]

13. _____ Cabinets and boxes fitted with bushings to prevent damage to flexible cords?[55]

14. _____ Unused openings in cabinets, boxes, and fittings closed?[58]

L. SCAFFOLDS:

1. _____ Scaffolding correctly supported on a solid base?

2. _____ Upright members plumbed?

3. _____ Workers protected from falling objects by:[21]

3a. _____ toe boards

3b. _____ wire mesh

3c. _____ solid planking

3d. _____ overhead protection

4. _____ If tubular welded-frame, sections over 10 feet in height fitted with standard guardrails and toeboards?[13]

M. FALL PROTECTION:

1. _____ Open-sided floors guarded?[7]
2. _____ Floor holes guarded?[68]
3. _____ Floor openings guarded?[33]
4. _____ Ladders extend 3 feet above landing?[32]

N. CRANES, DERRICKS, HOISTS, ELEVATORS, AND CONVEYORS:

1. _____ Slings, chains and rigging rated for intended use and inspected per OSHA.
2. _____ Documentation of inspection in daily log?
3. _____ Documentation of annual crane inspection?[100]
4. _____ Damaged slings, chains or rigging tagged out and reported?
5. _____ Personnel are instructed and keep clear of suspended loads?

O. MOTOR VEHICLES AND HEAVY EQUIPMENT:

1. _____ Inspected before each use?
2. _____ Operators licensed for equipment used?
3. _____ Unsafe equipment tagged out and reported?
4. _____ All safety appliances/guards in place?
5. _____ Vehicles and equipment shut down for fueling?
6. _____ Equipped with back-up alarms or spotter used if 360^{o} visibility restricted?
7. _____ Loads are secure before transport?

8. _____ Roads and structures inspected for load capacity per vehicle weights?

9. _____ Riders prohibited on heavy equipment?

P. EXCAVATIONS:

1. _____ Excavations and trenches sloped, shored or benched to prevent cave-ins?[12]

2. _____ Protective system approved by Professional Engineer?

3. _____ Daily inspections of excavation protective system?[20]

4. _____ Guardrails or fences placed around excavations near walkways or roads?

5. _____ Excavation areas properly delineated and barricaded?

6. _____ Utilities delineated prior to excavation or drilling activities?

7. _____ Trenches 4 feet or deeper equipped with ladder requiring no more than 25 feet of lateral travel?[34]

8. _____ Excavated material, personnel, and heavy equipment at least 24" from the edge of all trenches?

9. _____ Confined Space Entry (CSE) permit procedure established and communicated to personnel?

10. _____ Personnel trained for CSE hazards?

11. _____ CSE area adequately ventilated?

12. _____ CSE area adequately luminated?

13. _____ CSE area tested for: % O_2?

14. _____ CSE area tested for: LEL, flammable gases, vapors?

15. _____ CSE area tested for TOX?

16. _____ Communication available from inside to outside CSE area?

17. _____ CSE area free of flammable and combustible materials?

18. _____ CSE procedures used for Tunnels?

19. _____ CSE safety watch?

20. _____ CSE safety watch protected same as entrants?

21. _____ CSE area isolated from electrical/mechanical activation by following lock out/tag out proceedings?

22. _____ CSE area isolated from any raw materials/chemical lines by disconnecting or blanking these lines?

Q. CONCRETE AND MASONRY CONSTRUCTION - *Reserved*

R. STEEL ERECTION - *Reserved*

S. UNDERGROUND CONSTRUCTION - *Reserved*

T. DEMOLITION

1. _____ Written engineering survey completed?

2. _____ Wall openings barricaded?

3. _____ Floor openings covered?

4. _____ Personnel protected from shattered glass?

5. _____ Signs posted indicating where debris is dropped?

6. _____ Floor openings less than 25% of total floor area?

7. _____ Debris piled against walls strong enough to support it?

8. _____ Planking placed over floor openings within 10 feet of walls being removed?

9. _____ Equipment used only on surfaces that can support it?

10. _____ Curbs or stoplogs used to contain equipment?

11. _____ Debris-storage space blocked off except for removal?

