Wood Pole Maintenance Pest Management Plan

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1. INTRODUCTION

This document is a pest management plan (PMP) for the maintenance of wood poles. It has been prepared in accordance with Section 58 of the *Integrated Pest Management Regulation (BC)* [B.C. Reg235/215 July 1, 2016]

1.1 NELSON HYDRO

Nelson Hydro is wholly owned by the City of Nelson. **Nelson Hydro** provides electricity and related services to customers in the City of Nelson and surrounding areas including Blewett, Taghum, the North Shore, Harrop, Procter, Balfour and Queen's Bay. **Nelson Hydro** is unique from most municipally-owned utilities, in that it operates generation, transmission, substation and distribution facilities.

This Pest Management Plan (PMP) covers the maintenance of wood poles on all power line corridors, road frontage areas, generation facilities and electrical facilities throughout their service area, including utility poles on private, municipal and Crown land. 7,000 wood poles support the transmission and distribution lines, but most of the wood poles are for distribution line support. The 7,000 poles that support the transmission and distribution lines are 99% wood (Western Red Cedar) and 1% galvanized steel.

Nelson Hydro is committed to ensuring that all activities associated with the delivery of safe and reliable power are completed in an environmentally responsible manner. **Nelson Hydro** is cognizant that the presence of pests in or on their wood poles can adversely impact infrastructure integrity. This can threaten worker and public safety and can compromise system reliability.

Compliance with environmental regulations is a duty that **Nelson Hydro** takes seriously. The British Columbia *Integrated Pest Management Act (IPMA)* requires that the management of wood rot and wood-boring insects as part of their wood pole maintenance program be conducted under a single, comprehensive Pest Management Plan (PMP). The PMP must ensure compliance with the provisions of the *IPMA* and Integrated Pest Management Regulations (IPMR), by incorporating the principles and use of integrated pest management (IPM), as well as applicable Federal, Provincial and regional laws and regulations.

Since 2010, **Nelson Hydro** has operated a Wood Pole Maintenance PMP to utilize wood preservative pesticides within the geographic boundaries of their service area to preserve wood poles on all power line corridors (transmission and distribution lines), road frontage areas (Crown land), private land, municipal land, generation facilities, and electrical facilities throughout their service area, and to control/manage wood pole pests in and on the wood. This current PMP incorporates the principles of IPM and is designed to control and/or eradicate pest species that may cause wood rot or structural damage.

1.2 IDENTIFYING INFORMATION

1.1.1 PERSON RESPONSIBLE FOR MANAGING PESTS

[IPMR Section 58(1)(b)(c)]

Within the **Nelson Hydro**, the person responsible for the management of vegetation on rights-of-way, including transmission corridors, distribution networks and their access roads, and who will be the principal contact for information relating to this pest management plan will be Neal Dermody, Operations and Line Manager, **Nelson Hydro**. Mr. Dermody can be contacted at (250) 352-8213, or at: NDermody@nelson.ca

1.1.2 GEOGRAPHIC BOUNDARIES OF THE PEST MANAGEMENT PLAN (PMP) AREA

This PMP applies to **Nelson Hydro** wood poles on all power line corridors (transmission and distribution lines), road frontage areas (Crown land), private land (on which **Nelson Hydro** has an easement), generation facilities, and at electrical facilities throughout their service area.

Attached hereto and marked as Schedule 1 is a copy of a map depicting the geographic boundaries of the area to which this PMP apply.

1.3 PEST MANAGEMENT PLANS

[IPMR Section 58(1)(a)]

Under the British Columbia *IPMA*, a PMP is defined as a plan that describes:

- A program, for managing pest populations or reducing damage caused by pests, based on integrated pest management; and,
- The methods of handling, preparing, mixing, applying and otherwise using pesticides within the program.

According to the Act the term pesticide means a microorganism, chemical or other materials used to prevent, destroy, repel, or mitigate a pest. Nelson Hydro, its contractors and agents, will use this PMP when carrying out wood pole maintenance throughout their service area.

1.4 ROLE AND TERM OF THIS PMP

This plan permits Nelson Hydro to utilize pesticides, in certain situations, for wood pole maintenance throughout their service area. The plan shall be in force for a five-year period from the date that Confirmation of a Pesticide Use Notice has been obtained.

1.5 PURPOSE AND OBJECTIVES OF THIS PMP

The major purpose for maintaining wood poles is to extend their service life, thereby minimizing replacement costs. The objectives of pest management on wood poles are based on operating and engineering requirements. The treatment of wood poles with wood preservative pesticides is undertaken to prevent decay from wood rot or structural damage from insects, which can lead to pole failure,

increased power outages and reduced worker and public safety. Electrocution from power lines can result in severely disabling injuries or death. As a result, the **Nelson Hydro** must use wood preservative pesticides for liability and safety reasons. The use of wood preservative pesticides reduces the number of poles that have to be replaced (and, thus, the number of trees that need to be harvested), and extends the service life of wood poles by up to five times.

The use of this PMP will ensure:

- Legal accountability with the provisions of the *IPMA* and IPMR*,* as well as all applicable federal, provincial and regional laws and regulations;
- The responsible use of wood preservative pesticides;
- The incorporation and use of the principles of IPM;
- Public awareness of, and input into, the wood pole pest management program; and,
- That the effective use of an IPM program takes into account environmentally sensitive areas and land uses.

2. IPM FOR WOOD POLE MAINTENANCE

Nelson Hydro will utilize the principles of IPM to manage wood rot, wood pests (insects), and mechanical damage caused by pests. IPM means a process for managing pest populations that includes the following activities/elements:

- **Planning (prevention)** to prevent organisms from becoming pests;
- **Identification** of pest species and potential pest problems;
- **Monitoring** pest and beneficial organism populations, pest damage, environmental conditions;
- **Using injury (treatment) thresholds** in making treatment decisions;
- **Suppressing (pest treatment options & method selection)** pest populations to tolerable levels using strategies based on consideration of biological, physical, cultural, mechanical, behavioural and chemical controls in appropriate combinations and environmental and human health protection; and,
- **Evaluating the effectiveness of treatments.**

Each of the above IPM elements form an integral part of the wood pole maintenance program and are discussed in detail later in this document.

2.1 PREVENTION (INCLUDING POLE TEST/TREAT PROGRAM)

The following measures can prevent or reduce the risk of wood pole deterioration:

- Purchase of full-length treated poles or butt poles for new installations and when replacing poles that have failed (described in Section 2.1.1);
- Pole selection criteria (described in Section 2.1.2): and,
- The **Nelson Hydro** pole test/treat program (described in Section 2.3.1).

2.1.1 PURCHASE OF TREATED POLES

Nelson Hydro tries to minimize wood pole deterioration (and reduce the need for using wood preservative pesticide treatments) by purchasing high quality pre-treated, Western red cedar wood poles. **Nelson Hydro** does not purchase or use untreated poles.

