Timber Treat Products Facility
Santa Idaho
Preliminary Assessment Report



Waste & Remediation Section
Coeur d'Alene Regional Office
Department of Environmental Quality
2110 Ironwood Parkway
Coeur d'Alene ID 83814

October 2009

Submitted to:
U.S. Environmental Protection Agency
Region 10
1200 Sixth Avenue
Seattle, WA 98101

STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

2110 Ironwood Parkway • Coeur d'Alene, Idaho 83814 • (208) 769-1422

C.L. "Butch" Otter, Governor
Toni Hardesty, Director

October 21, 2009

Linda and Vern Walcker
51203 Fruitvale Road
Melton Freewater, OR 97862

Re: Timber Treat Products Preliminary Assessment Report and Follow Up Action.

Dear Linda and Vern:

Attached you will find the final report on the Timber Treat Products site located near Santa Idaho. The report was developed by the Department of Environmental Quality's (DEQ) Preliminary Assessment Program from data primarily collected during a brief site visit on August 18, 2009. You attended the site visit as the representatives of the property owner, Vergie Broadfoot, who is incapacitated by illness.

The report finds that the high arsenic, copper and chrome concentrations found in the soil of the site are potential hazards to human health and the environment. The report further finds that there are reasons to believe that this contamination may be localized on the site, but the depth of such a preliminary investigation is insufficient to document the full situation. The report makes clear that further characterization of the vertical and horizontal distribution of the contaminants and assessment of any impacts to ground and surface water will be necessary. The report finds that these wastes are not currently Resource Conservation and Recovery Act (RCRA) wastes in their current configuration. Therefore, DEQ's general remediation programs can be applied to address these wastes as long as RCRA regulates any wastes generated.

Personnel from this office have discussed with you during the August 18th site visit and later in a September meeting with Vern, the potential remedial programs through which the site could be addressed. The report now points to our general remedial programs as a path forward. In all of our meetings and telephone communications, you have expressed an interest to move forward with a voluntary remediation of the site. I would like to meet with you at your earliest convenience to chart a path forward to address the site. Under the requirements of Idaho's environmental regulation, the site must be addressed to reduce the threats to human health and the environments below the levels of acceptable risk. Hopefully, we can build on the working relationship developed to develop an approach that is efficient of both time and expense.

Sincerely,

Geoffrey W. Harvey
Waste & Remediation Manager

c: Rob Eachon, DEQ, Coeur d'Alene

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List of Acronyms

AST	Aboveground Storage Tank
CCA	Copper Chromate Arsenate
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
DEQ	Idaho Department of Environmental Quality
EPA	United States Environmental Protection Agency
FPXRF	Field Portable X-Ray Fluorescence
IDTL	Initial Default Target Level
NAIP	National Agriculture Imagery Program
NRCS	Natural Resources Conservation Service
OCA	Other Cleanup Action
PA	Preliminary Assessment
ppm, mg/kg, mg/L	parts per million, Milligrams per Kilograms, Milligrams per Liter
QAPP	Quality Assurance Program Plan
RCRA	Resource Conservation Recovery Act
SAP	Sampling Analysis Plan
SI	Site Investigation
SOP	Standard Operating Procedure
SVL	Silver Valley Laboratory
TDL	Target Distance Limit
TCLP	Toxicity Characteristic Leaching Procedure
USBM	United States Bureau of Mines
USFS	United States Forest Service
USGS	US Geological Survey
VCP	Voluntary Cleanup Program

Executive Summary

The Timber Treat Products site was reported to the Department of Environmental Quality (DEQ) through an anonymous complaint. The site was described as a non-operating copper chromate arsenate (CCA) wood treatment facility with considerable soils contamination of CCA and potentially impacting the St. Maries River. The response to the complaint was a preliminary assessment (PA) of the site to assess its threat to human health and the environment. The owner Vergie Broadfoot was contacted and informed of the site visit. The owner chose to send representatives, Linda Walcker, her daughter, and her husband, Verne Walcker, to observe the preliminary assessment and supply information concerning the site. The site assessment was conducted August 18, 2009. Assessment consisted of inspection of the site, interview of the owner's representative, and screening level assessment with a field portable x-ray fluorescence photometer (FPXRF) to assess the relative levels of arsenic, chrome and copper. A limited number of soil samples were collected to verify the FPXRF results and to run the toxicity characteristic leaching procedure (TCLP) to assess the availability of the contaminants for transport into the environment.

Inspection of the site revealed that a limited area was used to treat wood products and cure the treated wood. Measurements with the FPXRF demonstrated considerable concentrations of arsenic, chrome and copper in the surface soils and measurements in four test holes indicated penetration into the soil horizon. Test holes revealed the high clay content nature of the soil on-site. Two general areas of contamination were observed: 1) a "drip pad" area where contamination was more sporadic and surficial, and 2) the retort building and area to its immediate northwest, where contamination was more uniform and to greater depth. Soil samples collected confirmed high levels of arsenic, chrome, and copper present.

Interviews with the owner's representatives and individuals who lived in the area for many years both indicated the facility operated prior to, but not after 1993. Review of the soils manual for this area of Benewah County confirmed the soil underlying the entire facility is very high in clay content. TCLP analysis demonstrated that the high clay soil retained the arsenic contamination against elution by typical organic acids.

Based on the results, a threat to human health and the environment (wildlife) exists on the site. It is unlikely, but not confirmed, that the contamination has moved into the groundwater or off the property due to its tight binding by the high clay content soil. The site is not part of any source water for a community well and likely not for any private well**.** Since CCA use on the site ceased prior to its F035 RCRA listing in 1993, the site is not governed under RCRA regulation unless the soils are excavated.

Representatives of the owner have expressed interest in cleaning up the site under some form of voluntary agreement. This is an excellent potential candidate for DEQ's Voluntary Cleanup Program (VCP). Therefore, it is DEQ's recommendation that the site be classified as an "Other Cleanup Action" (OCA) through DEQ's Remediation Programs. A more thorough site investigation will be necessary to assess the horizontal and vertical extent of the contamination and to confirm no impacts to groundwater. Based on the site investigation, a remedial plan should be devised that is protective of both human health and the environment.

1.0 Introduction

The Timber Treat Products Site is a former copper chromate arsenate (CCA) wood treatment facility located south of Santa Idaho. The site was brought to the attention of DEQ in June 2009 by anonymous letters of complaint with a Pasco Washington postmark. The letter alleged toxic materials on the ground surface and potential pollution of the adjacent St. Maries River. A similar anonymous letter was received by EPA's Coeur d'Alene Field Office. EPA received a July 2009 verbal compliant with photographs from Roger Lighty, the former owner of the Timbercraft CCA site near Garwood, Idaho. In response to these complaints a site reconnaissance coupled with a preliminary assessment (PA) was planned and executed during August 2009.

2.0 Location

The Timber Treat Products site is located just south of Santa, Idaho off of State Highway 3 (Figure 1). The site is bounded on the east by vacant land abutting Highway 3, on the south by the Mallory Brothers Cedar Mill, on the west by the St. Maries Railroad, and to the north by a vacant area for nearly a quarter of a mile. The St. Maries River is at its closest proximity 150 yards from the site. The nearest residence is one-quarter mile distant.

