

Work Plan
Locating Orphaned and/or Abandoned Underground
Storage Tanks (USTs) within the State of Nevada,
Leaking Underground Storage Tank Trust Fund
Assistance Award, American Reinvestment &
Recovery Act (ARRA) of 2009

Prepared for

Nevada Division of Environmental
Protection – Bureau of Corrective Action
901 South Stewart Street, Suite 4001
Carson City, Nevada 89701

Prepared by

BROADBENT & ASSOCIATES, INC.
2000 Kirman Avenue
Reno, NV 89502
(775) 322-7969
www.broadbentinc.com

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Task No. BA-05

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Project No. 04-02-140-05

Department of Conservation and Natural Resources
Nevada Division of Environmental Protection -
Bureau of Corrective Actions
901 South Stewart Street, Suite 4001
Carson City, Nevada 89701

Attn: Mr. Art Gravenstein

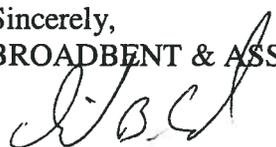
RE: Work Plan for Locating Orphaned and/or Abandoned Underground Storage Tanks (USTs) within the State of Nevada, Nevada Division of Environmental Protection: LUST Trust Task #BA-05.

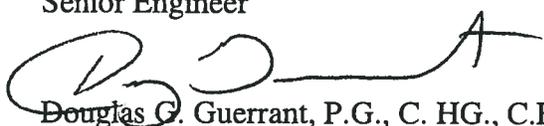
Dear Mr. Gravenstein:

Broadbent & Associates, Inc. (BAI) is pleased to submit this Work Plan for Locating Orphaned and/or Abandoned Underground Storage Tanks (USTs) within the State of Nevada. Proposed activities will be conducted for Nevada Division of Environmental Protection (NDEP) under LUST Trust Task #BA-05, and as part of the Leaking Underground Storage Tank Trust Fund Assistance Award, Funded under the American Reinvestment & Recovery Act (ARRA) of 2009. This Work Plan is based upon a Scope of Work (SOW) previously approved by NDEP.

Broadbent & Associates, Inc. appreciates the opportunity to provide technical services to you, and looks forward to performing this work. Should you have questions regarding this submittal, please do not hesitate to call (775) 322-7969.

Sincerely,
BROADBENT & ASSOCIATES, INC.


David B. Howard, P.E., P.G., C.E.M. #1320 (Exp. 11/29/2011)
Senior Engineer


Douglas G. Guerrant, P.G., C. HG., C.E.M. #1334 (Exp. 2/2/2010)
Principal Hydrogeologist

Enclosure: Work Plan for Locating Orphaned and/or Abandoned Underground Storage Tanks (USTs) within the State of Nevada

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1.0 INTRODUCTION

Broadbent & Associates, Inc. (BAI) has been contracted by the State of Nevada to prepare and implement this Work Plan for Locating Orphaned and/or Abandoned Underground Storage Tanks (USTs) within the State of Nevada. Planned activities will be conducted for the Nevada Division of Environmental Protection (NDEP) under LUST Trust Task #BA-05, and as part of the Leaking Underground Storage Tank Trust Fund Assistance Award, Funded under the American Reinvestment & Recovery Act (ARRA) of 2009. This Work Plan is based upon a Scope of Work (SOW) previously approved by NDEP. Definitions for orphaned and abandoned USTs are as follows:

Orphaned Tank (per State Board to Review Claims Resolution No. 96-002):

An abandoned tank with no current owner, in that the current land owner had no knowledge of the tanks presence and never utilized the tank.

Abandoned Tank (per NAC 459.994):

- a) A storage tank that is not maintained and whose owner or operator has not provided NDEP with a written statement of their intention to close the storage tank; or
- b) A storage tank that is not in service and does not comply with 40 CFR 280.70 or 280.71.

2.0 OBJECTIVE/PURPOSE

The objective of this investigation is two-fold: 1) to review available resources in an effort to locate and build an inventory of orphaned and/or abandoned USTs within the State of Nevada that were never properly assessed and/or closed at the time they were taken out of use; and 2) potentially address sites identified with the highest priority, depending upon available funds. Details provided herein are for Phase 1 activities. The intended purpose of Phase 1 is to identify and to prioritize sites in need of assessment and possibly remediation. This investigation will focus only on USTs that stored regulated fuels (gasoline and diesel). A site scoring system will be created to evaluate and prioritize the inventory of UST sites identified.

Orphaned UST sites will be given priority over abandoned UST sites in this investigation, primarily to avoid creating a liability situation for an existing property owner. If a discovered UST is classified as “orphaned”, then the current property owner will not be liable for addressing an environmental liability, if one is found to be associated with that UST. Under this condition, funding is potentially available through this ARRA program to address such an environmental liability. However, if a discovered UST is classified as “abandoned”, then there is potential for the environmental liability to

be directed to the current property owner, especially if the owner has the financial wherewithal to address the liability. The objective of this program is to locate and address USTs that were never properly closed, but it is not to create environmental liabilities for unsuspecting property owners. Accordingly, careful consideration will be given to this matter as the project progresses. Additionally, careful consideration will be given to the inventory data fields so that they contain only information appropriate for public release.

3.0 PROJECT APPROACH

The general approach to implementing this project is to conduct three (3) primary tasks: 1) Project Planning; 2) Project Development; and 3) Project Reporting (Deliverables). Under the Project Planning task, geographic regions to be investigated will be established, including primary areas of interest. Additionally, the type of data/information needed will be determined and the systems to assemble, organize, interpret, prioritize, and present the collected information will be determined. In this case, an Access 2003[®] relational database and a detailed geographic information system (GIS) will be utilized.

Under the Project Development task, required data/information will be collected and constructed using an Access 2003[®] relational database and a GIS. Subsequently, a Site Scoring System and Site Priority List will be created utilizing the Access 2003[®] relational database and GIS. The identified orphaned and/or abandoned UST sites will then be prioritized in order of highest to lowest risk to the environment and/or public health. Under the Project Deliverable task, the format for presenting investigation details and results will be established, including both hard copy and electronic deliverables.

Details for each of these three (3) primary tasks are provided in the following Sections.

4.0 PROJECT PLANNING

The primary tasks to be completed under Project Planning are: 1) Define the organizational structure; 2) Establish geographic regions for investigation within the State; 3) Identify primary areas of interest within each region; 4) Determine the Site Inventory System Design and Content; 5) Evaluate and determine staffing requirements; 6) Determine a schedule to develop and complete the project; and 7) Evaluate project expenses. Details for each of these tasks are provided below.

4.1 ORGANIZATION

This project will require considerable effort to efficiently and effectively investigate potential sites across the State of Nevada. The proposed organizational structure for staffing this effort is depicted on Figure 1 (attached). Review of Figure 1 indicates that the federal Environmental Protection Agency (EPA) and the Nevada

Division of Environmental Protection (NDEP) – Bureau of Corrective Actions (BCA) are the overall stakeholders and BAI is the retained primary contractor. BAI will have an overall ARRA Program Manager (Mr. Douglas Guerrant) and a project specific Project Manager (Mr. David Howard).

4.2 GEOGRAPHIC REGIONS

To facilitate this investigation, the State will be divided into three (3) geographical regions: 1) West; 2) South; and 3) North & East. Figure 2 (attached) depicts the created geographic regions. Each region will be assigned a Regional Manager to coordinate and facilitate research and field reconnaissance activities. The West Region (depicted in blue) will include Carson City, Churchill, Douglas, Lyon, Mineral, Storey, and Washoe counties. The South Region (depicted in red) will include Clark, Esmeralda, Lincoln, and Nye counties. The North & East Region (depicted in green) will include Elko, Eureka, Humboldt, Lander, Pershing, and White Pine counties.

4.3 PRIMARY AREAS OF INTEREST

Primary areas of interest, within each geographic region, have been outlined for this investigation. As illustrated on Figure 2, the areas of interest are generally located along major roadways (bold lines). Cities and towns within each region, to be researched during this investigation, are shown below and depicted on Figure 3. The cities/towns shown below in bold print have been designated as core cities/towns within their respective area.

Areas Designation	Cities/Towns
West Region Areas	
W1	Reno/Sparks
W2	Fallon/Fernley/Wadsworth/Gerlach/Empire
W3	Carson City/Virginia City/Dayton/Silver Springs
W4	Minden/Gardnerville/Wellington/Smith/Stateline/East Shore Tahoe
W5	Hawthorne/Yerington/Schurz/Luning/Mina/Gabbs
South Region Areas	
S1	Las Vegas/North Las Vegas
S2	Henderson/Boulder City/Searchlight/Laughlin/Jean
S3	Mesquite/Overton/Moapa/Logandale/Bunkerville
S4	Pioche/Caliente/Alamo/Panaca/Hiko
S5	Beatty/Amargosa Valley/Indian Springs/Pahrump
S6	Tonopah/Goldfield/Coaldale/Round Mountain/Lockes/Warm Springs
North & East Region Areas	
NE1	Elko/Battle Mountain/Carlin/Valmy/Mountain City/Owyhee
NE2	Winnemucca/Lovelock/Imlay/Mill City/Golconda/Orovada/McDermitt
NE3	Ely/Eureka/Austin/ McGill/Ruth/Baker
NE4	Wells/Jackpot/West Wendover/Halleck/Deeth

4.3.1 West Region

The West Region's primary areas of interest include: the Interstate 80 corridor from the NV-CA border to the north boundary of Churchill County; the Highway 50 corridor from the state line in South Lake Tahoe to the eastern boundary of Churchill County; the Highway 395 corridor from the NV-CA border in the north to the NV-CA border to the south; and the old Highway 40 corridor through Reno (and beyond). Additionally, selected cities and towns within the Region will be investigated including: Reno, Sparks, Fallon, Carson City, Minden, Hawthorne, and Yerington.

4.3.2 South Region

The South Region's primary areas of interest include: the Highway 95 corridor from the northwestern Esmeralda County line to the NV-CA border; the Highway 93 corridor from the northern Lincoln County line to the NV-AZ border; and the Interstate 15 corridor from the NV-AZ border to the NV-CA border. Additionally, selected cities and towns within the Region will be investigated including: Las Vegas, Henderson, Boulder City, Mesquite, Pioche, Beatty, Tonopah, and Goldfield.

4.3.3 North & East Region

The North & East Region's primary areas of interest include: the Interstate 80 corridor from the southern Pershing County line to the NV-UT border in West Wendover; the Highway 50 corridor from the western Lander County line to the NV-UT border (east of Ely); and the old Highway 40 corridor (somewhat along the same path as the current Interstate 80 corridor). Additionally, selected cities and towns within the Region will be investigated including: Elko, Winnemucca, Eureka, Wells, Austin, Ely, Lovelock, Battle Mountain, and West Wendover.

4.4 SITE INVENTORY DESIGN & CONTENT

Subsequent to establishing geographic regions and identifying primary areas of interest, the next step is to develop a site inventory design and content platform for data storage and processing. Thinking through the use of the inventory will help identify the required data, answer future questions such as what will be the design and content of the inventory, and manage expectations for the data collection effort. Without proper planning, it is easy to become overwhelmed in the development and management of an inventory. An important element of planning is to choose software which will effectively store, sort, prioritize, and display the collected data. There are many different types of inventory designs, including hard copy files and electronic files. Electronic files include: electronic text, spreadsheets, figures, databases, and GIS layers. Database software, such as the Access 2003[®] relational database, allow for a systematic format of data and the ability to categorize data and apply prioritization criteria.

An Access 2003[®] relational database will be utilized to store and evaluate data collected in the field. Site-specific information to be considered for collection and inclusion into the Access 2003[®] relational database includes, but may not be limited to:

- Tax ID No. and/or Parcel ID No. and/or State Facility ID No.
- Property location (address, town, county, zip code);
- Property coordinates (latitude/longitude);
- Past owner(s) name and contact information;
- Present owner name and contact information;
- Property size;
- Former use(s);
- Current use(s);
- Number, size, condition, and age of existing structure(s);
- Presence of historical structures;
- Utilities available;
- Railroad and roadway access;
- Property environmental and contaminant information;
- Environmental conditions of surrounding properties; and
- Total Site Score.