Poles purchased prior to 1990 were butt treated (using a thermal process) with an oil-borne preservative and were incised (teeth marks applied to the wood surface) to enhance the penetration of the preservative. Poles purchased after this date have been full-length treated using a pressure vacuum system that results in a much cleaner product. All poles purchased since 1990 have also been subjected to a thermal process that fixes the chemical treatment into the wood and ensures that no wood preservatives enter the environment once the poles have been placed in the ground.

Full-length treated poles generally suffer little decay during the first 20 to 30 years of service life. Butt-treated poles show signs of decay above the treated section, particularly internal decay, earlier than full-length treated poles.

2.1.2 POLE SELECTION OPTIONS

The types of poles currently available for utility use are wood, steel and concrete. 99% of the **Nelson Hydro** poles are Western red cedar and 1% is made of galvanized steel. Wood is used for poles because it is climbable, widely available, and has the lowest cost. Wood poles can be climbed with spurs when bucket trucks are not available or practical to use. Wood poles are derived from a renewable resource.

Concrete and steel poles cannot be easily climbed and usually require bucket trucks to access. Concrete poles are very heavy and require the insertion of pegs for climbing. Compared to wood, they are more easily damaged during transportation and installation. Concrete poles are not used by Nelson Hydro.

2.2 IDENTIFICATION OF SPECIES

[IPMR Section 58(2)b(ii)]

There are two basic groups of pests that attack wood poles: above ground pests and below ground pests. Some pest species can be present both above and below ground.

The main pest species to be controlled under this PMP are:

- Wood-nesting ants (carpenter, cornfield and thatching);
- Termites (pacific dampwood and western subterranean);
- Wood-boring beetle (powderpost, bark, buprestid and longhorned); and,
- Wood-decaying fungi (brown rot, white rot, soft rot).

In addition to the above, mechanical damage to wood poles may result in remedial action having tobe taken. The most common causes of this damage are a result of nesting cavities and bill damage from woodpeckers, mechanical injury from vehicle impact, wear caused by repeated scrapings from truck trailers, farm machinery, lawn maintenance equipment, snow plowing, or constant strikes from water from irrigation equipment. An essential step in the IPM process is to correctly identify the pest problem, so that effective control programs can be implemented. The key to effective control is knowledge of the biology of the pest, including the life cycle, behavioural patterns, and habitat preferences. Once a problem species is identified, the pest manager can look up information on its biology.

Thorough knowledge of target species biology enables the pest manager to:

- Do an accurate job of monitoring a population by inspecting or trapping where a pest is most likely to be present;
- Plan preventative measures that modify the habitat to make it unattractive;
- Use the most appropriate controls at the correct time in the pest life cycle; and,
- Place controls where they will have the most effect.

2.2.1 INSECT PESTS

The presence of one or more of the following signs generally indicates an insect infestation:

- Obvious insect activity (i.e., their visual presence);
- Piles of sawdust-like material or wood fiber at the base of the wood poles;
- Round or oval holes on the surface of the pole; or,
- Galleries (tunnels) under the surface of the wood that may be filled with excrement or other material.

The species of insect can normally be identified by:

- Comparing specimens with an insect collection;

- Referring to pictures or pictorial keys;
- Recognizing characteristics of the damage, excrement or castings (called frass); and,
- Consulting experts for assistance with difficult or unfamiliar species.

Ants

Wood-nesting ants can be found throughout the **Nelson Hydro** service area. Ants are social insects and live in colonies. They hollow out nests in poles for shelter, but they do not eat the wood for food. The hollowing out can lead to loss of structural integrity in the wood poles. The most common identification signs are ants moving around the base of the poles in search of food and piles of sawdust at the pole's base.

Ants tend to be more prevalent in areas that have a high water table (e.g. the **NelsonHydro** service area). They commonly seek out areas of high moisture in and around wood poles and build their nests in damp wood. In most cases, decay is already present in wood before ants begin excavating nests.

Termites

Termites are social insects that live in large colonies. Termites eat wood, which is digested for them by protozoa (microscopic, one-celled organisms) living in their gut. In the fall, large swarms of winged females leave the nest to mate and start new colonies.

Wood-Boring Insects

Most damage by wood-boring insects (such as beetles and wasps) is caused by several different species of powderpost beetles. They are attracted to damp wood and standing poles that already have internal decay. Pole failure is rare, but as the population increases, they may reduce much of the interior of infested wood to a powder.

2.2.2 WOOD DECAYING FUNGI

Three fungal types (brown rot, white rot, and soft rot fungi) can attack the cell walls of the pole, reducing the strength of the pole. Most species enter the pole surface from the soil or through above ground checks or bolt holes. They break down the lignocelluloses complex that makes up the cell walls of the wood, causing structural weakening.

2.3 MONITORING PROGRAM

[IPMR Section 58(2)c]

2.3.1 POLE TEST AND TREAT PROGRAM

In conjunction with new pole purchase policies and maintenance program, the **Nelson Hydro** Pole Test and Treat Program is a preventative, pest monitoring program. The testing and treatment of wood poles involves an evaluation of the integrity of the pole's physical characteristics and serviceability despite deterioration or damage, and taking measures to preserve the service life.

At regular intervals, **Nelson Hydro** conducts testing and treatment of all in-service wood utility poles that are owned or operated by **Nelson Hydro**. The benefit of maintaining wood poles is to extend their service life, thereby minimizing costly replacements. The testing and treatment methods used are designed to ensure public, employee and contractor safety, provide appropriate reliability, and prevent high consequence failures.

The **Nelson Hydro** Pole Test/Treat Program has been designed to prevent the deterioration of the poles from decay fungi and insects. In the program, wood preservative pesticides are applied (or re-applied) before the pests are present as a preventative measure.

2.3.2 FREQUENCY OF MONITORING (MAINTENANCE CYCLES)

Nelson Hydro purchases pre-treated transmission poles that generally suffer little decay during the first 20 years of their life. Poles 16 years of age and older will be inspected as outlined later in this document and receive remedial treatment. Following this inspection, in-service poles shall be inspected in an eight-year cycle. Unless extraordinary circumstances apply, poles newer than 15 years of age will receive external visual inspection only.

Nelson Hydro maintains an eight-year cycle as a preventive program. Even though rot may not yet be present at the time of the maintenance cycle, the risk of incipient rot is significant.

There are exceptions to an established cycle as a preventative program. Changes in road grades or other damage to poles may occur, requiring applicators to go in and treat poles outside the eight-year cycle. Also, there may be infestations of ants and termites that develop off-cycle. These are often identified by homeowners or by line crews while inspecting equipment.

2.3.3 MONITORING METHODS AND DATA COLLECTED

To decide whether wood poles need to stay in service, be replaced, or be stubbed (reinforced with a shorter steel supporting column at the ground line strapped or bolted to the pole), the selected poles are inspected by certified inspectors using conventional visual, sounding, and boring techniques. Annually, contractors for Nelson Hydro inspect and test approximately 1/8 of the pole inventory. Trained pole test/treat contractors inspect all poles. All procedures and standards described later in this section must be followed during the pole test/treat program that is conducted. Strength calculations, outlining the mathematical calculations needed to determine pole structural integrity, are also undertaken to determine what type of treatment is required, if any, to extend the service life of the pole.