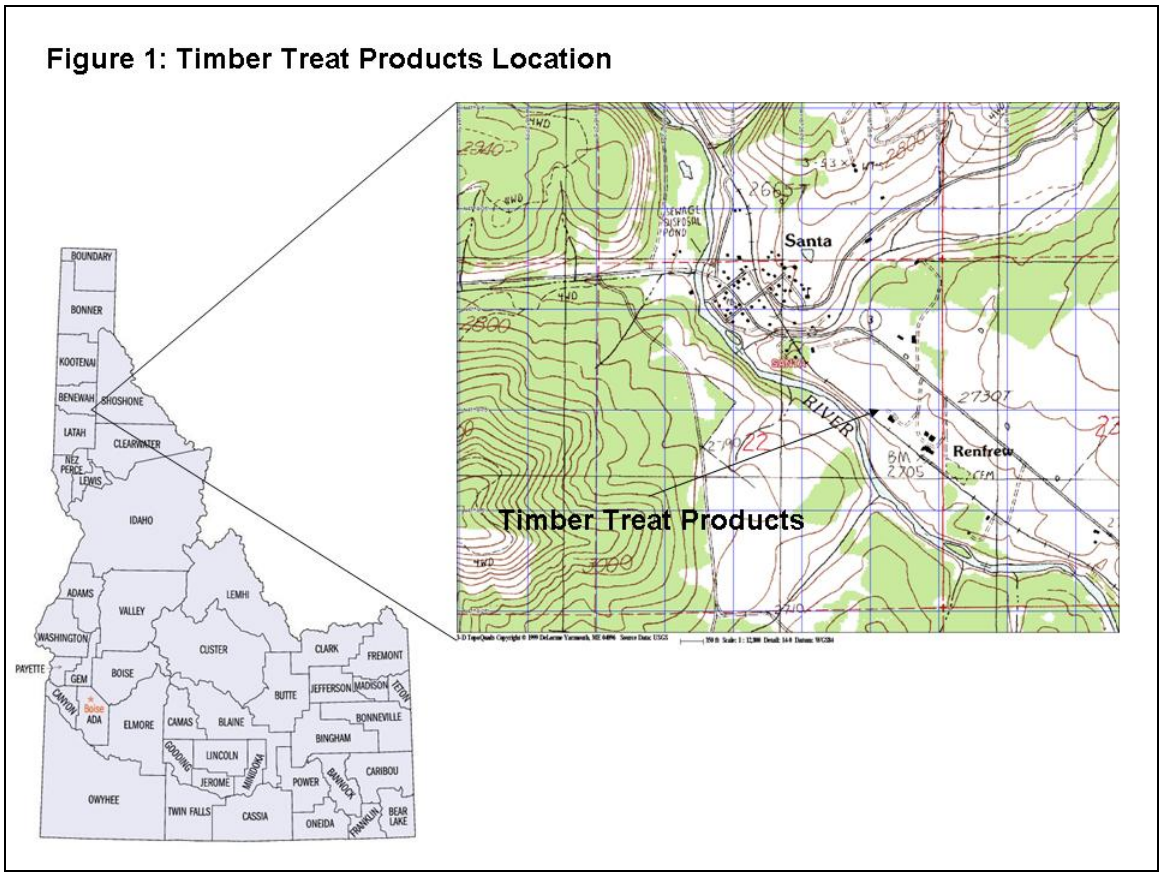


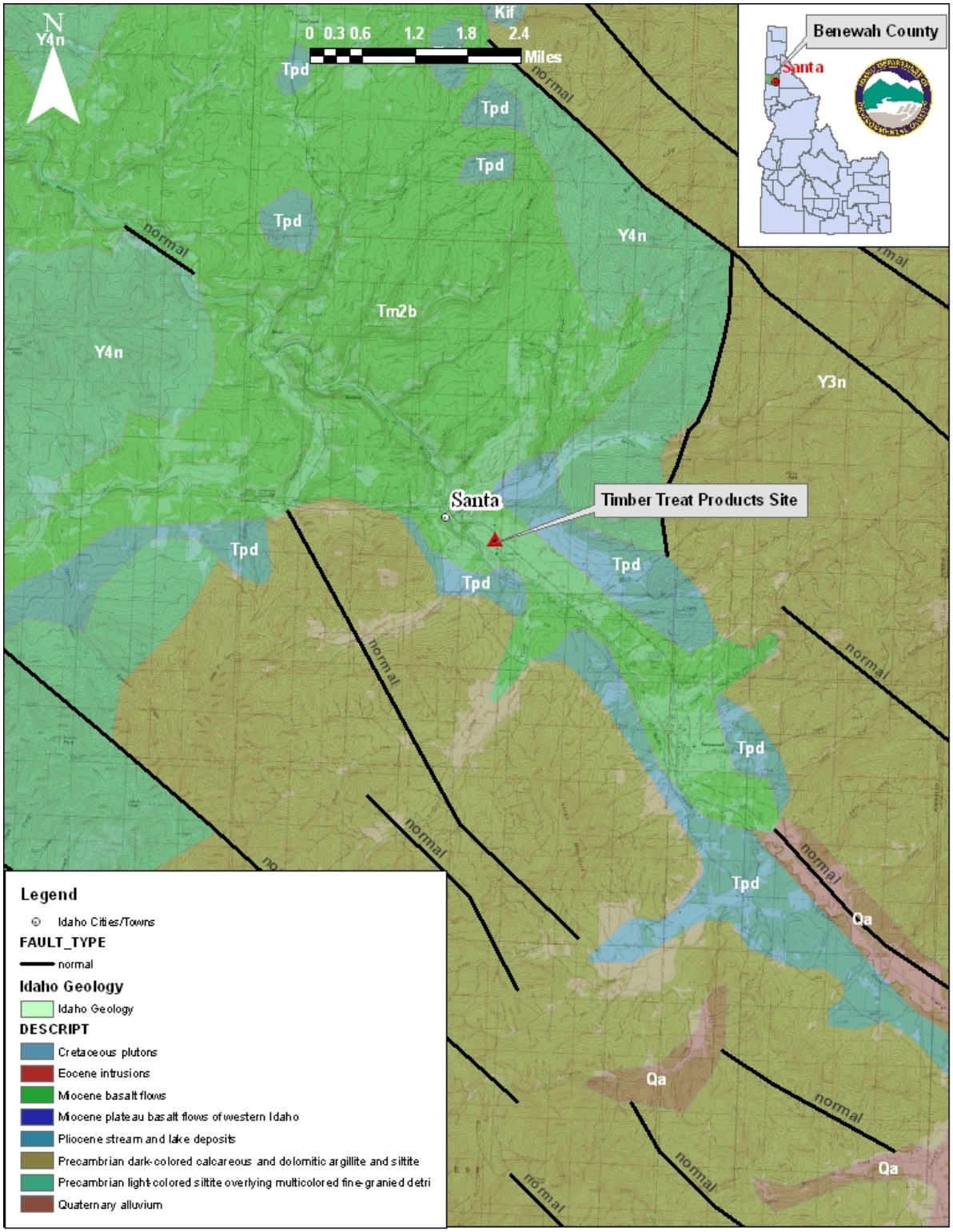
Figure 1. The site is located at 47 08' 43.49" N, 116 26' 25.14" W, also described as Section 22 Township 44 North, Range 1 West.