An ESRI ArcView File Geodatabase will be constructed to store all geospatial data developed during this inventory effort and will be used for field reconnaissance. Existing databases (and their potential sources) to be utilized for electronic site search and development of the personal file geodatabase for site analysis, may include the following:

- Roadways – Nevada DOT;
- Railroads – Nevada DOT;
- Population Centers – ESRI, US Census (TIGER data as secondary option);
- Public vs. Private Lands, cadastral information – US BLM, county governments;
- Surface Water – USGS;
- Drinking Water and Wells – NDWR;
- Depth to Water (Water Table) – USGS;
- Annual Precipitation – NOAA Climatic Data or Nevada State Climatologist;
- Archaeology – State of Nevada;
- Sensitive Wildlife Habitat/Endangered Species – USF&W, Nevada Heritage;
- Soil Type – NRCS SSURGO;
- National Agriculture Imagery Program (NAIP) (Orthophotos);
- National Hydrography Dataset (NHD);
- Underground Utilities – counties/cities data;
- Quadrangle Maps – USGS;
- Public Land Survey System (PLSS);
- Historical Maps – University of Nevada System (georeferenced);
- Historical Maps – Sanborn Maps[®] (georeferenced);

- Aerial photographs (historical & current);
- Nearby sensitive populations; and
- Nearby sensitive ecosystems.

4.5 STAFFING

It is estimated that a total of 21 individuals will be required to implement this project: six (6) in the office and fifteen (15) in the field. The six (6) office personnel include: one (1) Program Manager, one (1) Project Manager, one (1) Access 2003[®] Database & GIS Data Manager, and three (3) Regional Managers. The Program Manager and Project Manager were discussed earlier in Section 4.1. The Access 2003[®] Database & GIS Data Manager and three (3) Regional Managers are discussed below. The fifteen (15) field personnel will consist of Research & Field Assistants, which are also discussed below. Eighteen (18) of these 21 positions will be newly created jobs.

4.5.1 Access 2003[®] Database & GIS Data Manager

While BAI has personnel on staff with some GIS experience, this project requires expertise beyond existing in-house staff. Accordingly, BAI has hired Mr. Eric Seitz to construct and maintain data using an Access 2003[®] relational database. He will also manage the project data, which will be used for geospatial analysis and site evaluation. Mr. Seitz will be responsible for collecting/acquiring existing public domain geospatial data and building a personal file geodatabase that will include local site information, as it is gathered. He will also be responsible for maintaining the Access 2003[®] relational database and personal geodatabase, utilizing them for assisting the Project Management team in preparing investigation report documents.

4.5.2 Regional Managers

Three (3) Regional Managers will be assigned to each of the three (3) established geographic regions (West Region, South Region, and North & East Region) to organize and manage activities within their respective Region. Each Regional Manager will supervise Research & Field Assistants located within their respective region. The Regional Managers will work with the Program and Project Managers to effectively acquire and submit project data. Mr. Darin Galloway will be the West Region Manager, and Mr. Aaron Sonerholm will be the North & East Region Manager, both of which are current employees in the Reno BAI office. However, Mr. Galloway was hired primarily for the purpose of filling this regional manager role on this project. Mr. Kirk Stowers will be the South Region Manager and he is currently in the Henderson BAI office.

4.5.3 Research & Field Assistants

Fifteen (15) Research & Field Assistants will be hired and assigned to specific geographic areas throughout the State; five (5) will be assigned to the West Region, six (6) will be assigned to the South Region, and four (4) will be assigned to the North &

East Region. The breakdown for specific areas assigned to individual Research & Field Assistants, within each Region, is provided above in Section 4.3. A spreadsheet used to determine the number of Research & Field Assistants needed to conduct research & field reconnaissance activities is included in Appendix A.

4.6 SCHEDULE

Phase 1 activities, detailed herein, are to be conducted during the period of October, 2009 – June, 2010. Figure 4 (attached) provides a detailed Timeline for Phase 1 activities, from Scope of Work submittal through Final Report approval. Review of Figure 4 indicates that the Work Plan provided herein will be approved by the fourth week of November, 2009 and that the Final Report will be submitted and approved by June, 2010.

Phase 2 activities, assuming that UST sites are discovered that require attention, would be considered for action upon completion of the Final Report. These activities would be conducted between June, 2010 and August, 2011, assuming funds are available. One caveat to this schedule, as discussed in Section 7.0 below, would be if a UST site is discovered during Phase 1 activities that may require immediate attention, such as a site possessing a condition representing imminent hazard to human health and/or the environment. In this event, consideration will be given to suspending Phase 1 activities in order to address a discovered dangerous/hazardous site condition.

4.7 PROJECT EXPENSES

Total project fees are estimated at \$498,900. Table 1 (attached) provides a detailed breakdown of these fees on a major task basis. The primary component of these anticipated fees is labor, as this scope of work is primarily research and field reconnaissance. Anticipated overhead expenses include: one (1) computer work station purchase; GIS and database software purchase; business cards; GPS field equipment purchase; digital camera equipment purchase; creation and purchase of vehicle magnetic signs and office signs; per diem/travel (including some air fare); personal vehicle and/or company truck mileage; reproduction fees; and potentially literature/data purchase. Equipment, computer hardware and software, and other supplies purchased through this program will be returned to NDEP within 60 days of project completion. No additional office space is anticipated at this time.

5.0 PROJECT DEVELOPMENT

Project Planning is anticipated to be completed by the fourth week of November, 2009. Project Development tasks (beginning with design templates) are anticipated to commence in the second week of November, 2009, as shown on Figure 4. Project Development includes physical creation of the inventory. These activities include: design templates for field reports, forms, and maps; research and acquisition of GIS data/layers;

initial layout/design of the database; contact county and city/town leaders regarding project intent; recruit, hire, and train Research & Field Assistants; collect data from designated primary areas of interest; conduct field reconnaissance and interviews; populate database with collected data; integrate database into GIS; evaluate and rank investigated sites through a scoring system; and prepare final GIS maps with prioritized data. Details for these activities follow below.

5.1 DESIGN TEMPLATES

Field form templates and site scoring templates have been designed for personnel to complete with critical site information and vicinity data required to properly categorize and prioritize orphaned and abandoned UST sites across the State. Data gathered from field research and site reconnaissance will be entered into the Access 2003[®] relational database. Site scoring calculation spreadsheets have been designed to incorporate ownership and site criteria into weighted values. These totaled values will be used to rank sites discovered during this investigation. These templates are discussed below.

5.1.1 Field Reconnaissance Reports, Forms & Maps

Field reports, forms, and maps (field sheets) have been created and will be provided to the Regional Managers and Research & Field Assistants. The field sheets were designed in a manner such that the Regional Managers and Research & Field Assistants will understand the type of data required to conduct proper research and field reconnaissance. Data requested on the field sheets will match the data fields created in the Access 2003[®] relational database. The field sheets will have example write-ups (on the back of each sheet) for quick reference. The created field sheets are provided in Appendix B.

5.1.2 Site Scoring Calculation Sheets

Site Scoring Calculation Sheets have been created to prioritize identified orphaned and abandoned UST sites. Collected data for each discovered site will be entered into the spreadsheet to calculate the Total Site Score, which will ultimately be used to rank and prioritize sites across the State. The collected Site Scoring Calculation Sheets are provided in Appendix C.

5.2 GIS DATA/LAYERS RESEARCH & ACQUISITION

As indicated above, collected databases and community specific data/information will be incorporated into a detailed GIS, which will be utilized as the base platform for this investigation, as well as serve as a mapping and data storage mechanism. Development of the GIS data/layers is considered a vital component of this investigation and an essential tool for overall investigation, interpretation, and inventory presentation purposes. Data will be standardized to ensure better data quality, reporting, and management and it will be consistent with NDEP data sets. The GIS personal file

geodatabase will be built using ESRI ArcView 9.3.1 software on a new Dell Precision T3400 Convertible MiniTower work station, which will be purchased as part of this investigation.

Once the GIS is developed it will allow project personnel to better understand, question, interpret, and visualize the collected data/information. The information will then be presented in multiple ways (maps, reports, and charts (if applicable)) to facilitate accurate and efficient interpretation. This process will provide significant assistance in the identification and location of orphaned and/or abandoned USTs.

5.3 MODEL, CONSTRUCT, & REVIEW ACCESS 2003[®] DATABASE

The database model will be driven by a review of project goals and analysis of data necessary for a complete inventory of field sites. Initial modeling will be undertaken using Microsoft Excel[®], and then a multiple table relational database will be created in Access 2003[®]. The database model will be tested and updated as needed, relying upon fictitious data and experimental calculations for refinement. Considerations will be taken to assure that appropriate tables are created with compatibility of ArcView in mind.

5.4 CONTACT COUNTY & CITY/TOWN LEADERS

Prior to initiating field reconnaissance activities, NDEP and BAI will contact county commissioners and leaders of selected cities/towns throughout Nevada. It is anticipated that leaders will be contacted, via written correspondence and/or telephone calls, starting in the first week of December, 2009. County commissioners and leaders of cities and towns listed in Section 4.3 will be contacted initially to describe the purpose and intent of this project. These leaders will also be asked to implement their own local search of orphaned and/or abandoned USTs. Site Information Forms (provided in Appendix D) will be transmitted to each of the leaders contacted.

5.5 RECRUIT, HIRE, AND TRAIN RESEARCH & FIELD ASSISTANTS

BAI will hire a total of 15 Research & Field Assistants from selected cities and towns across Nevada to conduct research and field reconnaissance for this project. The Research & Field Assistants will be trained to understand the procedures and protocol necessary to perform the outlined tasks. Discussed below is the plan to recruit, hire, and train Research & Field Assistants to cover regions across the State.

5.5.1 Advertise in Core Cities/Towns for Research & Field Assistants

One city or town within each designated area (15 total areas) has been selected as a core city/town (shown in bold print, Section 4.3). A Research & Field Assistant will be recruited from each core city/town to conduct research and field reconnaissance within their respective area. Recruitment of the Research & Field Assistants will commence in early December, 2009. Advertising will be conducted through: established contacts

within each county; recommendations from local community leaders, agencies and/or groups; newspaper advertisements; a recruitment brochure; and/or local employment groups. These will be newly created jobs and each individual will be hired, via an extensive interview process. A detailed job description has been prepared and is provided in Appendix E. Core requirements to fill this position will be as follows: currently unemployed or part-time employed; a strong local history and knowledge of the planned investigation areas; and strong communication skills.

5.5.2 Evaluate Resumes, Conduct Interviews, and Hire Research & Field Assistants

Resumes will be evaluated to short list, interview, and ultimately select the best candidate for the position. These will be newly created jobs. The position will be as a Temporary BAI employee. The Program, Project, and/or Regional Managers will conduct the employee recruitment, interview, and selection process. The recruitment and hiring process will be conducted in the initial stages of the Project Development portion of the project.

5.5.3 Conduct Training for Research & Field Assistants

Hired personnel will receive training on protocol to follow in researching their specific area, on how to conduct site specific investigations, and on how to communicate with potential information resources and/or property owners. Furthermore, detailed Field Reconnaissance Forms and Maps (provided in Appendix B) have been developed (as described in Section 5.1.1) for use when conducting site-specific inspections as a means of providing both guidance and consistency when conducting site inspections.

Separate training sessions will be conducted by the Project and Regional Managers for hired Research & Field Assistants with sessions being held in Reno, Henderson, and Elko, Nevada. Example Agendas for conducting these training sessions are provided in Appendix F. Each component of the Agenda will be explained in detail so that it is clear to the Research & Field Assistants the purpose and objective of investigation and how they need to go about accomplishing their given tasks. Specifically, the Research & Field Assistants will understand:

- The purpose of the project;
- The difference between an orphaned and an abandoned UST;
- How the State has been divided into Regions and primary areas of interest;
- The method in which collected information will be assembled and entered into the database and GIS model;
- How to approach local community partners and citizens for assistance;
- How to review local agency records and historical documents;
- How to conduct site/field reconnaissance inspections;
- How to use a hand-held GPS unit and record GPS coordinates; and
- How to complete Field Reconnaissance Reports, Forms, & Maps.