2.3.4 ABOVE GROUND INSPECTIONS

2.3.4.1 EXTERNAL ABOVE GROUND INSPECTIONS

This is a visual inspection of the above ground portion of the pole or a pole stub. If obvious damage renders the pole unserviceable or unsafe, the pole must be recommended for replacement. The purpose of above ground external inspection is to identify and document the following defects:

Shell rot: Poles will be evaluated for replacement based on the extent of shell rot and the circumference of the pole.

Checks: Although checks do not significantly reduce pole strength, they do serve as avenues for decay spores to enter the pole. Checks that run across bolt-holes create an unsafe condition and will be documented. Checks that do not run through an entire pole or across bolt-holes are common and do not create a pole hazard.

Breaks/Cracks: These are separations of wood fibers across the axis of a pole (lateral damage), usually as a result of being struck by a vehicle or machinery. This renders the pole unsafe and must be replaced.

Woodpecker damage: Generally, small woodpecker holes, particularly those that follow checks, do not significantly reduce the strength of a pole. A very large woodpecker hole or several smaller woodpecker holes at the same general location can weaken the pole significantly, and may be an indication of insect infestation and / or unsound wood.

Lightning damage: Poles damaged by lightning will be evaluated for replacement depending on surface damage and the circumference of the pole.

Fire damage: Fire damage on the lower body is normally caused by grass or bush fire and is usually only superficial. Signs of such fire damage will be evaluated for replacement depending on surface damage and the circumference of the pole.

Insect Infestation: Poles that are infested with insects they will be inspected by boring and probing.

2.3.4.2 INTERNAL ABOVE GROUND INSPECTIONS

This is an internal inspection of the above ground portion of a pole or stub to detect decay inside a pole. The purpose of above ground external inspection is to identify and document defects as follows:

Probing: Probing is used to detect decay in checks and pockets. It is usually done with a screwdriver or stiff wire. Rot should be suspected when wood yields after firm pressure is exerted on the wood within deep cracks and pockets. Suspicious areas will be investigated by boring. Care must be taken during probing to avoid jabbing into the surface of the pole

or stub, as this may damage fungus resistant wood and allow rot to start in less resistant areas.

Sounding: Sounding is used to detect internal decay of a pole or stub. A hammer is used to strike the surface of the pole from the ground line to as high as can be reached. This process will be repeated for each quadrant of the pole. A sharp ring indicates sound wood, whereas a hollow sound or dull thud indicates hollow heart or decay. Seasonal checks, internal checks, and shell rot can affect the sound. Suspicious areas will be further investigated by boring.

Boring: The condition of the inner wood is determined by boring. When boring, the following shall be recorded:

- The rate of penetration of the drill. Sudden collapse of the wood being drilled indicates decayed wood or hollow heart;
- Powdery wood particles indicate insect infestation or dried out decay; and
- Discoloured wood particles (such as severe darkening) almost always indicate the early stages of internal decay. In the late stages of decay the wood may become soft and spongy, stringy or crumbly. Care must be taken not to mistake sound wet wood for decayed wood. Colour is a good identifier. Sound wood usually has a clean, fresh, resinous smell. A musty or mushroom smell usually indicates decay.

Shell thickness: If internal decay is found above ground by drilling, the shell thickness shall be measured through two additional holes that are drilled, and the pole will be replaced or stubbed, as required.

2.3.5 BELOW GROUND INSPECTIONS

Below ground inspections involve excavating around a pole, as required for proper assessment and treatment of the pole, probing or sounding to detect internal decay, confirming internal decay by drilling, and drilling for internal treatment.

If the pole is rotted through at the ground line or if it is not buried deep enough in the ground, it is considered to be unsafe and will not be excavated. Where poles are set completely in concrete, they are inspected using the above ground inspection procedures only, and will not receive a below ground inspection. If poles are set partially in concrete, the below ground portions of the poles not covered by concrete are inspected.

2.3.5.1 EXTERNAL BELOW GROUND INSPECTIONS

The pole is excavated and the old bandage is removed. If shell rot is present, it is shaved off from the pole using a scraper, wire brush, hatchet, or spud (small shovel).

2.3.5.2 Internal Below Ground Inspections

Pockets and checks are probed and any decay is removed. If there is no visible decay, but internal decay is suspected, drilling is done to confirm. If the effective circumference is equal or greater than the required circumference, drilling at the bottom of the excavation is done to check for decay further down the pole.

2.4 INJURY THRESHOLDS

[IPMR Section 58(2)d]

Nelson Hydro uses the principles of IPM to control wood rot and wood pests in its transmission and distribution poles. The results of the inspections are used to determine what action to take in servicing a pole (i.e., injury thresholds). The options include:

- Pole replacement; or,
- Stubbing; or,
- Treatment with wood preservative.

Prior to undertaking a treatment on a utility pole it is necessary to evaluate the serviceability of the pole. The strength of a pole is related to its physical properties – the larger the diameter and shell thickness, the stronger the pole.

The decision to carry out treatment or to recommend stubbing or replacement depends on the strength and circumference of the pole, the pole loading (equipment on the pole), and whether or not rot or other damage is present (i.e. from the results of the monitoring program). This relationship is illustrated in Table 1:

TABLE 1 CRITERIA FOR DETERMINING TREATMENT OPTIONS

Treatment Technique	CRITERIA FOR DECISION MAKING
Pole Replacement (Non-chemical)	Poles are generally replaced as a result of pole maintenance inspections, or when other parts of the structure are replaced due to age, including cross arm timbers, insulators, and wires. Poles will only be replaced when necessary, to reduce costs and support environmental objectives. Whenever possible, poles will be stubbed. Poles are recommended for replacement when:

	• The strength of the pole is inadequate; • Extensive physical damage above ground is evident; • The effective shell thickness above ground is less than the required value; • Internal decay is evident at the band or bolt locations on a stubbed pole; • The pole is unsafe to climb; or, • The pole is relocated.
Stubbing (Non-chemical)	Wood poles are recommended for stubbing when: • The effective shell thickness below ground is less than the required value; • The effective circumference at the ground line zone is less than the required value; • The below ground line area of a pole is weakened beyond acceptable strength limits (causes of such weakening are biological decay and/or mechanical damage); and, • The above ground portion of the pole must be in good condition and meet the strength requirements.
Treatment with Wood Preservative (Chemical)	The injury thresholds for application of wood preservatives are: • The presence of insects in the wood, which would require immediate treatment; • External treatment at the eight-year treatment cycle, if necessary. If there is no shell rot, no bandage is applied. If shell rot is present, a bandage is applied. If a bandage is already there, the monitoring crew will continue to bandage; or, • Internal treatment at the eight-year treatment cycle, unless the pole is inside a no-treatment zone or other sensitive area.

2.5 WOOD POLE MAINTENANCE TREATMENT METHODS/OPTIONS

[IPMR Section 58(2)e]

As was shown in section 2.4, the 3 treatment methods/options that may be considered under this PMP for wood pole maintenance include

- Replacing wood poles;
- Stubbing wood poles; and,
- Wood preservative treatments (internal and external)

2.5.1 TREATMENT RATIONALE

Currently, all wood poles older than 15 years will be tested and treated with a wood preservative every eight years unless there is an environmental restriction. There are exceptions to an established cycle as a preventative program. There are many benefits to treating wood poles rather than replacing them, including lower cost, extended pole life, fewer service outages, enhanced public and worker safety, less potential environmental damage, conservation of trees, and reduced landfill waste and transportation costs.