3.0 Site History

3.1 Interview with the Owner's Representative: The site is owned by Vergie Broadfoot who is elderly and in ill health. The site was developed and operated by her husband, Lindell L. Broadfoot, who passed away in 1996. Linda Walcker is the daughter of Mrs. Broadfoot and along with her husband, Verne Walcker, who had a good knowledge of the site and its operation, met with the DEQ assessment team at the site on August 18, 2009. Discussions with the Walckers and information supplied clarified several points. The facility was constructed in the late mid-1970s. Based on receipts from chemicals purchased, the facility was operated by Mr. Broadfoot between July 1975 and at the latest early 1980s. Sources local to the Santa-Fernwood Area indicate the facility was operated on a lease basis until 1992. As suspected from the site plan, the CCA treatment was confined to the western wing of the main building and the drip pad area was just south of the carriage tracks. Although the remains of siding are present immediately to the west of the building, raw timber entered the site and product was exported from the site by truck not railroad. The rail spur served a grain elevator that predated the Timber Treat Products facility. The aboveground storage tanks (ASTs) housed in the smaller building were purchased at an auction by Verne Walcker and resold to Mr. Broadfoot who housed them in the smaller structure. To the Walckers' knowledge, only one tank was used for diesel fuel. Mr. Broadfoot did not own a fleet of trucks, so his plan for the use of these tanks is unclear.

4.0 General Geology

4.1 Geology and Soils: The site is underlain by basalt formations which had their origin in the Columbia Plateau basalt flows of the Miocene Era. Soil on the site is Reggear silt loam. The soil has poor weight bearing characteristics when wet. Basalt rock quarried nearby was intermixed with it to increase the load bearing characteristics. According to the Benewah County soil survey, the soil contains 22-26 percent clay by weight in the B horizon, six inches below the surface and 30-40% clay at 24-60 inches (NRCS 1993). It appears the A horizon was largely removed or mixed with the lower layer through industrial operations on the site. Thus, the substrate on which the operation occurred is rich in clay.


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5.0 Current and Future Beneficial Uses

The dominant use of the area is a small unincorporated community with between 100 and 200 full time and seasonal residents. Secondary uses include timber, mining, and recreation. Recreational hunting and fishing draw seasonal users to the area. Wildlife and livestock uses are typical in this type of rural area, with a great diversity in both game and non-game species present.

DEQ Regional Drinking Water staff indentified one community groundwater well serving Santa approximately 0.83 miles northeast of the site. The city has another inactive well 0.3 miles north of the site. Neither well is believed to receive source water from the site. The nearest residence is about one-quarter mile distant and up hill from the site. Domestic water service to this residence is unknown, but if it employs a well, it is unlikely the site is part of its source water area.

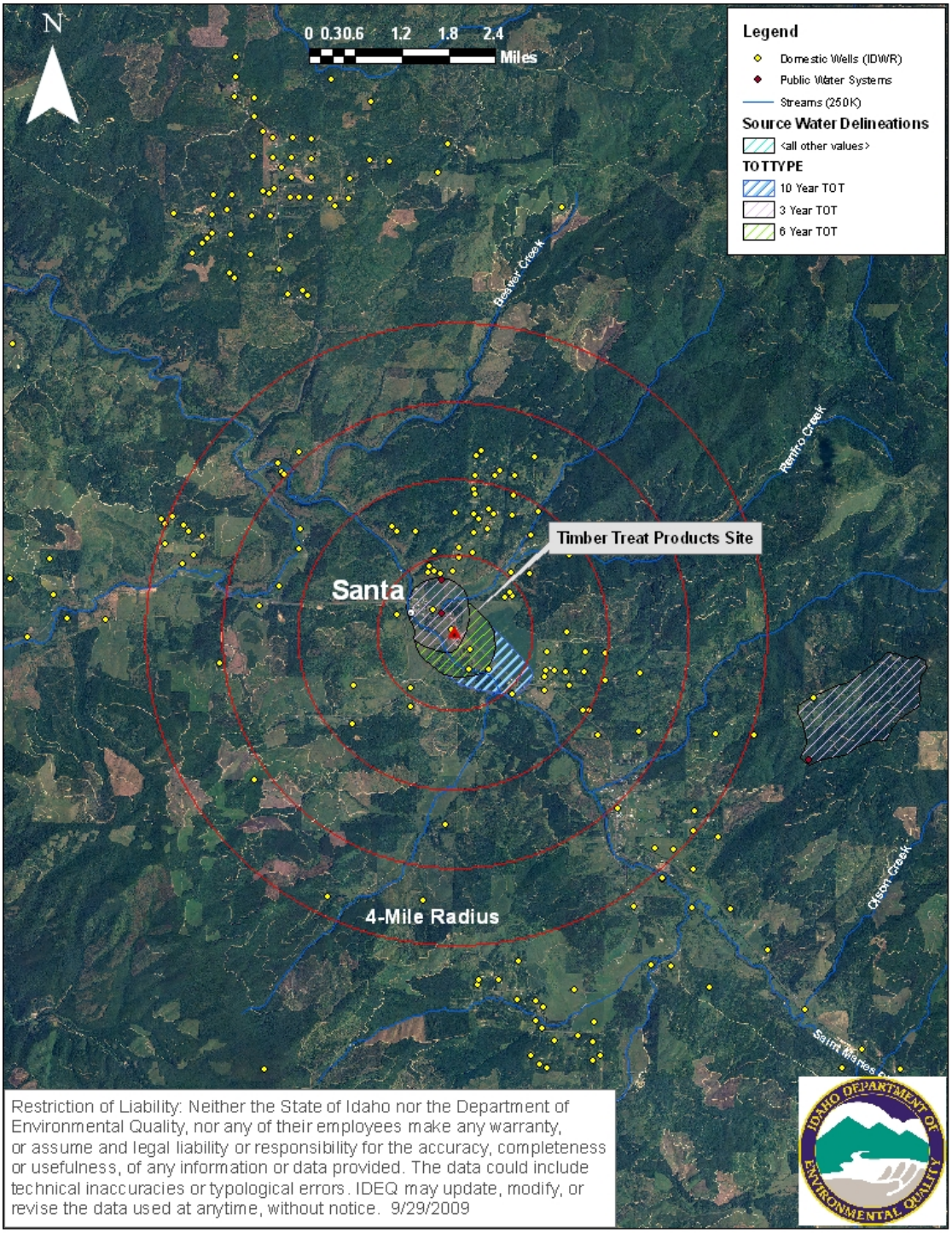


Figure 3. Domestic wells and public water systems located within a 4-mile radius of Timber Treat Products facility (Source NAIP 2004).

6.0 Assessment Methodology

6.1 Access notification: The owner of the property Vergie Broadfoot was contacted and informed of the site visit on August 18, 2009. Her representative Linda Walcker called and arranged to meet on site at 9 AM the morning of August 18th.

6.2 Site Reconnaissance: On arrival at the site, the owner's representative had not arrived. The site was walked and the main features of the site were mapped. After the representative arrived, a general history of the site was obtained to include the period during which features were constructed and operated and the nature of certain seemingly anomalous (petroleum tanks) features.