5.6 LOCAL DATA COLLECTION

As indicated earlier, an Access 2003[®] relational database and GIS will be developed and utilized to assist with this inventory. Furthermore, a wide variety of data will be collected and input into the GIS. Existing geospatial databases (listed in Section 4.4) will be acquired and input as the first course of action, all of which are public domain sources. Additional local level data (listed in Section 4.4) will be researched, solicited, and collected by the Regional Managers and Research & Field Assistants. The data will be entered into the GIS by the Data Manager. Resources to be utilized to locate this additional data will include, but not be limited to: local community leaders; local historians and/or historical groups/societies; Sanborn Maps[®]; historical and current aerial photographs; property ownership review; regulatory agency records review and personnel interviews; existing agency databases; building and fire department records review and personnel interviews; business directories; old phone books; and use of locally hired personnel. Additionally, community meetings will be conducted to inform the local citizens of the project and its intent, and to gather local input/knowledge. Details relative to these information sources follow below.

5.6.1 Partner Queries

Key stakeholders in local communities will be contacted by NDEP and BAI to inform them of this project and to allow them to assist the project in identifying potential orphaned and/or abandoned UST sites within their city/town. Key stakeholders include city/town councils, local real estate brokers, local developers, local bankers, city/town managers and/or public works directors, city/town health departments, community organizations (chambers of commerce, clubs, societies, groups), and even retirement homes. Other key contacts include County commissioners and public officials. Stakeholders will be provided with Site Information Forms and asked to self identify sites and provide relevant data. Site Information Forms are provided in Appendix D.

5.6.2 Agency File Review & Interviews

State, county, and local agency files will be reviewed by the Regional Managers and Research & Field Assistants to possibly identify orphaned and/or abandoned UST sites. Agencies will include, but not be limited to: Nevada Division of Environmental Protection, Counties, and City/Town Departments (including, but not limited to: Assessor, Recorder, Environmental, Engineering, Fire, and Public Works). Interviews will be conducted with City/Town Mayors, Managers, Councils, Public Works Directors, Engineering Directors, and Fire Departments.

5.6.3 Community Meetings & Interviews

An effective method of collecting inventory data comes from direct surveys and interviews from knowledgeable parties, such as residents who have lived in the

community for many years. Public and/or community meetings will be held to elicit information regarding potential orphaned and/or abandoned UST sites. Site reconnaissance throughout communities and interviews with property owners may provide excellent sources of information/data.

5.6.4 Historical Documents

Regional Managers and the Data Manager will review historical documents, such as historical maps, Sanborn Maps[®], aerial photos, and local building and fire department records to evaluate potential orphaned and/or abandoned UST sites. Other valuable documents may include historical city directories, business directories, crisscross directories (reverse search), phone books, and building/property inspection reports.

5.6.5 Develop Field Investigation Maps

Field investigation maps will be generated utilizing the GIS depicting population centers (cities and towns), roadways, railroads, surface water, county cadastral data, water supply wells, depth to water, public and private lands, and other pertinent information. The field investigation maps will be provided to the Regional Managers and Research & Field Assistants to assist in collecting data to ascertain the presence of orphaned and/or abandoned UST sites.

5.7 FIELD RECONNAISSANCE

This section describes field work to be conducted by Research & Field Assistants subsequent to identifying potential properties through local data collection activities (see Section 5.6). Field work will consist of conducting site visits to identified properties, accessing the property for observation, and completing field reports, forms, and maps. The Research & Field Assistants will also search other properties within communities which may be potentially orphaned or abandoned UST sites. Subsequent to completing field reports, forms, and maps, the Research & Field Assistants will submit field sheets to their Regional Manager.

5.7.1 Visit Sites

Site visits/inspections will be conducted by Research & Field Assistants to field verify the potential presence of one or more USTs at each identified site. Permission will be requested by the Regional Manager to access each selected property. If permission to access a selected property cannot be obtained, observations of the property will be made from off site. If the presence of a UST is verified in the field, then Global Positioning System (GPS) coordinates (Datum NAD 83 meters), of the location of the verified UST, will be recorded by the Research & Field Assistants using field GPS hand-held equipment (Garmin Etrex Legend H GPS Navigator). All field GPS hand-held equipment will be set to latitude/longitude decimal degrees (NAD 83 meters). Recorded GPS coordinates will be incorporated into the Access 2003[®] relational database and GIS

to update preliminary UST location(s) on specific sites. Additionally, photos of the potential sites will be taken with a digital camera.

This task could also include use of geophysical instrumentation (i.e., ground penetrating radar, or other subsurface utility locating equipment) for UST locating purposes, if there is reason to believe that a UST is present, but not expressed at ground surface. However, costs associated with subsurface investigations have not been included in the Anticipated Project Fees.

5.7.2 Locate Other Potential Sites

As an additional investigation/research measure, Research & Field Assistants will conduct visual “drive-by” surveys within their assigned area in an attempt to locate potentially orphaned and/or abandoned UST sites not previously identified via the literature search process. Research & Field Assistants will search for closed facilities and/or abandoned properties (i.e. former gasoline service stations) as possible candidates for orphaned and/or abandoned USTs.

5.7.3 Complete Reports, Forms, & Maps

Field Reconnaissance Reports, Forms, and Maps (provided in Appendix B) have been developed for Research & Field Assistants to use during field activities to assure that established investigation protocol is followed in a consistent manner and that required information is recorded for each site. Specific information to be manually collected (if available) includes, but is not limited to the following: site name, site address, parcel identification number, GPS coordinates (latitude & longitude), owner contact information, parcel dimensions, former uses, current uses, condition and estimated age of existing structures, and presence of historical structures. Each Research & Field Assistant will be provided with a digital camera to take photographs of their identified sites. A site map will be prepared by Research & Field Assistants depicting on-site features including, but not limited to: buildings, canopies, UST pad(s), condition of property, and surface features (e.g. pavement, monitor wells, utilities, etc.). A vicinity map will be prepared by Research & Field Assistants depicting off-site features, within one approximately (1) mile of the property, including, but not limited to: adjacent properties, adjacent thoroughfares, railroad tracks, water supply wells, rivers or lakes, and major dry washes. Field forms and maps will be scanned and stored electronically as pdf documents.

5.7.4 Submit Reports, Forms, & Maps

Research & Field Assistants will complete daily reports to document their research & field reconnaissance activities. Upon the identification of a site, Research & Field Assistants will complete field reconnaissance forms and maps. Daily reports, field forms, and maps will be submitted to the Regional Manager on at least a weekly basis. Data from these field sheets will be entered into the Access 2003[®] relational database.

5.8 POPULATE ACCESS 2003[®] DATABASE

Field reconnaissance information will be entered into the Access 2003[®] relational database on an as ready basis. Continuous input of data, as provided by Research & Field Assistants and Regional Managers, will allow for constant review and refinement of field and office methodologies. Data will be stored locally as well as backed up on the BAI network server.

5.9 INTEGRATE ACCESS 2003[®] DATA INTO GIS

Select tables from the Access 2003[®] relational database will be integrated into a personal geodatabase using import tools provided by the ESRI 9.3.1 software suite. Of most importance are geospatial information, latitude and longitude (in decimal degrees NAD 83 meters format), which will be used to geolocate sites by the GIS.

5.10 SITE SCORING

Collected databases, community data, and site-specific data will be entered into the Access 2003[®] relational database and integrated into the GIS and subjected to a designed Site Scoring System (SSS) which will in turn be utilized to generate a Site Priority List (SPL). The SPL will be used to determine the order of priority for sites to be addressed in the future. SSS calculation sheets have been developed and are provided in Appendix C. The SSS Calculation Sheets include the following: tank type (orphaned versus abandoned); ownership status; site environmental sensitivity; and Nevada Administrative Code (NAC) 459.9973, subpart 1 (a)-(k) site evaluation criteria. As discussed earlier, orphaned UST sites will be given precedence over abandoned UST sites. Consideration will be made for scenic byways, historic districts, and other economic development corridors. The SSS is designed to provide a consistent scoring system regardless of the staff member completing the form. Each specific condition has a specific point total.

5.11 FINAL SITE MAPPING

Collected geospatial data will allow for creation of a State-wide map demonstrating the number and location of newly identified orphaned and abandoned UST sites. Site specific maps will also be produced, using USGS 7.5-minute and/or 15-minute quadrangle maps as base layers. Site specific maps will be scaled to depict both the location of the discovered UST site and the surrounding area (site map and vicinity map). These site specific maps will feature sensitive areas or objects, affected by the discovered UST. The finalized maps will be submitted as part of the final Project Report, as discussed below in Section 6.0.

6.0 PROJECT DELIVERABLES

6.1 HARD COPY DELIVERABLES

Once field, data based compilation, scoring system development, and priority list assembly activities have been completed, a detailed Nevada Orphaned and/or Abandoned UST Investigation Report will be prepared and submitted to NDEP for review. The Report will include, at a minimum, the following elements:

- Identified Primary Areas of Interest;
- Identified UST sites within each established Primary Areas of Interest;
- Conducted field activities to verify presence of UST(s);
- Developed GIS, Access 2003[®] relational database, and information for identified areas and sites with detailed maps and overlays of historical and current aerial photographs;
- State-wide map depicting identified sites;
- Regional site maps identifying sites within city/town;
- Site specific maps detailing identified sites;
- Tabulated Priority List of these sites; and
- Activities conducted to address identified sites of concern.

6.2 ELECTRONIC DELIVERABLES

Additional electronic end product deliverables will include:

- Access 2003[®] relational database of inventory information;
- ArcGIS personal file geodatabase containing site geospatial information, and either complete data layers used for analysis, or links to sources of those layers; and
- An electronic compiled PDF version of the report with all narrative, data, maps, and photographs (as well as native file versions of word, excel or photo files used in the compiled report).

7.0 DISCUSSION

As described throughout this Work Plan, the objective of this investigation is to locate and address USTs (primarily orphaned) that were never properly closed. The scope of work detailed herein is essentially Phase 1 of this project (researching and locating orphaned and/or abandoned USTs). The created scoring system will be utilized to tabulate identified sites on a Priority List. Once the three (3) defined geographic regions (West, South, and North & East) have been investigated, the Priority List will be used to determine which sites will be given priority for detailed site-specific investigations (Phase 2). However, a continual evaluation process will be conducted to monitor collected information for potential discovery of a site (or sites) that may require immediate attention, such as a site possessing a condition representing imminent hazard to human health and/or the environment.

Should such a site (or sites) be discovered, consideration will be given to suspending Phase 1 Priority List building activities, and to initiating Phase 2 activities in order to address such a site. The primary purpose for taking such action would be to address a discovered hazardous site while funds are available. If no imminently dangerous sites are discovered during Phase 1 activities, then the aforementioned Priority List will be compiled and used to guide Phase 2 activities.

A significant byproduct of conducting this investigation is creation of jobs within local communities across the State. It is anticipated that a total of 21 positions will be needed in order to conduct this investigation, 18 of which will be newly created jobs. In order to inform the general public of this investigation, project signs will be created for display at the BAI offices in Reno and Henderson, NV and magnetic signs will be made for use on vehicles utilized on the project (rental or otherwise).

8.0 CLOSURE

Our services will be performed in accordance with generally accepted practice at the time work commences. Results and recommendations will be based on review of available documentation and written or verbal correspondence with appropriate regulatory agencies, laboratory results (if applicable), observations of field personnel, and the points investigated. No warranty is expressed or implied.