2.5.2 NON-CHEMICAL TREATMENT OPTIONS

[IPMR SECTION 58(2)E]

The non-chemical treatment options/methods that may be employed include stubbing and pole replacement. Table 2 provides a description and rationale and the benefits and limitations of each of these non-chemical treatment options/methods.

TABLE 2 DESCRIPTION AND RATIONALE, BENEFITS AND LIMITATIONS OF NON-CHEMICAL TREATMENT OPTIONS/METHODS

Description & Rationale	Benefits/Limitations
Pole Replacement Pole replacement means the removal of an old pole due to damage or rot, and replacement with a new, pre-treated wood pole. The decision to replace a wood pole is based on the results of the shell rot and core rot formulas (i.e., the wood pole is below critical shell thickness or the decay pocket is sufficiently large).	Poles are treated as long as possible before replacement for many reasons (see 2.5.1. Treatment Rationale). Also, with pole replacement, holes must be dug, which means greater soil and environmental disturbance, more use of resources, service interruptions, and greater safety risks to workers and the public caused by pole replacement. Consequently, treatment with preservatives means fewer safety hazards to the public and workers.

	An ancillary benefit of replacing a pole is that it may allow a new pole to be placed into a better location, for example, a spot with easier access, fewer environmental issues, or lower traffic for enhanced public safety.
Stubbing Stubbing is the physical reinforcement of the ground line area of a wood pole using a shorter steel column, or stub, which is fastened to the pole. Although stubs can be made of wood or steel, **Nelson Hydro uses** steel stubs, which are easier to maintain and are less conspicuous and reusable. The primary objective for stubbing wood poles is to delay replacing the pole (usually effective for several years). It must be noted that stubbing does not involve the use of pesticides, therefore stubbing has no effect on the presence of decay fungi or insects. It is strictly a physical reinforcement of the wood pole.	The major advantages of stubbing are that there are no adverse effects on fish, wildlife, or the environment, and no hazards to workers or the environment, other than the need to use power tools for installation. Stubbing allows a delay in replacing the pole for several more years, thereby saving money and trees. The disadvantages of stubbing are that they require specialized installation equipment.

2.5.3 CHEMICAL TREATMENT OPTIONS

[IPMR SECTION 58(2)E]

The chemical methods/techniques proposed for use under this PMP include external bandage treatments, liquid internal treatments, solid internal treatments, and external treatments with insecticides for ant control. A description, rationale for use, and the benefits and limitations of each of these application methods/techniques, is shown in Table 3 (Solid Internal Treatments), Table 4 (Liquid Internal Treatments), and Table 5 (External Treatments):

TABLE 3 DESCRIPTION AND RATIONALE / BENEFITS AND LIMITATIONS OF WOOD PRESERVATIVE SOLID INTERNAL TREATMENT APPLICATION METHODS/TECHNIQUES

Description & Rationale	Benefits/Limitations
Internal Treatments: Solid Internal solid treatments consist of inserting a	The rods have a very low toxicity to aquatic organisms, and are the product of choice near

preservative in the form of solid rods or powder into the wood pole. Solid rods containing disodium octaborate, **or** containing copper + boric acid + disodium octaborate tetraborate are most commonly used and are placed only in sound wood. Applicators drill holes in the pole above and below the ground line, insert the rods into the holes, and seal the holes with plastic or wood treated dowels. These products are used primarily for fungal control, although carpenter ants are also controlled. Mode of action is through disruption of feeding and digestion. When the moisture content of the wood increases above 25% to 30% (where fungal development begins), the rods will slowly dissolve and form boric acid, which is toxic to fungi and some insects such as carpenter ants. The boric acid is water soluble, and will move to all areas with high moisture content.	bodies of water and sensitive riparian areas. Internal treatments using solid rods are very effective, as the released boric acid moves to areas of high wood moisture where the decay fungi and insects are normally located. Within the **Nelson Hydro** service area, the dry climate is conducive to the slow breakdown of the rods, giving their effective wood preservative life in excess of 6 years. Rods also pose less health risk to workers compared to fumigant, and boron application is easier than fumigant. With solid rods, there is no opportunity for spills. A disadvantage to rods is they are about 33% more expensive than wood fumigant.

TABLE 4 DESCRIPTION AND RATIONALE / BENEFITS AND LIMITATIONS OF WOOD PRESERVATIVE LIQUID INTERNAL TREATMENT APPLICATION METHODS/TECHNIQUES

Description & Rationale	Benefits/Limitations
Internal Treatments: Liquid Liquid formulations are used for the internal protection of wood poles against fungal and insect attack. Following inspection, all wood poles receive internal liquid treatments, even if no decay is noted during the inspection, as a preventative measure against fungi that may gain entry through the drilled holes. However, if the pole is located within a no treatment zone (NTZ)*****, the pole will only be tested, not treated.	The fumigant moves vertically above and below the application point (with a small amount of lateral movement), which makes the treatment very effective against internal decay. The treatment is contained within the poles, so there is no effect on people or the environment. The treatment lasts a long time because the chemicals are trapped inside the wood pole and cannot escape. The preservatives generally only become active when the moisture content of the wood is also

	enough (30%) to breed fungi.
Applicators drill a number of holes in the pole above and below the ground line. Using a low volume pressurized sprayer wand attached to a canister, the holes are filled with wood preservative. The holes are sealed with plastic **or** wood treated plugs.	Internal preservatives are more cost-effective than solid preservatives. Limitations include the fact that special handling and application techniques are required, the preservatives have adverse effects on aquatic life, and the preservatives are not as effective below ground because the moisture content is too high. In addition, drill bits are used repeatedly without being sterilized, and could possibly carry pest organisms from pole to pole.
Metam sodium is a fumigant type wood preservative pesticide used to control internal decay caused by fungi. The metam sodium forms a gas (methylisothiocyanate), which acts as a fungicide when in the presence of the acidic wood and moisture. As a gas, the methylisothiocyanate travels rapidly vertically above and below the injection point.	
Boron, present as disodium octaborate tetrahydrate, a water soluble inorganic borate salt, is used to control termites, carpenter ants and powderpost beetles (and fungi) within the wood pole. The diluted product is injected under low pressure into drilled holes near the insect colony, and the drilled holes are then sealed to prevent further pest entry. Depending on the wood species and the moisture content of the wood, the active ingredient can penetrate the wood to varying depths. The insects are killed by ingesting the disodium octaborate tetrahydrate.	

* NTZ is an area of land that must not be directly treated with a pesticide. The required NTZs for wood pole treatments are shown in Table 7.