U. EXPLOSIVES - *Reserved*

V. POWER TRANSMISSION AND DISTRIBUTION - *Reserved*

W. ROLLOVER PROTECTIVE STRUCTURES AND OVERHEAD PROTECTION - *Reserved*

X. STAIRWAYS AND LADDERS:

1. _____ Stairs, ramps and ladders free of ice, mud, snow and debris?

2. _____ Ladders exceed maximum length?

3. _____ Ladders used in passageways, doors or driveways?

4. _____ Broken or damaged ladders tagged out?

5. _____ Metal ladders prohibited in electrical service?

6. _____ Safety feet on straight and extension ladders?

7. _____ Stairways, floor and wall openings guarded?

8. _____ Elevated work areas guardrailed or safety chained?

9. _____ Flotation devices worn when working on or over water?

10. _____ Toe boards on overhead work surfaces?

11. _____ Mobile offices/labs have fixed stairs and handrails?

12. _____ Work areas kept free of debris and equipment?

Y. DIVING - *Reserved*

Z. TOXIC AND HAZARDOUS SUBSTANCES -*Reserved*

Note: Superscript Numbers ([23]) denote ranking in "The 100 Most Frequently Cited OSHA Construction Standards in 1991" (U.S. Department of Labor Occupational Safety and Health Administration, March 1995 (Reprinted))

SITE SAFETY INSPECTION FORM

INSPECTOR COMMENTS:

SITE SAFETY INSPECTION FORM

Inspection Summary

Site Personnel Interviewed	Organization

Safety Coordinator:

Activities:

Weather:

GENERAL TOPICS	Yes	No
HASP available at work location?	☐	☐
Emergency contact information completed?	☐	☐
Attached to HASP?	☐	☐
H&S monitoring conducted?	☐	☐
H&S monitoring documented?	☐	☐
Level of Protection appropriate?	☐	☐
Level of Protection adhered to?	☐	☐
Work Zones delineated?	☐	☐
Decontamination procedures followed?	☐	☐

Heavy Equipment Inspection Checklist

Ukiah RailYard Redevelopment Project

Operator _____

Make/Model _____

Equipment Vendor _____

ALL SPACES ON THIS FORM MUST BE COMPLETED DAILY

Day of week	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Date							
Start Time of Inspection and Maintenance							
Completion Time of Inspection and Maintenance							
Current Hour Meter Reading							
Fuel Level (E, 1/4, 1/2, 3/4, F)							
Hydraulic Level (E, 1/4, 1/2, 3/4, F)							
Washer Fluid Level (E, 1/4, 1/2, 3/4, F)							
Engine Oil Level (Low/Full)							
Do the following components work properly?							
Instrument Panel							
Horn							
Backup Alarm							
Lights							
Seat Belt							
Defroster							
Heater							
Air Conditioner							
Windshield Wipers							
Operating Controls							
Brakes							
Mirrors							
Fire Extinguisher							
Answer the following questions accurately:							
Did you ground the vehicle when fueling?							
Did you grease the machine today?							
Did you grease all the grease points?							
Did you add engine oil today?							
Did you add hydraulic oil today?							
Is there any new damage to the equipment?							
Did you clean out the operator space today?							
Did you empty the engine dust collection prefilter bowl?							
Did you inspect the cutting edges/teeth today?							
Do the cutting edges/teeth need to be replaced?							
Did you inspect the tires for cuts/slices?							
Did you check for proper tire inflation today?							
Did you notice any change in the machine performance?							
Did you inspect the operator space air filters? (Weekly)							
Were the tracks cleaned out today? (Weekly)							

Comments: Give details of any item not working properly. Notify Site Manager before using the machine.

_____

_____

_____

_____

_____

_____

APPENDIX E
SITE-SPECIFIC HAZARD COMMUNICATION PROGRAM

SITE-SPECIFIC HAZARD COMMUNICATION PROGRAM

Location-Specific Hazard Communication Program/Checklist

To ensure an understanding of and compliance with the Hazard Communication Standard, WESTON will use this checklist/document (or similar document) in conjunction with the WESTON Written Hazard Communication Program as a means of meeting site- or location-specific requirements.

While responsibility for activities within this document reference the WESTON Site Safety and Health Officer (SSHO), it is the responsibility of all personnel to effect compliance. Responsibilities under various conditions can be found within the WESTON Written Hazard Communication Program.