FIGURES



Figure 1: Project Organization Chart
 Locating Orphaned/Abandoned USTs within State of Nevada
 NDEP LUST Trust Task BA-05
 American Reinvestment & Recovery Act of 2009

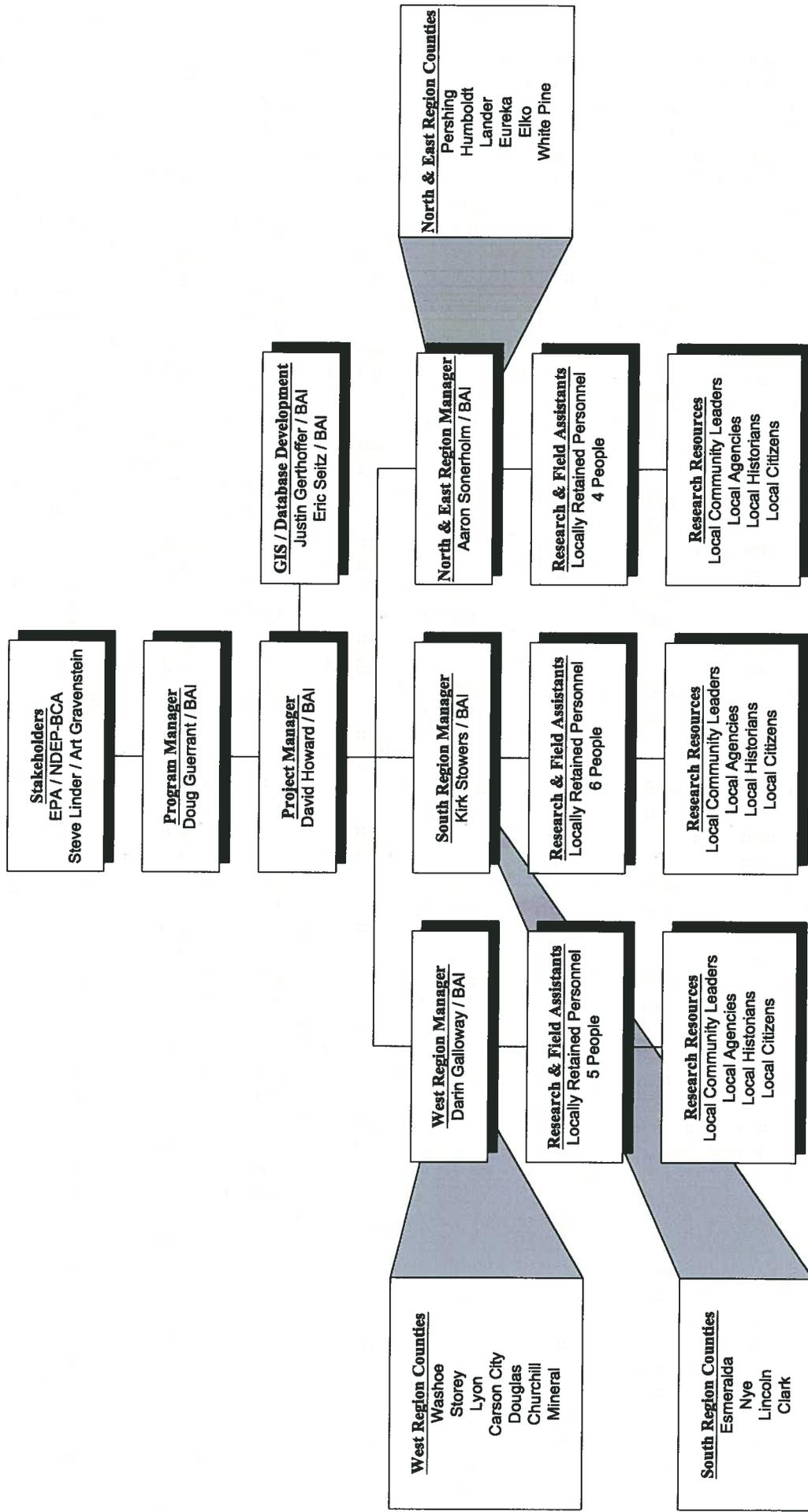


Figure 2: Project Investigation Regions
 Locating Orphaned/Abandoned USTs within State of Nevada
 American Reinvestment & Recovery Act of 2009

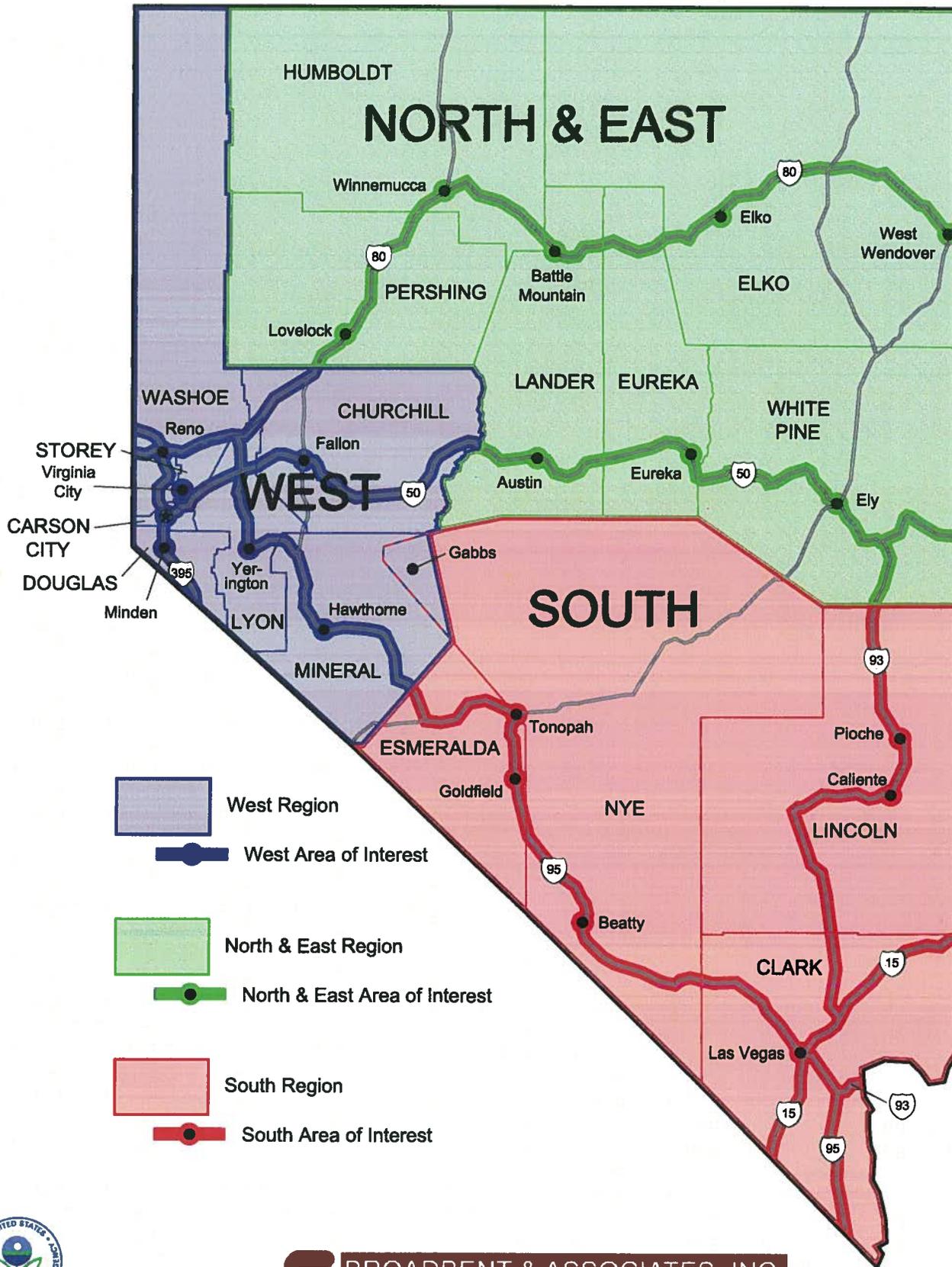
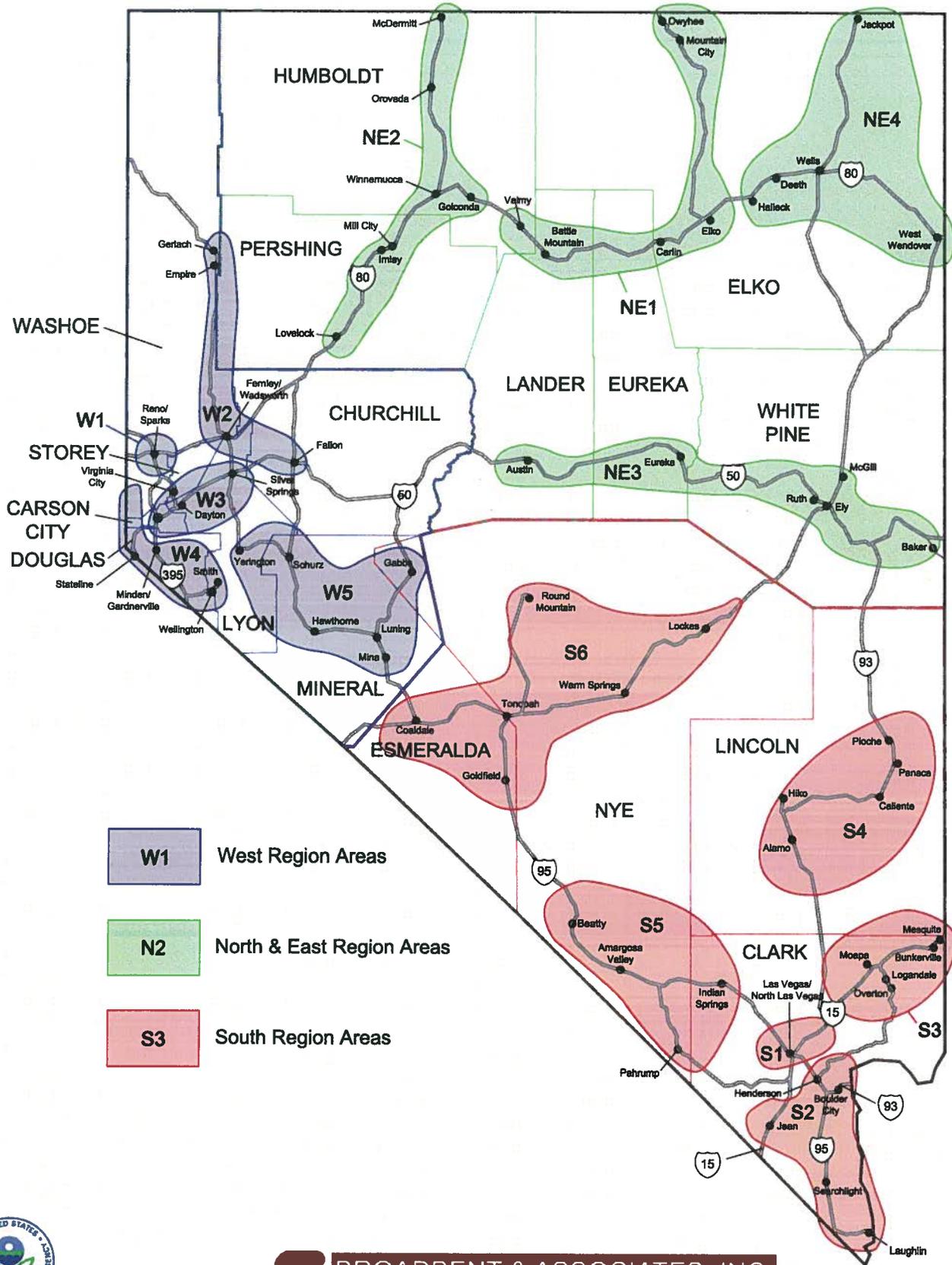


Figure 3: Designated Primary Areas of Interest
 Locating Orphaned/Abandoned USTs within State of Nevada
 American Reinvestment & Recovery Act of 2009



TABLE

Table 1: Anticipated Project Fees
 Locating Orphaned/Abandoned USTs within the State of Nevada
 American Reinvestment & Recovery Act (ARRA) of 2009

Project Set-Up & Preparation of Scope of Work/Attend Meetings

Title	Hours	Rate	Amount
Principal (Program Manager)	20	\$155.72	\$3,114.40
Senior Project Manager	2	\$116.79	\$233.58
Vehicle Mileage	124	\$0.55	\$68.20
		<i>Subtotal:</i>	<i>\$3,416.18</i>

Preparation of Detailed Work Plan/Attend Meetings

Title	Hours	Rate	Amount
Principal (Program Manager)	46	\$155.72	\$7,163.12
Senior Project Manager	90	\$116.79	\$10,511.10
Database & GIS Data Manager	16	\$101.82	\$1,629.12
Senior Staff Scientist (Drafting)	24	\$86.84	\$2,084.16
Clerical	8	\$50.91	\$407.28
Vehicle Mileage	200	\$0.55	\$110.00
		<i>Subtotal:</i>	<i>\$21,904.78</i>

Project Planning, Staffing, & Training

Title	Hours	Rate	Amount
Principal (Program Manager)	80	\$155.72	\$12,457.60
Senior Project Manager	240	\$116.79	\$28,029.60
Regional Managers	96	\$101.82	\$9,774.72
Database & GIS Data Manager	160	\$101.82	\$16,291.20
Technicians (15 Field Assistants @ avg. 16 hrs.)	240	\$62.89	\$15,093.60
Clerical	20	\$50.91	\$1,018.20