TABLE 5 DESCRIPTION AND RATIONALE / BENEFITS AND LIMITATIONS OF WOOD PRESERVATIVE EXTERNAL TREATMENT APPLICATION METHODS/TECHNIQUES

Description & Rationale	Benefits/Limitations
External Treatments: Bandages Bandages are paste formulations of wood preservative pesticides that are used as external, below ground treatments on the wood pole surface, the area most susceptible to decay. They are used to stop bacteria and fungi. The active ingredients that may be used in the bandages are copper naphthenate, sodium fluoride and borax. Bandages can be either pre-made by the manufacturer or the active ingredient(s) may be applied onto a piece of poly-backed kraft paper and then applied to the wood pole on site. Poles are only bandaged if external shell rot is already present. The treatment is designed to act as an external barrier to prevent fungi from penetrating the wood, or to prevent the exterior pole surface from decaying further. **Pre-Manufactured Bandages** A gel-type preservative, contained within absorbent material covered on both sides by plastic, is incorporated into the pre-manufactured bandages. The copper naphthenate in the bandage remains in direct contact with the wood after the bandage is applied to the pole using staples, and slowly move into the outer surface of the wood pole (up to 5 cm into the sapwood). **Bandages Made On Site** These bandages require the applicator to apply a layer of the wood preservative paste to plastic-backed kraft paper according to the label instructions. The procedure for applying the finished bandage is the same as with the pre-manufactured bandages. **External Treatments: Insecticides** Insecticides containing the active ingredient bendiocarb can be used to control wood-nesting ants in and around wood poles. The bendiocarb is applied by a low-pressure sprayer to the ant trails surrounding the pole and into visible cracks and crevices on the surface of the pole. Residual activity in the Southern Interior is up to 60 days. Insecticides containing copper naphthenate can be used to control wood decay, termites and mildew.	Both pre-manufactured bandages and bandages made on site are effective in preventing insect and fungal entry into the wood pole and in inhibiting below-ground decay on the pole surface. The advantage of the active ingredient, copper naphthenate, is that it is resistant to leaching by moisture due to its oil solubility. The disadvantage of the copper naphthenate is that it remains near the wood surface in the area where the bandage was applied, thus giving only limited effectiveness in eradicating internal decay, but proving excellent control of fungi on the wood pole surface. Using a combination of the copper naphthenate and sodium fluoride gives the advantage that the sodium fluoride moves fully into the sapwood, thus providing good control of interior decay. Copper naphthenate can be toxic to aquatic organisms. This product contains a petroleum distillate which is moderately to highly toxic to aquatic organisms. Avoid contamination of aquatic systems during application. Bendiocarb can be toxic to bees, fish and mammals. Avoid contamination of aquatic systems during application

Table 6 lists the active ingredients, examples of trade names of each wood preservative proposed for possible use under this PMP, the PCP Act Registration number of each trade name, and the equipment/method/technique required for their application.

TABLE 6 IDENTIFICATION OF THE WOOD PRESERVATIVES PROPOSED FOR USE, THEIR ACTIVE INGREDIENT, AND EXAMPLES OF TRADE NAMES, PCP ACT REGISTRATION #, AND EQUIPMENT/METHOD/TECHNIQUE REQUIRED FOR APPLICATION

Active ingredient(s)	Trade Name (PCP #)	Equipment Required
EXTERNAL TREATMENT: BANDAGE		bandage, stapler, shovel, scraper
copper naphthenate and sodium fluoride	Cop-R-Plastic Wood Preserving Compound (25708)	
copper, present as elemental copper naphthenate	CobraWrap (23582)	
copper naphthenate and borax	CuRap 20 Wood Preservative Paste (22083)	
INTERNAL TREATMENTS: LIQUID		drill, hand pump sprayer, plug
metam sodium (anhydrous)	Guardsman Post and Pole Fumigant (19343)	
boron, present as disodium octaborate tetrahydrate	Tim-Bor Professional (24091)	
metam sodium	Woodfume (17110)	
boron, present as disodium octaborate tetrahydrate	GenBor RTU (28154)	
boron, present as disodium octaborate tetrahydrate	Can-Bor (29941)	
INTERNAL TREATMENTS: SOLID		drill, hammer, plug
disodium octaborate (boron)	Impel Rods II (Boron Rods for Remedial Treatment of Utility Poles) (23398)	
disodium octaborate tetraborate + elemental copper present as copper hydroxide + boric acid	CobraRod (25580)	
EXTERNAL TREATMENTS: INSECTICIDES		hand pump sprayer
copper, present as elemental copper naphthenate	Genics CuNap (28527)	
bendiocarb	Ficam W (14378)	
bendiocarb	Ficam D (16080)	
copper, present as elemental copper naphthenate	CU-89 Wood Preservative Solution (21859)	

2.6 POST-TREATMENT EVALUATIONS

[IPMR SECTION 58(2)F]

All applications of wood pole preservation pesticides will be conducted under contracts issued to qualified companies in possession of a valid Pesticide User Licence. All applications of wood pole preservation pesticides will be made by certified pesticide applicators in the appropriate category of certification or supervised by certified pesticide applicators in the appropriate category of certification. A representative sample of the wood poles that are tested and treated with wood preservatives will be visually inspected by Nelson Hydro to determine:

- The efficacy of the work that has been undertaken by the contractor;
- Compliance with the commitments made in this PMP and with the *IPMA* and IPMR;
- If required NTZs and buffer zones were maintained;
- If any negative environmental impacts have occurred; and,
- If corrective actions are required.

3. ENVIRONMENTAL PROTECTION STRATEGIES AND PROCEDURES

All pest management activities undertaken under this PMP (both chemical and non-chemical) incorporate measures designed to protect the natural environment including:

- Strategies to protect community watersheds;
- Strategies to protect domestic and agricultural water sources;
- Strategies to protect fish and wildlife, riparian areas, bodies of water and wildlife habitat;
- Strategies to prevent wood preservative pesticide contamination of food intended for human consumption;
- Pre-treatment inspection procedures for identifying treatment area boundaries;
- Procedures for monitoring weather conditions and strategies for modifying wood preservative pesticide application methods for different weather conditions; and,
- Procedures for pre-treatment inspections to ensure protection of human health and the environment during treatment period.

In this PMP, all NTZs will comply with the standards contained in Division 7 of the IPMR.

3.1 STRATEGIES TO PROTECT COMMUNITY WATERSHEDS

A community watershed is defined under the BC ***Forest & Range Practices Act*** (FRPA) [SBC 200 Chapter 69] all or part of the drainage area that is upslope of the lowest point from which water is diverted for human consumption by a licensed waterworks. Community watersheds must also be designated under the Government Actions Regulation.

Prior to the application of wood preservative pesticides, Nelson Hydro shall implement the following strategies to protect community watersheds:

- If required, the contractor shall verify the locations of community watersheds by accessing the Community Watershed Database at the following web site:

  http://www.env.gov.bc.ca/wsd/data_searches/comm_watersheds/index.html

- The contractor shall ensure that wood preservative pesticides will not be stored within a community watershed for more than 24 hours prior to their use, and removed from the community watershed within 7 days of their use, unless they are stored in a permanent structure; and,

- Wood preservative pesticide use will be discontinued if pesticide residues or pesticide breakdown products are detected at a community watershed water intake, and further use will not be undertaken until the BC Ministry of Health Services (Medical Health Officer) has been satisfied that all required measures have been implemented to preserve water quality.