6.3 Site Sampling: After the general area of the treatment and treated wood curing areas (drip pad) were ascertained, a Field Portable X-Ray Fluorescence (FPXRF) photometer was used to make relative measurements of the arsenic, copper, and chrome constituents of CCA, residual in the soil. One sample was collected for chemical analysis per five XRF measurements made. Ten sites were sampled on the surface of the drip pad and around the rail conveyance system. Another six sites were sampled to the northwest of the retort facility and around the CCA holding tank. With the owner's representative's permission three sites were sampled within the retort/boiler building. Holes were dug with a shovel at four of the surface sites. Holes ranged from 6 to 12 inches in depth. Samples from the sides of these holes were assessed with the FPXRF and samples were collected for laboratory analysis.

6.4 Laboratory Analysis: Samples were dried in the field office and then submitted to Silver Valley Analytical Laboratories (SVL) for total metals (copper, chrome, arsenic) (EPA Method 6010B), and toxicity characteristic leaching procedure (TCLP) (EPA Methods 1311; 6010B).

6.5 Quality Control/Quality Assurance: The FPXRF was operated in accordance with the Standard Operating Procedure (SOP) developed for its use (DEQ 2007). All soil samples were held in the custody of DEQ staff (Rob Eachon) until turned over to Silver Valley Laboratories for analysis. The laboratory conducted laboratory control, matrix spike, duplicate, and post digestion spike sample analysis as quality assurance measurements. No data qualifiers were received in the laboratory report. Two arsenic values from the TCLP analysis were below the level of detection of 0.05 mg/L, however the entire data set was useable.

7.0 Site Conditions and Waste Characterization

7.1 Site Layout: The site is composed of two buildings situated in an area of less than two acres. Wood treatment with CCA was conducted in a distinct wing of a building composed of three units (Figure 4). A small unit in the most southeastern part of the building housed an office. The central portion of the building appears to have housed the wood peeling operation and currently is in use as storage. The northwestern wing of the building contains a boiler unit and the retort tank used for CCA treatment (Appendix A; Caption 1). A reservoir tank that held the CCA is located outside at the northwest corner of this wing (Appendix A; Caption 2). A pipe is plumbed from the reservoir tank to the top of the retort and a drainage pipe is plumbed from the bottom of the retort back to the storage tank. A drainage culvert appears to run from the treatment area and daylight to the northwest of the building (Appendix A; Caption 3). The retort was loaded with wood products through doors at it southwestern end. A carriage track leads from these doors out onto the property to the south (Appendix A; Caption 4). A light green "stain" of CCA can be observed along the track. It appears that the area near the end of the carriage track was used to allow the treated wood to dry and cure; a "drip pad" area. A much smaller building stands to the south and east of the main structure. This building contains two, five thousand gallon tanks and a ten thousand gallon tank across its back. One tank appears to have contained diesel petroleum at one time, while the other two do not appear to have been used. The St. Maries Railroad runs to the west of the property. The remains of a siding pass close to the west wing of the building where the CCA treatment occurred and continues on to the north for some distance.

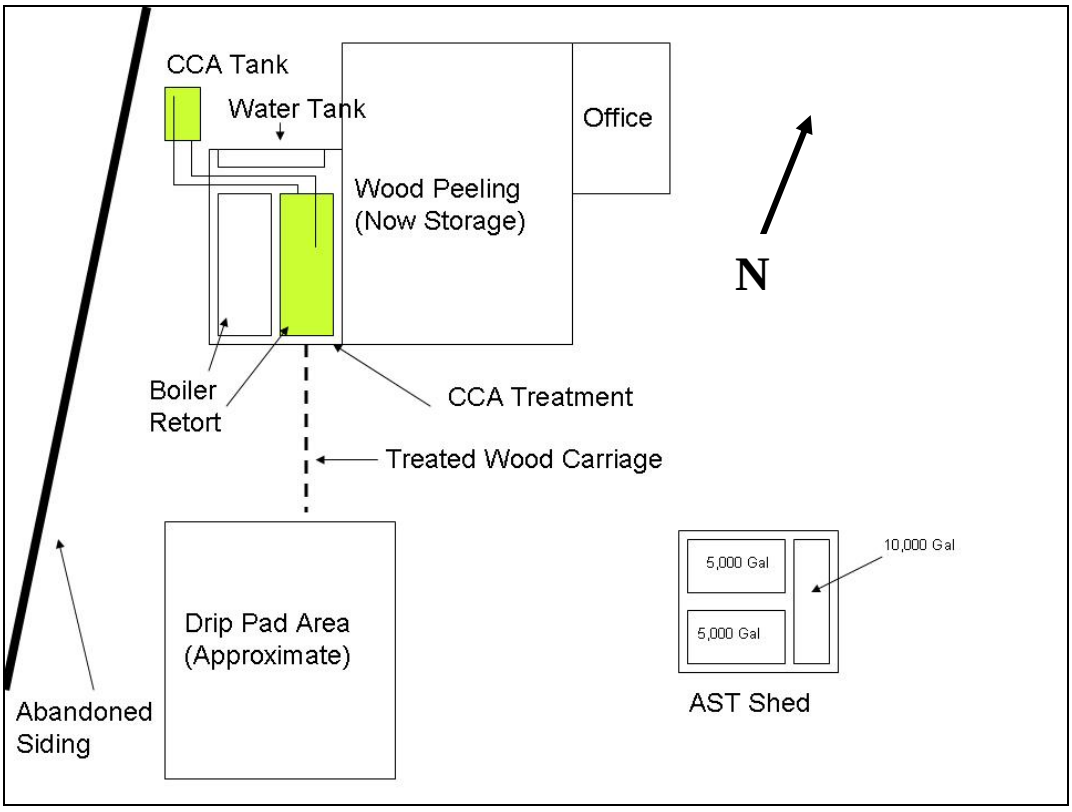


Figure 4. Timber Treat Products Site Plan.

7.2 Waste Characteristics:

7.2.1 Field Portable X-Ray Fluorescence (FPXRF) Data Collection

FPXRF Limitations:

It should be noted that use of the FPXRF is an excellent tool for field screening and determination of the extent of contamination in different areas. However, the FPXRF data did not correlate well enough with laboratory analysis to use the XPXRF data to establish actual risks or Preliminary Cleanup Goals. The future site investigation recommended should provide Sampling Analysis Plans (SAPs), and Quality Assurance Project Plans (QAPPs) that enable the assessor to develop a good correlation between laboratory analysis and FPXRF data.

FPXRF Data: Data collected with the FPXRF unit was confined to two areas on the site. These were: 1) the suspected drip pad area and the carriage system to the drip pad and 2) the area adjacent to and immediately to the northwest of the CCA treatment operation and holding tank. With the permission of the owner's representative, three points were tested within the building. A sampling made at the mouth of the retort vessel provides a result of over 83,000 ppm arsenic, while high but much lower levels were found elsewhere in the CCA treatment wing. The observation suggested that when the retort was opened to remove treated timber a certain amount of CCA solution was discharged to the ground. Since the surface slopes gently to the northwest, it was expected that CCA would be found to the northwest of the treatment wing.

The distribution of copper, chrome and arsenic as measured by the FPXRF are shown in Figure 5. Although the assessment is preliminary, three general areas of concern for CCA contamination were identified. The area around the retort vessel, the carriage track that conveyed treated wood, and the drip pad area are all highly contaminated with CCA. No measurements at depth were collected so the relative depth of this contamination is unknown. The area to the northwest of the treatment facility is similarly contaminated with CCA, but at levels much lower than those found in the treatment and carriage area. Measurements at depth did not indicate level was reached where CCA concentration was dissipating. The suspected drip pad area appears to have surface contamination of areas. The contamination generally diminishes with depth in this area.