Outside Expenses

Title	Units	Rate	Amount
Work Station	1	\$1,300.00	\$1,300.00
ESRI Software	1	\$1,500.00	\$1,500.00
Database Software	1	\$500.00	\$500.00
Business Cards - Generic	1	\$220.00	\$220.00
GPS Units	15	\$135.00	\$2,025.00
Digital Cameras	15	\$150.00	\$2,250.00
Vehicle Magnetic Signs (18" by 24")	36	\$60.00	\$2,160.00
Office Signs	2	\$60.00	\$120.00
Maps and Field Supplies	18	\$100.00	\$1,800.00
Reproduction Fees	1	\$1,000.00	\$1,000.00
Travel - Air (round trip)	10	\$200.00	\$2,000.00
Per Diem - Meals	25	\$35.00	\$875.00
Per Diem - Lodging	25	\$75.00	\$1,875.00
Vehicle Mileage	4,000	\$0.55	\$2,200.00
		<i>Subtotal:</i>	<i>\$102,489.92</i>

Table 1: Anticipated Project Fees
 Locating Orphaned/Abandoned USTs within the State of Nevada
 American Reinvestment & Recovery Act (ARRA) of 2009

Project Development

Title	Hours	Rate	Amount
Principal (Program Manager)	40	\$155.72	\$6,228.80
Senior Project Manager	250	\$116.79	\$29,197.50
Regional Managers	480	\$101.82	\$48,873.60
Database & GIS Data Manager	180	\$101.82	\$18,327.60
Senior Staff Scientist (Drafting)	60	\$86.84	\$5,210.40
Technicians (15 Field Assistants @ avg. 180 hrs.)	2,700	\$62.89	\$169,803.00
Clerical	20	\$50.91	\$1,018.20

Outside Expenses

Title	Units	Rate	Amount
Travel - Air (round trip)	10	\$200.00	\$2,000.00
Per Diem - Meals	375	\$35.00	\$13,125.00
Per Diem - Lodging	150	\$75.00	\$11,250.00
Reproduction Fees	1	\$2,000.00	\$2,000.00
Outside Database Fees	1	\$5,000.00	\$5,000.00
Phone Fees	1	\$2,000.00	\$2,000.00
Vehicle Mileage	25,000	\$0.55	\$13,750.00
		<i>Subtotal:</i>	<i>\$321,555.30</i>

Report Preparation/Deliverables*

Title	Hours	Rate	Amount
Principal (Program Manager)	32	\$155.72	\$4,983.04
Senior Project Manager	180	\$116.79	\$21,022.20
Regional Managers	90	\$101.82	\$9,163.80
Database & GIS Data Manager	80	\$101.82	\$8,145.60
Senior Staff Scientist (Drafting)	60	\$86.84	\$5,210.40
Clerical	20	\$50.91	\$1,018.20
<i>*Includes Federal Reporting Requirements</i>		<i>Subtotal:</i>	<i>\$49,543.24</i>

Total Anticipated Project Fees :	\$498,909.42
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APPENDICES

APPENDIX A

**RESEARCH & FIELD ASSISTANT
CALCULATION SHEET**

Research & Field Assistant Calculation Sheet
 Areas of Assignment within Three Geographic Regions of Nevada
 Locating Orphaned/Abandoned USTs within the State of Nevada,
 American Reinvestment & Recovery Act (ARRA) of 2009

No. of Assigned RFAs	Assigned Geographic Areas to Cover	No. of Communities
West Region		
1	Reno/Sparks	2
1	Fallon/Fernley/Wadsworth/Gerlach/Empire	5
1	Carson City/Virginia City/Dayton/Silver Springs	4
1	Minden/Gardnerville/Wellington/Smith/Stataline/East Shore Tahoe	6
1	Hawthorne/Yerington/Schurz/Luning/Mina/Gabbs	6
5	West Region Subtotal	23
South Region		
1	Las Vegas/North Las Vegas	2
1	Henderson/Boulder City/Searchlight/Laughlin/Jean	5
1	Mesquite/Overton/Moapa/Logandale/Bunkerville	5
1	Pioche/Caliente/Alamo/Panaca/Hiko	5
1	Beatty/Amargosa Valley/Indian Springs/Pahrump	4
1	Tonopah/Goldfield/Coaldale/Round Mountain/Lockes/Warm Springs	6
6	South Region Subtotal	27
North & East Region		
1	Elko/Battle Mountain/Carlin/Valmy/Mountain City/Owyhee	6
1	Winnemucca/Lovelock/Imlay/Mill City/Golconda/Orovada/McDermitt	7
1	Ely/Eureka/Austin/McGill/Ruth/Baker	6
1	Wells/Jackpot/West Wendover/Halleck/Deeth	5
4	North & East Region Subtotal	24
15	Project Total	74

APPENDIX B

FIELD RECONNAISSANCE REPORTS,
FORMS, & MAPS

EXAMPLE

Project: NDEP LUST TRUST ARRA 2009

Project No.: 04-02-140-TASK5B

Field Representative(s): STEVE SMITH Day: THURS. Date: 12/03/09

Time Onsite: From: 9:30 To: 11:00; From: _____ To: _____; From: _____ To: _____

Weather: SUNNY, COOL

Equipment in Use: HAND-HELD GPS UNIT
DIGITAL CAMERA

Visitors: _____

TIME:

WORK DESCRIPTION:

9:30

STEVE SMITH ON SITE.
SPOKE WITH STORE MANAGER ABOUT SITE VISIT.
MET WITH MARK JONES, SON OF FORMER OWNER.
MARK POINTED OUT APPROXIMATE LOCATION OF 2
ORPHAN TANKS NEAR OLD GARAGE.

TOOK LAT. / LONG. MEASUREMENTS OF
ORPHAN TANKS AREA.

TOOK PHOTOS OF SITE WITH DIGITAL CAMERA.

MEASURED APPROXIMATE DIMENSIONS OF
SITE FEATURES (STORE, CANOPY, UST PAD)

LOCATED SEWER MANHOLE + WATER VALVE COVER
LOCATED NATURAL GAS CONNECTION BY STORE.

CREATED FIELD MAPS

11:00

STEVE OFF SITE

Signature: _____

Field Reconnaissance Forms
Locating Orphaned/Abandoned USTs within the State of Nevada,
American Reinvestment & Recovery Act (ARRA) of 2009

Inspected By: _____ Date: _____

Region ID: _____ Assigned Site ID: _____

Site Name: _____

Site Address: _____
Street Address

_____ City _____ County _____ Zip Code (Zip + 4)

Property Status (Occupied, Vacant, To Be Re-developed): _____

Parcel ID No.: _____

State Facility ID No.: _____

Property Size (sq. ft.): _____

Current Owner Name: _____

Mailing Address: _____
Street Address or P.O. Box

_____ City _____ County _____ Zip Code (Zip + 4)

Phone # (work): _____ Phone Ext. _____

Phone # (home): _____

Phone # (mobile): _____

Dates of Ownership: _____

Property Coordinates (Datum NAD 83 meters):

Latitude (decimal degrees): _____

Longitude (decimal degrees): _____

Collection Method: _____

EXAMPLE

Field Reconnaissance Forms
Locating Orphaned/Abandoned USTs within the State of Nevada,
American Reinvestment & Recovery Act (ARRA) of 2009

Inspected By: STEVE SMITH Date: 12/03/09

Region ID: W1 Assigned Site ID: 006

Site Name: JOE'S SERVICE STATION

Site Address: 498 S. MAIN ST.
Street Address

SPARKS WASHOE 89434-0301
City County Zip Code (Zip + 4)

Property Status (Occupied, Vacant, To Be Re-developed):
OCCUPIED

Parcel ID No.: 002-081-004A

State Facility ID No.: 4-000401

Property Size (sq. ft.): 10,454 sq. ft. (0.24 acres)

Current Owner Name: JOE WILLIAMS

Mailing Address: P.O. Box 1972
Street Address or P.O. Box

RENO WASHOE 89502-1972
City County Zip Code (Zip + 4)

Phone # (work): 775-555-8765 Phone Ext. 101

Phone # (home): N/A

Phone # (mobile): 775-555-5678

Dates of Ownership: MARCH 1995 to PRESENT

Property Coordinates (Datum NAD 83 meters):

Latitude (decimal degrees): 39.572778 N

Longitude (decimal degrees): 119.606667 W

Collection Method: HAND-HELD GARMIN GPS UNIT

Field Reconnaissance Forms
 Locating Orphaned/Abandoned USTs within the State of Nevada,
 American Reinvestment & Recovery Act (ARRA) of 2009

UST Information:

Tank No.:	1	2	3
Tank Type (Orphaned, Abandoned):			
Estimated Capacity (gallons):			
Substance Stored (Gasoline, Diesel, Other) (current or former):			
Potential for a hazard related to fire, vapor, or explosion (High, Med., Low, None):			
UST Location on Property:			

Former Owner Name: _____

Mailing Address: _____

Street Address or P.O. Box

City

County

Zip Code (Zip + 4)

Phone # (work): _____ Phone Ext. _____

Phone # (home): _____

Phone # (mobile): _____

Dates of Ownership: _____

Distance of structures or impediments from USTs (Check One):

<10 feet: _____

10-20 feet: _____

>20 feet: _____

EXAMPLE

Field Reconnaissance Forms Locating Orphaned/Abandoned USTs within the State of Nevada, American Reinvestment & Recovery Act (ARRA) of 2009

UST Information:

Tank No.:	1	2	3
Tank Type (Orphaned, Abandoned):	Orphaned	Orphaned	X
Estimated Capacity (gallons):	6,000	10,000	
Substance Stored (Gasoline, Diesel, Other) (current or former):	DIESEL	GASOLINE	
Potential for a hazard related to fire, vapor, or explosion (High, Med., Low, None):	NONE	NONE	
UST Location on Property:	NORTH	NORTH	↓

Former Owner Name: ROGER JONES

Mailing Address: 192 E. SPARKS BLVD.
Street Address or P.O. Box

SPARKS WASHOE 89434
City County Zip Code (Zip + 4)

Phone # (work): N/A Phone Ext. _____

Phone # (home): 775-555-0109

Phone # (mobile): N/A

Dates of Ownership: JUNE 1975 - MARCH 1995

Distance of structures or impediments from USTs (Check One):

- <10 feet: _____
- 10-20 feet: X _____
- >20 feet: _____

Field Reconnaissance Forms
Locating Orphaned/Abandoned USTs within the State of Nevada,
American Reinvestment & Recovery Act (ARRA) of 2009

Distance to Irrigation or Drinking Water Wells (Check One):

<500 feet: _____

500 - 1,000 feet: _____

1,001 - 2,500 feet: _____

>2,500 feet: _____

Unknown: _____

Distance to Surface Water or Major Dry Wash (Specify) (Check One):

<1,000 feet: _____

1,000 - 5,000 feet: _____

>5,000 feet: _____

Unknown: _____

Current Property Use(s):

Former Property Use(s):

Field Reconnaissance Forms
Locating Orphaned/Abandoned USTs within the State of Nevada,
American Reinvestment & Recovery Act (ARRA) of 2009

Property Description/History:

Presence of Historical Structure(s) (Yes, No, Unknown): _____

If present, describe structure(s) (proximity to USTs, age): _____

Other Property Information (Surface Type (concrete, paved, dirt), Soil Staining, Under Construction, etc.):

How Site Was Located (Office Research, Local Knowledge, Sanborn Map, Business Directory, etc.):

Site Information Contact:

Name: _____

Mailing Address: _____
Street Address or P.O. Box

City	County	Zip Code (Zip + 4)
------	--------	--------------------

Phone # (work): _____ Phone Ext. _____

Phone # (home): _____

Phone # (mobile): _____

EXAMPLE

Field Reconnaissance Forms
Locating Orphaned/Abandoned USTs within the State of Nevada,
American Reinvestment & Recovery Act (ARRA) of 2009

Property Description/History:

FACILITY ORIGINALLY BUILT IN 1952. SERVED
AS AN AUTO REPAIR SHOP & GAS STATION. MAIN BLDG.
DEMOLISHED AND REPLACED IN 1975. ORIGINAL GARAGE REMAINS

Presence of Historical Structure(s) (Yes, No, Unknown): YES

If present, describe structure(s) (proximity to USTs, age): GARAGE BUILT IN 1952
IS CONSIDERED HISTORICAL. ORPHAN UST IS ABOUT 15 FEET AWAY.