3.2 STRATEGIES TO PROTECT DOMESTIC/AGRICULTURAL WATER SOURCES, GROUNDWATER SOURCES, SURFACE WATER INTAKES, AND BODIES OF WATER

In order to protect domestic and agricultural water sources, groundwater sources, surface water intakes, and bodies of water during wood preservative use, **Nelson Hydro** and their contractors shall maintain the NTZs shown in Table 7. Efforts will be made to identify these environmental features requiring protection prior to the application of wood preservative pesticides by visually surveying areas adjacent to poles, and by consulting available databases and local governments.

TABLE 7 NO TREATMENT ZONES (NTZ) [IPMR SECTION 79(1)(2)(3)(4)]

Product	Fish Bearing Stream	Non-Fish Bearing Stream-Wet	Non-Fish Bearing Body of Water-Dry (provided pole is >10m from fish-bearing body of water)	Water Well (surface or drilled)	Point of Diversion (water intake)

Solid Internal Preservative	1 m NTZ	0 m NTZ (above water line)	0 m NTZ (above and below groundline)	10 m NTZ	5 m NTZ upslope
Liquid Internal Preservative	3 m NTZ	1 m NTZ	0 m NTZ (above and below groundline)	10 m NTZ	10 m NTZ upslope
External Brush-on Treatment	3 m NTZ	1 m NTZ	1m NTZ	10 m NTZ	10 m NTZ upslope
Groundline Bandages	3 m NTZ	1 m NTZ	1 m NTZ	10 m NTZ	10 m NTZ upslope

It must be noted that liquid internal preservatives will only be applied to that portion of the woodpole that is permanently above the waterline, and that solid internal wood preservatives may be applied to wood poles in locations that may be below the water table during certain times of the year, provided that the streams are non-fish bearing.

3.3 STRATEGIES TO PROTECT FISH/WILDLIFE, RIPARIAN AREAS AND SPECIES AT RISK

Nelson Hydro and their contractors shall adopt the following strategies to protect fish and wildlife (and their habitat), riparian areas, and species at risk during the application of wood preservative pesticides:

- Caution will be exercised when working around bodies of water so as not to threaten their integrity;
- Prior to the application of wood preservative pesticides, the boundaries of any required NTZ shall be established;
- During below ground inspections, if water fills the excavation, only solid rods (i.e. boron rods) will be used in above ground portions of the pole, in compliance with the NTZs listed in Table 7; and,
- Poles sitting in water will be inspected and treated only if permitted by the designated NTZs (i.e., the water around the pole must not lead directly to fish bearing waters).

Endangered wildlife species are protected under the federal *Species At Risk Act* (SARA). Woodpeckers and other cavity-nesting species of wildlife are the only species at risk that may be present in wood poles requiring remedial treatment. It must be stated that remediation efforts are aimed solely at the damage caused by these species, not in controlling them.

Woodpecker holes that are small, particularly those that follow checks, do not significantly reduce the strength of a pole. A large woodpecker hole or several smaller woodpecker holes in close proximity will significantly affect the structural integrity of the pole. Generally, if only woodpecker damage is causing the loss of structural integrity, the cavities are filled with a rubber epoxy compound (non-pesticidal) or the pole is replaced. The filling of the cavities also serves to prevent the collection of moisture and increasing the chances of decay, and enhanced climbability of the poles.

In many cases, the presence of woodpecker holes also indicates an insect infestation and /or unsound wood, which may necessitate the use of wood preservation pesticides. Since woodpeckers attack the top portions of wood poles, they will not come into contact with wood preservation pesticides that are only applied at or near the ground line.

3.4 Strategies to Prevent Contamination of Food for Human Consumption

Wood preservative applications are generally not made in close proximity to areas where food for human consumption is found or grown (e.g., fruit trees, berries or vegetable gardens). Where wood preservative use occurs near these areas, applicators will use extreme caution.

There is minimal leaching of wood preservative pesticides into surrounding soil or water. Treatment is never undertaken in standing water, such as cranberry bogs. In the vicinity of certified organic farms, it is the responsibility of the grower to maintain appropriate buffers between their organic crops and power poles. As recommended by the Certified Organic Associations of BC (Standard #3, Land and Resource Management), buffer strips 8 meters wide (containing a hedge row or trap crop where feasible) shall be located between certified organic crops and the wood pole.

3.5 Pre-Treatment Inspection Procedures for Identifying Treatment Area Boundaries

Procedures shall be implemented to ensure that treatment area boundaries (i.e., poles requiring testing and treatment) are identified prior to wood preservative applications. A pre-treatment meeting shall be conducted with the contractor to ensure that poles requiring testing and treatment are identified, and that the location of environmentally sensitive areas and required NTZs are known.

3.6 Procedures for Maintaining and Calibrating Wood Preservative Application Equipment

Calibration of application equipment for use of wood preservative pesticide application is not required. For external bandage treatments, label directions on the pre-made bandages call for using a bandage of a size related to the circumference of the wood pole being treated. For bandages made on site, label directions specify making a layer of the wood preservative on kraft paper of a certain thickness. For liquid

internal wood preservatives, label the directions specify drilling a certain number of holes and applying a certain volume of product into the drilled holes using low pressure application equipment. For solid internal wood preservative use (i.e., rods), the number of rods to be inserted is specified on the wood preservative product label. For the use of the pesticide active ingredients bendiocarb or copper naphthenate for insect control, low-pressure equipment is used to apply a specified percentage concentration of the active ingredient to cracks and crevices on the wood pole and to ant trails at the base of poles.

3.7 PROCEDURES FOR MONITORING WEATHER CONDITIONS AND STRATEGIES FOR MODIFYING WOOD PRESERVATIVE APPLICATION METHODS FOR DIFFERENT WEATHER CONDITIONS

Weather conditions are not monitored during the application of wood preservative pesticides. The only pesticide active ingredients that are applied as a spray are bendiocarb and copper naphthenate for insect control. Although there are no restrictions on the respective product labels with respect to monitoring of weather conditions, they will only be applied when winds are less than 8 km/hour.

3.8 WOOD PRESERVATIVE TREATMENT SIGNS

Wood pole maintenance using wood preservative pesticides is generally undertaken in locations where public, bystander or wildlife contact with the products used will not occur. Wood preservatives are either applied below ground (bandages) or injected or inserted into the wood pole (internal liquid and solid treatments, respectively), and the drilled holes sealed. Bendiocarb is only applied to cracks and crevices on the base of the pole or on ant trails at the base of poles.

All inspected and treated wood poles will be marked with a tag identifying the date of the treatment. (note: **Nelson Hydro** will maintain a data base that will indicate the treatment method that was used on each pole). Tags will be placed approximately 2 meters above ground line on the road side of the pole. All tags will be attached to the pole with a screw shank aluminum roofing nails. Poles that have been recommended for rejection will have a red 3” x 3” (7.5 cm x 7.5.cm) red plastic tag and a red XXX ribbon around the pole. Poles recommended for stubbing will have a 3” x 3” (7.5 cm x 7.5.cm) blue plastic tag and a red XXX ribbon around the pole.