To ensure that information about the dangers of all hazardous chemicals used by WESTON are known by all affected employees, the following Hazard Communication Program has been established. All affected personnel will participate in the Hazard Communication Program. This written program, as well as WESTON's Corporate Hazard Communication Program, will be available for review by any employee, employee representative, representative of OSHA, NIOSH, or any affected employer/employee on a multi-employer site.

List of Hazardous Chemicals

A list of known hazardous chemicals used by WESTON personnel must be prepared and attached to this document or placed in a centrally identified location with the MSDSs. Further information on each chemical may be obtained by reviewing the appropriate MSDS. The list will be arranged to enable cross-reference with the MSDS file and the label on the container. The SSHO or Location Manager is responsible for ensuring the chemical listing remains up-to-date.

☒ Site or other location name/address: Ukiah Rail Yard Redevelopment Project, Ukiah, CA

☒ Site/Project/Location Manager: Dwight Gemar, Project Manager

☒ Site/Location Safety Officer: Cirilo Lacson, Safety Officer

☒ List of chemicals compiled, format: ☒ SSHSP ☐ Other: SSHP, Attachment 1

☒ Location of MSDS files: SSHP, Attachment 2

☐ Training conducted by: Name: Date:

☐ Indicate format of training documentation: ☐ Field Log: ☐ Other:

☐ Client briefing conducted regarding hazard communication:

☐ If multi-employer site (client, subcontractor, agency, etc.), indicate name of affected companies
client – City of Ukiah; subcontractors to be identified

☐ Other employer(s) notified of chemicals, labeling, and MSDS information:

☐ Has WESTON been notified of other employer's or client's hazard communication program(s), as necessary?
☐ Yes ☐ No

Container Labeling

The WESTON SSHO will verify that all containers received from the chemical manufacturer, importer, or distributor for use on-site are clearly labeled.

The SSHO is responsible for ensuring that labels are placed where required and for comparing MSDSs and other information with label information to ensure correctness.

Material Safety Data Sheets (MSDSs)

The SSHO is responsible for establishing and monitoring WESTON's MSDS program for the location. The SSHO will ensure that procedures are developed to obtain the necessary MSDSs and will review incoming MSDSs for new or significant health and safety information. He/she will see that any new information is passed on to the affected employees. If an MSDS is not received at the time of initial shipment, the SSHO will call the manufacturer and have an MSDS delivered for that product in accordance with the requirements of WESTON's Written Hazard Communication Program.

A log for, and copies of, MSDSs for all hazardous chemicals in use will be kept in the MSDS folder at a location known to all site workers. MSDSs will be readily available to all employees during each work shift. If an MSDS is not available, immediately contact the WESTON SSHO or the designated alternate. When a revised MSDS is received, the SSHO will immediately replace the old MSDS.

Employee Training and Information

The SSHO is responsible for the WESTON site-specific personnel training program. The SSHO will ensure that all program elements specified below are supplied to all affected employees.

At the time of initial assignment for employees to the work site, or whenever a new hazard is introduced into the work area, employees will attend a health and safety meeting or briefing that includes the information indicated below.

- Hazardous chemicals present at the work site.
- Physical and health risks of the hazardous chemicals.
- The signs and symptoms of overexposure.
- Procedures to follow if employees are overexposed to hazardous chemicals.
- Location of the MSDS file and Written Hazard Communication Program.
- How to determine the presence or release of hazardous chemicals in the employee's work area.
- How to read labels and review MSDSs to obtain hazard information.
- Steps WESTON has taken to reduce or prevent exposure to hazardous chemicals.
- How to reduce or prevent exposure to hazardous chemicals through the use of controls procedures, work practices, and personal protective equipment.
- Hazardous, nonroutine tasks to be performed (if any).
- Chemicals within unlabeled piping (if any).

Hazardous Nonroutine Tasks

When employees are required to perform hazardous nonroutine tasks, the affected employee(s) will be given information by the SSHO about the hazardous chemicals he or she may use during such activity. This information will include specific chemical hazards, protective and safety measures the employee can use, and steps WESTON is using to reduce the hazards. These steps include, but are not limited to, ventilation, respirators, presence of another employee, and emergency procedures.