The Initial Default Target Level (IDTL) is the concentration at which the most conservative risk models indicate a chemical of concern is not a significant health or environmental risk. The IDTL for arsenic is 0.42 mg/kg (ppm), copper is 931 mg/kg and chrome is 2,130 mg/kg. The arsenic IDTL is exceeded in all cases. Copper and chrome IDTLs are not exceeded where arsenic values are low, but are exceeded in areas of high arsenic concentrations. Since removal of one constituent of CCA results in the removal of the others and arsenic has the lowest IDTL, arsenic will most likely be the driver for the cleanup. Attainment of the arsenic IDTL anywhere in Idaho is rare, due to the amount of exposed mineralized rock. Background arsenic values have not been established in the St. Maries River Valley. A site investigation should attempt to determine what these background conditions might be. Areas

where it has been established are sufficiently far afield from the Santa area to warrant development of background arsenic values to guide the removal work.

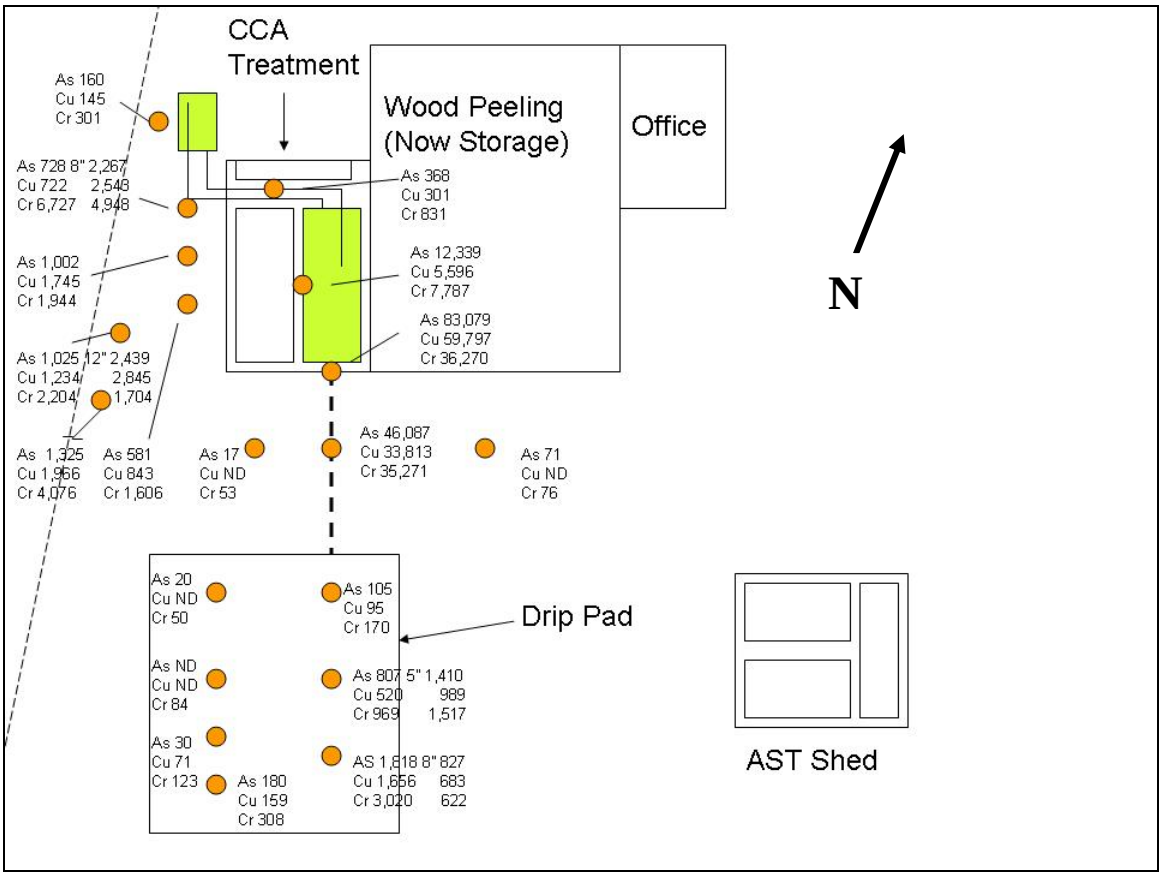


Figure 5. Arsenic, copper, and chrome concentrations based on FPXRF observations.

7.3 Chemical Analysis of Samples: Two tests were carried out on the four samples collected for chemical analysis: 1) total arsenic, copper, and chrome and 2) toxicity characteristic leaching procedure (TCLP). The analysis of total arsenic, copper and chrome was completed for comparison to FPXRF measurements. The TCLP was completed to assess whether the wastes at this site characterize as Resource Conservation and Recovery Act (RCRA) wastes that must be transported to a special facility for proper disposal. The results are provided in Table 1.

Table 1. Results of total arsenic (As), chrome (Cr), and copper (Cu) analysis of four soil samples compared to Field Portable X-Ray Fluorescence (FPXRF) measurements of the sample and Toxicity Characteristic Leaching Procedure (TCLP) results.

Sample #	As (mg/kg)	FPXRF As (mg/kg)	Cr (mg/kg)	FPXRF Cr (mg/kg)	Cu (mg/kg)	FPXRF Cu (mg/kg)	TCLP As (mg/L)
24	520	1410	851	1517	425	989	<0.05
25	79.4	828	112	622	59.4	684	<0.05
34	1860	2264	2340	4948	1610	2543	0.34
35	171	2439	245	1704	169	2846	0.09

7.3.1 Total Arsenic, Copper and Chrome: Chemical results for the four samples extracted and analyzed demonstrate arsenic soil content above the Initial Default Target Level (IDTL) of 0.42 mg/kg. The chrome IDTL of 2,130 mg/kg is exceeded in one sample, and the copper IDTL of 921 mg/kg is exceeded in the same sample. Chemical extraction and analysis results were uniformly lower than the values provided by the FPXRF. Linear regression analysis did not yield a strong correlation between the arsenic and copper chemical and FPXRF results. These correlations explained about 20% of the variability. A strong linear correlation was found between the chrome chemical and FPXRF results. This correlation explained 91% of the variability. The results were not sufficient to correct FPXRF values.

7.3.2 TCLP Analysis: The TCLP analysis was conducted for arsenic only in order to limit expenses, even though both copper and chrome are included in the eight metals regulated by RCRA. Arsenic concentration of the TCLP leachate was uniformly below the arsenic criterion of 5 mg/L. The leachate was ten fold lower than the criterion, even though high arsenic concentrations were detected in two of the four samples. These data indicate that the arsenic and most probably the two metals associated with the CCA may be tightly bound by the high clay content of the soil. This result may be an explanation of the uniformly lower chemical analysis results and the inability to develop strong correlations between the FPXRF and chemical method results in the case of two of the three chemicals of concern. It is possible that the acid prescribed in EPA Method 6010B was of insufficient strength to efficiently. This hypothesis may be better tested during the site investigation.

8.0 Surface Water Pathways

Although there was no evidence of overland flow and delivery of contaminants to local surface waters, it may be presumed that seasonal and stormwater runoff from the site does occur. A detailed site investigation and risk evaluation of potential pathways towards the St. Maries River and low lying areas is warranted.