Other Property Information (Surface Type (concrete, paved, dirt), Soil Staining, Under Construction, etc.):

PROPERTY IS MOSTLY PAVED WITH CONCRETE PRESENT
OVER UST PAD AND AROUND DISPENSER ISLANDS.
NO SOIL STAINING WAS OBSERVED ON PROPERTY.

How Site Was Located (Office Research, Local Knowledge, Sanborn Map, Business Directory, etc.):

LOCAL KNOWLEDGE - SON OF FORMER OWNER

Site Information Contact:

Name: MARK JONES

Mailing Address: 1821 W. DURANGO AVE.
Street Address or P.O. Box

RENO WASHOE 89512
City County Zip Code (Zip + 4)

Phone # (work): 775-555-2783 Phone Ext.

Phone # (home): N/A

Phone # (mobile): 775-555-0369

Field Reconnaissance Forms
Locating Orphaned/Abandoned USTs within the State of Nevada,
American Reinvestment & Recovery Act (ARRA) of 2009

Adjacent Property Use(s):

Property to the North:

Property to the East:

Property to the South:

Property to the West:

EXAMPLE

Field Reconnaissance Forms
Locating Orphaned/Abandoned USTs within the State of Nevada,
American Reinvestment & Recovery Act (ARRA) of 2009

Adjacent Property Use(s):

Property to the North:

WATER SUPPLY WELL COMPOUND AND
NV ENERGY SUBSTATION

Property to the East:

MAJOR DRY WASH
STORAGE FACILITY

Property to the South:

SHOPPING CENTER

Property to the West:

ELEMENTARY SCHOOL

EXAMPLE

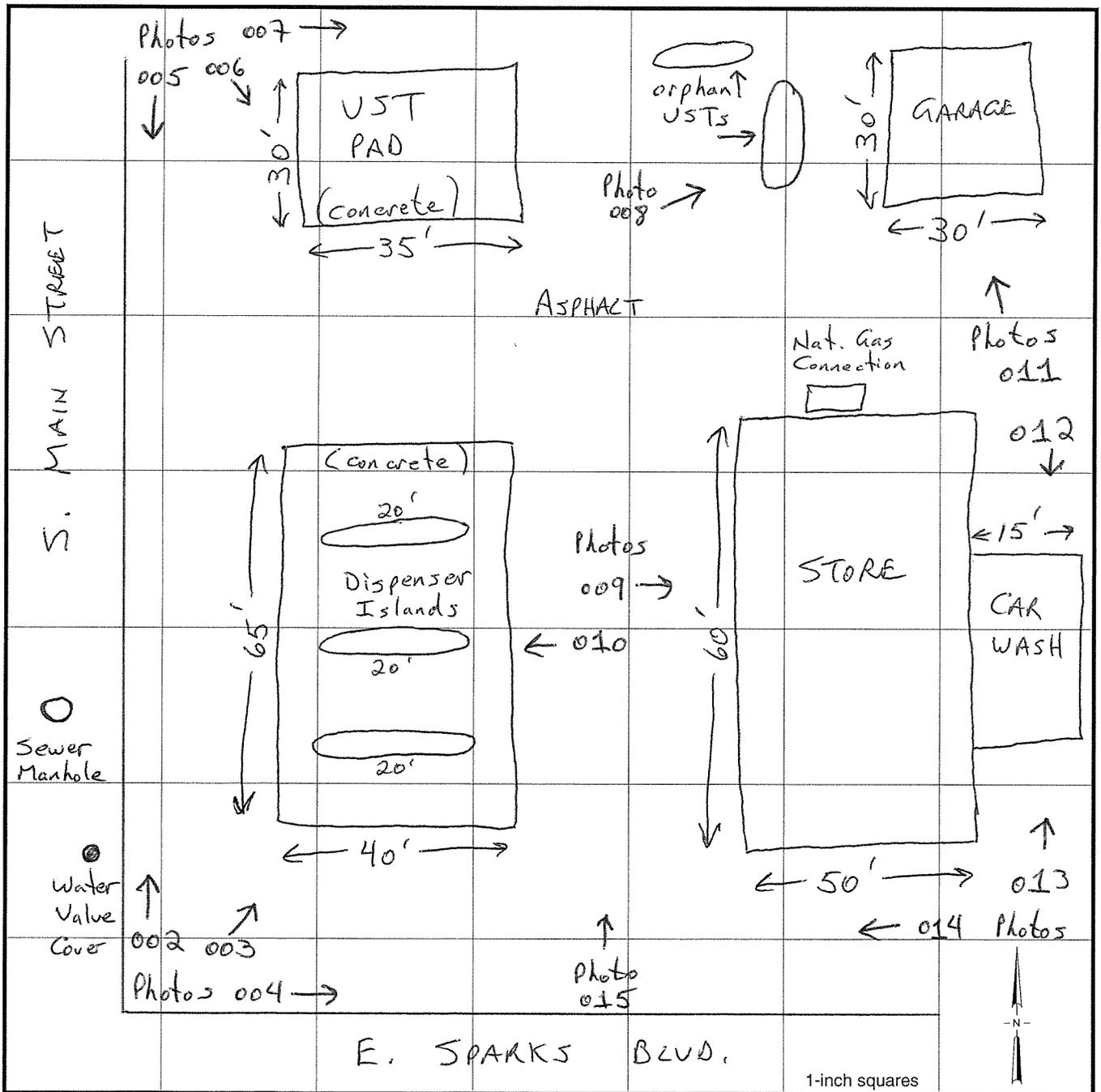
Field Reconnaissance Site Map
Locating Orphaned/Abandoned USTs within the State of Nevada,
American Reinvestment & Recovery Act (ARRA) of 2009

Inspected By: STEVE SMITH

Date: 12/03/09

Site Name & Address: JOE'S SERVICE STATION

498 S. MAIN ST., SPARKS, NV 89434



Information to include: site layout and dimensions (ft.); on-site features - buildings, canopies, dispenser islands, well monuments, UST pad(s), utilities.

EXAMPLE

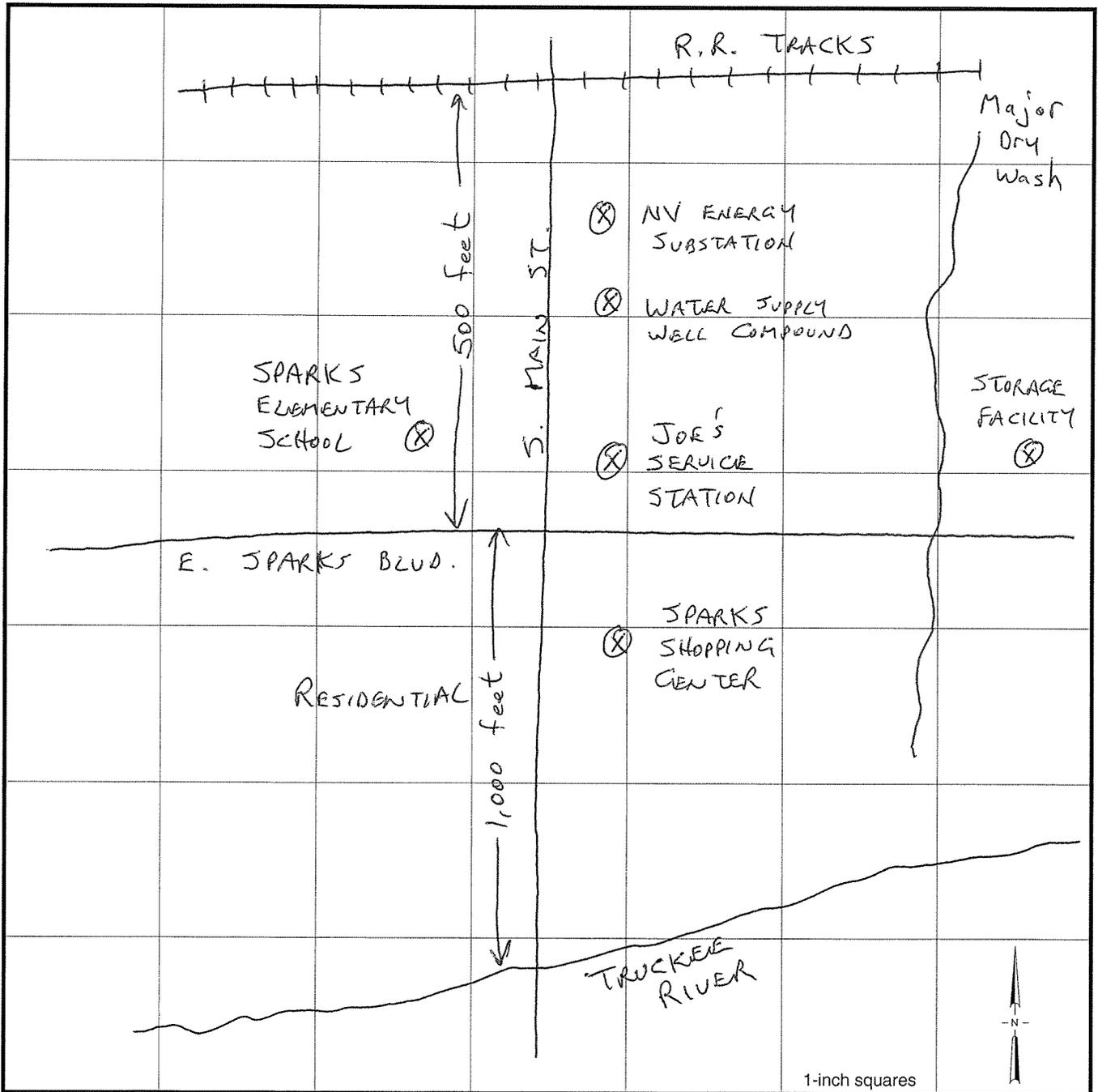
Field Reconnaissance Vicinity Map
Locating Orphaned/Abandoned USTs within the State of Nevada,
American Reinvestment & Recovery Act (ARRA) of 2009

Inspected By: STEVE SMITH

Date: 12/03/09

Site Name & Address: JOE'S SERVICE STATION

498 S. MAIN ST., SPARKS, NV 89434



Information to include: site location; adjacent properties to the north, east, south, and west; adjacent thoroughfares, presence of surface water and/or major dry washes, adjacent railroad.

APPENDIX C

SITE SCORING CALCULATION SHEETS

Site Scoring Calculation Sheets
 Locating Orphaned/Abandoned Underground Storage Tanks (USTs) within the State of Nevada
 LUST Trust Fund Assistance Award, American Reinvestment & Recovery Act (ARRA) of 2009

Site Name: _____ Parcel ID No.: _____
 Site Address: _____ Legal Location (Section, Township, Range): _____
 City, County, Zip: _____

Criteria	Possible Points	Assigned Value	Weight	Calc. Value	Comments
Tank Type:					
Orphaned	1.00		1.50	0	
Abandoned	0.50		1.00	0	
Ownership Status:					
Present & Financially Capable	0.00		0.00	0	
Present & Financially Unable	1.00		1.25	0	
None	1.00		1.25	0	
Unknown	1.00		0.50	0	
Environmental Sensitivity:					
Proximity to Surface Water or Major Dry Wash					
<1,000 feet	1.00		1.00	0	
1,000 - 5,000 feet	0.50		1.00	0	
>5,000 feet	0.00		1.00	0	
Proximity to Endangered Species Habitat					
<1,000 feet	1.00		1.00	0	
1,000 - 5,000 feet	0.50		1.00	0	
>5,000 feet	0.00		1.00	0	
Proximity to Archaeo. Site					
<100 feet	1.00		1.00	0	
100 - 500 feet	0.50		1.00	0	
>500 feet	0.00		1.00	0	

Site Scoring Calculation Sheets
 Locating Orphaned/Abandoned Underground Storage Tanks (USTs) within the State of Nevada
 LUST Trust Fund Assistance Award, American Reinvestment & Recovery Act (ARRA) of 2009

Site Name: _____ Parcel ID No.: _____
 Site Address: _____ Legal Location (Section, Township, Range): _____
 City, County, Zip: _____