4. OPERATIONAL INFORMATION

The operational information included in this section includes:

- Qualifications and responsibilities of persons applying wood preservative pesticides;
- Procedures for safely transporting wood preservative pesticides;
- Procedures for safely storing wood preservative pesticides;
- Procedures for safely mixing, loading and applying wood preservative pesticides;
- Procedures for the safe disposal of empty wood preservative pesticide containers and unused wood preservative pesticides; and,
- Procedures for responding to spills of wood preservative pesticides.

4.1 QUALIFICATIONS AND RESPONSIBILITIES OF PERSONS APPLYING WOOD PRESERVATIVES

All wood preservative pesticide applications will be conducted or supervised by a person who holds a Pesticide Applicator Certificate endorsed for the class of pesticide and the pesticide use required for the application of wood preservative pesticides under this PMP.

The responsibilities of the Certified Pesticide Applicator are to**:**

- Be in continuous attendance at the site;
- Have available proof of certification;
- Supervise no more than 4 uncertified assistants at one time;
- Maintain continuous contact, auditory and/or visual, with the uncertified assistants;
- Be within 500 meters of persons being supervised; and,
- Comply with the standards contained in Division 7 of the IPMR.

4.2 PROCEDURES FOR SAFELY TRANSPORTING WOOD PRESERVATIVE PESTICIDES

Personnel shall follow these procedures for safely transporting wood preservative pesticides:

- Limit the amount of wood preservative pesticides that will be carried in any one vehicle. The quantity shall be no more than what is necessary for each project, except where transportation occurs between storage facilities;

- Ensure that wood preservative pesticides are carried in a compartment that is secured against spillage and unauthorized removal. The compartment shall be separate from food and drinking water, safety gear, spill containment equipment and people;

- Inspect all wood preservative pesticide containers for defects prior to transporting. Keep wood preservatives in their original containers and with original labels. If original labels are not available, the wood preservative pesticides shall be placed in appropriate containers that have the trade name, active ingredient concentration and pesticide registration number affixed to the outside of the container;

- Ensure that the vehicle is equipped with a first aid kit, fire extinguisher, spill contingency plan and kit, and that the vehicle operator has been trained on how to handle spills;

- Ensure that all documents and placards are carried in, or placed on, transport vehicles if required under the *Transportation of Dangerous Goods Act*, the *IPMA* or the IPMR; and,

- Read and understand the wood preservative pesticide labels and the product Material Safety Data Sheet (MSDS) for all wood preservative pesticides being transported.

4.3 PROCEDURES FOR SAFELY STORING WOOD PRESERVATIVE PESTICIDES

Personnel shall follow these procedures for safely storing wood preservatives:

- Ensure that wood preservative pesticides are stored in accordance with the *IPMA*, IPMR and the WorkSafeBC document *Standard Practices for Pesticide Applicators*;

- Keep wood preservative pesticides in their original containers and with original packaging. If original packaging is not available, the wood preservative pesticides shall be placed in appropriate containers that have the trade name, active ingredient concentration and pesticide registration number affixed to the outside of the container;

- Ensure that storage facilities are locked when left unattended, ventilated to the outside atmosphere, are entered only by persons authorized to do so, and that there is a placard

  affixed and maintained on the outside of each door leading into the storage area bearing, in block letters that are clearly visible, the words “

  WARNING – CHEMICAL STORAGE – AUTHORIZED PERSONS ONLY”; and,

- Keep storage facilities separate from work and living areas, and away from food, flammable materials, bodies of water and water sources.

4.4 PROCEDURES FOR SAFELY MIXING, LOADING AND APPLYING WOOD PRESERVATIVE PESTICIDES

Personnel shall follow these procedures for safely mixing, loading and applying wood preservatives:

- Ensure that all mixing, loading and application of wood preservative pesticides is carried out by Certified Pesticide Applicators, and that all manufacturer's recommendations, as specified on the wood preservative pesticide labels, are adhered to;
- Ensure that all mixing, loading and application of wood preservative pesticides is undertaken in a safe manner. All mixing and loading shall be undertaken only in areas at least 15 meters from, and selected to prevent, any spilled wood preservative pesticides from entering the NTZ, bodies of water, fish or wildlife habitat, water sources, or other environmentally sensitive areas;
- Ensure that containers used to mix, prepare or apply wood preservative pesticides are not washed or submerged in any body of water;
- Ensure that eye wash station(s), protective clothing, safety spill kits, spill response plans, a copy of this plan, each wood preservative pesticide products' MSDS, emergency telephone numbers and first aid supplies are present and available at or near the treatment site; and
- To follow all directions and restrictions on wood preservative pesticide labels, including adhering to the recommended re-entry times to treated areas unless personal protective equipment is worn.

4.5 PROCEDURES FOR THE SAFE DISPOSAL OF EMPTY WOOD PRESERVATIVE PESTICIDE CONTAINERS AND UNUSED WOOD PRESERVATIVE PESTICIDES

Personnel shall follow these procedures for safely disposing of empty wood preservative pesticide containers and unused wood preservative pesticides:

- Ensure that all wood preservative waste is disposed of in a manner consistent with the requirements of the BC *Waste Management Act* and the Special Waste Regulations, as appropriate;
- Ensure that empty wood preservative pesticide containers are returned to the distributor as part of their recycling program; or triple rinsed or pressure rinsed, altered so that they cannot be reused, and disposed of in a permitted sanitary landfill or other approved disposal site; and
- Ensure that all leftover wood preservative pesticides are stored for future use in a manner consistent with the requirements specified in Section 4.3 above.

4.6 PROCEDURES FOR RESPONDING TO WOOD PRESERVATIVE SPILLS

Personnel shall follow these procedures for responding to wood preservative pesticide spills. If contractors that work under this PMP have their own spill response plan, they must meet or exceed the following plan:

- Spill treatment equipment shall be present or near storage (including mobile storage), mixing and loading sites and shall include: personal protective equipment, absorbent material, neutralizing material, a long handled broom, shovel, and a waste-receiving container with lid;
- A copy of an approved spill response plan shall be at or near each work site, and all personnel working on the project shall be familiar with its contents;
- All personnel shall be protected from wood preservative contamination by wearing appropriate protective clothing and safety gear;
- Any person exposed to a wood preservative pesticide shall be moved away from the place of the spill;
- First aid shall be administered, if required;
- The source of the spill shall be stopped;
- The spilled material shall be stopped from spreading by creating a dam or ridge;
- The project supervisor shall ensure that operations cease until the spill is contained and the source is repaired;
- Absorbent material shall be spread over the spill, if applicable, to absorb any liquid;
- The absorbent material shall be collected in garbage bags or containers with contents clearly marked;
- Contaminated soil or other material shall be removed from the spill site and placed in garbage bags or containers;
- The person responsible for the project shall advise **Nelson Hydro** and the MoE for shipping instructions and disposal requirements;
- When more than 5 liters or 5 kg of wood preservative pesticides are spilled, the person responsible for the project shall immediately report to the BC Provincial Emergency Program by telephoning 1-800-663-3456 or, where that is not practical, to the local police or nearest detachment of the RCMP; and,
- An approved representative of **Nelson Hydro** shall be notified of the details related to the spill as soon as practical by the Contractor project supervisor.