9.0 Ground Water Pathways

Preliminary sampling indicates that the clay soils underlying the site may act as a barrier to groundwater contamination and transport. However, a site investigation with components for more extensive soils and ground water data collection is warranted.

10.0 Air Pathways

Although no evidence of wind erosion was observed, there are numerous areas that are bare of vegetation, and consequently may be fugitive dust sources.

11.0 Soil Exposure

There are no physical barriers to access by human or ecological receptors. There is a casual monitoring of the site by neighbors to ensure the property isn't overly vandalized. However, there is a potential of soil exposure for which a risk evaluation should be completed, and risk management such as fencing should be employed.

12.0 Domestic Wells and Drinking Water Supplies

There are 2 community drinking water supplies within a four mile radius of the site.

There are 4 down gradient and 5 up gradient domestic water sources within a one mile radius of the site.

There are approximately 35 up gradient domestic water supplies within the 1-2 mile radius of the site.

There are 17 up gradient domestic water supplies within the 2 – 3 mile radius of the site.

There are approximately 19 up gradient and 4 down gradient domestic water supplies within the 3 – 4 mile radius of the site.

These observations were made based on limited ArcGIS analysis and should be validated in the proposed Site Investigation (SI).

13.0 Residences, Schools and Day Care Facilities

There are approximately 70 – 100 year round residents in Santa with an additional 70 – 100 seasonal residences.

There are no registered day cares or school facilities within 500 feet of the Timber Treat Products facility.

14.0 Sensitive Species

The ArcGIS data base indicates there are 10 floral and faunal Species of Concern within the 4 mile radius of the site. Risks relative to these species should b evaluated in the Site Investigation.

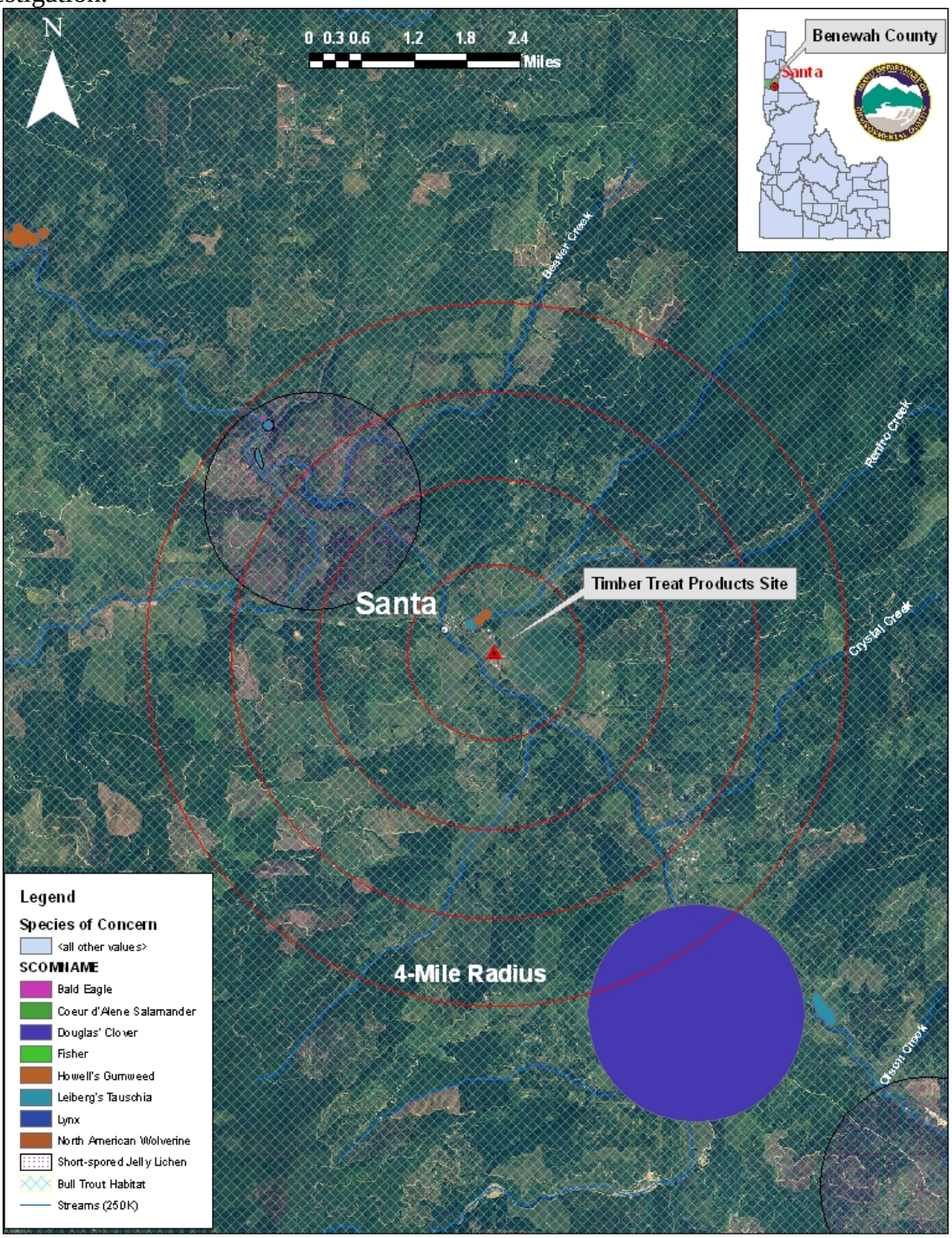


Figure 6. Sensitive species identified in the vicinity of the preliminary assessment site (Source NAIP 2004).

15.0 Wetlands

There are no jurisdictional wetlands to which discharges from the site would be delivered. The Timber Treat Products facility is bounded by the St. Maries River, which has approximately 15 miles of stream bank within the 15 mile Target Distance Limit (TDL). However, there was no evidence of overland discharge to the St. Maries River.



Figure 7. Wetlands located within 2-mile radius of the Timber Treat Products site (Source NAIP 2004).

14.0 Summary and Conclusions

Arsenic, chrome, and copper are present on part of the property at levels far exceeding the IDTL thresholds for these contaminants. These contaminants are a risk to human health and the environment. Ingestion or inhalation by humans or wildlife are the most probable pathways through which impacts would occur. A further complication is found with the IDTL for arsenic. Although background arsenic level has not been established for the St. Maries River Valley, elsewhere in the state, where the analysis has been made, background arsenic is at least a ten fold higher than the IDTL, which is based on risk models solely. In any case the arsenic concentrations found on this site are well in excess of any backgrounds established elsewhere in the state.

Although the preliminary assessment results do not fully horizontally or vertically define the areas of contamination; two areas of contamination appear present from the cursory FPXRF results. The treatment site, the area to its immediate northwest, and the narrow strip along the carriage tracks appear to have the highest concentrations and penetration of contaminant to greater depth. The drip pad area appears "spotty" in its contamination with penetration of the contaminant present to a shallower depth.