Criteria	Possible Points	Assigned Value	Weight	Calc. Value	Comments
NAC 459.9973 1. a-k Site Evaluation.					
(a) Depth to Ground Water:					
0 - 10 feet bls	1.00		1.00	0	
11 - 20 feet bls	0.80		1.00	0	
21 - 30 feet bls	0.60		1.00	0	
31 - 40 feet bls	0.40		1.00	0	
41 - 50 feet bls	0.20		1.00	0	
>50 feet bls	0.10		1.00	0	
(b) Distance to Irrigation or Drinking Water Wells:					
<500 feet	1.00		1.00	0	
500 - 1,000 feet	0.75		1.00	0	
1,001 - 2,500 feet	0.50		1.00	0	
>2,500 feet	0.25		1.00	0	
(c) Type of soil:					
Gravel	1.00		1.00	0	
Sand	0.75		1.00	0	
Silt	0.50		1.00	0	
Clay	0.25		1.00	0	
(d) Annual Precipitation:					
<10 inches per year	0.25		1.00	0	
10 - 20 inches per year	0.50		1.00	0	
>20 inches per year	1.00		1.00	0	

Site Scoring Calculation Sheets
 Locating Orphaned/Abandoned Underground Storage Tanks (USTs) within the State of Nevada
 LUST Trust Fund Assistance Award, American Reinvestment & Recovery Act (ARRA) of 2009

Site Name: _____ Parcel ID No.: _____
 Site Address: _____ Legal Location (Section, Township, Range): _____
 City, County, Zip: _____

Criteria	Possible Points	Assigned Value	Weight	Calc. Value	Comments
(e) Type of substance released:					
Gasoline	1.00		1.00	0	
Diesel	0.75		1.00	0	
(f) Extent of contamination:		N/A	N/A		
(g) Present and potential land use:					
To be Re-developed	1.00		1.00	0	
Currently Occupied	0.75		1.00	0	
Vacant	0.50		1.00	0	
(h) Preferred route of migration:					
Present	0.50		1.00	0	
Not Present	0.00		1.00	0	
(i) Locations of structures or impediments:					
<10 feet	1.00		1.00	0	
10 - 20 feet	0.50		1.00	0	
>20 feet	0.00		1.00	0	
(j) Other site specific factors (special circumstance):	1.00		1.00	0	
(k) Potential for a haz. related to fire, vapor, or explosion:					
High	1.00		1.50	0	
Medium	0.75		1.00	0	
Low	0.50		1.00	0	
None	0.00		1.00	0	
Total Site Score:				0	

APPENDIX D

**SITE INFORMATION
FORMS & MAPS**

Site Information Forms
Locating Orphaned/Abandoned USTs within the State of Nevada,
American Reinvestment & Recovery Act (ARRA) of 2009

Information Provided By: _____ Date: _____

Name: _____

Organization: _____

Title: _____

Phone # (work): _____ Phone Ext. _____

Phone # (mobile): _____

Site Name: _____

Site Address: _____

Street Address

City County Zip Code (Zip + 4)

Property Status (Occupied, Vacant, To Be Re-developed):

Parcel ID No.: _____

State Facility ID No.: _____

Property Size (sq. ft.): _____

Current Owner Name: _____

Mailing Address: _____

Street Address or P.O. Box

City County Zip Code (Zip + 4)

Phone # (work): _____ Phone Ext. _____

Phone # (home): _____

Phone # (mobile): _____

Dates of Ownership: _____

EXAMPLE

Site Information Forms
Locating Orphaned/Abandoned USTs within the State of Nevada,
American Reinvestment & Recovery Act (ARRA) of 2009

Information Provided By:

Date: 12/08/09

Name: ROB WILLIAMS

Organization: MOAPA TOWN ADVISORY BOARD

Title: ADVISOR

Phone # (work): 702-555-9500 Phone Ext. 17

Phone # (mobile): 702-555-1868

Site Name: FORMER MAIN STREET GARAGE

Site Address: 472 N. MAIN STREET

Street Address

MOAPA CLARK 89025
City County Zip Code (Zip + 4)

Property Status (Occupied, Vacant, To Be Re-developed):

TO BE RE-DEVELOPED

Parcel ID No.: 17-059-002 B

State Facility ID No.: UNKNOWN

Property Size (sq. ft.): 12,000 sq. ft.

Current Owner Name: ABANDONED

Mailing Address: _____

Street Address or P.O. Box

City County Zip Code (Zip + 4)

Phone # (work): _____ Phone Ext. _____

Phone # (home): _____

Phone # (mobile): _____

Dates of Ownership: _____

EXAMPLE

Site Information Forms Locating Orphaned/Abandoned USTs within the State of Nevada, American Reinvestment & Recovery Act (ARRA) of 2009

UST Information:

Tank No.:	1	2	3
Tank Type (Orphaned, Abandoned):	ABANDONED	ABANDONED	ABANDONED
Estimated Capacity (gallons):	6,000	6,000	8,000
Substance Stored (Gasoline, Diesel, Other) (current or former):	GASOLINE	GASOLINE	DIESEL GASOLINE
Potential for a hazard related to fire, vapor, or explosion (High, Med., Low, None):	NONE	NONE	NONE
UST Location on Property:	NW corner	NW corner	NW corner

Former Owner Name: TOM JACOBS

Mailing Address: P.O. BOX 171249
Street Address or P.O. Box

LAS VEGAS CLARK 89101
City County Zip Code (Zip + 4)

Phone # (work): N/A Phone Ext. _____

Phone # (home): 702-555-1793

Phone # (mobile): N/A

Dates of Ownership: 1971 - Sept. 1999

Distance of structures or impediments from USTs (Check One):

<10 feet: _____

10-20 feet: _____

>20 feet: X _____

Site Information Forms
Locating Orphaned/Abandoned USTs within the State of Nevada,
American Reinvestment & Recovery Act (ARRA) of 2009

Distance to Irrigation or Drinking Water Wells (Check One):

<500 feet: _____

500 - 1,000 feet: _____

1,001 - 2,500 feet: _____

>2,500 feet: _____

Unknown: _____

Distance to Surface Water or Major Dry Wash (Specify) (Check One):

<1,000 feet: _____

1,000 - 5,000 feet: _____

>5,000 feet: _____

Unknown: _____

Current Property Use(s):

Former Property Use(s):

EXAMPLE

Site Information Forms
Locating Orphaned/Abandoned USTs within the State of Nevada,
American Reinvestment & Recovery Act (ARRA) of 2009

Distance to Irrigation or Drinking Water Wells (Check One):

- <500 feet: _____
- 500 - 1,000 feet: X _____
- 1,001 - 2,500 feet: _____
- >2,500 feet: _____
- Unknown: _____

Distance to Surface Water or Major Dry Wash (Specify) (Check One):

- <1,000 feet: _____
- 1,000 - 5,000 feet: X - Muddy River _____
- >5,000 feet: _____
- Unknown: _____

Current Property Use(s):

 ABANDONED PROPERTY. PART OF REDEVELOPMENT

Former Property Use(s):

 AUTO REPAIR FACILITY AND GAS STATION

Site Information Forms
Locating Orphaned/Abandoned USTs within the State of Nevada,
American Reinvestment & Recovery Act (ARRA) of 2009

Property Description/History:

Presence of Historical Structure(s) (Yes, No, Unknown): _____

If present, describe structure(s) (proximity to USTs, age): _____

Other Property Information (Surface Type (concrete, paved, dirt), Soil Staining, Under Construction, etc.):

How Site Was Located (Office Research, Local Knowledge, Sanborn Map, Business Directory, etc.):

Site Information Contact:

Name: _____

Mailing Address: _____

Street Address or P.O. Box

City	County	Zip Code (Zip + 4)
------	--------	--------------------

Phone # (work): _____ Phone Ext. _____

Phone # (home): _____

Phone # (mobile): _____

EXAMPLE

Site Information Forms
Locating Orphaned/Abandoned USTs within the State of Nevada,
American Reinvestment & Recovery Act (ARRA) of 2009

Property Description/History:

OLD DOWNTOWN GARAGE AND GAS STATION.
ABANDONED 10 YEARS AGO. TOWN OF MOAPA TOOK
OWNERSHIP IN 2000.

Presence of Historical Structure(s) (Yes, No, Unknown): UNKNOWN, BLDG. IS OLD.

If present, describe structure(s) (proximity to USTs, age): BUILDING DATES
BACK TO 1950s. WILL BE DEMOLISHED FOR DEVELOPMENT.

Other Property Information (Surface Type (concrete, paved, dirt), Soil Staining, Under Construction, etc.):

MIXTURE OF BROKEN ASPHALT AND SOIL.
SOIL STAINING PRESENT NEAR GARAGE.

How Site Was Located (Office Research, Local Knowledge, Sanborn Map, Business Directory, etc.):

LOCAL KNOWLEDGE - TOWN OF MOAPA REDEVELOPMENT DIST.

Site Information Contact:

Name: JOHN THOMAS, TOWN MANAGER

Mailing Address: P.O. Box 17421
Street Address or P.O. Box

Moapa CLARK 89025-17421
City County Zip Code (Zip + 4)

Phone # (work): 702-555-0055 Phone Ext.

Phone # (home): N/A

Phone # (mobile): 702-555-9933

Site Information Forms
Locating Orphaned/Abandoned USTs within the State of Nevada,
American Reinvestment & Recovery Act (ARRA) of 2009

Adjacent Property Use(s):

Property to the North:

Property to the East:

Property to the South:

Property to the West:

EXAMPLE

Site Information Forms
Locating Orphaned/Abandoned USTs within the State of Nevada,
American Reinvestment & Recovery Act (ARRA) of 2009

Adjacent Property Use(s):

Property to the North:

MOAPA HIGH SCHOOL

Property to the East:

HOUSES

Property to the South:

AUTO DEALERSHIP

Property to the West:

VACANT PROPERTY

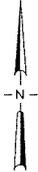
MUDDY RIVER IS ABOUT 1/2 MILE TO THE EAST.

Site Map
Locating Orphaned/Abandoned USTs within the State of Nevada,
American Reinvestment & Recovery Act (ARRA) of 2009

Information Provided By: _____ Date: _____

Site Name & Address: _____

1-inch squares



Information to include: site layout and dimensions (ft.); on-site features - buildings, canopies, dispenser islands, well monuments, UST pad(s), utilities.

EXAMPLE

Site Map

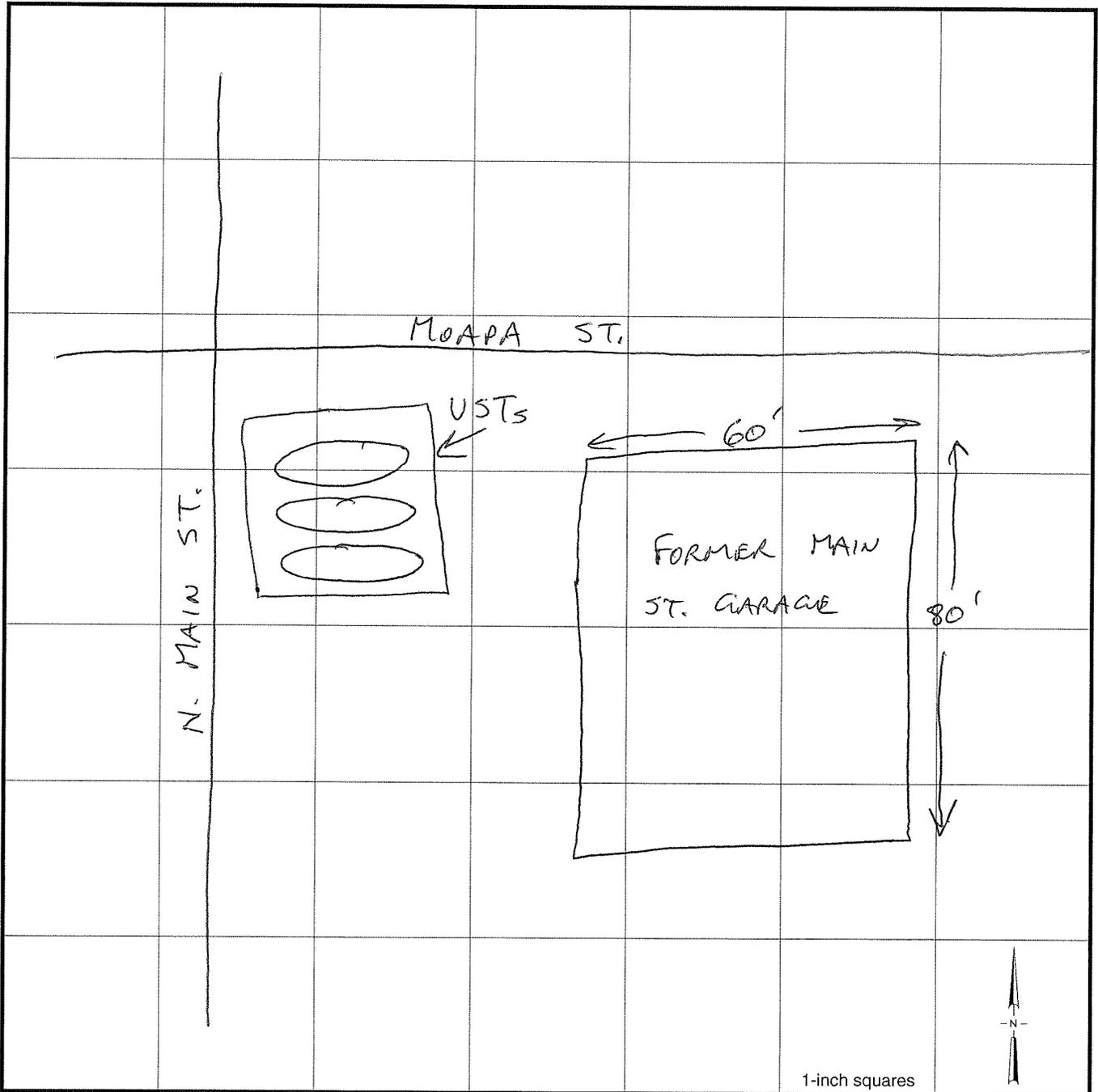
Locating Orphaned/Abandoned USTs within the State of Nevada,
American Reinvestment & Recovery Act (ARRA) of 2009