Chemicals in Unlabeled Pipes

Work activities may be performed by employees in areas where chemicals are transferred through unlabeled pipes. Prior to starting work in these areas, the employee will contact the SSHO, at which time information as to the chemical(s) in the pipes, potential hazards of the chemicals or the process involved, and the safety precautions that should be taken will be determined and presented.

Multi-Employer Work Sites

It is the responsibility of the SSHO to provide other employers with information about hazardous chemicals imported by WESTON to which their employees may be exposed, along with suggested safety precautions. It is also the responsibility of the SSHO and the Site Manager to obtain information about hazardous chemicals used by other employers to which WESTON employees may be exposed. WESTON's chemical listing will be made available to other employers, as requested. MSDSs will be available for viewing, as necessary. The location, format, and/or procedures for accessing MSDS information must be relayed to affected employees.

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APPENDIX F
EMERGENCY ACTION PLAN PROCEDURES

PROCEDURES FOR HANDLING FIRES

IF YOU SEE SMOKE OR FIRE, IMMEDIATELY FOLLOW THESE STEPS:

1. Activate the alarm system or verbally call out to all onsite employees.
2. Call the Ukiah Fire Department (911 or 707-463-6274). Never assume someone else has called the Fire Department.
3. Evacuate personnel.
4. Isolate the fire by closing the door.
5. Locate the nearest fire extinguisher.
6. If possible and **only if it is safe to do so**, exhaust one full fire extinguisher at the base of the flame. Do not endanger your life by entering smoke filled rooms or a room where you could be cut off from the only exit.
7. When the Fire Department arrives, advise them of the facts and what action has been taken. Follow their instructions until the emergency is over.
8. Call the Site Health Safety Officer and give the location and severity of the fire.

IF YOU HEAR AN ALARM:

1. Evacuate to the designated Emergency Assembly Area.
2. Remain at the designated Emergency Assembly Area until roll call has been conducted by Site Health and Safety Officer or Site Supervisor and authorization to leave the area has been given.

IF YOU THINK YOU SMELL SMOKE, IMMEDIATELY CALL:

Site Health and Safety Officer—The Site Health and Safety Officer will investigate.

INFORMATION TO BE GIVEN TO THE FIRE DEPARTMENT:

- What is on fire (i.e., components, equipment)
- Site address
- Type of Occupancy (Site Location)
- Telephone Number you are calling from.
- Listen to the Dispatcher—let the Dispatcher hang up first.

PROCEDURES FOR HANDLING EXPLOSIONS

IF AN EXPLOSION OCCURS, IMMEDIATELY FOLLOW THESE STEPS:

1. Sound alarm
2. Evacuate the area
3. Report the explosion to the Ukiah Fire Department (911 or 707-463-6274).

PROVIDE THE FIRE/POLICE DEPARTMENT WITH THE FOLLOWING INFORMATION:

- Your name, location, and phone number
- Your Company's name
- Exact location of the explosion
- Cause of the explosion
- Any reason(s) you may have to believe the explosion was caused by a bomb
- Extent of casualties and the number and type of injuries
- Whether the explosion caused a fire (if so, the location of the fire)

PROCEDURES FOR AN EARTHQUAKE EVENT

WHAT TO EXPECT DURING A LARGE EARTHQUAKE:

Earthquakes strike suddenly, violently and without a lot of warning. There will be a roar like the Blue Angels Jets and a jolt. Everything will begin to move, shake and rumble. The lights will be flickering or go out altogether. Dust will be flying and windows will shatter. Unsecured books and objects will be flying off the shelf; file cabinets will be walking around the room or turning over; your computer terminal will be bouncing around on your desk.

WHAT TO DO DURING AN EARTHQUAKE:

Work Environment

- **Drop—**Before you fall down. Get your head below the level of the equipment or furniture.
- **Drop and Cover—**If in buildings or office spaces, get under any available structure that will afford protection from falling objects such as, tables or desks. If possible crawl under something anchored. This is to keep you from being hit in the head with a book or a binder, or worse yet falling ceiling tiles, light fixtures, heating and air conditioning ducts, or file cabinets.
- Nothing to get under? Drop and Cover. If you can't find anything to get under, cover your head and face with your arms. It is better to have a gash on your arm than on your face.
- **Drop, Cover, and Hold**—Hold on to your cover if it is light such as a desk or table. This is to keep these shelters from jumping up and down on your fingers or walking off on their own accord, leaving you exposed. Wait it out until the shaking stops, take a couple of deep breaths, and then crawl out to see how the world has changed.