The clay content of the Reggear silt loam ranges from 22-26% in the layer likely exposed at the surface by industrial operations on the site. At a depth of two feet it contains 30-40% clay. The clay content of underlying soil may prevent CCA solution from contact with ground water due to the low transmissivity of the clay. The TCLP results demonstrate that the soil and likely its clay component tightly binds the arsenic in the arsenate ion. Although not assessed, it likely tightly binds the chrome in the chromate ion and copper as the cupric ion. The weak acid (acetic) used in the TCLP is a good surrogate for the organic acids that would traverse the soil as a litter layer developed from vegetation established on the site. The results indicate the CCA contaminants likely have remained on site bound up in the clay micelles of the soil matrix.

Although there was no evidence of overland flow and delivery of contaminants to local surface waters, it may be presumed that seasonal and stormwater runoff from the site does occur. A detailed site investigation and risk evaluation of potential pathways towards the St. Maries River and low lying areas is warranted.

Although no evidence of wind erosion was observed, there are numerous areas that are bare of vegetation, and consequently may be fugitive dust sources.

There are no physical barriers to access by human or ecological receptors. There is a casual monitoring of the site by neighbors to ensure the property isn't overly vandalized. However, there is a potential of soil exposure for which a risk evaluation should be completed, and risk management such as fencing should be employed.

Although it appears unlikely that domestic and public drinking water supplies could be affected by CCA from the site (based on limited ArcGIS analysis) this conclusion should be validated in the proposed Site Investigation.

There are no registered day cares or school facilities within 500 feet of the Timber Treat Products facility for which risks should be managed.

The ArcGIS data base indicates there are 10 floral and faunal Species of Concern within the 4 mile radius of the site. Risks relative to these species should be evaluated in the Site Investigation.

There are no jurisdictional wetlands to which discharges from the site would be delivered. The Timber Treat Products facility is bounded by the St. Maries River, which has approximately 15 miles of stream bank within the 15 mile TDL. However, there was no evidence of overland discharge to the St. Maries River; this should be validated in a Site Investigation.

The presence of contaminants that present a potential risk to human health and the environment on a part of the Timber Treat Products site with reasonable pathways to affect human health and/or environment (wildlife) dictates the site should be addressed given the results obtained and the discussion of these results, it is possible to determine the remedial program under which the site should be addressed. *Since the site suspended operations at the earliest in the 1980's and at the latest in 1992, it was not operational when CCA was F035 listed in 1993.* Thus the site is not a RCRA site, unless the CCA contaminated soil is removed. In this case the removed soil would become a generated F035 waste and be governed under RCRA regulations. Since the TCLP results demonstrate the arsenic is sufficiently bound in the soil to resist weak organic acid release, it is expected, but not demonstrated that chrome and copper in their respective ionic species would behave similarly. Given these observations the site is best managed by Other Cleanup Action (OCA) through DEQ's Remediation Programs, unless subsequent site investigation uncovers facts that contradict those developed by the preliminary assessment.

The preliminary assessment was a cursory examination of the site. It has two deficiencies that must be addressed in a subsequent site investigation prior to design of a remedy. The horizontal and vertical extent of the contamination must be demonstrated. As part of this assessment, it must be demonstrated that no impacts to aquifers have occurred. A subsequent site investigation must also establish that chrome and copper are not mobilized by the TCLP as demonstrated for the arsenic.

15.0 Recommendations

- A Site Investigation is necessary to establish the horizontal and vertical extent of the CCA contamination and to demonstrate the suspected binding of chrome and copper.
- The Site Investigation should also identify potential pathways for delivery, including but not limited to seasonal runoff, infiltration, fugitive dust generation, and dermal contacts.
- The Site Investigation should make specific recommendations for source controls measures and other risk management tools.
- The site CERCLIS status should be classified as Other Cleanup Action as the Site's Owner is currently willing to work with DEQ's Remediation Programs to design and implement remedial actions. If the owner's representatives remain cooperative and willing to work with DEQ on a voluntary remediation of the site, than the Voluntary Cleanup Program (VCP) is one vehicle under which they can work cooperatively with the state.

16.0 References

DEQ 2007 Field Portable X-Ray Fluorescence Spectrometry S.O.P. for Determination of Elemental Concentrations in Soil and Sediment. Department of Environmental Quality, Coeur d'Alene Regional Office, 22210 Ironwood Parkway, Coeur d'Alene ID 83814. 6 p.

NRCS 1993. Soil Survey of St. Joe Area, Parts of Benewah and Shoshone Counties, Idaho. USDA – NRCS, Soil Survey Office, 7830 Meadowlark Way, Suite C-1 Coeur d'Alene, ID 83814. pp 230-232.

Appendix A:

Selected Photographs
Timber Treat Products Facility



Caption 1. CCA treatment area showing boiler in foreground and the retort tank behind.



Caption 2. Storage tank where CCA solution was held.



Caption 3. Culvert that appears to drain treatment area and daylights to the west of the building.



Caption 4. Carriage tracks used to transport treated wood to "drip pad" area. Note the green staining on tracks and ties.

Appendix B:

Sample Results from SVL

One Government Gulch - PO Box 929 Kellogg ID 83837-0929 (208) 784-1258 Fax (208) 783-0891

IDEQ Coeur d'Alene Regional Office
2110 N. Ironwood Pkwy.
Coeur d'Alene, ID 83814

Project Name: Santa CCA Site
Work Order: **W9I0159**
Reported: 21-Sep-09 12:29

Client Sample ID: **#34 12"**
SVL Sample ID: **W9I0159-02 (Soil)**

Sampled: 18-Aug-09 13:07
Received: 04-Sep-09
Sampled By: Rob Eachon

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total) by EPA 6000/7000 Methods										
EPA 6010B	**Arsenic**	1860	mg/kg	2.5	0.6		W938118	FEH	09/15/09 16:30	
EPA 6010B	**Chromium**	2340	mg/kg	0.60	0.03		W938118	FEH	09/15/09 16:29	
EPA 6010B	**Copper**	1610	mg/kg	1.00	0.08		W938118	FEH	09/15/09 16:29	
Percent Solids										
Percent Solids	**% Solids**	72.2	%	0.1			W938122	HB	09/15/09 09:45	
TCLP Extraction Parameters										
EPA 1311	**Final pH**	4.98	pH Units				W937255	ESB	09/14/09 13:20	
TCLP Leachates (Metals)										
EPA 6010B	**Arsenic**	0.34	mg/L Extract	0.05	0.006		W938086	FEH	09/15/09 22:00	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
Laboratory Director

One Government Gulch - PO Box 929 Kellogg ID 83837-0929 (208) 784-1258 Fax (208) 783-0891

IDEQ Coeur d'Alene Regional Office
2110 N. Ironwood Pkwy.
Coeur d'Alene, ID 83814

Project Name: Santa CCA Site
Work Order: **W9I0159**
Reported: 21-Sep-09 12:29

Client Sample ID: **#24 5-18"**
SVL Sample ID: **W9I0159-03 (Soil)**

Sampled: 18-Aug-09 13:10
Received: 04-Sep-09
Sampled By: Rob Eachon

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total) by EPA 6000/7000 Methods										
EPA 6010B	**Arsenic**	520	mg/kg	2.5	0.6		W938118	FEH	09/15/09 16:35	
EPA 6010B	**Chromium**	851	mg/kg	0.60	0.03		W938118	FEH	09/15/09 16:35	
EPA 6010B	**Copper**	425	mg/kg	1.00	0.08		W938118	FEH	09/15/09 16:35	
Percent Solids										
Percent Solids	**% Solids**	95.4	%	0.1			W938122	HB	09/15/09 09:45	
TCLP Extraction Parameters										
EPA 1311	**Final pH**	4.97	pH Units				W937255	ESB	09/14/09 13:20	
TCLP Leachates (Metals)										
EPA 6010B	Arsenic	< 0.05	mg/L Extract	0.05	0.006		W938086	FEH	09/15/09 22:06	