Information Provided By: ROB WILLIAMS

Date: 12/08/09

Site Name & Address: FORMER MAIN ST. GARAGE, 472 N.

MAIN ST., MOAPA, NV 89025



Information to include: site layout and dimensions (ft.); on-site features - buildings, canopies, dispenser islands, well monuments, UST pad(s), utilities.

EXAMPLE

Vicinity Map

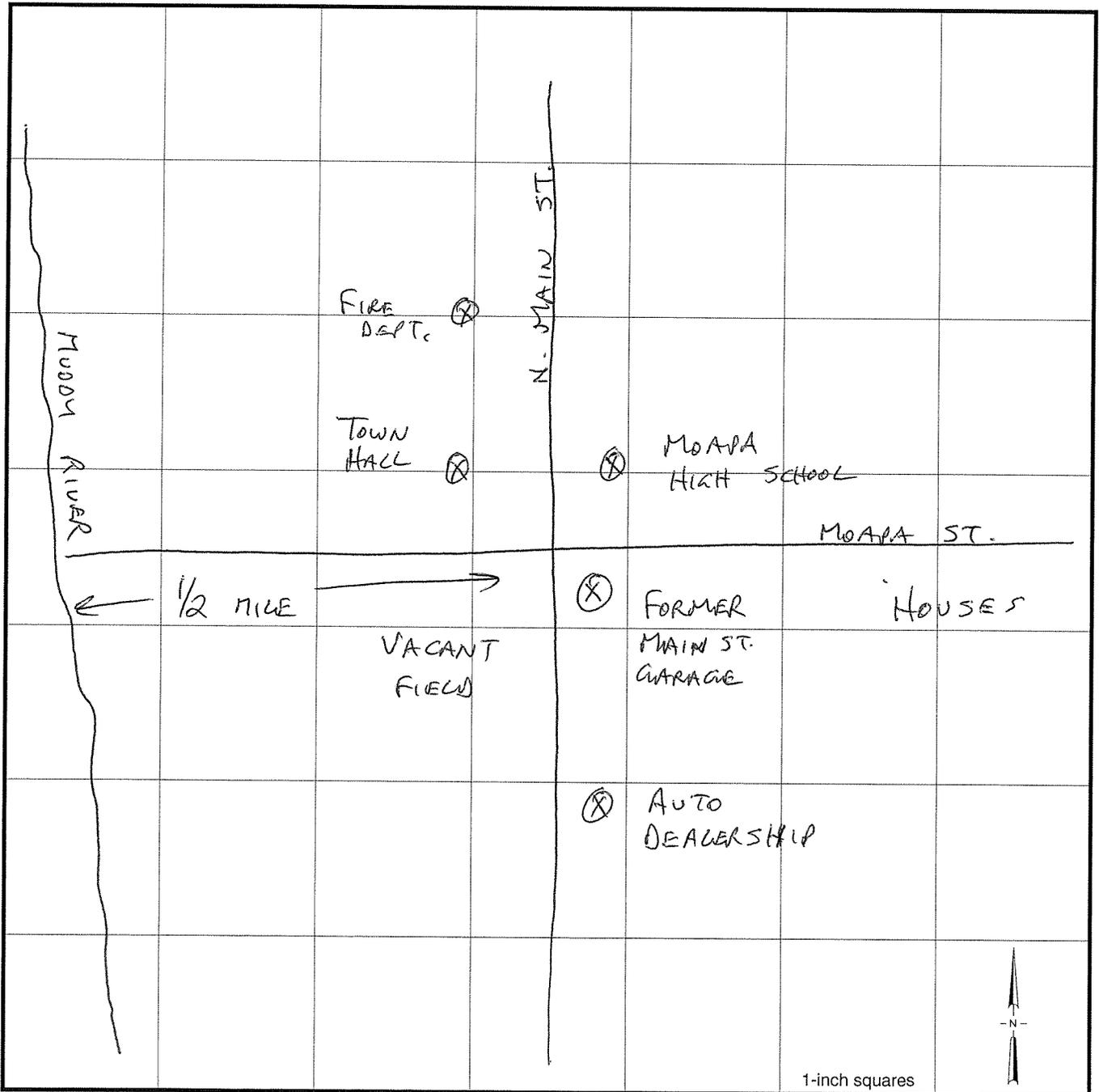
Locating Orphaned/Abandoned USTs within the State of Nevada,
American Reinvestment & Recovery Act (ARRA) of 2009

Information Provided By: ROB WILLIAMS

Date: 12/08/09

Site Name & Address: FORMER MAIN ST. GARAGE, 472

N. MAIN ST., MOAPA, NV 89025



Information to include: site location; adjacent properties to the north, east, south, and west; adjacent thoroughfares, presence of surface water and/or major dry washes, adjacent railroad.

APPENDIX E

**RESEARCH & FIELD ASSISTANT
RECRUITMENT FLYER**

WANTED

Full-Time, Temporary Research/Field Assistants

Broadbent & Associates, Inc. (BAI), located in Reno and Henderson, NV, is seeking qualified personnel to conduct local research (literature and field) activities throughout the State of Nevada. This is a full-time (avg. 30 to 40 hours per week) hourly position for an approximate one to two month period. The project is part of the Leaking Underground Storage Tank Trust Fund Assistance Award, Funded under the American Reinvestment & Recovery Act (ARRA) of 2009. **Training will be provided. Pay will be \$25 per hour.**

Job Description: To provide assistance in your local community and neighboring cities/towns in locating orphaned and/or abandoned fuel underground storage tanks (USTs) that may not have been properly taken out of service prior to termination of its use. Tasks to be conducted include: reviewing local agency records (building department, fire department, assessor's office, etc.); interviewing local agency personnel, community leaders, and local citizens; conducting site specific visits/inspections; conducting general field reconnaissance activities; and completing site specific Field Reconnaissance Forms & Maps.

Core Requirements/Qualifications: Must be currently unemployed or part-time employed; must have a strong understanding of the local history and knowledge of the area(s) in question; and must have strong communication skills.

Additional Requirements Include:

- Valid Driver's License and Personal Automobile (mileage reimbursed);
- Competency to operate GPS Hand Held Field Equipment (unit & training provided);
- Strong Reasoning Skills;
- Ability to Work Individually; and
- Strong Organization and Note Taking Skills.

SEND RESUME TO:
BROADBENT & ASSOCIATES, INC.
2000 Kirman Ave.
Reno, NV 89502
Attn: Mr. David Howard
Fax: 775-322-7956
email: arra2009@broadbentinc.com

APPENDIX F

**RESEARCH & FIELD ASSISTANT
TRAINING SESSION AGENDAS**

Research & Field Assistants Training Session/Meeting – West Region
Locating Orphaned/Abandoned Underground Storage Tanks (USTs) within the State of Nevada,
Leaking Underground Storage Tank Trust Fund Assistance Award,
American Reinvestment & Recovery Act (ARRA) of 2009

Date: TBD

Time: 9:30 a.m. – 3:30 p.m.

Location: Broadbent & Associates, Inc., Reno Office, 2000 Kirman Ave., Reno, NV

Instructors: Doug Guerrant, Program Manger
David Howard, Project Manager
Kirk Stowers, South Region Manager
Aaron Sonerholm, North & East Region Manager
Darin Galloway, West Region Manager
Art Gravenstein, NDEP - BCA

AGENDA

- 1.0 Introduction & Greetings
- 2.0 Project Objectives
- 3.0 Definition of Orphaned vs. Abandoned UST
- 4.0 Project Approach
 - 4.1 Geographic Regions and Areas of Interest
 - 4.2 Inventory Design & Content Mechanism
- 5.0 Data Collection
 - 5.1 Partner Queries
 - 5.2 Community Input & Public Meetings
 - 5.3 Historical Documents
 - 5.4 Data Bases (i.e. GIS Layers)
 - 5.5 Agency File Review & Interviews
- 6.0 Field Reconnaissance
 - 6.1 Site Visit
 - 6.2 Hand Held GPS Units
 - 6.3 Field Forms and Maps
- 7.0 Q & A and Closing Comments

Research & Field Assistants Training Session/Meeting – South Region

Locating Orphaned/Abandoned Underground Storage Tanks (USTs) within the State of Nevada,
Leaking Underground Storage Tank Trust Fund Assistance Award,
American Reinvestment & Recovery Act (ARRA) of 2009

Date: TBD

Time: 9:30 a.m. – 3:30 p.m.

Location: Broadbent & Associates, Inc., Henderson Office, 8 W. Pacific Ave., Henderson, NV

Instructors: David Howard, Project Manager
Kirk Stowers, South Region Manager
Art Gravenstein, NDEP - BCA

AGENDA

- 1.0 Introduction & Greetings
- 2.0 Project Objectives
- 3.0 Definition of Orphaned vs. Abandoned UST
- 4.0 Project Approach
 - 4.1 Geographic Regions and Areas of Interest
 - 4.2 Inventory Design & Content Mechanism
- 5.0 Data Collection
 - 5.1 Partner Queries
 - 5.2 Community Input & Public Meetings
 - 5.3 Historical Documents
 - 5.4 Data Bases (i.e. GIS Layers)
 - 5.5 Agency File Review & Interviews
- 6.0 Field Reconnaissance
 - 6.1 Site Visit
 - 6.2 Hand Held GPS Units
 - 6.3 Field Forms and Maps
- 7.0 Q & A and Closing Comments

Research & Field Assistants Training Session/Meeting – North & East Region
Locating Orphaned/Abandoned Underground Storage Tanks (USTs) within the State of Nevada,
Leaking Underground Storage Tank Trust Fund Assistance Award,
American Reinvestment & Recovery Act (ARRA) of 2009

Date: TBD

Time: 9:30 a.m. – 3:30 p.m.

Location: TBD, Elko, NV

Instructors: David Howard, Project Manager
Aaron Sonerholm, North & East Region Manager
Art Gravenstein, NDEP - BCA

AGENDA

- 1.0 Introduction & Greetings
- 2.0 Project Objectives
- 3.0 Definition of Orphaned vs. Abandoned UST
- 4.0 Project Approach
 - 4.1 Geographic Regions and Areas of Interest
 - 4.2 Inventory Design & Content Mechanism
- 5.0 Data Collection
 - 5.1 Partner Queries
 - 5.2 Community Input & Public Meetings
 - 5.3 Historical Documents
 - 5.4 Data Bases (i.e. GIS Layers)
 - 5.5 Agency File Review & Interviews
- 6.0 Field Reconnaissance
 - 6.1 Site Visit
 - 6.2 Hand Held GPS Units
 - 6.3 Field Forms and Maps
- 7.0 Q & A and Closing Comments