Indoors

- **Drop, Cover, and Hold**—Do not try to run outside. If you are not near a piece of equipment, desk, or table, drop to the floor against an interior wall and protect your head and neck with your arms. Avoid exterior walls, windows, hanging objects, mirrors and tall furniture such as file cabinets.
- Contrary to popular belief, don't stand in a doorway. They aren't necessarily any stronger than any other wall, and you run the risk of having the door bang you on the head or smash your fingers. Because of falling debris, the most dangerous thing you can do is try and run outside while the ground is still shaking.

Outdoors

- **Move to Clear Area**—Move to a clear area if you can safely do so; avoid power lines, trees, signs, buildings, vehicles and other hazards.
- **Pull Over and Remain in Vehicle—**Slowly pull over to the side of the road. Don't slam on the brakes. Stop and set the parking brake. Avoid trees, power lines, and other hazards. Stay inside the vehicle until the shaking is over. Expect to see broken water mains and fires from natural gas lines. Power lines will probably be strewn through the streets and roads. They are very dangerous. If a power line falls on the vehicle, stay inside until a trained person removes the wire.

Warehouse

- **Drop Cover and Hold—**Attempt to stay clear of pallet rack storage areas, "Drop, Cover and Hold". After shaking stops, check ladders before using.
- **After the Quake**—Check yourself and others for injuries. Administer first aid quickly and carefully. Be prepared for aftershocks. Aftershocks occur in the first minutes, hours or days after the initial shake.
- Check the buildings for structural damage and other hazards such as exposed electrical lines, gas leaks, chemical and flammable liquid spills.

High Rise Building/Structure

- **Drop, Cover, and Hold**—Avoid windows and other hazards. Do not use elevators or the stairs during the quake. If you are on an elevator, hit all the floor buttons and try to get off as quickly as possible. Do not be surprised if sprinkler systems or fire alarms activate. After the quake, be very wary of stairs, which may have been weakened by the shaking. Do not use an elevator, because the power could fail on your trip down.

Street/Sidewalk

- **Duck, Drop, Cover, and Hold**—Sidewalks next to tall buildings are particularly dangerous. Windows and building facades can shower the street with deadly debris. Duck under a strong entryway or crawl under a parked vehicle (the bigger the better).

Waterfront/Off-Shore Area (On Water)

- **Waterfront—**Drop, cover and hold. As soon as the shaking stops, head for higher ground.
- **Off-Shore (On Water)—**Earthquakes can create tsunamis or large waves 10-100 feet high that can come ashore and destroy everything left standing. If there is a sudden drop in water level, DO NOT WAIT…RUN FOR HIGHER GROUND.

WHAT TO DO AFTER AN EARTHQUAKE:

- Check yourself and others for injuries. Administer first aid quickly and carefully. Be prepared for aftershocks. Aftershocks occur in the first minutes, hours or days after the initial shake.
- Check the building you are in for structural damage and other hazards such as exposed electrical lines, gas leaks, chemical and flammable liquid spills. If you have to evacuate the building, take your emergency supplies, your coat, umbrella, flashlight, walking shoes, portable radio, cellular phone. Once you evacuate, you may not be able to return. Plan to stay where you are for at least 5-6 hours. Put telephones back on the hook. Use the phone only to report life-threatening emergencies.
- Do not use elevators. The power may fail on your trip down. Beware of structural damage to stairs. Listen to the radio for information and instructions. Store extra batteries. At home, turn off the water and electricity (individual breakers first, then the master breaker).
- Turn off the gas only if you hear hissing or smell a gas leak. Bury a wrench in the soil or bark under the gas meter so it will be handy. If you turn it off unnecessarily then the gas company must come out and turn it back on.
- Inspect site if earthquake is 6.0 or larger.