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John Kern
Laboratory Director

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IDEQ Coeur d'Alene Regional Office
2110 N. Ironwood Pkwy.
Coeur d'Alene, ID 83814

Project Name: Santa CCA Site
Work Order: **W9I0159**
Reported: 21-Sep-09 12:29

Client Sample ID: **#25 / Sample 41 3"**
SVL Sample ID: **W9I0159-01 (Soil)**

Sampled: 18-Aug-09 00:00
Received: 04-Sep-09
Sampled By: Rob Eachon

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total) by EPA 6000/7000 Methods										
EPA 6010B	**Arsenic**	79.4	mg/kg	2.5	0.6		W938118	FEH	09/15/09 16:25	
EPA 6010B	**Chromium**	112	mg/kg	0.60	0.03		W938118	FEH	09/15/09 16:24	
EPA 6010B	**Copper**	59.4	mg/kg	1.00	0.08		W938118	FEH	09/15/09 16:24	
Percent Solids										
Percent Solids	**% Solids**	87.3	%	0.1			W938122	HB	09/15/09 09:45	
TCLP Extraction Parameters										
EPA 1311	**Final pH**	4.94	pH Units				W937255	ESB	09/14/09 13:20	
TCLP Leachates (Metals)										
EPA 6010B	Arsenic	< 0.05	mg/L Extract	0.05	0.006		W938086	FEH	09/15/09 21:40	

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IDEQ Coeur d'Alene Regional Office
2110 N. Ironwood Pkwy.
Coeur d'Alene, ID 83814

Project Name: Santa CCA Site
Work Order: **W9I0159**
Reported: 21-Sep-09 12:29

Client Sample ID: **#35 12-13"**
SVL Sample ID: **W9I0159-04 (Soil)**

Sampled: 18-Aug-09 13:04
Received: 04-Sep-09
Sampled By: Rob Eachon

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total) by EPA 6000/7000 Methods										
EPA 6010B	**Arsenic**	171	mg/kg	2.5	0.6		W938118	FEH	09/15/09 16:41	
EPA 6010B	**Chromium**	245	mg/kg	0.60	0.03		W938118	FEH	09/15/09 16:40	
EPA 6010B	**Copper**	169	mg/kg	1.00	0.08		W938118	FEH	09/15/09 16:40	
Percent Solids										
Percent Solids	**% Solids**	76.9	%	0.1			W938122	HB	09/15/09 09:45	
TCLP Extraction Parameters										
EPA 1311	**Final pH**	5.02	pH Units				W937255	ESB	09/14/09 13:20	
TCLP Leachates (Metals)										
EPA 6010B	**Arsenic**	0.09	mg/L Extract	0.05	0.006		W938086	FEH	09/15/09 22:13	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

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IDEQ Coeur d'Alene Regional Office
2110 N. Ironwood Pkwy
Coeur d'Alene, ID 83814

Project Name: Santa CCA Site
Work Order: **W9I0159**
Reported: 21-Sep-09 12:29

Quality Control - BLANK Data

Method	Analyte	Units	Result	MDL	MRL	Batch ID	Analyzed	Notes
Metals (Total) by EPA 6000/7000 Methods								
EPA 6010B	Arsenic	mg/kg	<2.5	0.6	2.5	W938118	15-Sep-09	
EPA 6010B	Chromium	mg/kg	<0.60	0.03	0.60	W938118	15-Sep-09	
EPA 6010B	Copper	mg/kg	<1.00	0.08	1.00	W938118	15-Sep-09	
TCLP Extraction Parameters								
EPA 1311	Final pH	pH Units	4.93			W937255	14-Sep-09	
TCLP Leachates (Metals)								
EPA 6010B	Arsenic	mg/L Extract	<0.05	0.006	0.05	W938086	15-Sep-09	

Quality Control - LABORATORY CONTROL SAMPLE Data

Method	Analyte	Units	LCS Result	LCS True	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
Metals (Total) by EPA 6000/7000 Methods									
EPA 6010B	Arsenic	mg/kg	110	100	110	80 - 120	W938118	15-Sep-09	
EPA 6010B	Chromium	mg/kg	98.9	100	98.9	80 - 120	W938118	15-Sep-09	
EPA 6010B	Copper	mg/kg	104	100	104	80 - 120	W938118	15-Sep-09	
TCLP Leachates (Metals)									
EPA 6010B	Arsenic	mg/L Extract	1.04	1.00	104	80 - 120	W938086	15-Sep-09	

Quality Control - MATRIX SPIKE Data

Method	Analyte	Units	Spike Result	Sample Result (R)	Spike Level (S)	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
Metals (Total) by EPA 6000/7000 Methods										
EPA 6010B	Arsenic	mg/kg	303	171	100	131	75 - 125	W938118	15-Sep-09	M1
EPA 6010B	Chromium	mg/kg	420	245	100	175	75 - 125	W938118	15-Sep-09	M1
EPA 6010B	Copper	mg/kg	286	169	100	117	75 - 125	W938118	15-Sep-09	
TCLP Leachates (Metals)										
EPA 6010B	Arsenic	mg/L Extract	1.04	<0.05	1.00	103	75 - 125	W938086	15-Sep-09	

Quality Control - MATRIX SPIKE DUPLICATE Data

Method	Analyte	Units	MSD Result	Spike Result	Spike Level	RPD	RPD Limit	Batch ID	Analyzed	Notes
Metals (Total) by EPA 6000/7000 Methods										
EPA 6010B	Arsenic	mg/kg	254	303	100	17.4	20	W938118	15-Sep-09	
EPA 6010B	Chromium	mg/kg	372	420	100	12.0	20	W938118	15-Sep-09	
EPA 6010B	Copper	mg/kg	240	286	100	17.5	20	W938118	15-Sep-09	
TCLP Leachates (Metals)										
EPA 6010B	Arsenic	mg/L Extract	1.05	1.04	1.00	1.4	20	W938086	15-Sep-09	

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IDEQ Coeur d'Alene Regional Office
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Coeur d'Alene, ID 83814

Project Name: Santa CCA Site
Work Order: **W9I0159**
Reported: 21-Sep-09 12:29

Quality Control - POST DIGESTION SPIKE Data

Method	Analyte	Units	Spike Result	Sample Result (R)	Spike Level (S)	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
Metals (Total) by EPA 6000/7000 Methods										
EPA 6010B	Arsenic	mg/kg	279	171	100	108	75 - 125	W938118	15-Sep-09	
EPA 6010B	Chromium	mg/kg	337	245	100	91.2	75 - 125	W938118	15-Sep-09	

Notes and Definitions

M1	Matrix spike recovery was high, but the LCS recovery was acceptable.
LCS	Laboratory Control Sample (Blank Spike)
RPD	Relative Percent Difference
UDL	A result is less than the detection limit
R > 4S	% recovery not applicable, sample concentration more than four times greater than spike level
<RL	A result is less than the reporting limit
MRL	Method Reporting Limit
MDL	Method Detection Limit
N/A	Not Applicable