5. REPORTING, NOTIFICATION AND CONSULTATION

5.1 REPORTING

Accurate record keeping allow **Nelson Hydro** and the Administrator, *IPMA,* to monitor the quantity of wood preservative pesticides used, and to ensure compliance with the *IPMA* and IPMR*,* the commitments made in this PMP, and the contents of the Pesticide Use Notice. **Nelson Hydro** will ensure that each of the required records described below are maintained.

5.1.1 CONFIRMATION HOLDER PESTICIDE USE RECORDS

Each contracting firm that applies wood preservative pesticides for **Nelson Hydro** must maintain daily pesticide use records of wood preservative pesticide use.

Section 37(1) of the *IPMR* describes the requirements for these records. The following records must be kept for each treatment location and day of use:

- The date and time of the wood preservative pesticide use;
- The name of the pest targeted by the use or the purpose of the wood preservative pesticide use;
- The trade name of each wood preservative pesticide used and its registration number under the federal Act;
- For each wood preservative pesticide used, the method and rate of application and the total quantity used; and,
- For the wood preservative pesticide active ingredients bendiocarb and copper naphthenate that are applied as a spray are for insect control, the prevailing meteorological conditions including temperature, precipitation and velocity and direction of the wind. These conditions should be measured at the beginning of each day before starting treatment, re-measured if obvious changes in environmental conditions occur throughout the day, and re-measured at the end of any treatment day.

5.1.2 ANNUAL SUMMARY OF USE REPORT FOR CONFIRMATION HOLDERS

In accordance with Section 39 of the IPMR, **Nelson Hydro** or the Contractor will provide to the Regional Administrator, *IPMA,* the following information for each calendar year by January 31 in the next calendar year for operations conducted under this PMP during the calendar year:

- The name and address of the confirmation holder, and their confirmation number;
- Trade names and active ingredients of the wood preservative pesticides applied, including their PCP numbers;
- Locations and total area treated (ha);

- Methods used to apply the wood preservative pesticides;
- Quantity of each active ingredient applied (kg); and,
- Methods of non-pesticide pest controls used and the estimated total area of their use.

5.2 NOTIFICATIONS

Nelson Hydro commits to providing the following notifications with respect to this PMP:

5.2.1 NOTIFICATION OF PMP CONFIRMATION

Nelson Hydro will, within 7 days of the plan confirmation date, make available, for the term of the confirmation, a copy of the confirmation and the PMP with relevant maps at their local offices to allow inspection by the public.

5.2.2 ANNUAL NOTICE OF INTENT TO TREAT

Nelson Hydro will forward, in writing, to MOE, at least 21 days prior to treatment in each year during which the PMP is in effect, an Annual Notice of Intent to Treat (NIT) for the following year. The NIT will be submitted to each Regional Office of MOE within whose geographic boundaries wood preservative pesticide applications are being proposed. The NIT will identify:

- Name and business location of confirmation holder(s);
- Proposed treatment methods;
- Wood preservative pesticides proposed for use and their method of application; and,
- Estimated area proposed for treatment.

As per IPMR Section 42, for the purpose of an annual Notice of Intent to Treat (NIT), **Nelson Hydro** will prepare and retain a map and/or diagram showing the treatment locations for the applicable calendar year, which indicate the following for each treatment location:

- The proposed treatment areas; and

- The geographic features that require a pesticide-free zone or a no-treatment zone.

5.2.3 REQUESTS TO AMEND THE PMP

Nelson Hydro will forward, in writing, to the Ministry of Environment, amendments requested for the PMP. Amendment requests to add new application techniques or similar changes will not require further consultation, provided that the amendment request is within land owned or controlled by **Nelson Hydro.** Amendments to add new active ingredients will require further public consultation.

5.2.4 NOTIFICATION OF CONTRAVENTIONS

Section 72(1)(d) of the IPMR requires that a confirmation holder give written notice to the administrator on a contravention of the *IPMA* or IPMR that involves the release of a pesticide into the environment. **Nelson Hydro** commits to abiding by this requirement.

5.2.5 PUBLIC NOTIFICATION PRIOR TO TREATMENT

Notification of individuals, communities and organizations in the time and manner if agreed during the public consultation process, will be completed prior to treatments. **Nelson Hydro** will maintain a record of all public notifications for each treatment area.

5.2.6 EMPLOYEE NOTIFICATION PRIOR TO TREATMENT

Nelson Hydro will provide internal notification to all potentially affected employees in advance of all wood preservative pesticide treatments. Employee notification is not normally conducted in advance of non-pesticidal control methods such as mechanical cutting or manual removal of wood poles.

5.3 CONSULTATIONS

5.3.1 PUBLIC CONSULTATION PLAN

Prior to submitting a Pesticide Use Notice to the Ministry of Environment for PMP

confirmation, Nelson Hydro will carry out a public consultation process. The objectives of conducting public consultations when this PMP is at the draft stage are:

- To increase public awareness of the PMP process and of the principles of IPM which are embodied in the PMP;
- To ensure that the public have an opportunity to identify concerns, and for Nelson Hydro to address those concerns, before the PMP is finalized and submitted and a Pesticide Use Notice submitted for confirmation;
- To ensure a transparent and accountable review process for the PMP;
- To educate the public on the need to maintain the integrity of their wood poles; and,
- To explain how the planning process that is described in the PMP recognizes the need to protect human health and the environment.

The public will be consulted on the PMP development via notices in local community newspapers that have circulation within the geographic boundaries of the PMP area. As per Section 61(1) of the IPMR, at least 45 days before submitting a Pesticide Use Notice, the first of 2 notices, at least 40 cm2 in size, will be published within a 2 week period in newspapers circulated in the various communities (or nearest communities).

During the public consultation process, the draft PMP will be accessible to the public, as stated in the public notifications.

5.3.2 PUBLIC CONSULTATION REPORT

Nelson Hydro will submit to the Administrator, *IPMA,* a Public Consultation Report that contains:

- A summary of public consultations, including the names and addresses of those who provided input, the nature of their concerns and/or recommendations, and the **Nelson Hydro** response to the input from the public; and,

- A list of newspapers in which notification of the pending PMP submission appeared, along with the publication dates and a photocopy or tear sheet of a representative advertisement.

5.3.3 FIRST NATIONS CONSULTATION

The proposed treatment areas covered by this PMP are considered to be alienated industrial sites where the possibility of infringement of aboriginal rights is low. In order to facilitate Ministry consideration of the adequacy of First Nations consultations and of the Nelson Hydro response to any issues raised, Nelson Hydro will prepare a report that describes the consultation process and outcomes. This report will be submitted to the Administrator, *IPMA,* in conjunction with the submission of the Pesticide Use Notice application.

Schedule 1 – Map of City of Nelson/Nelson Hydro Service Area